

PERMITS, RENEWALS, & MODS Application



JUN 2 2 1992 OIL CONSERVATION DIV. SANTA FE

THE WESTERN COMPANY OF NORTH AMERICA FARMINGTON, NEW MEXICO FACILITY

DISCHARGE PLAN APPLICATION FOR OIL FIELD SERVICE FACILITIES

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I TYPE OF OPERATION

The Western Company of North America, Farmington, New Mexico Facility provides cementation, acidizing and high pressure pumping services for oil and gas wells.

II OPERATOR: The Western Company of North America

ADDRESS: 3250 Southside River Road Farmington, New Mexico 87401

CONTACT PERSON: Phillip Box

PHONE: 713/629-2861

 III LOCATION: W1/2 SW1/4 NW1/4 Sec 13 & E1/2 SE1/4 NE1/4 Sec 14 T29N, R13W, NMPM, San Juan Co., Farmington, New Mexico

TOPOGRAPHIC MAP: Figure III.1

IV OWNER: The Western Company of North America

ADDRESS: 515 Post Oak Blvd., Ste. 915 Houston, TX 77027-9407 713/629-2861

FIGURE III.1

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LOCATION - TOPOGRAPHIC MAP



ns taken 1964 and by planetable s tograp 1°41: 30 MILS Bureau of Reclamation 1965. Field checked by USGS 1965 Polyconic projection. 1927 North American datum 10,000-foot grid based on New Mexico coordinate system, west zone 1000-meter Universal Transverse Mercator grid ticks, UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET zone 12, shown in blue Red tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence lines

To place on the predicted North American Datum 1983 move the projection lines 2 meters north and 56 meters east as shown by dashed corner ticks

Revisions shown in purple compiled from aerial photographs taken 1978 and other source data. This information not field checked. Map edited 1979

Purple bot indicates extension of urban areas

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

CONTOUR INTERVAL 20 FEET DOTTED LINES REPRESENT 10-FOOT CONTOURS NATIONAL GEODETIC VERTICAL DATUM OF 1929

1 KILOMETER

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NEW MEXICO

QUADRANGLE LOCATION

U.S. Route

State Route

FARMINGTON SOUTH, N. MEX.

N3637.5-W10807.5/7.5

1965 PHOTOREVISED 1979 DMA 4357 II NW-SERIES V881

SECTION V

FACILITY DESCRIPTION & DIAGRAM

The Western Company of North America (Western) provides cementing, acidizing and high pressure pumping services to oil and gas well operators in the Farmington, New Mexico area. The principal materials stored and utilized in the servicing operations at the wellhead include: hydrochloric acid, cement sand and liquid and dry chemical additives.







SECTION VI

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MATERIALS STORED

CHEMICALS USED AT THE FARMINGTON, NEW MEXICO FACILITY

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	PRODUCT	<u>TYPE</u>	<u>STORED</u>	WESTERN <u>Container</u>	<u>WIN NO.</u>	HAZ <u>No.</u>	LB/GAL. QUANTITY
	AB-54	S	WAREHOUSE	50 LB BAG	100142	60	550 L
	ACID, ACETIC ACID, AC-2	Ĺ	WAREHOUSE	55 GAL PLASTIC DRUM	100174	60	231 G
	ACID, BORIC	S	WAREHOUSE	50 LB BAG	100158	NA	200 L
	ACID, CITRIC	L	WAREHOUSE	55 GAL PLASTIC DRUM	100091		111 G
-	ACID, FORMIC	L	WAREHOUSE	55 GAL PLASTIC DRUM	100097	60	55 G
	ACID, FUMARIC	S	WAREHOUSE	50 LB BAG	100409	31	300 L
	ACID, HCL 22°	L	TANK	ABOVEGROUND	100088	60	56,629 G
	ACID, SULFAMIC	S	WAREHOUSE	50 LB BAG	100095	60	200 L
		L		SS GAL STEEL DRUM	499520	26	55 6
				SS GAL STEEL DRUM	10008	20	55 6
		1	WAREHOUSE	5 GAL PLASTIC PATI	100280	26	20 G
	AMMONTUM HYDROXIDE	L	DRUM STORAGE	55 GAL PLASTIC DRUM	100223	60	1.238 G
	AQUAFLOW	Ē	WAREHOUSE	55 GAL STEEL DRUM	100146	26	447 G
	AQUASEAL 2	S	WAREHOUSE	50 LB BAG	100147	NA	534 L
	ASA-300	S	WAREHOUSE	50 LB BAG	499685		100 L
	ASP-530, ASP-539D	L	WAREHOUSE	5 GAL PLASTIC PAIL	100125,100126	NA	35 G
-	ATACLAY	S	WAREHOUSE	50 LB BAG	100274	NA	600 L
	B-5	S	WAREHOUSE	50 LB BOX	100175	35	1,200 L
	B-11	S	WAREHOUSE	50 LB BOX	100185	NA	800 L
	B-16	S	WAREHOUSE	50 LB BAG	100130	NA	1,575 L
-	BARITE	S	WAREHOUSE	100 LB BAG	100356	NA	2,383 L
		S	SILU		100120	NA 01	60,000 L
	BUFFER Z	5	WAREHUUSE	SU LB BAG	100149	21	1,200 L
	DUFFER 4	3		SU LO DAG	100237	NA	1,000 L
-	CELLO SEAL	L C		25 LB BAG	100205	NA	1 440 G
	CELEG SERE	5	STIN		100223	NΔ	245 998 I
1	CE-2 CE-9	S	WAREHOUSE	50 LB BAG	100267 100270	NA	1 144 I
	CF-10	Š	WAREHOUSE	50 LB BAG	100271	NA	1.552 L
-	CF-14	S	WAREHOUSE	50 LB BAG	499508	NA	613 L
	CF-18	S	WAREHOUSE	55 LB BAG	499604	NA	770 L
	CL-2L	L	DRUM STORAGE	55 GAL PLASTIC DRUM	499630		330 G
	CL-9	L	WAREHOUSE	55 GAL STEEL DRUM	100150	26	341 G
	CL-14	L	WAREHOUSE	55 GAL PLASTIC DRUM	100377	26	150 G
	CL-30	L	WAREHOUSE	55 GAL STEEL DRUM	499644		179 G
	CLAY MASTER 4	L	WAREHOUSE	55 GAL PLASTIC DRUM	499545		165 G
		L	DRUM STORAGE	55 GAL PLASTIC DRUM	499653	2/	440 G
		L	WAREHUUSE	55 GAL STEEL DRUM	499521	26	110 G
_	DIESEL 2	L		ABOVECDOUND	499090	26	299 6
		C C			100305	20	203 G
	FF-200	1	WARFHOUSE	55 GAL STEEL DRUM	100293	26	150 L 55 G
-	FLO BACK 10	i i	WAREHOUSE	55 GAL STEEL DRUM	100462	20	395 G
	FLO-LOK 1	S	WAREHOUSE	50 LB BAG	100393	NA	605 L
	FR-28	Ĺ	WAREHOUSE	55 GAL STEEL DRUM	499514	NA	885 G
	FRAC CIDE 20	L	WAREHOUSE	6 GAL JUG	100486	NA	180 G
	FRAC FOAM 1	L	WAREHOUSE	55 GAL PLASTIC DRUM	100362	26	110 G
_	FRAC FOAM 2	L	WAREHOUSE	55 GAL PLASTIC DRUM	499669	27	784 G
	FS-2	L	WAREHOUSE	55 GAL STEEL DRUM	100167		110 G
	FUMED SILICA	S	WAREHOUSE	50 LB BAG	499588	NA	6,188 L
-	GEL MASTER	S	WAREHOUSE	50 LB BAG	100214	NA	935 L
-		5			100294	NA	36,537 L
	HI-SEAL Z	5		SU LB BAG	499634	NA	5,379 L
	T_8A	L		SS GAL STEEL DRUM	499041	NA	55 G
-	I 0A	. L	WAREHOUSE	55 GAL STEEL DRUM	499618		55 6
_	I-17A	i	WAREHOUSE	55 GAL STEEL DRUM	499620	29	55 G
	I-18A	Ĺ	WAREHOUSE	55 GAL STEEL DRUM	499621	20	165 G
	J-20	S	WAREHOUSE	50 LB BAG	499517	NA	5.020 L
	I-22	L	WAREHOUSE	55 GAL STEEL DRUM	499655	••••	141 G
	J-20LP	S	WAREHOUSE	1000 LB BAG	499572		4,000 L
	J-257W	L	WAREHOUSE	55 GAL PLASTIC DRUM	100256	26	55 G
	J-4	S	WAREHOUSE	50 LB BAG	499541	NA	6,649 L
	J-4LP	S	WAREHOUSE	1000 LB BAG	499598		9,000 L
-	LI-1/, LI-21, LT-22	L	WAREHOUSE	55 GAL STEEL DRUM	100135,100138,100136	26	532 G
	LI-25	L	WAREHOUSE	55 GAL SIEEL DRUM	100144	26	55 G
	L1-32	L	WAKENUUSE	DO GAL SIEEL URUM	499084		55 G

W.I.N. 100142, INTENSIFIER, acid, Ammonium Bifluoride, AB-54

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MATERIAL SAFE CORPORATE RESEAR SCHENECTA Phone: (518) 385-4085 SECTION I. MATERIAL II MATERIAL NAME: AMMONIUM BIF OTHER DESIGNATIONS: Acid A GE D4Y MANUFACTURER: Material ava Harshaw Chem	TY DATA SHE CH & DEVELOPMENT ADY, N. Y. 12305 DIAL COMM 8*235-4089 DENTIFICATION LUORIDE mmonium Fluoride, Ammo 18; CAS #001-341-497. Milable from several su dical Co, 1945 E. 97th	ET AFRAGE NFOR onium Hydrog uppliers, in St., Clevel Teleph	MATION gen Fluor ncluding land, OH none: (2	NO AMMON] Date J ide; (N) 44106 16)721-0	49 IUM BIFI une 1979 H4)HF2; B300	JUORIDE
SECTION IL INGREDIEN	TS AND HAZARDS	میں میں میں میں میں والی <u>اور میں میں اور میں میں اور میں میں م</u>	x	AH	ZARD D	ATA
Ammonium Bifluoride, (NH4)H Ammonium Fluoride, NH4F Free Hydrogen Fluoride, HF Ammonium Silicofluoride, (N *OSHA occupational exposur also recommended by NU	(MSDS #6) IH ₄) ₂ S1F ₆ te level for <u>inorganic</u>	fluorides;	> 98 < 2 <0.1 ~.05	8-hr T 2 <u>.5 mg</u> 8-hr T No esta	NA F/m ³ * NA 2 mg/ ablished	v _m 3 H TLV
The compounds themselve	pata	TLV's.			Last concentration designed	
Solubility in water, 20 C, Appearance & odor - White, characteristic odor.	g/100g water deliquescent crystals	58.3 Molec Melti (rhombic o	ular weig ng point, r tetrahe	ht I atm dral) o	r flake	57.04 125.6 C s; no
SECTION IV. FIRE AND	EXPLOSION DATA				LOWER	UPPER
Flash Point and Method	Autoignition Temp.	Flammabilit	y Limits	In Air		
Extinguishing Media: Use fire-exposed containers. Firefighters should wear p for HF exposure.	media suitable for sur Toxic fumes are emit rotective clothing & s	rounding fi ted on heat self-contain	re, use v ing. ned breath	vater sp	pray to	cool suitable
SECTION V. REACTIVITY	DATA					
This acidic material is st polymerize. It is hygro Upon heating or contact wi This material etches glass It generates heat on react	able at room temperatu scopic at 50% relative th acid or acid fumes and can corrode meta ion with alkaline mate	ure in a clo humidity. highly too l, especial erials and o	osed cont. xic HF fur ly when h emits amm	ainer. mes are eated. onia.	It does given c	off.
	GENERAL	ELECTRIC	Copyright@	D — 1979 By C	leneral Electr	ic Company

W.I.N. 100142, INTENSIFIER, acid, Ammonium Bifluoride, AB-54

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	No. <u>49</u>
SECTION VI. HEALTH HAZARD INFORMATION	TLV 2.5 mg (F)/m ³ (See Sect.II)
This acidic material is corrosive to body tissue. The effects arise from the ready availability pound. It can cause burns of the skin or eyes fluoride ion) is estimated to be fatal for an solution mist, or liberated HF (from contact w irritating and can be severely damaging to the can produce systemic effects. Chronic effects from fluoride can include bone, the teeth, anemia, impairment of growth in the FIRST AID: <u>Eye contact</u> : Immediately flush eyes with plen utes; then contact physician (an opthalmolog <u>Skin contact</u> : Promptly wash affected areas wi	s and toxic by inhalation or ingestion. of HF and fluoride ion from this com- . Acute ingestion of 3.75g (2.5g of adult. Excessive inhalation of dust, ith acidic material or by heating) is respiratory passages and the lungs and ligament and tendon damage, mottling of young worker. ty of running water for at least 15 min- ist if available)! th plenty of water and soap. Remove
<u>Inhalation</u> : Remove from exposure. Get medica <u>Ingestion</u> : If conscious, give lots of milk or iting only if medical help or direction is n	l help promptly. Keep warm and at rest. water to drink to dilute. (Induce vom- ot readily available.) Get medical help!
SECTION VII. SPILL, LEAK, AND DISPOSAL	PROCEDURES
Notify safety personnel when significant spills cept clean-up personnel who have approved prot tion hazards. Provide ventilation. Pick up s tions, and place in an approved container with covery. Liquid spills can be neutralized and and soda ash (ammonia evolved!), then picked u <u>trace residues</u> ; then flush to drain with much <u>DISPOSAL</u> : Neutralize scrap material with water Decant liquid and flush it to drain with much calcium fluoride-slaked lime residual solids i State and local regulations.	occur. Exclude from spill area all ex- ection against skin contact and inhala- olids promptly, avoiding dusting condi- a tight closure for disposal or re- absorbed with a mixture of slaked lime p for disposal. Thoroughly neutralize water. and slaked lime. Allow to settle 24 hrs. water (ammonia solution). Deposit the n an approved landfill. Follow Federal,
SECTION VIII. SPECIAL PROTECTION INFOR	MATION
Provide general ventilation and local exhaust ve Approved self-contained or air-supplied respin gency conditions where the TLV is exceeded.	entilation to meet TLV requirements. rators are used for nonroutine or emer-
When solutions are used and splashing is possimate and body protections are used and splashing is possimate also be needed.	ble, face shields, aprons, boots, etc.
A safety shower and eyewash station must be read Fluoride-contaminated work clothing must not be for example members of a workers family, laund personnel must determine control practices to	illy available to the workplace. allowed to become a hazard to others, dry personnel, etc. Health and safety be used for work clothing.
SECTION IX. SPECIAL PRECAUTIONS AND CO	MMENTS
Store in tightly closed plastic, rubber or parad dry, well-ventilated, low fire hazard area, as acid fumes and away from sources of heat. Ins Prevent skin contact. Avoid inhalation. Follor of fluorides low and prevent chronic effects. Workers exposed to fluorides should have a comp- tion (including complete urinalysis) and bian musculoskeletal, pulmonary, GI tract, and kide by periodic urinalysis.	ffin lined containers in a clean, cool, vay from possible contact with acids or spect storage containers regularly. v good hygienic practice to keep intake Wash well after using. rehensive, preplacement medical examina- nual examinations thereafter, emphasizing ney functions. Monitor fluoride exposure
DATA SOURCE(S) CODE: 2-7, 10-12, MSDS #6	APPROVALS: CRD , MIS,
Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information. Genoral Electric Company evends no warrantise, makes no representations and assumes no responsibility	Industrial Hygiene Ci/While
as to the occuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.	MEDICAL REVIEW: 12/79
GENERAL 🍪 E	LECTRIC



Precautionary Labeling for Bags (Minimum requirements)

Trade Name: Ammonium Bifluoride, AB-54 W.I.N. 100142

When Handling This Product Employees MUST WEAR: face shield, rubber gloves, & dust mask



UN 1727 Net WT. 50 lb (22.7kg) Lot No. Reinspect on mo/day/yr

> WARNING! CAUSES BURNS

 AVOID: Prolonged or repeated contact with eyes and skin.
 WASH: Thoroughly after handling and before eating or smoking. Do not take internally.
 FIRST AID: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. Flush skin with water.



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: 15 Mar 78

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100174

SEC	TION I
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America	(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 7610.	
CHEMICAL NAME AND SYNONYMS Acetic Acid & Acetic Anhydride	TRADE NAME AND SYNONYMS
CHEMICAL FAMILY Acid	FORMULA 40% acetic acid,60% acetic anhydride

SECTION IA HAZARDOUS MATERIAL CLASSIFICATION

D.O.T. PROPER SHIPPING NAME Corrosive liquid, N.O.S.

NAME OF HAZARDOUS COMPONENT Acetic Anhydride ₩

HAZARD CLASS Corrosive material

IDENTIFICATION NUMBER UN1760

D.O.T. LABEL(S) REQUIRED Corrosive

PRECAUTIONARY LABEL

SECTION II - HAZARDOUS INGREDIENTS	%	TLV (Units)
*		

SECTION III - PHYSICAL DATA				
BOILING POINT (°F.)	SPECIFIC GRAVITY (H2O=1)			
VAPOR PRESSURE (mm Hg.)	PERCENT, VOLATILE BY VOLUME (%)			
VAPOR DENSITY (AIR=1)	EVAPORATION RATE (=1)			
SOLUBILITY IN WATER				

APPEARANCE AND ODOR clear, colorless liquid - sharp acrid odor

SECTION IV · FIRE AND EX	PLOSION HAZARD DATA		
FLASH POINT (Method used) 112°F, Tag Open cup; 109°F, Tag Closed Cup	FLAMMABLE LIMITS	Lei 2.9%	Uei 10.3%
EXTINGUISHING MEDIAWATER SPRAY, dry chemical, extinguishing agents for acetic anhydride f	and alcohol foam are e ires.	ffective	
SPECIAL FIRE FIGHTING PROCEDURES Addition of wat a leak or spill has not ignited, use water	er will reduce intensi spray to disperse the	ty of flam vapor and	mes. If
tect the personnel trying to stop the leak. contained breathing apparatus and full prot	Fire fighters should ective clothing.	wear sel	f- '
UNUSUAL FIRE AND EXPLOSION HAZARDS Water and foam react with chemical, but the	heat liberated is not	enough t	o create
a hazard. Dry chemical forced below surfac	e can cause foaming an	d boiling	•

Form OSHA-20

	ę	SECTION	V · HEA	LTH HAZARD DA	ATA	10017
THRESHOLD	TVALUE		·····	· · · · · · · · · · · · · · · · · · ·		•
EFFECTS OF OVE	REXPOSURE			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
<u>Skin: may ca</u>	use hurns or	rash. E	yes: irr	itation. Interr	al: harmfu	l if swallowed
Inhalation c	of dust may ca	use irr	itation	of the respirat	ory system	•
EMERGENCY AND	FIRST AID PROCED	URES				
Skin: Wash W	vith water. The	<u>incture</u>	<u>Of zephi</u> 15 - devie	ran chloride, i	Lced, soaks	•
Lyes. IIush		LIEASL		es. consult a p	onysician.	. <u> </u>
		SECTIO		REACTIVITY DAT	A	·
STABILITY	UNSTABLE		CONDITIO	NS TO AVOID		
	STABLE					
INCOMPATABILIT	Y (Materials to avoid)	, <u> </u>	<u> </u>			
					· · · · · · · · · · · · · · · · · · ·	. <u></u>
HAZARDOUS DEC	OMPOSITION PROD	UCTS				
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POLYMERIZATIO	N Luuri Nor					•
	WILL NOT			1		· · ·
	•					
	SEC	TION VI	I - SPILL	OR LEAK PROCE	DURES	
STEPS TO BE TAP	SEC	TION VI	I - SPILL	OR LEAK PROCE	DURES	
STEPS TO BE TAP	SEC	TION VI	I - SPILL	OR LEAK PROCE	DURES	
STEPS TO BE TAP	SEC	TION VI	I • SPILL	OR LEAK PROCE	DURES	
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STEPS TO BE TAP	SEC	TION VI	I - SPILL	OR LEAK PROCE	DURES	
STEPS TO BE TAP	SEC	TION VI	I - SPILL	OR LEAK PROCE	DURES	
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STEPS TO BE TAN	SEC	TION VI	I - SPILL LEASED OR		DURES	
STEPS TO BE TAK	SEC	N VIII - S	I - SPILL LEASED OR	OR LEAK PROCE	ORMATION	
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W.I.N.100088, ACID, HC1, 22°Be W.I.N.100092, ACID, HC1, 20°Be

MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y.



Date October 1977

SECTION I. MATERIAL IDENTIFICATION MATERIAL NAME: HYDROCHLORIC ACID DESCRIPTION: This material is a water solution of hydrogen chloride gas. OTHER DESIGNATIONS: Muriatic Acid, Concentrated Hydrochloric Acid, GE Material D4A3 CAS# 007647010 MANUFACTURER: Available from many suppliers X SECTION II. INGREDIENTS AND HAZARDS HAZARD DATA < 38 TLV 5 ppm (C)^{*} Hydrogen chloride (HCl) Impurities (depends on acid grade) Traces Balance Water *C denotes a ceiling concentration that should not be exceeded in the workplace SECTION III, PHYSICAL DATA 18°Be' 20°Be' /22⁰Be' 23°Be' 27.9 31.4 35.2 37.1 Weight % HCl ---Boiling pt, 1 atm, deg F ------208 182 144 123 Freezing point, deg F ------43.6 -63.4 -86.3 -101.2 Specific gravity, 60/60 F ----- 1.142 1.189 1.160 1.179 Vapor pressure, 25 C, mm Hg ----25 Materials are completely water soluble and nearly 100% volatile. Appearance & Odor: Colorless to lt. yellow fuming liquid with-a pungent, suffocating odor. SECTION IV, FIRE AND EXPLOSION DATA LOWER UPPER Flash Point and Method Autoignition Temp. Flammability Limits In Air N/A N/A N/A Extinguishing media: Select that suitable for surrounding fire. This nonflammable material can react with many metals, such as iron, to produce flammable hydrogen gas. The acid can be neutralized with bases such as slaked lime or soda ash. Use a water spray to cool fire exposed containers to prevent rupture. Firefighters should use full protective clothing and self-contained breathing apparatus when this material is involved in a fire situation. SECTION V. REACTIVITY DATA This material is stable when properly contained and handled. It is a strong mineral acid and is, thus, highly reactive with materials such as metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials. It is highly corrosive to many materials. It can liberate significant levels of HCl by vapor pressure at room temperature when concentrated and large amounts of HCl when heated. Reaction with most metals will produce hydrogen gas.

HYDROCHLORIC ACID

No.

30 A

W.I.N.100088,ACID,HC1,22°Be W.I.N.100092,ACID,HC1,20°Be

NO. 30 A

SECTION VI. HEALTH HAZARD INFORMATION	TLV 5 ppm ceiling (as HCl)
Prolonged inhalation of HCl vapors or mist just a and irritate the nasal passages. Higher concen ing and choking and produce severe irritation a of the upper respiratory tract. 1300 ppm is im	bove the TLV can damage the teeth trations (50 ⁺ ppm) will cause cough- nd damage of the mucous membranes mediately dangerous to life.
Hydrochloric acid.is corrosive and causes burns of duce burns of the mouth and digestive tract.	f human tissue. Ingestion can pro-
Eye contact: Flush thoroughly with running wat Skin contact: Wash affected areas thoroughly w	er for 15 minutes. Get medical aid. with much water. For gross contact,
minutes. Ingestion: Give limewater or water and milk of	magnesia to drink. Do not induce
vomiting! Get medical aid. Inhalation: Remove to fresh air; restore breath given under proper supervision. Get medical	ning, if required. Oxygen can be aid.
SECTION VII, SPILL, LEAK, AND DISPOSAL PF	ROCEDURES
Large spills should be reported to safety personal Supply ventilation. Stay upwind of large spill in clean up of large spills must use full prote contained breathing apparatus. Flush large spills with water to holding area and Flushing to sever depends on allowable salt con Follow local, State and Federal regulations. soda ash and slaked lime. Flush the neutraliz water.	hel. Remove sources of ignition. Is in outside areas. Those involved ective clothing, boots, and self- d neutralized with soda ash or lime. ncentrations in effluent water. Cover small spills with a mixture of ed material to the sewer with much
SECTION VIII, SPECIAL PROTECTION INFORMATION	TION
Provide adequate exhaust ventilation in areas of ments. Face velocity of hoods should exceed 1 self-contained breathing apparatus for emergen	use or storage to meet TLV require- 00 lfm. Use approved respirator or cy or non-routine conditions.
Those handling hydrochloric acid should use prot prevent body contact with the liquid. Use rub apron, rubber boots, long sleeved shirt, etc. face shield for eye protection against splashi	ective clothing and equipment to ber gloves or gauntlets, rubber Use chemical safety goggles and/or ng of acid.
An eye wash station and safety shower must be lo acid is handled or used.	cated near areas where hydrochloric
SECTION IX. SPECIAL PRECAUTIONS AND COMM	ENTS
Store closed containers in clean, cool, open or sun. Area should have acid resistant floor ar oxidizing agents and alkaline materials. Prot age. Use non-sparking tools in areas around t be generated.	well-ventilated areas. Keep out of ad approved drainage. Keep away from tect containers from damage or break- tanks and pipes where hydrogen might
Avoid inhalation of HCl vapors; if odor can be of exposed! Odor of HCl gives adequate warning f from the exposure area. Avoid skin contact.	detected, workers are being over- for a prompt voluntary withdrawal
Provide emergency neutralization materials and equipment storage & use areas. Audgments as the suitability of unformation hereon for purchaser's purposes are	APPROVALS: MIS, CRD J, M, Vielen
necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information. General Electric Company extends no warranties, makes no representations and assumes no responsibility as to the accuracy or surjebility of such information for assumes instruments.	Industrial Hygiene Dullar
intended purposes or for consequences of its use	MEDICAL REVIEW:
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MATERIAL SAFETY DATA SHEET

SEC.	
MANUFACTURER'S NAME E. I. du Pont de Nemours & Co. (Inc.)	(302) 774-7500
ADDRESS (Number, Street, City, State, and ZIP Code) Wilmington, DF, 19898	/
CHEMICAL NAME AND SYNONYMS Sulfamic acid	TRADE NAME AND SYNONYMS Sulfamic Acid
CHEMICAL FAMILY Inorganic acid	FORMULA NH2SO3H
SECTION II HAZARDOUS	INGREDIENTS OF MIXTURES
Not applicable	
SECTION III	PHYSICAL DATA
BOILING POINT (F) Decomposes	SPECIFIC GRAVITY (H, 0=1) 1.05-1.2
VAPOR PRESSURE (mm Hg) Not applicable	BY VOLUME (%) Not applicable
VAPOR DENSITY (AIR-1) Not applicable	Not applicable
SOLUBILITY IN WATER Appreciable	
White crystalline solid with no odor	
SECTION IV FIRE AND	EXPLOSION HAZARD DATA
FLASH POINT (Method used) Not applicable	FLAMMABLE LIMITS Lei Uei Not applicable
Extinguishing MEDIA Water, "alcohol" foam, carbon dioxide,	dry chemical
SPECIAL FIRE FIGHTING PROCEDURES Wear self-contained breathing apparatu	· · · · · · · · · · · · · · · · · · ·
UNUSUAL FIRE AND EXPLOSION HAZARDS Sulfur dioxide and sulfur trioxide may b	e released in a fire.
SECTION V HEA	LTH HAZARD DATA
THRESHOLD LIMIT VALUE	
EFFECTS OF OVEREXPOSURE	hoge throat skip
Causes eye burns, causes initiation of i	iose, unoat, skin
EMERGENCY AND FIRST AID PROCEDURES	east 15 minutes Call a physician Eluch
skin with plenty of water. For ingestion	a. drink large quantities of water: do not
induce vomiting. Call a physician.	

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with

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	STABLE	v										
OMPATIBILIT	(Materials to a	Noid)						<u> </u>				· · · · · · · · · · · · · · · · · · ·
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	WILL NOT	OCCUR	v									
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PRECAUTIONARY LABEL

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

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DATE: 15JUL85

SE	ECTION I				
Supplier's Name	EMERGENCY TELEPHONE NO.				
The Western Company of North America (817) 731-5100					
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101					
CHEMICAL NAME AND SYNONYMS Proprietary Blu	end Gelling Agent, Acigel				
CHEMICAL FAMILY Acrylamide Copolymer	W. I. N. 499520				
SECTION IA HA	ZARDOUS MATERIAL CLASSIFICATION				
D.O.T. PROPER SHIPPING NAME Not	Regulated				
NAME OF HAZARDOUS COMPONENT N/A	-				
HAZARD CLASS N/A					
IDENTIFICATION NUMBER N/A					
D.O.T. LABEL(S) REQUIRED N/A					

Attached

SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)
paraffin oil		
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SECTION III - PHYSICAL DATA					
BOILING POINT ("F.)	212°F	SPECIFIC GRAVITY (H20=1)	@ 60°F	1,08	
VAPOR PRESSURE (mm Hg.)	No Data	PERCENT, VOLATILE BYWEIGHT % @ 75°F		44	
VAPOR DENSITY (AIR=1)	No Data	EVAPORATION RATE			
SOLUBILITY IN WATER POlymer Soluble	< 7				

APPEARANCE AND ODOR Milky white liquid, Sweet odor

SECTION IV · FIRE AND EXPLOSION HAZARD DATA						
None, flames out 0 52°C(125°F) PMCC	FLAMMABLE LIMITS	Lei	Uet			
EXTINGUISHING MEDIA carbon dioxide, dry chemical, alcohol foam						
SPECIAL FIRE FIGHTING PROCEDURES						
UNUSUAL FIRE AND EXPLOSION HAZARDS	····	•				

	S	ECTION	V - HE	AL1	TH HAZA	RD D	ΑΤΑ			
HRESHOLD LIMIT	VALUE	establi	shed fo	or t	the proc	luct				
EFFECTS OF OVEREXPOSURE										
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Indes	tion: Do not	induce	vomiti	<u> </u>	Give v	vater.	Call a physician.			
•U3×4			<u>Y Unit y</u>			<u></u>				
		SECTIO	NVI -	RE	ACTIVIT	Y DAT	ΓΑ			
TABILITY	UNSTABLE		CONDITI	IONS	TO AVOID	none				
	STABLE	X								
NCOMPATABILITY	(Materials to avoid)		L							
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Western Petroleum Services

W.I.N. 499520

ACIGEL

Acid Gellant

Net Content: 498 1b(226 kg)

55 gal(208 Ľ)@60°F

roper Use, Refer to Service Bulletin No.(s) 683.0

SPECIFIC USAGE: Use at the rate of 1 to 60 gal/1000 gal of acid.

FOR INDUSTRIAL USE ONLY **CAUTION!**

Avoid contact with eves, skin and clothing, Wash thoroughly after handling. Keep container closed. Avoid breathing vapor. Use with adequate ventilation. At elevated temperatures this product may burn. Use foam, dry chemical or CO₂

FIRST AID:

FOR EYES: In case of contact, immediately wash with water for at least 15 minutes. Call physician. FOR SKIN: In case of contact, wash thoroughly with water. Wash clothing

before re-use.

HANDLING: Employees must wear chemical goggles, plastic gloves.

ATTENTION! After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precuations listed for this product. Donot cut, puncture or weld on or near this container.

Refer to MSDS and SPM-04-04 for Safety Requirements.

Vestern Company of North America P.O. BOX 186 • FORT WORTH, TEXAS 76101

*****D.O.T. PROPER SHIPPING NAME: Not Regulated*****

Schenectady, NY 12303-1836 USA (518) 377-8855 SECTION 1 MATERIAL DENTIFICATION	BLISHING COL	(Revision A) (Revision A) Issued: April 1980 Revised: November 1988
Material Name: AMMONIUM HYDROXIDE (78-30%)	an ann an	<u> </u>
Description (Origin/Uses): Used in bleaching, fabric printing, as a detergent, as saits and aniline dyes.	od in manufa	cturing ammonium
Other Designations: Ammonium Solution; Ammonium Hydroxide; Strong A Spirit of Hartshorn; NH ₄ OH; Aqueous NH ₄ OH; CAS No. 1336-21-6	mmonia Wa	ter; HMIS H 2 R 1 F 1 J 2
Manufacturer: Contact your supplier or distributor. Consult the latest edition Buyers' Guide (Genium ref. 73) for a list of suppliers.	of the Chem	icalweek R 0 1 3 PPG* S 3 *See sect. 8 K 1
SECTION 2. INGREDIENTS AND HAZARDS	%	EXPOSURE LIMITS
Anhydrous Ammonia, * CAS No. 7664-41-7	28-30	OSHA PEL
Blates CAS No. 7732 18 S	70 -	STEL: 35 ppm, 27 mg/m ³
Water, CAS No. 7/32-18-3	/0-72	ACGIH TLVs, 1988-89** TLV-TWA: 25 ppm, 18 mg/m ³ TLV-STEL: 35 ppm, 27 mg/m ³
*See Genium Industrial MSDS 1. **Set to protect against irritation to the eyes and respiratory tract. ***See NIOSH, RTECS (BQ9625000), for additional data with references to irritative and mutagenic effects.		Toxicity Data*** Human, Oral, LD ₂ : 43 mg/kg Human, Inhalation, LC ₂ : 5000 ppm Human, Inhalation, TC ₂ : 408 ppm
SECTION 3. PHYSICAL DATA		i da ser a ser
Bolling Point: Ca 82°F (28°C)	% Volatile	by Volume: 28 to 30
Vapor Density (Air = 1): 0.6 (as NH.) pH: >13 (Very Basic)	Solubility i Specific Gr	avity (H ₂ O = 1): 0.9
Appearance and Odor: A clear, colorless liquid; strong, pungent, suffocating, c detectable at 5 ppm, irritating at 25 to 50 ppm, and provides a warning of hazardo. Comments: The temperature at which the solution is saturated with the dissolve standard pressure (1 atmosphere). Above these temperatures the excess ammonia	haracteristic ous concentra d ammonia is gas will bub	ammonia odor (like dried urine). The odor is ttion in the air. s approximately 80 to 85°F (27 to 29°C) at ble out of solution.
Section 4. FIRE AND EAT DOSION DATA		
Not Applicable 1204°F (651°C) (as NH.) LEL: 159 Extinguishing Medice: Amonging budgeride minimes are not likely to hum. A 1	% v/v (as N	HP) UEL: 28% v/v (as NHP)
extinguishing agents that will put out the surrounding fire. Use a cold water spray knock down the ammonia vapor. Unusual Fire or Explosion Hazards: When a substantial quantities of NH, vapor. This ammonia gas is dangerously initating. S breathing apparatus (SCBA) with a full facepiece operated in the pressure-deman complete set of protective clothing designed to prevent any contact with ammonia	to cool fire- mmonium hy pecial Fire- d or positive- t g23.	exposed containers and to control, disperse, or droxide solutions are heated, they evolve fighting Procedures: Wear a self-contained pressure mode. Fire fighters must also wear a
SECTION 5. REACTIVITY DATA		
itability/Polymerization: Ammonium hydroxide is stable in closed containers d annot occur. Chemical Incompatibilities: Avoid hazardous reactions brought a solutions and ammonia gas to copper, tin, zinc, aluminum, galvanized surfaces, ac propylene oxide, 8-propiolactone, silver nitrate, silver oxide, silver permanganate, hydrochloric acid, nitrie acid, and oleum (a mixture of sulfuric acid [H_SO_] and it contact with incompatible chemicals. Always establish compatibility between am	uring routine bout by accid rolein, jodine and strong n is anhydride (nonium hydr s. Do not hes	work operations. Hazardous polymerization lental exposure of ammonium hydroxide e, dimethyl sulfate, fluorine, gold, aqua regia, nineral acids such as hydrofluoric acid, (SO ₃)). Conditions to Avold: Avoid direct oxide solutions and other materials by testing it ammonium hydroxide solutions

W.I.N.100223,BASE,ammonium_nydroxide,200e(30% W.I.N.499597, BASE, ammonium hydroxide, 15% (CL-3)

AMMONIUM HYDROXIDE No. 1A 11/88

CTION 6. HEALTH HAZARD INFORMATION

Carcinogenicity: Ammonium hydroxide is not listed as a carcinogen by the NTP, IARC, or OSHA. Summary of Risks: Ammonium hydroxide is very irritating and corrosive to all body tissue. Accidental ingestion of ammodium hydroxide tions damages the gastrointestinal tract. Permanent blindness can result from accidentally splashing these solutions into eyes. Excessive inhalation of ammonia vapor causes severe irritation to the respiratory system, coughing, difficulty in breathing, severe lung congestion, and possibly fatal pulmonary edema (lungs filled with fluid). Tolerance to higher concentrations may develop. Medical Conditions Aggravated by Long-Term Exposure: None reported. Target Organs: Skin, eyes, and respiratory system. Primary Entry: alation, skin or eye contact. Acute Effects: Severe irritation of all exposed tissue (eyes, skin, and respiratory system). Swelling and ighing of the lining of the air passages may occur; opening them may require emergency measures. First- and second-degree burns may also occur. Chronic Effects: Asthma and chronic hyperactivity of air passages may occur after massive exposure. FIRST AID: Eyes. Immediately flush eyes, including under the eyelids, gently but thoroughly with flooding amounts of running water for at least 15 minutes. ed and thoroughness in rinsing the eyes is vital to preventing permanent eye injury, Skin. Immediately rinse the area with flooding bunts of water while removing grossly contaminated clothing and shoes, then wash with soap and water. Inhalation. Remove the exposed person to fresh air; restore and/or support his or her breathing as needed. Qualified medical personnel should administer oxygen as required. Ingestion (applicable only to accidental ingestion of ammonium hydroxide solutions; not applicable to ammonia gas). Never give anything be nouth to someone who is unconscious or convulsing. If the exposed person is responsive, promptly give him or her plenty of water, dilute gar, or citrus juice to drink, followed by milk. Do not induce vomiting. Get medical help (in plant, paramedic, community) for all exposures. Seek prompt medical assistance for further treatment, observation, and support after first aid. Note to physiclan: Immediate hospitalization and observation for 72 hours to detect delayed pulmonary edema is advised in cases of severe exposure.

CTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES

Spill/Leak: Preplan emergency response to spills or leaks of ammonium hydroxide solutions. Evacuate all nonessential personnel, notify safety personnel, eliminate all sources of ignition, and provide adequate ventilation. Cleanup personnel need protection against skin and eye lact with the liquid as well as inhalation of its vapor (see sect. 8). Contain large spills and absorb waste with sand, earth, or vermiculite. tralize the spilled ammonium hydroxide with dilute hydrochloric acid (HCl) or dilute sulfuric acid (H, SO.). The neutralized ammonium hydroxide solutions must be extensively diluted with water before discharge. Prevent runoff from directly entering streams, surface waters, waterways, watersheds, and sewers. Waste Disposal: Consider reclamation, recycling, or destruction rather than disposal in a landfill. able scrap ammonium hydroxide recovered from spills or leaks may be useful in neutralizing acidic wastes. Monitor effluents for pH, nonia, and salt content because these properties can be subject to specific regulations. Follow Federal, state, and local regulations. **OSHA** Designations

Listed as an Air Contaminant (29 CFR 1910.1000 Subpart Z, for NH.)

A Designations (40 CFR 302.4) RCLA Hazardous Substance, Reportable Quantity: 1000 lbs (454 kg), per the Clean Water Act (CWA), §311 (b) (4). If this waste monium hydroxide satisfies the characteristic of corrosivity detailed in 40 CFR 261.22, it is assigned the RCRA hazardous waste number D002

CTION 8. SPECIAL PROTECTION INFORMATION

100223

Gegles: Always wear protective eyeglasses or chemical safety goggles. Where splashing of ammonium hydroxide solutions is possible, wear a full face shield. Follow OSHA eye- and face-protection regulations (29 CFR 1910.133). Respirator: Wear a NIOSH-approved respirator per Genium reference 88 for the maximum-use concentrations and/or the exposure limits cited in section 2 as applied to amonia gas. Follow OSHA respirator regulations (29 CFR 1910.134). For emergency or nonroutine operations (spills or cleaning tor vessels and storage tanks), wear an SCBA. Warning: Air-purifying respirators will not protect workers in oxygen-deficient bspheres. Other: Wear impervious rubber gloves, boots, aprons, and gauntlets, etc., to prevent excessive or prolonged skin contact. Ventilation: Install and operate general and local exhaust-ventilation systems powerful enough to maintain airborne concentrations of ammonia gas below the OSHA PEL standard cited in section 2. Safety Stations: Make emergency eyewash stations, safety/quick-drench sH vers, and washing facilities available in work areas. A large amount of clean water must be available for emergency response to accidenmmonium hydroxide spills. Contaminated Equipment: Contact lenses pose a special hazard; soft lenses may absorb initiants and all lenses concentrate them. Do not wear contact lenses in any work area. Remove contaminated clothing and launder it before wearing it again; clean this material from your shoes and equipment. Comments: Practice good personal hygiene; always wash thoroughly after using this rial. Keep it off your clothing and equipment. Avoid transferring it from your hands to your mouth while eating, drinking, noking. Do not eat, drink, or smoke in any work area.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

rage/Segregation: Store ammonium hydroxide solutions in insulated, closed containers in a cool, dry, well-ventilated area separate a incompatible chemicals (see sect. 5) and direct sunlight. Special Handling/Storage: Protect containers from physical damage handle them carefully. Use caution when opening sealed containers to relieve pressure. Drain empty containers well and flush them with water before discarding them. Engineering Controls: Follow established safety procedures during transfers of ammonium hydroxide solutions. The ammonia vapor produced by an ammonium hydroxide spill can be a serious hezard at temperatures above 50°F. Monitor the unt of ammonia gas present in pipelines, storage tanks, reactor vessels, etc., with appropriate equipment, especially before entering or ecting these areas. Comments: Train personnel who work with ammonium hydroxide solutions in their safe use and in proper emergency response. Maintain accurate medical records of employee exposure to ammonia gas from ammonium hydroxide solutions. Severe exposure requires a medical exam to assess any damage and to make recommendations concerning possible future restrictions on assignments.

Tensportation Data (49 CFR 172.101-2) DOT Shipping Name: Ammonium Hydroxide[®] DOT Hazard Class: Corrosive Material

ID No. NA2672 DOT Label: Corrosive IMO Hazard Class: 8 IMO Label: Corrosive

aited to solutions containing at least 12% and not more than 44% ammonia. References: 1, 26, 38, 84, 86-94, 100, 116, 117.

hudgments as to the suitability of information harain for purchaser's purposes an accessarily purchaser's responsibility. Therefore, although removable care has been taken in the preparation of such information, Genium Publishing Corp. extends so warmation, makes no representations and mannes no responsibility

Prepared by PJ Igoe, BS

Industrial Hygiene Review: DJ Wilson, CIH

499644

WESTERN	

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Date: February 3, 1992

		SECT	ION I		24 - Carlos C			
SUPPLIER'S NAME The Western Company EMERGENCY TELEPHONE NO. (817) 731-5433								
ADDRESS (Number, Street, City, State and ZIP Code) 515 Post Oak Blvd., Houston, Texas 77027								
CHEMICAL NAME AND SYNONYMS Proprietary Blend TRADE NAME AND SYNONYMS CL-30								
CHEMICAL FAMILY Crosslink Additive FORMULA Proprietary Blend W.I.N. 499644								
SECTION IA	- HAZAR	DOUS	MATERIAL CLASSI	FICATIO)N			
D.O.T. PROPER SHIPPING NAME Combustible Liquid, I	N.O.S.				(RQ	/)	
NAME OF HAZARDOUS COMPONENT Hydrocarbor	Distillate							
HAZARD CLASS Combustible Liquid								
IDENTIFICATION NUMBER NA 1993								
D.O.T. LABEL(S) REQUIRED In 110 gallon contain	ers or larger -	49CFR	173.118					
PRECAUTIONARY LABEL Combustible							· · · · · · · · · · · · · · · · · · ·	
SECTION II - HAZA		REDI	ENTS	%		TLV	(Units)	
Hydrocarbon Distillate				45		20	0 ppm	
Complex Hydrocarbon Solvent				4		20	0 ppm	
Methyl Alcohol				2		20	0 ppm	
	SECTION	111 - 1				1	····	
BOILING POINT ("F)			SPECIFIC GRAVITY (H2O=1)				1.16	
VAPOR PRESSURE (mm Hg)	N/D		PERCENT, VOLATILE BY VOL	LUME (%)			48	
VAPOR DENSITY (AIR=1)	1				1)		N/D	
	Soluble	e						
APPEARANCE AND ODOR Tan color / hydrocarbo	on odor							
SECTION	SECTION IV - FIRE AND EXPLOSION HAZARD DATA							
FLASH POINT (Method used) 146°F (PMCC)		FLAM	MABLE LIMITS N/D			Lei		Uel
EXTINGUISHING MEDIA Water spray, foam, dry	chemical or ca	arbon di	oxide.					
SPECIAL FIRE FIGHTING PROCEDURES Self-contai or tumes.	ned breathing	apparat	us. Cool exposed conta	iners with	water. Avoi	id brea	thing vap	ors
UNUSUAL FIRE AND EXPLOSION HAZARDS						_		
Keep heat, sparks and flame away. Produce distance to source of ignition.	es toxic combu	stion pr	oducts. Vapor is heavier	than air ar	nd may trav	vel con	siderable	

TRADE NAME: W.I.N. 499644

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	SE	CTION V	- HEALTH HAZ	ARD DA	TA
EFFECTS OF OVEREXPOSURE					
See A	ttachmer	it.			
EMERGENCY AND FIRST AID PROCEDURES					
		SECTION	VI - REACTIVI		
STABILITY	UNSTAB	ILE.		CONDITION	IS TO AVOID Keep away from heat, sparks &
	STABLE		x	open flar	me.
INCOMPATIBILITY (Materials to avoid) Av	oid conta	ict with stron	g oxidizing agents.		
HAZARDOUS DECOMPOSITION PRODUCTS	Carbon	monoxide, d	oxides of nitrogen.		
	MAY OC	CUR		CONDITION	NS TO AVOID
	WILL NO	DT OCCUR	×		
	SECTI	- IIV NC	SPILL OR LEAK	PROCE	DURES
STEPS TO BE TAKEN IN CASE MATERIAL IS	RELEASE	OR SPILLED			
Remove all ignition sources. Recov has entered or may enter sewers, w	er free lic	quid. Add at ses or extens	osorbent (sand, earth, sive land area.	sawdust) to	o spill area. Advise authorities if product
WASTE DISPOSAL METHOD					
Incinerate free liquid. Bury contami	inated ab	sorbent in in	dustrial landfill in acc	ordance wit	th local, state and federal regulations.
SEC	TION Y	VIII - SPE	ECIAL PROTECTI	ON INFO	DRMATION
RESPIRATORY PROTECTION (Specify type)	Normall	y not needed	d. Use supplied air re	spirator in (closed areas.
VENTILATION		LOCAL EXHAU	JST As needed to prevent d exposure limit.	exceeding	SPECIAL
		MECHANICAL	. (General)		OTHER
PROTECTIVE GLOVES Chemical resist	ant glove	5			
EYE PROTECTION Splash goggles.					
OTHER PROTECTIVE EQUIPMENT Chemi	cal boot	s and apron	as appropriate during	US8.	
	SE	CTION IX	- SPECIAL PRI	ECAUTIC	DNS
PRECAUTIONS TO BE TAKEN IN HANDLING	AND STOP	RING			
Keep away from strong oxidizing ag never use cutting torch on or near of before reuse. Avoid breathing vapo	gents. Av container ors or aer	void contact v (even empty osols.	with eyes, skin or clot)- explosion may res	hing. Keep ult. Do not	away from heat, sparks and open flame. reuse empty container. Launder clothes
OTHER PRECAUTIONS					

R-3F (09/90)

PAGE (2) OF (4)

(Continued on next page)

Form OSHA-20

A A TEDIAL CAPET	V DATA QUEET			SDS #	N 143	RECE	IV
MATERIAL SAFET	I DATA SHEET G CORPORATION			ECRON	OXIDE	MAY 1	3 19
45 CATALYN ST., SCHENECTAD	Y, NY 12303 USA (518) 377-8	854	 Isi	sued: Au	gust 198	5	• •
rom Genum's MSDS Collection, to be used as a	reference.		R	evised:		K.E.F	
SECTION 1. MATERIAL IDEN	TIFICATION				ware wards. In the standard	17	
MATERIAL NAME: BORON OXIDE		. D				•	
Acid, Suppliers: Suppliers of be Unite 3075 Los A	Diboron Trioxile, B2 oron oxide incluie: d States Borax and Che Wilshire Blvd. ngeles, CA 90011	emical Corp.	86-2	, Anny	drous bo	ric	
SECTION 2. INGREDIENTS AN	ND HAZARDS		%	H	IAZARD D	ΑΤΑ	
Borcz Cxide, B ₂ 0 ₃			99 (high purity grade)	ACGII 3hr OSHA 5hr	H TLV: TNA = 10 m PEL: TWA =15	ng/m3 [*] ng/m ³	
*1985-36 TLV for boron oxi	de						
Meitlig point	460 J Solubil	lity in water	€ 20°C,;	g/100c	c 2.	77	\mathbf{I}
Merting point Boiling point Specific gravity: Crystalline form Amorphous form Appearance and odor: colo	460°C Solubil ca 1360°C Molecul 2.5 1.8 rless vitreous granule	lity in water lar weight es or flakes.	@ 20 ⁰ C,;	g/100c	c 2. 69	77 .62	
Merting point Boiling point Specific gravity: Crystalline form Amorphous form Appearance and odor: colo SECTION 4. FIRE AND EXPL	460°C Solubil ca 1360°C Molecul 2.5 1.8 rless vitreous granule OSION DATA	lity in water lar weight es or flakes.	@ 20 ⁰ C,;	g/100c	c 2. 69 Lower	77 .62 Upper	
Melting point Boiling point Specific gravity: Crystalline form Amorphous form Amorphous form Appearance and odor: colo SECTION 4. FIRE AND EXPL Flash Point and Method	460°3 Solubil ca 1360°C Molecul 2.5 1.8 rless witreous granule OSION DATA Autoignition Temp.	lity in water lar weight es or flakes. Flammability	e 20 ⁰ C, j	g/100c 	c 2. 69 Lower	77 .62 Upper	
Melting point Boiling point Specific gravity: Crystalline form Amorphous f	460°3 Solubil ca 1360°C Solubil 2.5 1.8 rless vitreous granule OSION DATA Autoignition Temp. NA s material is not comb e. Firefighters shoul e gear as required by	lity in water lar weight es or flakes. Flammability NA bustible. Use ld wear self-c the fire situ	<pre>@ 20^oC,; No odo: Limits in Air agents ontaine; ation.</pre>	z/100c	c 2. 69 Lower are suit thing	77 .62 Upper able	
Melting point Boiling point Specific gravity: Crystalline form Amorphous form Amorphous form Amorphous form Amorphous form Amorphous form Amorphous form Amorphous form Amorphous form SECTION 4. FIRE AND EXPL Flash Point and Method NA EXTINGUISHING AGENTS: Thi Mark the surrounding fir apparatus and protectiv SECTION 5. REACTIVITY DA This material is stable in handling. It is hydrogene	460°C Solubil ca 1360°C Solubil 2.5 1.8 rless vitreous granule OSION DATA Autoignition Terro. NA s material is not comb e. Firefighters shoul e gear as required by ATA	lity in water lar weight es or flakes. Flammability NA bustible. Use ld wear self-c the fire situ der normal con	<pre>@ 20°C,; No odc: /Limits in Air agents ontaine: ation. ditions t no?</pre>	zî st	c 2. 69 Lower are suit thing orage an	77 .62 Upper able	
Melting point Boiling point Specific gravity: Crystalline form Amorphous form Appearance and odor: colo SECTION 4. FIRE AND EXPL Flash Point and Method NA EXTINGTISHING AGENTS: Thi For the surrounding fir apparatus and protectiv SECTION 5. REACTIVITY DA This material is stable in handling. It is hygroscop no hazardous decomposition	460°3 Solubil ca 1360°C Solubil 2.5 1.8 rless vitreous granule OSION DATA Autoignition Temp. NA s material is not comb e. Firefighters shoul e gear as required by ATA closed containers und ic at room temperature products.	lity in water lar weight es or flakes. Flammability NA bustible. Use ld wear self-c the fire situ der normal con e. It does no	<pre>@ 20°C,; No odc: Limits in Air agents ontaine; ation. ditions t poly::</pre>	zî st	c 2. 69 Lower are suit thing orage an There	77 .62 Upper able able	
Melting point Boiling point Specific gravity: Crystalline form Amorphous form Amorphous form Amorphous form Amorphous form Amorphous form SECTION 4. FIRE AND EXPL Flash Point and Method NA EXTINGUISHING AGENTS: Thi For the surrounding fir apparatus and protectiv SECTION 5. REACTIVITY DA This material is stable in handling. It is hygroscop no hamardous decomposition In the molten form, B ₂ O ₃ r violently on contact with	460°3 Solubil ca 1360°C Solubil 2.5 1.8 rless vitreous granule OSION DATA Autoignition Temp. NA s material is not comb e. Firefighters shoul e gear as required by ATA closed containers und ic at room temperature products. eacts readily with wat bromine pentafluoride	lity in water lar weight es or flakes. Flammability NA bustible. Use ld wear self-c the fire situ der normal con e. It does no ter vapor to f (BrF ₅).	<pre>@ 20°C,; No odc: Limits in Air agents ontaine; ation. ditions t poly: form HED</pre>	z: st z: It	c 2. 69 Lower are suit thing orage an There may rea	77 .62 upper able able act	

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W.I.N.100158, ACID, boric, anhydrous (P-6, CL-2)

MSDS W N 143 Hissued 8/55 BORCN CHIDE

SECTION 6. HEALTH HAZARD INFORMATION	TLV 10 mg/m ³
Boron oxide is considered to exhibit a low degree o of 470 mg/m ³ for 10 weeks producei only mild irrita application (l.gram) to rabbit skin produced erythe produced conjunctivitis (also in rabbits). This m	f inhalation toxicity. Inhalation tion in laboratory rats. Topical ma. Ocular instillation (50 mg) aterial may be poisonous on ingestion.
FIRST AID Eye Contact: Flush eyes thoroughly with Seek medical attention. Skin Contact: Wash contaminated area with soap and	running water for at least 15 minutes. water. Obtain medical attention
if redness or irritation develops. Inhalation: Remove from exposure. Seek medical att	ention if discomfort persists or if
<pre>Potner symptoms develop. <u>Ingestion</u>: If conscious, give person several glass vomiting. Get prompt medical assistance (in-plant,</pre>	es of water to drink. Induce paramedic, or community)

SECTION 7. SPILL, LEAK AND DISPOSAL PROCEDURES

Promptly scoop up spilled material and place in suitable containers for reclaim or disposal. Avoid excessive dust generation during clean-up. Liquid spills can be absorbed on an inert solid. Clean-up personnel should wear protective equipment (dust respirators, goggles, gloves) as required by the spill situation.

Disposal: Reclaim material for selvage or reuse where possible. Unsalvageable waste may be buried in an approved landfill. Follow local, state, and federal regulations.

SECTION 8. SPECIAL PROTECTION INFORMATION

Provide sufficient exhaust ventilation to keep airborne particulate levels below the TLV. NIOSH-approved dust respirators should be worn where excessive dust levels exist.

Use protective clothing (gloves, aprons, etc.) appropriate for the work situation to minimize skin contact. Avoid eye contact by using chemical safety goggles where dusty conditions occur or solution splashing is possible.

Eye-wash stations and washing facilities should be accessible to areas of use and handling.

Contact lenses pose a special hazard: soft lenses may absorb and all lenses concentrate irritants.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Store in closed containers in a cool, dry location. Protect containers from physical damage. Use good housekeeping practices (avoiding excessive dust generation) to prevent accumulation of dust. Wash hands and face before eating, drinking or smoking, after handling this material. Do not ingest. Avoid eye and skin contact and dust inhalation.

DOT CLASS: Not listed in 49 CFR 172.101 or 172.102

DATA SOURCE(S) CODE (See Glossary)	2.4.12,1-	.25,27,4	9,55.58,59.V.
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	APPROVALS ACTACION 11/85
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or for consequences of its use.	MEDICAL REVIEW

GENIUM PUBLISHING

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O.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: FEB. 1985

100041

SECTION I							
Supplier's Name	· · · · · · · · · · · · · · · · · · ·	EMERGENCY TELEPHONE NO.					
The Western Company of North Ame	erica	(817) 731-5100					
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101							
CHEMICAL NAME AND SYNONYMS 50% solution of citric acid	TRADE Citri	NAME AND SYNONYMS c Acid, Liquid (XR-2L)					
CHEMICAL FAMILY citric acid	FORMULA	W.I.N. 100091					
SECTION 1	A HAZARDOUS MATER	RIAL CLASSIFICATION					
D.O.T. PROPER SHIPPING NAME	Corrosive Liquid, n	.0,S.					
NAME OF HAZARDOUS COMPONENT	Citric Acid						
HAZARD CLASS	Corrosive Liquid, n	,0.S.					
IDENTIFICATION NUMBER	UN1760						
D.O.T. LABEL(S) REQUIRED	Corrosive Label mus	t_be_applied					
PRECAUTIONARY LABEL	Attached	-					

SECTION II - HAZARDOUS INGREDIENTS			
Citric Acid	50		

SECTION III - PHYSICAL DATA					
BOILING POINT (°F.) not established		SPECIFIC GRAVITY (H20=1)	1.2		
VAPOR PRESSURE (mm Hg.) IOL established		PERCENT, VOLATILE BY VOLUME (%) not established			
VAPOR DENSITY (AIR=1) hot established		EVAPORATION RATE			
SOLUBILITY IN WATER	1,25				

APPEARANCE AND ODOR Clear, colorless to faintly vellow-green liquid.essentially no odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA							
FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	Lei	Uel			
EXTINGUISHING MEDIA	N/A						
SPECIAL FIRE FIGHTING PR	OCEDURES N/A						
UNUSUAL FIRE AND EXPLO	SION HAZARDS		•				

	:	SECTION	V · HEA	LTH HAZARD DATA	
THRESHOLD LIMIT	VALUE	TLV est	ablished		
EFFECTS OF OVER	EXPOSURE Ma	v be mil	d eye ar	nd skin irritant	
EMERGENCY AND	FIRST AID PROCED	DURES Flu	sh skin	contact with water and flush eye cont	act
immediate	ly with plen	ty of wa	iter. Se	ek medical care for eyes.	
<u></u>				· · · · · · · · · · · · · · · · · · ·	
	.	SECTIC	DN VI - R		
STABILITY	UNSTABLE		CONDITIO		
	STABLE	X	N/A		•
INCOMPATABILITY	(Materials to avoid)				
HAZARDOUS DECO	MPOSITION PROD				
HAZARDOUS	MAY OCC	UR		CONDITIONS TO AVOID	
POLYMERIZATION	WILL NOT	OCCUR	X	N/A	
	SEC		• SPILL	OR LEAK PROCEDURES	
STEPS TO BE TAKE	SEC	TION VII	- SPILL		
STEPS TO BE TAKE Do not at	SEC N IN CASE MATER tempt to rec	TION VII	• SPILL eased or	OR LEAK PROCEDURES	
STEPS TO BE TAKE Do not at	SEC N IN CASE MATER tempt to rec	TION VII	• SPILL eased or	OR LEAK PROCEDURES	
STEPS TO BE TAKE Do not at waste disposal n	SEC N IN CASE MATER tempt to rec AETHOD Flus	TION VII RIAL IS REL over. h with w	• SPILL EASED OR	OR LEAK PROCEDURES	
STEPS TO BE TAKE Do not at waste disposal n	SEC N IN CASE MATER tempt to rec METHOD Flus	TION VII RIAL IS REL over. h with w	• SPILL EASED OR	OR LEAK PROCEDURES	
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MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-OOS-4)

ISMAR 78

ICAL NAME: FORMIC ACID, 90% - PM 4592

SYNONYMS: Methanoic Acid

CHEMICAL FAMILY: Acids

FORMULA: HCOOH

MOLECULAR WEIGHT: 46.03

TRADE NAME AND SYNONYMS: Formic Acid, 90% PM 4592

WIN 100097

		PHY/S(CA	L DATA		
BOILING POINT, 760 mm. H	g 104 °C. (219.2 °F	.)	FREEZIN	G POINT	-9.4 °C.
SPECIFIC GRAVITY (H20 =	1) 1.2076 at 20/20 °	С.	VAPOR P	RESSURE AT 20°C.	23 mm. Hg
VAPOR DENSITY (air = 1)	1.59	<u></u>	SOLUBIL IN WATE	ITY R, % by wt. at 20 °C.	Complete
PER CENT VOLATILES BY VOLUME	100		EVAPORA (Butyl Act	ATION RATE etate = 1)	2.1
APPEARANCE AND ODOR	Water-white liquid	l; sharp odor.	(). (). (). (). (). (). (). (). (). ().		
	A HAZA	RDOUSI	NGREDI	ENTS	
	MATERIAL			%	TLV (Units)
	Formic Acid			90	5 ppm.
	(See Sections III through V	/111)			
. 	<u>, , , , , , , , , , , , , , , , , </u>				
		∋સ્યચ્ક્@ક્સ(alvia ava	41819 19749 Ac	
FLASH POINT 141 °F.	Tag, closed cup			1,114 °F.	
FLAMMABLE LIMITS IN AI	R, % by volume	LOWER	18	.0 UPPER	57.0
EXTINGUISHING MEDIA	Use carbon dioxide or dry Use alcohol foam or water	chemical for si for large fires.	nall fires.		
SPECIAL FIRE FIGHTING PROCEDURES	Air-supplied respirators sh	ould be availab	le for fire figh	ters.	
UNUSUAL FIRE AND OSION HAZARDS	None	•	<u></u>		
	emer - emer	GENCY PHON			
	This number is ava	ilable days, night	s, weekends, and	d holidays.	
While Union Carbide Corpor ing the results of the tests o legal responsibility. They are determined by the user to be	ation believes that the data contai onducted, the data are not to be a offered solely for your conside in accordance with applicable fe	ined herein are fai taken as a warr iration, investigat deral, state and lo	ctual and the op anty or represen ion, and verification ional laws and red	inions expressed are those of tation for which Union Cart ation. Any use of this data julations.	qualified experts regard- bide Corporation assumes and information must be

	IDDO97
THRESHOLD LIMIT VALUE	5 ppm. – ACGIH (1975) 5 ppm. – (OSHA) CFR 29 § 1000 Table G 1
EFFECTS OF OVEREXPOSURE	Liquid causes skin and eye burns. Vapors are irritating and painful to breathe. Vapor exposure may cause nausea and vomiting.
MERGENCY AND FIRST	Immediately flush skin and eye contact with plenty of water for at least 15 minutes. Get medical care for eyes. If inhaled, remove to fresh air. Give oxygen if breathing is difit. Call a physician.

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		V.	REACTIVITY DATA
STA	BILITY		
UNSTABLE	STABLE	TO AVOID	None
	$\overline{\checkmark}$		
NCOMPATIBIL materials to avoi	ITY id)	Strong alkalies	
AZARDOUS ECOMPOSITION PRODUCTS		Thermal decon	nposition or burning may produce carbon monoxide and/or carbon dioxide.
AZARDOUS P	OLYMERIZATION	CONDITIONS	
May Occur	Will not Occur	TO AVOID	Contamination with alkalies.
	\checkmark		

	We Shill Borne And BROGEDURES
STEPS TO BE TAKEN MATERIAL IS RELEASED R SPILLED	Small spills should be flushed with large quantities of water. Large spills, if not neutralized, could have a toxic effect on activated sludge treatment system. Larger spills should be collected for disposal.
ASTE DISPOSAL METHOD	Incinerate in a furnace where permitted under appropriate Federal, State, and local regulations.

	VII.	SPECIAL PROTE	TIONINFORMATION		
RESPIRATORY (specify	PROTECTION (type)	Air-supplied mask in confined	areas.		
LOCAL EXHAUST		Preferable	SPECIAL		
	MECHANICAL (general)	Acceptable	OTHER		
ROTECTIVE G	LOVES	Rubber gloves	EYE PROTECTION	Coverall goggles	
OTHER PROTECTIVE QUIPMENT		Face shield, impervious apron, eye bath, and safety shower.			
	Willess	PECIAL PRECAMPIONS			
--	------------	---			
		FORMIC ACID, 90% - PM 4592			
	DANGERI	CAUSES BURNS HARMFUL IF INHALED COMBUSTIBLE			
PRECAUTIONARY LABELING		Do not get in eyes, on skin, on clothing. Avoid breathing vapor. Keep away from heat and open flame. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.			
	FIRST AID:	In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.			
		FOR INDUSTRY USE ONLY			
OTHER HANDLING AND STORAGE CONDITIONS					

W.I.N.100409,COMPONENT,fumaric acid(fine powd∈ W.I.N.100238,COMPONENT,fumaric acid(granular)

MSDS # 545

MATERIAL SAFETY DATA SHEET GENIUM PUBLISHING CORPORATION

1145 CATALYN ST., SCHENECTADY, NY 12303 USA (518) 377-8854

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FUMARIC ACID

Issued: July, 1985 Revised:

rom	Genium's MSDS	Collection, t	o de used as a reference	
			the second s	

SECTION 1. MATERIAL IDENTIFICATION

MATERIAL NAME: FUMARIC ACID OTHER DESIGNATIONS: Allomaleic Acid; Boletic Aicd; trans-Butenedioic Acid; Butenedioic Acid, (E)-; 1,2-Ethenedicarboxylic Acid, trans-; trans-1,2-Ethylenedicarboxylic Acid; C₄H₄O₄; CAS#000 110 178.

Manufacturer: Available from many suppliers including: Monsanto Company, 800 N. Lindbergh Blvd., St. Louis, MO 63167; Emergency Phone #: (314) 694-1000 (Call COLLECT).

% HAZARD DATA SECTION 2. INGREDIENTS AND HAZARDS ca 100 No TLV established Fumaric Acid Rat, oral LD50: 10,700 mg/kg Fumaric Acid is a nuisance dust. Limits for nuisance dusts are: OSHA PEL/TWA: Total 15 mg/m³ Respirable 5 mg/m³ Rabbit, dermal LD50: 20g/kg ACGIH TLV/TWA: Total 10 mg/m³ Respirable 5 mg/m³. Rabbit, Eye irritation: 100 mg/24 hrs; severly irritating Rabbit, skin irritation: 500 mg/24 hrs; mildly - -

SECTION 3. PHYSICAL DATA

 Boiling point, deg F (C) 554 (290) sealed tube
 Melting point, deg F (C) 546.8 (286)

 Solubility in water @ 25C, % ... 0.63
 sealed tube

 Specific gravity, 20/4C 1.635
 Molecular weight 116.07

Fumaric acid sublimes at 200°C at normal pressure and 165°C at 1.7mm pressure.

APPEARANCE & ODOR: White, odorless, crystalline powder.

SECTION 4. FIRE AND EXPLOSION DATA Lower						
Flash Point and Method	Autoignition Temp.	Flammability Limits in Air				
Combustible	1364 ⁰ F (740 ⁰ C)	N/A				

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, foam. Use water spray to cool tank/container.

Fumaric acid is combustible, but it does not ignite easily. The dust may form explosive mixtures in air.

Firefighters should wear self-contained breathing apparatus and full protective clothing.

SECTION 5. REACTIVITY DATA

Fumaric acid is stable under normal handling and storage conditions. It does not under hazardous polymerization.

Thermal decomposition or burning may produce irritating fumes of maleic anhydride, carbon monoxide, carbon dioxide.

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W.I.N.100409,COMPONENT,fumaric acid(fine powder) W.I.N.100238,COMPONENT,fumaric acid(granular)

MSDS # 545, Issued 7/85 FUMARIC ACID	
SECTION 6. HEALTH HAZARD INFORMATION	TLV None established.
Inhalation of fumaric acid may cause irritation to the respi eyes and mildly irritating to the skin. Toxicity study indic ingested. FIRST AID: EYE CONTACT: Promptly flush eyes, including under eyelids, medical attention if irritation persists. SKIN CONTACT: Promptly flush skin and wash with soap and wa INHALATION: Remove to fresh air. Restore and/or support bre INGESTION: Contact physician or Poison Control Center if ing	ratory tract. The solid is irritating to the ates that it is practically non-toxic when with running water for at least 15 minutes. Get ter. athing as needed. Notify medical personal. ested (Inplant, Paramedic, Community).
SECTION 7. SPILL, LEAK AND DISPOSAL PROCEDU	RES
Notify safety personnel of large spills. For powder spills, suitable container. For spills of aqueous solution of fumaris soda ash mix and add water if necessary to form a slurry. So neutralize with $6M \ NH_4$ or $6M \ HCl$ as required. Flush neutralize water. Wash spill area with soda ash solution and flush with gloves, an approved respirator and impervious clothing.	dampen carefully and scoop material into a ac acid, cover spill with sodium bicarbonate or soop siurry into a suitable container and zed waste down drain with large amounts of a water. Clean-up personnel should wear rubber
DISPOSAL: Place in a suitable container for disposal by lice federal, state and local regulations.	ensed contractor or incinerate. Follow all
EPA (CWA) RQ is 5000 1b/2270 kg (40CFR117).	
SECTION 8. SPECIAL PROTECTION INFORMATION	
Provide general and local exhaust ventilation (explosion-pro- TLV (ACGIH: 10 mg/m ³ ; OSHA: 15 mg/m ³). For emergency or non- wear an appropriate NIOSH approved respirator.	pof) to keep dust level below the nuisance dust n-routine exposures where the TLV may be exceeded,
When handling this compound, wear gloves when prolonged or : dusting may occur.	repeated contact is likely and safety goggles when
Contact lenses nose a special hazard, soft lenses may absor	h and all lenses concentrate irritants
contact fondos pose a special nazara, soit fondes may absor	and all lenses concentrate initiants,
SECTION 9. SPECIAL PRECAUTIONS AND COMMEN	ITS
Store in a cool, dry, well-ventilated area. Protect contain ventilation. Avoid generating dust. Wash thoroughly after h	er from physical damage. Use only with adequate andling.
Fumaric acid is designated as a hazardous substance by the	EPA (40CFR116).
DOT CLASSIFICATION: ORM-E, NA9126.	
DATA SOURCE(S) CODE (See Glossary) 1, 2, 4-9, 11, 12, 23, 48, 63	, 78.
	APPROVALS 70 Accrocco. 7/85
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or for consequences of its use.	MEDICAL REVIEW: Aug 85
JOA 5/851M GENIUM PUBL	ISHING Copyright © July 1, 1985



R-3G1 (~1/86)

*****DOT PROPER SHIPPING NAME: Flammahia Liquid, n.o.s., contains methanol, UN 1993*****

TEXACO INC. INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

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STREES.

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN, SEE PAGE 5 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

nyms		
IESEL 2 U	LN 100365 Solvent D	<u>iesel-?</u>
	Emergency Telephone No.	
	(914) 831-3400 ext.	406
	-	
eacon, NY 12508		
r raining or Description		
		· · · · · · · · · · · · · · · · · · ·
LASSIFIED AS: $1.5.7$	NOT HAZARDOUS	-
S BY DEFINITION NO.(S)	ON ATTACHED E	XPLANATION SHEET 4
ER: CAUSES SEVERE SKIN BU MAY BE HARMFUL IF INH COMBUSTIBLE	RNS ALED OR ABSORBED THROU	GH SKIN
AL CONTROL PROCEDUR	IES	
(Type)	face chield optional	
chemicar cybe doddies or	race surerd obtional.	
clothing at least weekly		abamigala and
petroleum distillates re Supplied air respiratory upon entry into tanks, v May be required if produ	commended. protection for cleani essels, or other confi	ng large spills or ned spaces.
petroleum distillates re Supplied air respiratory upon entry into tanks, v May be required if produ	commended. protection for cleani ressels, or other confi ct is heated for use.	ng large spills or ned spaces.
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	Nyms IESEL 2 W eacon, NY 12508 * Family or Description ASSIFIED AS: BY DEFINITION NO.(S) 1,5,7 TEMENT: ER: CAUSES SEVERE SKIN BU MAY BE HARMFUL IF INH COMBUSTIBLE AL CONTROL PROCEDUF (Type) Chemical type goggles or Exposed employes should this includes cleansing with soap and water, and	IESEL 2 W.I.N.100365_Solvent_D Emergency Telephone No. (914) 831-3400 ext. eacon, NY 12508 (914) 831-3400 ext. r Family or Description NOT HAZARDOUS ASSIFIED AS: NOT HAZARDOUS BY DEFINITION NO.(S) 1,5,7 ON ATTACHED E TEMENT: ER: CAUSES SEVERE SKIN BURNS MAY BE HARMFUL IF INHALED OR ABSORBED THROU COMBUSTIBLE AL CONTROL PROCEDURES (Type) Chemical type goggles or face shield optional. Exposed employes should exercise reasonable pethis includes cleansing exposed skin areas sev with soap and water, and laundering or dry cle

N.D. - Not Determined N.A. - Not Applicable < Less Than > Greater Than

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ATTACHMENT

PRODUCT NAME: WZ 499644, Crosslink Additive

HEALTH HAZARD INFORMATION:

OSHA Permissible Exposure Limit: See Section II

ACGIH Threshold Limit Value: See Section II

Primary Route(s) of Exposure/Entry: Eye, skin, inhalation

Acute Effects of Overexposure:

Ingestion:May cause nausea, vomiting, cramping, headache, coma or
death.Inhalation:May cause headache, nausea, giddiness, loss of
consciousness.Skin Contact:May cause dryness and irritation.Eye Contact:May cause redness and irritation.

Chronic Effects of Overexposure: May cause skin burns and blistering. May be absorbed through skin.

Listed as Carcinogen or Potential Carcinogen by:

NTP NO IARC NO OSHA NO

EMERGENCY AND FIRST AID PROCEDURES:

Ingestion:	Do not induce vomiting. Consult a physician.
Inhalation:	Remove to fresh air.
Skin:	Wash with soap and water. Launder contaminated clothes before
	reuse.
Eves:	Flush with water for 15 minutes. Consult a physician

We cannot anticipate all conditions under which this information and our products may be used.

Users may wish to make their own tests to determine the safety and suitability of each product or product combination.

Page (3) of (3)



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ATTACHMENT TO AND CONTINUATION OF

MATERIAL SAFETY DATA SHEET

Date: February 3, 1992

117077

SECTI	ON I				
	EMERGENCY TELEPHONE NO (817) 731-5433				
ADDRESS (Number, Street, City, State and ZiP Code) 515 Post Oak Blvd., H	ouston. Texas 77027				
	TRADE NAME AND SYNONYMS CL-30				
CHEMICAL FAMILY Crosslink Additive	FORMULA W.I.N. 499644				
SECTION X -	LABEL COPY				
FOR INDUSTRIAL USE ONLY					
FIRST AID:					
FOR EYES : In case of contact, flush with water for 15 min	utes. Consult a physician.				
FOR SKIN : In case of contact, wash with soap and water.	Launder contaminated clothes before reuse.				
FOR INGESTION: If swallowed, do not induce vomiting. Consul	t physician.				
FOR INHALATION: If breathed in, remove to fresh air.					
FOR HANDLING: Employees must wear chemical resistant glov appropriate during use.	es, splash goggles. Also, chemical boots and apron as				
ATTENTIONII After this container has been emptied, it may cont precautions listed for this product. Do not cut, pu SPM-04-04 for other safety requirements.	tain flammable and toxic liquid or vapor; observe all warnings and incture, or weld on or near this container. Refer to MSDS and				

PAGE (4) OF (4)

R-3F (09/90)

Form OSHA-20

Occup	U.S. DEPARTM Dational Safety and	ENT OF LABOR d Health Administ	ration			
MATER	IAL SAFE	TY DATA	SHEET			
· · · · · · · · · · · · · · · · · · ·	-	DATE:	12 Jan 87			
	SECT	ION I				
Supplier's Name The Western Company of Nor ADDRESS (Number, Street, City, State, and J	th America	· · · · · · · · · · · · · · · · · · ·	EMERGENCY TELEPHONE (817) 731-5100	NO.)		
CHEMICAL NAME AND SYNONYMS Proprietary blend CHEMICAL FAMILY cationic polymer solution		TRADE NA Clay S FORMULA Proprietary b	ame and synonyms tabilizer, Clay Ma W.I.N. lend	<u>stei</u> 499	c -4 545	
SECI	TION IA HAZAR	RDOUS MATERI	AL CLASSIFICATI	ON		
D.O.T. PROPER SHIPPING NAME	Combustible Li	quid, n.o.s.				
NAME OF HAZARDOUS COMPONENT	Methanol		· · · · · · · · · · · · · · · · · · ·			
HAZARD CLASS	Combustible Li	quid				
IDENTIFICATION NUMBER	NÁ 1993	· · ·	an an an an an an an an Ann Ann Ann an A			
D.O.T. LABEL(S) REQUIRED	None		· · · · · · · · · · · · · · · · · · ·			
PRECAUTIONARY LABEL	Attached	·		-		
·····		•			· .	
SECTION II -	HAZARDOUS IN	GREDIENTS		%	TLV (Units)	
Methanol	٦		5-	15	200 ppm	
			•			
		-				
SECTION III - PHYSICAL DATA						
BOILING POINT (°F.)		SPECIFIC GRAVITY	(H ₂ O=1) @ 60°F	·	1.010	
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATIL	E			
VAPOR DENSITY (AIR=1)	· · · · · · · · · · · · · · · · · · ·	EVAPORATION RAT	E)	1		
SOLUBILITY IN WATER	soluble	pH (100%)	<u> </u>		6-8	
APPEARANCE AND ODOR Liquid	; sweet odor	······································	· · · ·			

SECTION IV · FIRE AND EXPLOSION HAZARD DATA						
FLASH POINT (Method used) 126°F(52°C) PMCC	FLAMMABLE LIMITS	Lei	Uet			
EXTINGUISHING MEDIA Foam, dry chemical, CO2, water fog or spray SPECIAL FIRE FIGHTING PROCEDURES Wear self-contained breathing apparatus. (Extinguishing media Extinguishing media Foam, dry chemical, CO ₂ , water fog or spray special Fire Fighting Procedures Weam calf contained broathing apparentus - Cool exposed containers with water spray					
Avoid breathing vapors or fumes.			I			
UNUSUAL FIRE AND EXPLOSION HAZARDS Combustible. Do not store with strong oxid	dants. Vapors are heav	vier than	air.			
Do not use welding or cutting torch near d	rum. Explosion may res	sult.				

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	:	SE	CTION	۷.	HEA	LTH HAZ	'ARD D	ATA			•
THRESHOLD LIMIT	YALUE							· · · · · · · · · · · · · · · · · · ·			·
EFFECTS OF OVERE	I XPOSI	JRE Inhal	ation n	nav	cause	dizzin	iess, h	eadach	es, or i	unconsc	iousness.
Prolonged or	repe	<u>ated skin</u>	contac	ct m	nay re	sult in	derma	ititis.	Éyé c	ontact	may cause
severe irrita	tion	, tearing	or bli	urre	ed vis	sion. I	ngesti	on can	cause i	nausea,	vomiting
EMERGENCY AND F	IRST A	AID PROCEDU	RES IT	ing	jeşted	, do no	t indu	ice vom	iting.	Drink	Targe
quantities of	wat	er and ca	ll a pr	hysi	cian.	If ov	ercome	e by va	pors, re	emove t	o tresh
skin contact.	a pri was	h skin th	orough	lv w	hith s	soap and	water			taminan	ted
clothes. For	eye	contact,	flush e	eyes	s with	n large	amount	s of w	ater for	r at le	ast
15 minutes an	<u>a_</u> _c	<u>i i a poys</u>	ician.						· •		
			SECTIO	N V	'I - R	EACTIVI	TY DA	TA			
STABILITY *				CON		S TO AVQ				61	
			· · ·	use	e away	/ trom r	neat, s	parks	or open	Tlames	
	STAE	BLE	X							•	
Avoid strong	(Mater ovid	ials to avoid)		• •	**				• •	-	· • • •
HAZARDOUS DECO	MPOSI	TION PRODUC	CTS								<u> </u>
<u>Carbon monoxi</u>	de,	<u>oxides of</u>	<u>nitro</u>	gen_	and s	sulfur.			• • • • •		
HAZARDOUS		MAY OCCUP				CONDITI					
POLYMERIZATION		WILL NOT C	CCUR		X						
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PAGE (2)

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CLAY MASTER-4

Clay Stabilizer

Flash Point: 126 * F(52 * C) PMCC

et Content: 460 pound(207 kg) 55 gellon(209 liter)@ 60°F For Proper Use, Refer to Service Bulletin No.(s) 736.0 WG

SPECIFIC USAGE: Use at the rate of 0.5 to 5.0 gal/1000 gal of brine or acid based fracturing fluids. Use at the rate of 4 to 100 gal/1000 gal of brine or acid for matrix treatments. FOR INDUSTRIAL USE UNLY

WARNING

MAY CAUSE IRRITATION OF THE SKIN AND EYES. AVOID CONTACT WITH EYES. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. AVOID PROLONGED INHALATION OF VAPOR. DO NOT TAKE INTERNALLY.

FIRST AID:

FOR EYES: In case of contact, flush eyes with large amounts of water for at least 15 minutes. Call a physician.
FOR SKIN: In case of contact, remove contaminated clothes. Wash skin thoroughly with soap and water.
FOR INGESTION: If swallowed, do not induce vomiting. Drink large quantities of water. Call a physician.
FOR INHALATION: If breathed in, remove from exposed area to fresh air.
Call a physician. If breathing is irregular, start resuscitation.
HANDLING: Employees must wear chemical resistant gloves, chemical coggles and chemical resistant apron.
ATTENTION After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precuations listed for this product. Donot cut, puncture or weld on or near this container.

Refer to MSDS and SPM-04-04 for Safety Requirements.



RECOMMENDED

DRUM LABELING

TYPICAL

(lettering size and color as per guidelines)





PRECAUTIONARY LABELS for PROPRIETARY PRODUCTS

Drum Label*

_ ... __ ...

Label Description: (see attached example)

material type size color ink	 permanent vinyl "Crack & Peel" 8½ ± 1/16 x 11 ± 1/16" white red on white as per attached example, this is the same crimson
print type basic format specific directions specific precautionary wording	<pre>red as is used on DOT flammable liquid labels - silkscreen process - as per attached example - supplied by WPS Product Development - supplied by Manufacturer/Vendor of specific product and approved by WPS Field Development</pre>

Label Manufacturer: the following Company has produced such labels.

Industrial Tape & Label, Inc. 7028 Burkett P. O. Box 14206 Houston, TX 77021 (713) 748-3105

* To be supplied by Manufacturer/Vendor of product. This type label may be used on bags or other paper containers, in which case lesser quality paper labels are acceptable.

> 9 FEB 84 RWA R-3D2(01/86)

7100 Western Place • P.O. Box 186 • Fort Worth, Texas 76101 Phone 817-232-7300 • TWX #910-893-4057



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: August 17, 1990

1

SECT	
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America	(817) 731-5100
AODRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	
CHEMICAL NAME AND SYNONYMS Proprietary	TRADE NAME AND SYNONYMS Clay Treat
CHEMICAL FAMILY Organic	FORMULA Proprietary W.I.N. 499653

SECTION IA HAZARDOUS MATERIAL CI				CATION
D.O.T. PROPER SHIPPING NAME	Flammable Liquid	(RQ	/)
NAME OF HAZARDOUS COMPONENT	Isopropanol			
HAZARD CLASS	Flammable Liquid			
IDENTIFICATION NUMBER	UN 1993			
D.O.T. LABEL(S) REQUIRED	Flammable			
PRECAUTIONARY LABEL	Flammable			

SECTION II - HAZARDOUS INGREDIENTS		*	TLV (Units)	
Isopropanol (CAS 67-63-0)	<u>2</u> 0-	40	TVA-40	0 p
			STEL-	500
			PEL-40	0 р
		 		

SECTION III - PHYSICAL DATA				
BOILING POINT ("F.)		SPECIFIC GRAVITY (H20=1)	0.991	
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)		
VAPOR DENSITY (AIR-1)		EVAPORATION RATE (=1)		
SOLUBILITY IN WATER	complete			
APPEARANCE AND ODOR Light	t, vellow liquid	: odor - sweet		

SECTION IV - FIRE AND EX	PLOSION HAZARD DATA		
FLASH POINT (Method used) 81 F (PMCC)	FLAMMABLE LIMITS	Lei 2-0	Uel 12_0
EXTINGUISHING MEDIA Use water spray, "alcohol" foam, dry chem	ical or CO ₂ .	•	
SPECIAL FIRE FIGHTING PROCEDURES Wear self contained breathing apparatus. may build pressure and rupture closed con increasing risk of burns and injuries.	Fight fire from a safe tainers spreading the	e distance fire and	e. Heat
UNUSUAL FIRE AND EXPLOSION HAZARDS Emit toxic fumes under fire conditions.	Release flammable vap	ors which	can
ignite explosively upon contact with an i	gnition source.		

PAGE (1) of (⁴) R-3F(01/86)

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TRADE NAME: W.I.N. 499653, Clay Treat

SECTION V - HEA	LTH HAZARD DATA
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THRESHOLD LIMIT VALUE

EMERGENCY AND FIRST AID PROCEDURES Eyes - immediately flush with H₂O for 15 min. Seek medical attention. Skin immediately wash with soap and water. Remove contaminated clothing. Mash before reuse. Ingestion - keep at rest, get immediate medical attention. Inhalation remove to fresh air. If not breathing, give artificial respiration.

SECTION VI - REACTIVITY DATA							
STABILITY	TABILITY UNSTABLE CONDITIONS TO AVOID Heat, spearks, open flame			ns to avoid, spearks, open flame			
	STAE)LE	X				
INCOMPATABILITY Strong oxidi	<i>(Mater</i> Lzing	agents.					
May produce	carb	on monoxi	de, CO	2, oxides	s of nitrogen and hydrogen chloride.		
HAZARDOUS POLYMERIZATION WILL NO		MAY OCCUR		2	CONDITIONS TO AVOID		
		WILL NOT O	CCUR	X			

SECTION VII - SPILL OR LEAK PROCEDURES

Stop the flow of chemical. Eliminate all ignition sources. Do not allow into water supply. Dike and contain to prevent spreading. Soak up spill with an

inert absorbent and place in appropriate container.

WASTE DISPOSAL METHOD Follow federal, state and local regulations for disposal of waste.

-	SECTION VIII - SPECIA	L PROTECTION IN	FORMATION
RESPIRATORY PRO Wear an app	ropriate, properly fitted	respirator for	organic vapor NIOSH/MSHA approve
VENTILATION	OK		SPECIAL
	MECHANICAL (General) OK	·	OTHER
Rubber or n	/ES eoprene	EYE PROTECTION Chemical	^N splash goggles and face shields
OTHER PROTECTIV Emergency e	VE EQUIPMENT ye wash fountains and safe	ty showers shou	ld be in the immediate vicinity
of any pote	ntial exposure.		والجوير أواجه والمرجوبين مارج ويجاري والكريون التروي بين المواج بالراري ويستكنها الأسراب الأرب الكريات التروي ويستعما
	SECTION IX - S	PECIAL PRECAUT	FIONS
RECAUTIONS TO KEEP away f	BE TAKEN IN MANDLING AND STORIN rom heat, sparks and open	flames. Store	in a tightly closed, properly
vented cont	ainer. Use only non-spark	ing tools. Sto	ore drums with the bung up.
OTHER PRECAUTIC	Ground container b	oefore transfer	of contents.

PAGE (2) of (4) R-3F(01/86)



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ttachment to and continuation of

MATERIAL SAFETY DATA SHEET

DATE: August 17, 1990

17700

SECT	ION I	
Supplier's Name	EMERGE	NCY TELEPHONE NO.
The Western Company of North America	(8)	17) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101		
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND S	YNONYMS
Proprietary	Clay Treat	
CHEMICAL FAMILY Organic	Proprietary	W.I.N.499653

SECTION IXA - - SPECIAL PRECAUTIONS

Hazard Class - Flammable liquid

DOT Shipping Name - Flammable liquid, n.o.s. (contains isopropanol CAS #67-63-0) UN 1993

Precautionary Measures:

DANGER: Flammable liquid. WARNING: Highly toxic. Severe eye, skin and respiratory tract irritant. May be fatal if swallowed, inhaled or absorbed through the skin. Avoid prolonged or repeated exposure. Avoid contact with strong oxidizing agents.

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PAGE (^{3}) of (^{4}) R-3F(01/86)



MATERIAL SAFETY DATA SHEET

DATE: August 17, 1990

SEC	TION I		
Supplier's Name		EMERGENCY T	ELEPHONE NO.
The Western Company of North America	,	(817)	731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101			
CHEMICAL NAME AND SYNONYMS Proprietary	TRADE I	<mark>name and syno</mark> i ay. Treat	NYMS
CHEMICAL FAMILY Organic	FORMULA Propi	rietary	W.I.N. 499653

SECTION X - LABEL COPY

FOR INDUSTRIAL USE ONLY

FIRST AID: FOR EYES: In case of contact, immediately flush with water for at least 15 minutes. Seek medical attention. FOR SKIN: In case of contact, immediately wash with soap and plenty of water. Remove contaminated clothing and launder before reuse. Consult a physician. FOR INGESTION: If swallowed, keep at rest. Get immediate medical attention. FOR INHALATION: If breathed in, remove to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. If breathing is difficult, give HANDLING: Employees must wear oxygen. Get immediate medidal Splash goggles attention. ATTENTION! After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precuations listed for this product. Donot cut, puncture or weld on or near this container. Refer to MSDS and SPH-04-04 for other safety requirements.

PAGE (⁴) of (⁴) R-3F(01/86)

۰.	R-6 (03/84) INTER-OFFICE CORRESPONDENCE					
·	Bob Slaughter FW - Accident Prevention					
mc	Robert W. Anderson Robert W. Anderson Robert W. Anderson Robert At FW - R&D Center, Product Services					
	November 12, 1985					
	RE: Safety Information Update					
	This is to inform you of revisions, additions, deletions or replacement of					
	products or chemicals and the relevant safety data.					
	Western Trade Name: CLM					
	Chemical Name (if not trade named): proprietary W.I.N.: 499521					
	Addition X Revision Replacement Deletion to product line					
	Western Product X Western System					
	Cementing					
	DOT Proper Shipping Name & I.D. Number (SPM-04-02): Flammable liquid, n.o.s (UN1993)					
	DOT Hazardous Material Class: flammable material					
	Label: flammable liquid					
	<u>Chemical Storage Class (SPM-04-01)</u> : II.1.					
	<u>Chemical First Aid Guide Class (SPM-04-04)</u> :					
	Eyes <u>*</u> Lungs <u>A</u> Skin <u>G</u> Mouth <u>O</u>					
	EPA Hazardous Waste Classification: ignitable, D001					
	<u>Material Safety Data Sheet</u> : Attached <u>X</u> Not Available					
	On File at Research <u>X</u>					

Replace all previous data on WZ-499521 with this new update information on CLM.

cc: Product Specification File (original) Legal Services

Attachments: MSDS Label Precautionary Statement

"A man's judgement is no better than his information"



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: 7 NOV 85

SECT	
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America	(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	
CHEMICAL NAME AND SYNONYMS Proprietary blend	GEL COMPLEXER, modifier, CLM
CHEMICAL FAMILY Ketone	W.I.N. 499521
SECTION IA HAZA	RDOUS MATERIAL CLASSIFICATION

D.O.T. PROPER SHIPPING NAME	Flammable Liquid, n.o.s.
NAME OF HAZARDOUS COMPONENT	Isopropanol
HAZARD CLASS	Flammable Liquid
IDENTIFICATION NUMBER	UN1993
D.O.T. LABEL(S) REQUIRED	Flammable liquid
PRECAUTIONARY LABEL	Attached

SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)
Isopropanol	30	400 ppm
•		

	SEC	TION III - P	HYSICAL DATA	
BOILING POINT (°F.)	94.4°C	202	SPECIFIC GRAVITY (H20=1) 0 60°F	0.875
VAPOR PRESSURE (mm Hg.)			PERCENT, VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)			EVAPORATION RATE	
SOLUBILITY IN WATER		insoluble		
APPEARANCE AND ODOR	clear to y	ellow or or	ange in color, alcoholic odor	

N HAZARD DA	ТА	
BLE LIMITS	Lei	Uel
	·	•
	•	
		•

TRADE NAME: W.I.	N. 499521,	GEL	COMPLEXER,	modifier,	CLM	
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SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE Isopropanol - 400 ppm

EFFECTS OF OVEREXPOSURE Irritant to skin, eyes, nose and throat. Repeated or prolonged exposure may cause

nervous system depression, nausea, vomiting or narcosis.

EMERGENCY AND FIRST AID PROCEDURES Skin: Rinse with water, remove contaminated clothing, Eves: Flush with water and seek medical attention. Inhalation: Remove to fresh air. Call physician if symptoms persist. Ingestion: Give 2 glasses of water & induce vomiting. Call physician.

SECTION VI · REACTIVITY DATA

STABILITY			CONDITIONS	
	STABLE	X		
Avoid strong	(Materials to avoid) Oxidizing age	ents an	d haloger	ns (especially chlorine)
HAZARDOUS DECON Isopropanol,	ous decomposition products opanol, acetylacctone, carbon monoxide, carbon dioxide			ide, carbon dioxide
HAZARDOUS	MAY OCCUR	l		CONDITIONS TO AVOID
POLYMERIZATION	WILL NOT O	CCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED. Contain spill with dry absorbent and sand. Eliminate all sources of ignition.

Collect in containers for disposal.

WASTE DISPOSAL METHOD Incinerate in a furnace where permitted under Federal, State and local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Air-supplied mask in confined area SPECIAL preferred VENTILATION MECHANICAL (General) OTHER acceptable EYE PROTECTION PROTECTIVE GLOVES safety glasses or goggles plastic OTHER PROTECTIVE EQUIPMENT eyebath, safety shower

SECTION IX - SPECIAL PRECAUTIONS

Recautions to be taken in Handling and storing heat, sparks and flame. Use with adequate

ventilation.

OTHER PRECAUTIONS



Western Petroleum Services

W.I.N.499521

CLM

Crosslink Time Modifier

Flash Point: 54°F(12°C) PMCC Net Content: 380 lb(176 kg) 52 gal(196 L) 0 60°F DIFFECTION Span

Fur Proper Use, Refer to Service Bulletin No.(s) 375.0, 385.0, 500.0

SPECIFIC USAGE: Use at the rate of 0.1 to 2.5 gal/1000 gal of Apollo/Polaris/Mini-Max 3 Gels. T.I.C. or CL-15 must also be used at the rate of 1.2 gal/1000 gal.

FOR INDUSTRIAL USE ONLY WARNING!

Keep away from heat, sparks and fire. Avoid breathing vapor. Avoid contact with eyes, skin and clothing. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

FIRST AID:

FOR EYES: In case of contact, immediately flush with plenty of water for at least 15 min. Call a physician.

FOR SKIN: In case of contact, flush with plenty of water. Wash clothing before reuse.

FOR INGESTION: If swallowed, give 2 glasses of water and induce vomiting by putting finger down throat. Call a physician.

FOR INHALATION: If breathed in, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

HANDLING: Employees must wear chemical goggles, plastic gloves.

FOR FIRE: Use water, carbon dioxide, dry chemical or "alcohol-type" foam.

FOR SPILL: Flush with water or cover with absorbent. Prevent runoff. Collect and dispose. Observe government regulations. ATTENTION! After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precautions liste for this product. Do not cut, puncture or weld on or near this container.

Refer to MSDS and SPM-04-04 for Safety Requirements.



499696



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Date: February 1, 1991

	SECT	ION I			
SUPPLIER'S NAME The Western Company		EMERGENCY TELEPHONE	NO. (817) 731-5	100	
ADDRESS (Number, Street, City, State and ZIP Code)	P. O. Box 186, Fl. Wo	onth, TX 76101			
CHEMICAL NAME AND SYNONYMS Proprietary B	llend	TRADE NAME AND SYNON	IYMS Coal Sur	f	
CHEMICAL FAMILY Oxyalkylated Amire Quat FORMULA Proprietary W.I.N. 499696					
SECTION IA - HAZARDOUS MATERIAL CLASSIFICATION					
D.O.T. PROPER SHIPPING NAME Flammable liquid, n.o.s. (RQ 25000 lbs)					
NAME OF HAZARDOUS COMPONENT Meth	anoi				
HAZARD CLASS Flam	mable liquid	an a	an a		
IDENTIFICATION NUMBER UN 1	1993				
D.O.T. LABEL(S) REQUIRED Flam	mable liquid				
PRECAUTIONARY LABEL Flam	Imable	n (many service) Barrow Hanner (service) and an analyzing service service)	an a succession and a succession of the		
SECTION II - HAZA	RDOUS INGREDI	ENTS	%	TL	V (Units)
Methanol			15-20		200 ppm
				a manifestation and a state of the state of the	an analysis a gay a star an
ىرىنى بىرىنى	SECTION III - I	PHYSICAL DATA			
BOILING POINT (*F)	186	SPECIFIC GRAVITY (H ₂ O=1)			1.04
VAPOR PRESSURE (mm Hg)	ND	PERCENT, VOLATILE BY VOL	LUME (%)		ND
VAPOR DENSITY (AIR+1)	ND		=1)		ND
SOLUBILITY IN WATER	soluble				
APPEARANCE AND ODOR Light amber lic	quid with methanol odc	X	and the second secon		
SECTION	IV - FIRE AND	EXPLOSION HAZAF	ID DATA		
FLASH POINT (Method used) 55°F (PMCC)	FLAMA	AABLE LIMITS		6.7 Lei	36.0 Uei
EXTINGUISHING MEDIA Foam, dry che	mical, CO 2 and water	spray. Do not use alcoh	ol foam.		
SPECIAL FIRE FIGHTING PROCEDURES Use caution. Drums may explode in fire conditions.					
	,				
UNUSUAL FIRE AND EXPLOSION HAZARDS Flast	nback along vapor trail	may occur.			

TRADE NAME: W.I.N. 499696

THRESHOLD LIMIT VALUE 200 ppm (methanol) EFFECTS OF OVERESHOSURE Eyes: Inflation, burning, itching and pain, Skin Contact: Inflation, redness. Senaltized skin may above signs of dermatists. Inhalation: May inflate the nose and throat and cause couphing. Ingestion: Nauses, vomiting, light headedness and other symptome of methanol poisoning. EMERGENCY AND REST AD PROCEDURES Eyes: Immediately flush coplously with water for 15-20 minutes. Get medical treatment. Skin Contact: and excee couphing. Ingestion: Nauses, vomiting, light headedness and other symptome of methanol poisoning. EMERGENCY AND REST AD PROCEDURES Eyes: Immediately flush coplously with water for 15-20 minutes. Get medical treatment. Skin Contact: Bernove to treat air. Give oxygen if breathing is labored. Call a physician. Ingestion: If victim is conscious, give 2 glasses of water and induce vomitting. Call a physician. STABLE X NCOMPATABULTY UNSTABLE STABLE X NCOMPATABULTY UNSTABLE NCOMPATABULTY UNSTABLE STABLE X NCOMPATABULTY UNSTABLE STABLE X NCOMPATABULTY MAY OCCUR NCONFLONS TO AVOID Open flames STABLE X NCOMPATION MAY OCCUR NOCHARTINN SECTION VII - SPILL OR LEAK PROCEDURES STEPS TO BE TAKEN IN CASE	SECTION V - HEALTH HAZARD DATA					
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eigns of dermatitis. Inhalation: May irritate the nose and throat and cause coughing. Ingestion: Nausea, vomiting, light headedness and other symptoms of methanol poisoning. EXERGENCY AND FIRST AID PROCEDURES Eyes: Immediately flush copiously with water for 15-20 minutes. Get medical treatment. Skin Contact: Remove contaminated dicthing, and wash akin with scap and water. Launder dicthing before reuse. Inhalation: Aemove to fresh air. Give oxygen if breathing is labored. Call a physician. Ingestion: If victim is conscious, give 2 glasses of water and Induce vormiting. Call a physician. SECTION VI - REACTIVITY DATA STABLE X CONOMONS TO AVOD Open fiames STABLE X CONOMONS TO AVOD Open fiames MAY OCCUR X CONOMONS TO AVOD None known MILL NOT OCCUR X SECTION VII - SPILL OR LEAK PROCEDURES STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Step the flow of liquid. Eliminate sources of lightion. Dike or prevent spreading of liquid. Wear NIOSH approved respirator or self-contained broathing apparatus. Vacuum up, absorb or scrape up contaminated soil and place into containers for disposal. WASTE DISPOSAL METHOD SECTION VIII - SPICLAL PROTECTION INFORMATION RESPIRATORY PROTECTION Kipechy toel NIOSH approved respirator or self-contained broathing apparatus. Vacuum up, absorb or scrape up contaminated soil and place into containers for disposal. WASTE DISPOSAL METHOD Dispose by incinention under controlled conditions or put in chemical landfill. SECTION VIII - SPECIAL PROTECTION INFORMATION RESPIRATORY PROTECTION Kipechy toel NIOSH approved respirator recommended of themical landfill. SECTION VIII - SPECIAL PROTECTION INFORMATION RESPIRATORY PROTECTION Self-to prove respirator Recommended of themical landfill. MEDIANCAL (General) Recommended OTHER PROTECTIVE ELUMENT Longeleve shint SECTION IX - SPECIAL PRECAUTIONS PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Ground containers and liners during transfer to eliminate static electricity.	EFFECTS OF OVEREXPOSURE Eyes: Irritation, burning, itching and pain. Skin Contact: Irritation, redness. Sensitized skin may show					
end other symptoms of methanol poisoning. ENERGENCY AND FIRST AID PROCEDURES Eyes: Immediately flush copiously with water for 15-20 minutes. Get medical treatment. Skin Contract: Remove contaminated dothing, and wash skin with scap and water. Launder dothing before reuse. Inhalation: Remove to tresh air. Give oxygen if breathing is labored. Call a physician. Ingestion: If victim is conscious, give 2 glasses of water and Induce vomiting. Call a physician. SECTION VI - REACTIVITY DATA STABLE X UNSTRALE CONDINONS TO AVGD. Open flames TABLITY UNSTRALE X UN	signs of dermatitis. Inhalation: May	v irritate the nose	and	throat and cause cou	ighing. Ing	estion: Nausea, vomiting, light headedness
EMERGENCY AND FIRST AID PROCEDURES Eyes: Immediately flush copiously with water for 15-20 minutes. Get medical treatment. Skin Contact: Remove contaminated clothing, and wash akin with soap and water. Launder clothing before reuse. Inhalation: Remove to fresh air, Give oxygen if breathing is labored. Call a physician. Ingestion: If victim is conscious, give 2 glasses of water and Induce vomiting. Call a physician. SECTION VI - REACTIVITY DATA STABILTY UNSTABLE CONDITIONS TO AVOID Open flames STABLE X CONDITIONS TO AVOID Open flames INCOMPATABUTY (Materials to avoid) Strong oxidizer MAX OCCUR X CONDITIONS TO AVOID Open flames Strong oxidizer MAX OCCUR X CONDITIONS TO AVOID None known MAY OCCUR X CONDITIONS TO AVOID None known CONDITIONS TO AVOID None known MUL NOT OCCUR X CONDITIONS TO AVOID None known SECTION VII - SPILLO R LEAK PROCEDURES STEPS TO BE TAKEN IN CASE MATERAL IS RELEASED OR SPILLED Stop the flow of liquid. Eliminate sources of lightion. Dike or prevent apreading of liquid. Wear NIOSH approved respirator or self-contained breathing apparatus. Vacuum up, absorb or acrape up contaminated soil and place into containers for disposal. WASTE DISPOSAL METHOD Dispose by incineration under controlled conditions or put in chemical landfill. SECTION VIII - SPECIAL PROTECTION INFORMATION RESPIRATORY PROTECTION (Sectify type) NIOSH approved respirator recommended for use in closed area. VENTILATION LOCAL EXAMUCAL (General) Recommended for use in closed area. VENTILATION LOCAL EXAMUCAL (General) Recommended for use in closed area. VENTILATION LOCAL EXAMUCAL (General) Recommended for use in closed area. VENTILATION SECTION VIII - SPECIAL PRECAUTIONS PRECAUTIONS TO BE TAKEN IN HANDLING AND STORNG. Ground containers and liners during transfer to eliminate static electricity. THER BEREAUTIONS TO BE TAKEN IN HANDLING AND STORNG. Ground containers and liners	and other symptoms of methanol p	oisoning.			فأربعت ومقاربون	
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	OTHER PRECAUTIONS Do not drink, ea	it or smoke in st	orage	e area.		

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ATTACHMENT TO AND CONTINUATION OF

MATERIAL SAFETY DATA SHEET

Date: February 1, 1991

499696

	SECTI	ON I
SUPPLIER'S NAME	he Western Company	EMERGENCY TELEPHONE NO. (817) 731-5100
ADDRESS (Number, St	reet, City, State and ZIP Code) P. O. Box 186, Ft. Wo	nth, TX 76101
CHEMICAL NAME AND	SYNONYMS Proprietary Blend	TRADE NAME AND SYNONYMS Coal Surf
	Oxyalkylated Amine Quat	FORMULA Proprietary W.I.N. 499696
	SECTION X -	LABEL COPY
	FOR INDUSTRI	AL USE ONLY
	FLAMMABI	E LIQUID
FIRST AID:		
FOR EYES:	In case of contact, immediately flush copious	y with water for 15-20 minutes.
FOR SKIN:	In case of contact, wash with soap and water. water. Launder clothing before re-use.	Remove contaminated clothing and wash skin with scap and
FOR INGESTION:	If swallowed, if victim is conscious, give 2 gla	sses of water and induce vomiting. Call a physician.
FOR INHALATION:	If breathed in, remove to fresh air. Give oxyg	en if breathing is labored. Call a physician.
FOR HANDLING:	Employees must wear neoprene gloves and a	afety goggles.
	After this container has been emptied, it may con- precautions listed for this product. Do not cut, pu SPM-04-04 for other safety requirements.	tain flammable and toxic liquid or vapor; observe all warnings and noture, or weld on or near this container. Refer to MSDS and

Form OSHA-20

U. T. N. 100265		TEXAC
PHYSIOLOGICA	AL EFFECTS: Code	
Effects of Exposure		
Acute:	N D Believed to be minimally irritating	
Ly 63.	N.D.Delleved to be minimally initiating.	
Skin:	N.D. Believed to be a primary skin irritant; Believed to be ex- tremely irritating to skin with burns and blistering possible. May be absorbed through the skin.	-
Respiratory System:	May cause symptoms of drowsiness or narcosis.	
Chronic:	See Additional Comments, page 4.	
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	• . • • • • • • • • • • • • • • •	
Other:	Teratogenesis testing negative for a similar product.	
Consideration Brogartic	· · ·	
Sensitization Propertie	55:	
Skin: Yes I	No X. Unknown Respiratory: Yes No X. Unknown	
Median Lethal Doce (I		
Oral	Similar product 9.0 ml/kg (rat); practically non-toxic	_ • • .
Inhalation	N.D.	_ ••••
Dermal	Similar product G.T. 5 g/kg (rabbit); practically non-toxic	
Other		- `` ``
skin	Similar product 6.9/8.0 (rabbit): extremely irritating	
Eves	Similar product L.T. 15/110 (rabbit); no appreciable effect	
Symptoms of Exposu	e See above	
FIRE PROTECT	ION INFORMATION	
Ignition Temp. F.	N.D. Flash Point F. (Method) 140 F (PM)	•] •
Flammable Limits%	Lower N.D. Upper N.D.	-
Products Evolved Who	en Subjected to Heat or Combustion:	
	Carbon monoxide and carbon dioxide may be formed on burning in	
	limited air supply.	
	• •	
Recommended Fire F	ctinguishing Agents And Special Procedures:	
	According to the National Fire Protection Guide 49, combustibl	e
	liquid fires may be extinguished by water spray, dry chemical,	
	foam or carbon dioxide. Use water to keep fire-exposed contain	ers
	cool. If a leak or spill has not ignited, use water spray to	
•	disperse the vapors and to provide protection for persons at-	
Unusual or Evolopium	rembrind to stop the rear.	
Entretail of Explosive	None.	

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	IENTAL PROTECTION	l	Code No. DO	456
Vaste Disposal rocedures in C	Method: Re-evaluation of t time of disposal, mixtures and proce or hazardous for t ignitability. (See ase of Breakage or Leakage: Avoid all personal vapor. Use self-c mask for large sp: possible. Wipe up	the product may be re since the product us esses may change clas reasons other than, o e Remarks for Waste C l contact. Ventilate contained breathing a ills in confined area or absorb on suitabl	quired by the user es, transformation sification to non- r in addition to lassification.) area. Avoid brea pparatus or suppli . Contain spill i e material and sho	at the s, hazardous thing ed-air f vel up.
lemarks:	Waste Classificat: RCRA characterist: purchased form wo	ion: Product (as pres ic of ignitability an uld have the hazardou	ently constituted) d if discarded in s waste number D00	has the its 1.
PRECAUTI	ONARY LABEL			
و ہ میں اور	Middle Distillates laboratory animals Do not get on ski flame. Use only i ing of mist or var opening or disper	have caused cancer and kidne s. In or clothing. Keep away from in well-ventilated locations. An por. Keep head away from col- nsing. Wash thoroughly after f Storage:	y damage in n heat and roid breath- ntainer when nandling. cquired only when	material
Store is con caf, by Regula	away from heat and op tained in packaging o "tank truck. Transpo tion 1910.106 and app	r container that exce rt, handle and store licable DOT Regulatio	eds 110 gallons or in accordance with ons.	in tank OSHA
Store is con car, by Regula DOT Propershi DOT Hazard Gla	away from heat and op tained in packaging o tank truck. Transpo- tion 1910.106 and app pping Name: Fuel Oil ss (if applicable): Combusti	r container that exce rt, handle and store licable DOT Regulatic , No. 2 ble liquid NA1993	eds 110 gallons or in accordance with ons.	in tank OSHA
Store is cor cat, br Regula DOT Proper Shi DOT Hazard Cla CHEMICAL	away from heat and op tained in packaging o tank truck. Transpo- tion 1910.106 and app pping Name: Fuel Oil ss (if applicable): Combusti AND PHYSICAL PR(r container that exce rt, handle and store licable DOT Regulatic , No. 2 ble liquid NA1993	eds 110 gallons or in accordance with ons.	in tank OSHA
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Store is cor caf, by Regula DOT Proper Shi DOT Hazard Cla CHEMICAI Boiling Point (° Specific Gravity Appearance and oH of undiluted	away from heat and op tained in packaging o "tank truck. Transpo- tion 1910.106 and app pping Name: Fuel Oil ss (if applicable): Combusti AND PHYSICAL PR(F) 	en flame. Flacad fe r container that exce rt, handle and store licable DOT Regulatic , No. 2 ble liquid NA1993 DPERTIES Vapor Pressure _N. Vapor Density_N.I at liquid Solubility _Nil	eds 110 gallons or in accordance with ons. D (mmHg) D (Air=1)	in tank OSHA
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W.I.N.100365, Solvent, Diesel-2



NOTE: THIS DATA IS FURNISHED GRATUITOUSLY INDEPENDENT OF ANY SALE OF THE PRODUCT. ONLY FOR YOUR INVESTIGATION AND INDEPENDENT VERIFI-CATION. WHILE THE INFORMATION IS BELIEVED TO BE CORRECT, TEXACO INC. MAKES NO REP-RESENTATION AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. TEXACO INC. SHALL IN NO EVENT BE RESPONSIBLE FOR ANY DAMAGES OF WHATSOEVER NATURE DIRECT-LY OR INDIRECTLY RESULTING FROM THE PUBLICATION OR USE OF OR RELIANCE UPON DATA CONTAINED HEREIN. NO WARRANTY, EITHER EXPRESS OR IMPLIED OF MERCHANTABILITY OR FITNESS OR OF ANY NATURE WITH RESPECT TO THE PRODUCT OR TO THE DATA HEREIN IS MADE HEREUNDER. DATA SHEETS ARE AVAILABLE FOR ALL TEXACO PRODUCTS. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL TEXACO PRODUCTS YOU BUY, PROCESS, USE, OR DISTRIBUTE, AND ENCOURAGED TO ADVISE ANYONE WORKING WITH OR EXPOSED TO SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

> EXPLANATION OF THE INDUSTRIAL HYGIENE TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

PRODUCT INFORMATION

Trade Name and Synonyms

Refer to the code number and name under which the product is marketed and the common commercial name of the product.

Manufacturer's Name and Address Self explanatory.

Chemical Name and/or Family or Description

Refers to chemical, generic, or descriptive name of single elements and compounds.

For purposes of this form, a product is defined as hazardous if it possesses one or more of the following characteristics: (1) has a flash-point below 200 degrees Farenheit, closed cup or subject to spontaneous heating; (2) has a threshold limit value below 500 ppm for gases and vapor, below 5 mg/m³ for dusts, fumes and mist, and below 25: MPPCF for mineral dust; (3) a single dose orai*LC50 below 500 mg/kg; (4) causes burns to the skin in the short-term exposure or is systemically toxic by skin contact; (5) has been demonstrated to be a skin or eye irritant or causes respiratory irritation; (6) may cause skin or respiratory sensitization; (7) has teratogenic, mutagenic or other toxic effects; (8) may cause asphyxia of pheumonoconiosis; (9) in the course of normal operations may produce dusts, gases, fumes, vapors, mist, or smoke which have one or more, of, the, above characteristics.

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment

Type of protective equipment that is necessary for the safe handling and use of this product.

Ventilation

etc.

Normal means adequate to maintain permissible concentrations. Ventilation: type, i.e. local exhaust, mechanical,

Permissible Concentrations

Indicates Threshold Limit Value (TLV) and / or Time Weighted Average (TWA) as established by the American Conference of Governmental Industrial Hygienists and/or standards promugated by the Occupational Safety and Health Administration.

EMERGENCY AND FIRST AID PROCEDURES

Gives first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

1000

PHYSIOLOGICAL EFFECTS

Acute Exposures (Eye, Skin, Respiratory System)

Refers to the most common effects that would be expected to occur from direct contact with the product.

Chronic

Refers to the effects that are most likely to occur from repeated or prolonged exposure.

Sensitizer

Means a substance which will cause on or in normal living tissue, through an allergic or photodynamic process, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

Median Lethal Dose or Concentration (LD50,LC50)

Refers to that dose or concentration of the material which will produce death in 50 per cent of the animals. For inhalation, exposure time is indicated.

Irritation Index

Refers to an empirical score (Draize Method) for eye and skin irritation which tested by the method described. If numbers are not available, a yes or no answer indicates whether or not the material is an irritant.

FIRE PROTECTION INFORMATION

Ignition Temperature

Refers to the temperature in degrees Farenheit, at which a liquid will give off enough flammable vapor to ignite and burn continuously for 5 seconds.

Flash Point. (State Method Used)

Refers to the temperature in degrees Farenheit, at which a liquid will give off enough flammable vapor to ignite.



Flammable Limits

Refers to the range of gas or vapor concentration (percent by volume in air) which will burn or explode if an ignition source is present. Lower means the lower flammable limit and upper means the upper flammable limit given in percent.

Products Evolved When Subjected to Heat or Combustion.

The products evolved when this material is subjected to heat or combustion. Includes temperature at which oxidation or other forms of degradation occurs.

Recommended Fire Extinguishing Agents and Special Procedures

Specifies the fire fighting agents that should be used to extinguish fires. If unusual fire hazards are involved or special procedures indicated, this is specified.

Unusual Fire or Explosive Hazards

Specific hazards to personnel in case of fire, explosive danger.

ENVIRONMENTAL PROTECTION

Specifies how this product can be successfully disposed of.

Indicates precautions necessary in the event that leakage or breakage occurs. Included are (a) clean-up procedures, (b) personal protective equipment if necessary, (c) hazards that may be created, i.e. fire, explosion, etc.

PRECAUTIONARY LABEL

Label that is required or recommended.

Requirements for Transportation, Handling and Storage

Specifies handling and storage procedures. Gives ICC, DOT, or other regulations related to safety and health for transportation.

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (or Range)

In degrees Farenheit or Celsius Boiling Point at 760 mmHg.

Vapor Pressure

Refers to pressure of saturated vapor above the liquid expressed in mm of Hg. at 20 degrees Celsius or 68 degrees Farenheit

Specific Gravity

The ratio of the density of the product to the density of water.

Vapor Density

The ratio of the density of the vapor at saturation concentrations (20 degrees Celsius or 68 degrees Farenheit to the density of air at 760 mmHg.)

Appearance and Odor

Refers to the general characterization of the material, e.g. powder, colorless liquid, aromatic odor, etc.

pН

Refers to the degree of acidity or basicity of the material in a specific concentration.

pH1-5 - strongly acidic pH5-7 - weakly acidic pH7-9 - weakly basic pH9-14 - strongly basic

Solubility

Refers to the solubility of a material by weight in water at room temperature. The terms negligible, less than 0.1 %; slight, 0.1 to 1%; moderate, 1 to 10%; appreciable, 10% or greater. Gives solubility in organic solvents where appropriate.

Percent volatile by volume

Refers to the amount volatized at 20 degrees Celsius or 68 degrees Farenheit when allowed to evaporate.

Evaporation

Gives the rate of evaporation compared to a standard

Viscositv

Measure of flow characteristics in Kinematic visto cosity of Saybolt Universal Seconds.

Hazardous Polymerization

Hazardous polymerization is that reaction which takes place at a rate which produces large amounts of energy. Indicates whether it may or may not occur and under what storage conditions.

Does the Material React Violently

Indicates whether the material will react violently, releasing large amounts of energy when exposed under conditions listed.

Composition

Components of the product as manufactured.

Texaco Inc. 2000 Westchester Avenue White Plains, New York 10650 Phone (914) 831-3400 (Beacon) NOTE: THIS DATA IS FURNISHED GRATUITOUSLY INDEPENDENT OF ANY SALE OF THE PRODUCT. ONLY FOR YOUR INVESTIGATION AND INDEPENDENT VERIFI-CATION. WHILE THE INFORMATION IS BELIEVED TO BE CORRECT, TEXACO INC. MAKES NO REP-RESENTATION AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. TEXACO INC. SHALL IN NO EVENT BE RESPONSIBLE FOR ANY DAMAGES OF WHATSOEVER NATURE DIRECT-LY OR INDIRECTLY RESULTING FROM THE PUBLICATION OR USE OF OR RELIANCE UPON DATA CONTAINED HEREIN. NO WARRANTY, EITHER EXPRESS OR IMPLIED OF MERCHANTABILITY OR FITNESS OR OF ANY NATURE WITH RESPECT TO THE PRODUCT OR TO THE DATA HEREIN IS MADE HEREUNDER. DATA SHEETS ARE AVAILABLE FOR ALL TEXACO PRODUCTS. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL TEXACO PRODUCTS YOU BUY, PROCESS, USE, OR DISTRIBUTE, AND ENCOURAGED TO ADVISE ANYONE WORKING WITH OR EXPOSED TO SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

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Manufacturer's Name and Address Self explanatory.

Chemical Name and/or Family or Description

Refers to chemical, generic, or descriptive name of single elements and compounds.

For purposes of this form, a product is defined as hazardous if it possesses one or more of the following characteristics: (1) has a flash-point below 200 degrees Farenheit, closed cup or subject to spontaneous heating; (2) has a threshold limit value below 500 ppm for gases and vapor, below 5 mg/m³ for dusts, fumes and mist, and below 25: MPPCF for mineral dust; (3) a single dose oral+LCSO below 500 mg/kg; (4) causes burns to the skin in the short-term exposure or is systemically toxic by skin contact; (5) has been demonstrated to be a skin or eye irritant or causes respiratory irritation; (6) may cause skin or respiratory sensitization; (7) has teratogenic, mutagenic or other toxic effects; (8) may cause asphyxia or pheumonoconiosis; (9) in the course of normal operations may produce dusts, gases, fumes, vapors, mist, or smoke which have one or more of the above characteristics.

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment

Type of protective equipment that is necessary for the safe handling and use of this product.

Ventilation

Normal means adequate to maintain permissible concentrations. Ventilation: type, i.e. local exhaust, mechanical,

etc.

Permissible Concentrations

Indicates Threshold Limit Value (TLV) and / or Time Weighted Average (TWA) as established by the American Conference of Governmental Industrial Hygienists and/or standards promugated by the Occupational Safety and Health Administration. EMERGENCY AND FIRST AID PROCEDURES

Gives first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

PHYSIOLOGICAL EFFECTS

Acute Exposures (Eye, Skin, Respiratory System)

Refers to the most common effects that would be expected to occur from direct contact with the product.

Chronic

Refers to the effects that are most likely to occur from repeated or prolonged exposure.

Sensitizer

Means a substance which will cause on or in normal living tissue, through an allergic or photodynamic process, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

Median Lethal Dose or Concentration (LD50,LC50)

Refers to that dose or concentration of the material which will produce death in 50 per cent of the animals. For inhalation, exposure time is indicated.

Irritation Index

Refers to an empirical score (Draize Method) for eye and skin irritation which tested by the method described. If numbers are not available, a yes or no answer indicates whether or not the material is an irritant.

FIRE PROTECTION INFORMATION

Ignition Temperature

Refers to the temperature in degrees Farenheit, at which a liquid will give off enough flammable vapor to ignite and burn continuously for 5 seconds.

Flash Point (State Method Used)

Refers to the temperature in degrees Farenheit, at which a liquid will give off enough flammable vapor to ignite.

NALCO

H99593 MATERIAL SAFETY DATA SHEET

PRODUCT

DRYOCIDE

Emergency Telephone Number Medical (708) 920-1510 (24 hours)



SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: DRYOCIDE DESCRIPTION: A mixture of carbamates

NFPA 704M/HMIS RATING: 2/2 HEALTH 1/1 FLAMMABILITY 2/2 REACTIVITY 0 OTHER 0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

SECTION 2 HAZARDOUS INGREDIENTS

Our hazard evaluation has identified the following chemical ingredient(s) as hazardous under OSHA's Hazard Communication Rule, 29 CFR 1910.1200. Consult Section 14 for the nature of the hazard(s).

INGREDIENT(S)	CAS #	APPROX.8
Sodium dimethyldithiocarbamate	128-04-1	40
NABAM (disodium ethylene		
bisdithiocarbamate)	142-59-6	40
Ethylene thiourea	96-45-7	0-2

SECTION 3 PRECAUTIONARY LABEL INFORMATION

WARNING: Causes eye and skin irritation. Do not get in eyes, on skin or on clothing. Wear goggles or face shield, rubber gloves and protective clothing (hats, long sleeve shirt, long pants and boots) when handling. Harmful or fatal if swallowed. Avoid contamination of food and foodstuffs.

SECTION 4 FIRST AID INFORMATION

EYES:Immediately flush for at least 15 minutes while holding
eyelids open. Call a physician at once.SKIN:Wash affected skin with soap and water
Drink promptly a large quantity of milk, egg whites,
gelatin solution or if these are not available, drink
large quantities of water. Call a physician at once.

NOTE TO PHYSICIAN: No specific antidote is known. Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.

NALCO

MATERIAL SAFETY DATA SHEET

PRODUCT

DRYOCIDE

Emergency Telephone Number Medical (708) 920-1510 (24 hours)



SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: Eye, Skin

EYE CONTACT:May cause transient irritation.SKIN CONTACT:May cause transient irritation with prolonged contact.INGESTION:Can cause nausea and vomiting.

SYMPTOMS OF EXPOSURE:

ACUTE: Ingestion of carbamates can produce signs and symptoms of toxicity characterized by excessive tearing, salivation, dilation of pupils and convulsions.

AGGRAVATION OF EXISTING CONDITIONS: A review of available data does not identify any worsening of existing conditions not previously mentioned, or identified in Section 6 or 14.

CANCER EVALUATION:

The National Toxicology Program's (NTP) Annual Report On Carcinogens and The International Agency for Research on Cancer (IARC) Monographs have identified the following substance(s): Ethylene thiourea: As a suspect cancer-causing agent based on sufficient evidence in experimental animals but inadequate human evidence. Ethylene thiourea has also been reported to be an animal teratogen.

SECTION 6 TOXICOLOGY INFORMATION

ACUTE TOXICITY STUDIES: Acute toxicity studies have been conducted on a more concentrated form of this product (85% actives versus 80% actives). The results are shown below.

ACUTE ORAL TOXICITY (ALBINO RATS): LD50 = 0.62 g/kg

95% Confidence limits = 0.42 - 0.92 g/kg

ACUTE DERMAL TOXICITY (ALBINO RABBITS): LD50 = Greater than 2.0 g/kg

ACUTE INHALATION TOXICITY (ALBINO RATS): LC50 = Greater than 3.4 mg/l (4-hour exposure)

PRIMARY SKIN IRRITATION TEST (ALBINO RABBITS): SKIN IRRITATION INDEX DRAIZE RATING: 0.0/8.0 Non-irritating

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS): EYE IRRITATION INDEX DRAIZE RATING: 16.5/110.0 Mildly irritating (1-hour exposure)

PAGE 2 OF 9

NALCO

MATERIAL SAFETY DATA SHEET

PRODUCT

DRYOCIDE

Emergency Telephone Number Medical (708) 920-1510 (24 hours)

SECTION 6 TOXICOLOGY INFORMATION

(CONTINUED)

SKIN SENSITIZATION: Modified Buehler method = Skin sensitizer

OTHER TOXICITY RESULTS: Ethylene thiourea has been found to be teratogenic in rats at dosages that produce no fetal deaths or apparent maternal toxicity.

CHRONIC TOXICITY RESULTS: Ethylene thiourea was administered in the diet of Charles River CD rats for 18 months followed by a control diet for 6 months. Dosages of 175 and 350 ppm of ethylene thiourea produced hyperplastic goiters in the majority of the experimental animals. Thyroid carcinomas were also evident in the high-dosage group aminals and to a lesser extent in the rats in the low-dosage group. Carcinomas were not found in the control group aminals. In addition, hyperplastic liver nodules were noted in several of the test animals. Two strains of mice that were given ethylene thiourea in the diet for 82 - 83 weeks displayed an increased incidence of hepatomas.

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR: Yellow/green	FORM: Powder	ODOR: Sulfur
SPECIFIC GRAVITY:	0.7	ASTM D-1298
MELTING POINT:	Approximately 120 Degrees C Decomposes between 120-135 Degrees C	ASTM D-2117
FLASH POINT:	Not applicable	
PERCENT VOLATILE		
BY WEIGHT:	3	

NOTE: These physical properties are typical values for this product.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: Not applicable

EXTINGUISHING MEDIA: Product has slight flammability as supplied. Exposure to heat for prolonged duration could release flammable fumes. Use water foam to extinguish fire.

UNUSUAL FIRE AND EXPLOSION HAZARD: Dust may be ignitable if mixed with air. Exposure to temperatures above 120 degrees C could release flammable and toxic gases. Wear self-contained breathing apparatus while extinguishing fire.

SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY: Avoid contact with strong acids (eg. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) which can generate

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NALCO CHEMICAL COMPANY ONE NALCO CENTER . NAPERVILLE, ILLINOIS 60563-1198

NALCO

SECTION

MATERIAL SAFETY DATA SHEET

PRODUCT

DRYOCIDE

Emergency Telephone Number Medical (708) 920-1510 (24 hours)

(CONTINUED)

heat, splattering or boiling and the release of toxic fumes.

9 REACTIVITY INFORMATION

THERMAL DECOMPOSITION PRODUCTS: In the event of combustion CO, CO2, NOx, SOx, amines and carbon disulfide may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.

SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION: If it is possible to generate dust, wear a NIOSH approved or equivalent dust respirator, (ANSI Z 88.2, 1980 for requirements and selection).

For large spills, entry into large tanks, vessels or enclosed small spaces with inadequate ventilation, a pressure-demand, self-contained breathing apparatus is recommended.

VENTILATION: Use general ventilation with local exhaust ventilation to maintain dust levels to within the TLV (see Section 14).

PROTECTIVE EQUIPMENT: Wear gloves, boots, protective clothing (hats, long sleeve shirt, long pants) and a face shield with chemical splash goggles (ANSI Z 87.1 requirements and selection of gloves, goggles, shoes, etc.). A full slicker suit is recommended if gross exposure is possible.

The availability of an eye wash fountain and safety shower is recommended.

If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (708-920-1510)

SPILL CONTROL AND RECOVERY:

Solid spills: Sweep or vacuum up and reclaim into recovery or salvage drums for disposal. Wear the protective equipment specified in Section 10. Refer to CERCLA in Section 14.

DISPOSAL: If this product becomes a waste, it meets the criteria of a hazardous waste as defined under the Resources Conservation and Recovery Act (RCRA) 40 CFR 261.

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MATERIAL SAFETY DATA SHEET

PRODUCT

DRYOCIDE

Emergency Telephone Number

Medical (708) 920-1510 (24 hours)

SECTION 11 SPILL AND DISPOSAL INFORMATION

(CONTINUED)

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

Pesticide Disposal: Pesticide, spray mixture or rinse water that cannot be used according to label instructions must be disposed of according to Federal or approved state procedures under Subtitle C of the Resource Conservation and Recovery Act.

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Consult federal, state or local disposal authorities for approved alternative rates.

SECTION 12 ENVIRONMENTAL INFORMATION

Environmental Hazards: This pesticide is toxic to fish. Do not apply (or use) in estuarine oil fields where drilling fluids (muds) are discharged in the surface water. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not discharge treated effluent into lakes, streams, ponds or public waters unless in accordance with an NPDES permit. For guidance contact your regional office of the Environmental Protection Agency.

If released into the environment, see CERCLA in Section 14.

SECTION 13 TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME/HAZARD CODE	E -	HAZARDOUS SUBSTANCE, SOLID, N.O.S.
		ORM-E NA 9188
CONTAINS	-	ETHYLENE THIOUREA

SECTION 14 REGULATORY INFORMATION

The following regulations apply to this product.

FEDERAL REGULATIONS:

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200: Based on our hazard evaluation, the following ingredient in this product is hazardous and the reason is shown below.

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	MATERIAL SAFETY D	MATERIAL SAFETY DATA SHEE		
	PRODUCT	n - That Balanting and the		
	DRYOCIDE	DRYOCIDE		
	Emergency Telephone Number	NOOF		
	Medical (708) 920-1510 (24 hours) 2	4993		
SECTION 14 REGULATORY IN	FORMATION	(CONTINUE		
Ethylene thiourea - Possibili laboratory animals. Suspect	ty of birth defects based on tests cancer-causing agent (refer to Sect	with ion 6).		
Ethylene thiourea, sodium dim bis-dithiocarbamate = 5 mg/m3	ethyldithiocarbamate, disodium ethy (respirable dust) TLV	len e		
CERCLA/SUPERFUND, 40 CFR 117, This product contains ethylen and if 500 pounds of product NATIONAL RESPONSE CENTER, WAS RQ of 10 and 2% in product.	302: le thiourea, a Reportable Quantity (are released, it requires notificat HINGTON, D. C. (1-800-424-8802). N	RQ) substance ion to the OTE: Based on		
SARA/SUPERFUND AMENDMENTS AND (TITLE III) - SECTIONS 302, 3	REAUTHORIZATION ACT OF 1986			
SECTION 302 - EXTREMELY HAZAR This product does not contain Extremely Hazardous Substance	DOUS SUBSTANCES (40 CFR 355): ingredients listed in Appendix A a	nd B as an		
SECTIONS 311 and 312 - MATERI (40 CFR 370):	AL SAFETY DATA SHEET REQUIREMENTS			
Our hazard evaluation has fou should be reported under the	nd this product to be hazardous. T following EPA hazard categories:	he product		
<pre>KX Immediate (acute) health h KX Delayed (chronic) health h Rive heread</pre>	azard azard			
Fire nazard Sudden release of pressure Reactive hazard	e hazard			
Under Section 311, submittal emergency planning commission fire department is required a	of MSDS's or a list of product name a, state emergency response commissi After October 17, 1987 if you have:	s to the local on and local		
 10,000 pounds or more of a 500 pounds or the threshold is less, of an extremely have 	hazardous substance, or d planning quantity, whichever azardous substance.			
After October 17 1989 MSDS	(s). or a list of product names for			

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	MATERIAL SAFETY DATA SHEET		
ALCO	PRODUCT dryocide		
	Emergency Telephone Number Medical (708) 920-1510 (24 hours) H9959		
SECTION 14 REGULATORY INF	ORMATION (CONTINUED		
SECTION 313 - LIST OF TOXIC CH This product contains the foll which appear(s) on the List of	EMICALS (40 CFR 372): owing ingredient(s), (with CAS # and % range) Toxic Chemicals.		
Ethylene thiourea 96-45-	7 0-2		
TOXIC SUBSTANCES CONTROL ACT (The chemical ingredients in th (40 CFR 710).	TSCA): is product are on the 8(b) Inventory List		
FEDERAL INSECTICIDE, FUNGICIDE EPA Reg. No. 31910-20-10349. This product is registered for chemical used in drilling flui In all cases follow instruction	AND RODENTICIDE ACT (FIFRA): use as a microorganism control ds. ns on the product label.		
RESOURCE CONSERVATION AND RECO If this product becomes a wast hazardous waste as defined und	VERY ACT (RCRA), 40 CFR 261 SUBPART C & D: e, it does ['] meet the criteria of a er RCRA 40 CFR 261 (consult Section 11).		
FEDERAL WATER POLLUTION CONTRO formerly Sec. 307, 40 CFR 116/ None of the ingredients are sp	L ACT, CLEAN WATER ACT, 40 CFR 401.15/ formerly Sec. 311: mecifically listed.		
CLEAN AIR ACT, 40 CFR 60, SECT This product does not contain	TON 111, 40 CFR 61, SECTION 112: ingredients covered by the Clean Air Act.		
STATE REGULATIONS:			
CALIFORNIA PROPOSITION 65: This product contains ethylene cause cancer (refer to Section	e thiorurea, known to the State of California to 1 2 and 3 of the MSDS).		
MICHIGAN CRITICAL MATERIALS: This product contains the foll Michigan Critical Materials Re	owing substance(s) identified on the gister:		
Ethylene thiourea			
STATE RIGHT TO KNOW LAWS: The following states identify	the ingredient(s) shown below as hazardous:		
Pennsylvania, New Jersey, Illi thiourea	nois, California, Massachusetts - Ethylene		

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MATERIAL SAFETY DATA SHEET

PRODUCT

DRYOCIDE

Emergency Telephone Number Medical (708) 920-1510 (24 hours)

SECTION 15 ADDITIONAL INFORMATION

None

SECTION 16 USER'S RESPONSIBILITY

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to ensure safe workplace operations. Please consult your local sales representative for any further information.

SECTION 17 BIBLIOGRAPHY

ANNUAL REPORT ON CARCINOGENS, U.S. Department of Health and Human Services, Public Health Service, PB 33-135855, 1983.

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CHEMICAL HAZARDS OF THE WORKPLACE, Proctor, N. H., and Hughes, J. P., eds., J. P. Lipincott Company, N.Y., 1981.

DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, Sax, N. Irving, ed., Van Nostrand Reinhold Company, N.Y., 6th edition, 1984.

IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO MAN, Geneva: World Health Organization, International Agency for Research on Cancer, 1972-1977.

PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY, Clayton, G. D., Clayton, F. E., eds., John Wiley and Sons, N. Y., 3rd edition, Vol. 2 A-C, 1981.

REGISTRY OF TOXIC EFFECTS ON CHEMICAL SUBSTANCES, U.S. Department of Health and Human Services, Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health, 1983 supplement of 1981-1982 edition, Vol. 1-3, OH, 1984.

Title 29 Code of Federal Regulations Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA).

THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS IN THE

PAGE 8 OF 9

		MATERIAL SAFETY	DATA SHEET	
		PRODUCT dryocide		
		Emergency Telephone Number Medical (708) 920-1510 (24 hours)	49959	
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SECTION 17	BIBLIOGRAPHY		(CONTINUED)	
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PAGE 9 OF 9

052-1063	R-6 (03/84)	INTER-OFFIC	CE CORRESPONDENCE
Te Bob	Slaughter		At FU - Accident Prevention
FromJim	Westbrook Qw		AtFW - Research & Development Center
	U	Date	March 9, 1984

RE: Safety Information Update

This is to inform you of revisions, additions, deletions or replacement of products or chemicals and the relevant safety data.

Western Trade Name: Emulsifier, Cement, EE-200
Chemical Name (if not trade named): W.I.N.: 100293
Addition $\underline{\times}$ Revision X_ Replacement Deletion to product line
Western Product <u>X</u> Western System
Cementing X Stimulation Used for Warehouse Blending Only
DOT Proper Shipping Name & I.D. Number (SPM-04-02): Not regulated
DOT Hazardous Material Class: Not regulated
Label: L-1
Chemical Storage Class (SPM-04-01): II.1
Chemical First Aid Guide Class (SPM-04-04):
Eyes <u>*</u> Lungs <u>B</u> Skin <u>F</u> Mouth <u>V</u>
EPA Hazardous Waste Classification:
Material Safety Data Sheet: Attached X Not Available
On File at Research

cc: Product Specification File (original) Legal Services

Attachments: MSDS Label Precautionary Statement



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: July 9, 1984

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SECT	
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America	(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	
CHEMICAL NAME AND SYNONYMS Proprietary Blend	TRADE NAME AND SYNONYMS EE-200
Surfactant	Emulsifier, Cement, EE-200, W.I.N.100293
SECTION IA HAZA	RDOUS MATERIAL CLASSIFICATION
D.O.F. PROPER SHIPPING NAME Combust	tible Liquid n.o.s.

NAME OF HAZARDOUS COMPONENT Heavy aromatic naphtha

.

HAZARD CLASS

Combustible

IDENTIFICATION NUMBER NA 1993

D.O.T. LABEL(S) REQUIRED Combustible

PRECAUTIONARY LABEL

SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)
Heavy aromatic solvent (mixed aromatic petroleum solvent, mostly alkyl	30- 33	200ppm
benzenes except Toluene and Napthalenes. BP=350-750°F)		
Isopropyl Amine -	1-2	5ppm

SECTION III · PHYSICAL DATA					
BOILING POINT ("F.)	350-750	SPECIFIC GRAVITY (H20=1)		1.027	
VAPOR PRESSURE (mm Hg.)	unknown	PERCENT, VOLATILE BY VOLUME (%)	······································	30	
VAPOR DENSITY (AIR=1)	unknown	EVAPORATION RATE (DULY lacetate=1)	<u>.</u> .	<1	
SOLUBILITY IN WATER	Insoluble				
	• • • • •	· • • •			

APPEARANCE AND ODOR Dark Liquid - Hydrocarbon Odor

SECTION IV - FIRE AND I	EXPLOSION HAZARD DAT	Ά	
FLASH POINT (Method used) 176°F (PMCC)	FLAMMABLE LIMITS	Lei	Uel
EXTINGUISHING MEDIA Water spray, Foam, Dry	Chemical or CO ₂	~~	
SPECIAL FIRE FIGHTING PROCEDURES Wear self - co	ontained breathing appa	iratus	

UNUSUAL FIRE AND EXPLOSION HAZARDS Combustible, keep heat, sparks & fire away,

Thermal decomopsition produces toxic gases.

Form OSHA-20

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		SE	CTION	V - HEA	LTH HAZARD I	DATA	
THRESHOLD LIMIT	VALU						
EFFECTS OF OVER	EXPOS	JRE		<u>e</u>			
		Liqui	<u>d is ir</u>	ritating	<u>to eyes.</u> Ma	<u>iybe harmful if</u>	swallowed or
absorbed th EMERGENCY AND	FIRST	1 SKIN.	RES				
			ł	-lush eye	es for 15 minu	ites and get me	dical attention
Wash skin t	horo	ughly wit	h soap	and wate	er and get med	ical attention	if irritation
or redness	deve	lops. W	ash clo	othing be	efore reuse.	•	
			SECTIC	DN VI • F		TA	
STABILITY	UNS		T	CONDITIO	NS TO AVOID		
· j -4 ,	STAF						
INCOMPATABILITY	Mater	ials to avoid)	<u> </u>	Keep a	vay from heat.	<u>, sparks, & ope</u>	n flame.
HAZARDOUS DEC	MPOSI	TION PRODU	<u>Avoic</u> cts	<u>d contac</u>	<u>t with strong</u>	<u>oxidizing agen</u>	<u>ts.</u>
			Pro	<u>oduces t</u>	DXIC OXIDES OF	f sulphur 8 Nit	rogen when burn
HAZARDOUS		MAY OCCUP	२ —				
		WILL NOT C		XX			
STERS TO BE TAK		ASE MATERI	AL IS PE	FASED OR	SHILLED		· · · · · · · · · · · · · · · · · · ·
Extinguish	a]]	sources o	f igni	tion. S	oak up on san	d and dispose c	of in an
approved i	ndust	rial land	<u>fill.</u>		<u> </u>		
approved in WASTE DISPOSAL	ndust METHO	rial land	fill. rate i	n an inc	inerator equi	pped with an at	fter burner
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approved in waste disposal and scrubb RESPIRATORY PR VENTILATION PROTECTIVE GLO OTHER PROTECTI PRECAUTIONS TO	DIECTION DIECTION DIECTION VES VE EQUINA BE TA	rial land Incine bury in SECTION ON (Specify f) AL EXHAUST HANICAL (Ge RUBDET JIPMENT RUB S KEN IN HANG	fill. rate in an app VIII - S vpe/ Non meral) ber bo ECTION	n an inc roved in SPECIAL e requir ots, apr Ots, apr NIX - SP	inerator equi dustrial land PROTECTION II ed in normal EVE PROTECTION on if possibi ECIAL PRECAU	pped with an at fill. NFORMATION USE SPECIAL OTHER DN Face shield (lity of contac TIONS t with eves. s	fter burner or goggles t during use exi kin, & clothing.
approved in waste disposal and scrubb RESPIRATORY PR VENTILATION PROTECTIVE GLO OTHER PROTECTI PRECAUTIONS TO Avoid bros	DIECTION DIE	rial land Incine bury in SECTION SECTION SECTION ION (Specify f) AL EXHAUST HANICAL (Ge Rubber JIPMENT Rub S KEN IN HANG	fill. rate in an app VIII - S vpei Non nerali ber bo ECTION DLING AN	n an inc roved in SPECIAL e requir ots. apr VIX - SP	inerator equi dustrial land PROTECTION II ed in normal EVE PROTECTION on if possibi ECIAL PRECAU Avoid contac	pped with an at fill. NFORMATION USE SPECIAL OTHER DN Face shield of lity of contac TIONS t with eyes, S s & open flam	fter burner fter burner or goggles t during use exi kin, & clothing.
approved in waste disposal and scrubb RESPIRATORY PR VENTILATION PROTECTIVE GLO OTHER PROTECTI PRECAUTIONS TO Avoid brea OTHER PRECAUT	DIECT	rial land Denine bury in SECTION SECTION ON (Specify t) AL EXHAUST HANICAL (Ge RUBBET JIPMENT RUB S KEN IN HANC	fill. rate in an app VIII - S vpe/ Non meral) ber bo ECTION DLING AN Store transf	n an inc roved in SPECIAL e requir ots, apr ots, apr JIX - SP D STORING away fro	inerator equi dustrial land PROTECTION II ed in normal EVE PROTECTION on if possibi ECIAL PRECAU Avoid contac m heat, spark	pped with an at fill. NFORMATION USE SPECIAL OTHER DN Face shield (lity of contac TIONS t with eyes, s s, & open flam	fter burner fter burner or goggles t during use exi kin, & clothing. e. Keep container
approved in waste disposal and scrubb RESPIRATORY PR VENTILATION PROTECTIVE GLO OTHER PROTECTI PRECAUTIONS TO Avoid brea OTHER PRECAUT	DATECTIONS	rial land D Incine bury in SECTION ON (Specify f) AL EXHAUST HANICAL (Ge RUBDER JIPMENT RUBDER JIPMENT RUBDER S KEN IN HANC VAPORS. DO not	fill. rate in an app VIII - S vpey Non meral) ber bo ECTION DLING AN Store transf	n an inc roved in SPECIAL e requir ots. apr Ots. apr UIX - SP D STORING away fro er to im	inerator equi dustrial land PROTECTION II ed in normal EVE PROTECTION on if possibi ECIAL PRECAU Avoid contac m heat, spark	pped with an at fill. NFORMATION USE SPECIAL OTHER DN Face shield of lity of contac TIONS t with eyes, S s, & open flam red containers.	fter burner fter burner or goggles t during use exi kin, & clothing. e. Keep container
approved in waste disposal and scrubb RESPIRATORY PR VENTILATION PROTECTIVE GLO OTHER PROTECTI PRECAUTIONS TO Avoid brea OTHER PRECAUT closed whe	ndust METHO er or OTECTI LOC VES VE EQU BE TA thing IONS n not	rial land D Incine bury in SECTION SECTION ON (Specify f) AL EXHAUST HANICAL (Ge Rubber JIPMENT Rub SKEN IN HANG Vapors. Do not in use.	fill. rate in an app VIII - S vpe/ Non meral) ber bo ECTION DLING AN Store transf	n an inc roved in SPECIAL e requir ots. apr ots. apr NIX - SP D STORING away fro er to in	inerator equi dustrial land PROTECTION II ed in normal eve protection on if possibi ECIAL PRECAU Avoid contac m heat, spark	pped with an at fill. NFORMATION USE SPECIAL OTHER DN Face shield of lity of contac TIONS t with eyes, s s, & open flam ed containers.	fter burner fter burner or goggles t during use exi kin, & clothing e. Keep container



100462



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: 18DEC85

SECTIO	N I
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America	(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	
CHEMICAL NAME AND SYNONYMS Proprietary blend	SURFACTANT, FIO Back 10
CHEMICAL FAMILY ethyoxylated surfactant	W.I.N.100462
SECTION IA HAZARD	OUS MATERIAL CLASSIFICATION
D.O.T. PROPER SHIPPING NAME Flammable liquid,	n.o.s.

NAME OF HAZARDOUS COMPONENT isopropanol

HAZARD CLASS Flammable liquid

HAZARD CLASS Flammable liquid

IDENTIFICATION NUMBERUN1993

D.O.T. LABEL(S) REQUIRED Flammable liquid

PRECAUTIONARY LABEL attached

SECTION II - HAZARDOUS INGREDIENTS		TLV (Units)
isopropanol		400ррш
heavy aromatic petroleum solvent, mostly alkylbenenes except toluene and		
napthalenes	8-9	100ppm
methylisobutylcarbinol	1	15ppm

SECTION III - PHYSICAL DATA					
BOILING POINT (°F.)		SPECIFIC GRAVITY (H20=1) @ 15°C	0.934		
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	63		
VAPOR DENSITY (AIR=1)	· ·	EVAPORATION RATE (=1)			
SOLUBILITY IN WATER	soluble				
	14 1	14 4 1			

APPEARANCE AND ODOR alcoholic odor, amber liquid

SECTION IV - FIRE AND EXPLOSION HAZARD DATA						
FLASH POINT (Method used) 55 F (PMCC)	FLAMMABLE LIMITS	Lei	Uel			
EXTINGUISHING MEDIA Water, foam, dry chemical						
SPECIAL FIRE FIGHTING PROCEDURES Self-contained breathing apparatus	•					
UNUSUAL FIRE AND EXPLOSION HAZARDS Produces toxic fumes when burned						

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TRADE NAME: W.I.N. 100462, SURFACTANT, Flo-Back 10

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE Eyes: irritant, toxic if inhaled or ingested.

EMERGENCY AND FIRST AID PROCEDURES Eyes: flush with water for 15 minutes; seek medical attention. Skin: wash skin

with soap and water, wash clothes before wearing. Internal: drink large volumes of water; induce vomiting call physician.

	,		SECTIO	DN VI - RE	ΕΑCTIVITY DATA	
STABILITY	UNSTAB	LE		CONDITION	S TO AVOID	
	STABLE		XXX			
AVOID STON	v (Materials ng Oxida	<i>to avoid)</i> nts		<u> </u>		
HAZARDOUS DEC	OMPOSITIO	N PRODU	CTS			
HAZARDOUS	M	AY OCCUP	2		CONDITIONS TO AVOID	
POLYMERIZATIO	v w	WILL NOT OCCUR		XXX		

SECTION VII - SPILL OR LEAK PROCEDURES
Absorb on sand, bury in approved landfill
Incinerate of bury in land fill

SECTION VIII - SPECIAL PROTECTION INFORMATION

 RESPIRATORY PROTECTION (Specify type)

 nona with adequate ventillation

 VENTILATION
 LOCAL EXHAUST

 MECHANICAL (General)
 OTHER

 PROTECTIVE GLOVES
 EYE PROTECTION

 rubber
 goggles or face shield

 OTHER PROTECTIVE EQUIPMENT
 Tubber boots and apron

SECTION IX - SPECIAL PRECAUTIONS

Avoid contact with body, store away from ignition sources

OTHER PRECAUTIONS

PAGE (2)

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W.I.N. 100462 FLO BACK 10

WATER CLEANING AGENT

Flash Point: 54°F(12°C) PMCC Net Content: 389 lb(177 kg) 50 gal(189 L) 0 60°F

DIRECTIONS:

For Proper Use, Refer to Service Bulletin No.(s) 530.0

SPECIFIC USAGE: Use at a concentration of 2 gallons per 1000 gallons in water-based fracturing fluids.

When Handling This Product Employees MUST WEAR: Chemical goggles, rubber apron and boots.

FOR INDUSTRIAL USE ONLY WARNING

FLAMMABLE. CAUSES EYE INJURY AND SKIN IRRITATION, MAY BE HARMFUL IF INHALED, INGESTED OR ABSORBED THROUGH SKIN.

Do not get in eyes. Avoid contact with skin and clothing. Wear goggles or face shield when handling. Avoid breathing vapor. Use with adequate ventilation. Do not take internally. Keep away from heat and open flames. Keep container closed when not in use.

In case of contact, wash skin with soap and water. for eyes. flush with large amounts of water for at least 15 min. and get medical attention. Remove contaminated clothing and wash before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. If breathing is difficult, give oxygen, get medical attention.

Refer to MSDS and SPM-04-04 for Safety Requirements.



*****D.O.T. PROPER SHIPPING NAME: Flammable liquid, n.o.s., contains isopropanol (UII1993)*****

100362



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

WP9

MAY 1 0 1991

MATERIAL SAFETY DATA SHEET

Human Resources

Date: May 8, 1991

SECTION I								
SUPPLIER'S NAME The Western Company		EMERGENCY TELEPHONE NO. 1-800-424-9300						
ADDRESS (Number, Street, City, State and ZIP Code)	515 Post Oak Blvd., H	iouston, Texas 77027						
CHEMICAL NAME AND SYNONYMS Proprietary	Blend	TRADE NAME AND SYNON	YMS Foamer, Frac Fo	pam 1				
CHEMICAL FAMILY Amphotoric Surfactant		FORMULA	W.I.N. 1003	62				
SECTION I	A - HAZARDOUS	MATERIAL CLASSI	FICATION					
D.O.T. PROPER SHIPPING NAME Con	nbustible Liquid	(RQ 41,000 lit)					
NAME OF HAZARDOUS COMPONENT Met	hanol, CAS # [67-56-1]							
HAZARD CLASS Cor	nbustible Liquid							
IDENTIFICATION NUMBER NA	1993	والمستحد والبرجين والمترج فعاداتهم والرجيب الفكاف						
D.O.T. LABEL(S) REQUIRED	aterial in containers 110) gallons or larger						
PRECAUTIONARY LABEL Atta	ched		an a					
SECTION II - HAZ	ARDOUS INGREDI	ENTS	%	TLV (Units)				
Methanol			12.5	200 ppm				
	SECTION III - 1							
BOILING POINT ("F)	174	SPECIFIC GRAVITY (H20-1)	1.03					
VAPOR PRESSURE (mm Hg)	141	PERCENT, VOLATILE BY VOL	LUME (%)	70				
VAPOR DENSITY (AIR-1)	3.38	EVAPORATION RATE (n-Bu	(cetate=1)	1.8				
SOLUBILITY IN WATER	Soluble	VISCOSITY at 100 (Cannon-Fenske) 10						
APPEARANCE AND ODOR Transparent y	ellow liquid with a sligh	t sweet odor	talando a tradector a lla yay an 6 interrepublika an					
SECTION	IV - FIRE AND	EXPLOSION HAZAR	ID DATA	· · · · · · · · · · · · · · · · · · ·				
FLASH POINT (Method used) 116 (Seta CC) FLAMMABLE UMITS 6.7 Lel 36.0								
EXTINGUISHING MEDIA Carbon dioxi	ide, dry chemical, foam,	, water spray						
SPECIAL FIRE FIGHTING PROCEDURES Wa	ter spray may be used t	o cool fire-exposed meta	l containers to prevent	reignition from hot				
surfaces. Do not breathe smoke or hot fun	n es.							
UNUSUAL FIRE AND EXPLOSION HAZARDS NOT	ne known.							
			ana ang kangan na ng sang kang pang sa kang pang pang sa					

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RADE NAME:	W.I.N.	100362,	Foamer,	Frac	Foam	1
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	SECTION V	- HEALTH HAZ		TA		
THRESHOLD LIMIT VALUE None	established for produ	ct.				
EFFECTS OF OVEREXPOSURE Eyes:	Irritation, itching, exc	essive tearing, swellin	g, pain. S	kin Contact: Initation, redness, dry skin.		
Sensitized skin may show dermatitis	. Inhalation: Naussa	a, dizziness, pneumon	ia if aspirat	ted. If Swallowed: Nausea, vomiting, other		
symptoms of methanol poisoning.						
EMERGENCY AND FIRST AID PROCEDURES	Eyes: Flush eyes	with clear water imm	ediately for	15 minutes and see an eye doctor.		
Skin: Wash skin with soap and wate	er. Remove and laun	der clothing before we	ering. If s	kin irritation persists, see a physician. If		
Inhaled: Remove to fresh air and gh	ve artificial respiration	n If needed. If ingeste	d: Give m	ilk or water to dilute. Induce vomiting. Get		
emergency medical treatment for me	ethanol ingestion.	والمراجع والمراجع والمحافظ المحافظ المحافظ والمحافظ	an a			
	SECTION	VI - REACTIVIT				
STABILITY	UNSTABLE		CONDITION	IS TO AVOID Sources of Ignition		
	STABLE	x				
INCOMPATABILITY (Materials to avoid)	Caustic, oxidizen	s such as chromates o	or chlorine.			
HAZARDOUS DECOMPOSITION PRODUCTS	Smoke, furnes, ce	arbon monoxide, carb	on dioxide,	, oxides of nitrogen.		
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITION	NS TO AVOID		
	WILL NOT OCCUR	x				
	SECTION VII -	SPILL OR LEAK	PROCE	DURES		
STEPS TO BE TAKEN IN CASE MATERIAL IS	RELEASED OR SPILLED	Contain spill and s	oak up wa	ste. Flush area with water.		
WASTE DISPOSAL METHOD Chemi	ical incineration or la	und disposal according	to federal	, state, and local statutes.		
SECT	TION VIII - SPE	ECIAL PROTECTI	ON INFO	DRMATION		
RESPIRATORY PROTECTION (Specify type)	None required in	normai use.				
VENTILATION	LOCAL EXHAU	ust Recommended	and the second secon	SPECIAL Entering tanks or cleaning spills:		
				Air supply recommended.		
	MECHANICAL	. (General)	a in the second seco	OTHER		
PROTECTIVE GLOVES Nooprone or late	ax rubber					
EYE PROTECTION Chamical safety	/ goggies					
OTHER PROTECTIVE EQUIPMENT Eye ba	an stations or water a	supply; showers.	a philippe a star of the star of the	nan banda an an a sha mara 2000 ar an adda a sa an an Aoran ad Sarah Balana a sharanna an an an an an an an an		
	SECTION IX	- SPECIAL PRI	ECAUTIC	DNS		
PRECAUTIONS TO BE TAKEN IN HANDLING	AND STORING Spills t	hat drain into waterwa	ys will gen	erate foam and probably kill fish. This		
should be avoided. Keep containen	closed. Keep away	from sparks and exce	esive heat	. Avoid contact.		
OTHER PRECAUTIONS Know and be able to use first aid and fire fighting procedures.						

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Form OSHA-20

100167



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: 26 SEP 84

SECT	ΓΙΟΝΙ
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America	(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	
CHEMICAL NAME AND SYNONYMS Proprietary blend	TSORFACTATION STORY
CHEMICAL FAMILY Surfactant	FORMULA W.I.N. 100167

SECTION IA HAZARDOUS MATERIAL CLASSIFICATION

D.O.T. PROPER SHIPPING NAME Flammable liquid, n.o.s.

NAME OF HAZARDOUS COMPONENT methanol

HAZARD CLASS Flammable liquid

IDENTIFICATION NUMBER UN 1993

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D.O.T. LABEL(S) REQUIRED Flammable liquid

PRECAUTIONARY LABEL attached

SECTION II - HAZARDOUS INGREDIENTS	%	TLV (Units)
methanol: Rat oral LD ₅₀ 12.88 g/kg, LC ₅₀ 64,000 ppm 4 hours 30	-35	300ppm
isopropanol	0-3	400ppm
		· ·
· ·		

SECTION III - PHYSICAL DATA							
BOILING POINT (°F.)	150 [°] F	SPECIFIC GRAVITY (H20=1) @ 60°F	0.960				
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	35-40%				
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (=1)					
SOLUBILITY IN WATER							
APPEARANCE AND ODOR Clear to	amber, alcot	polic odor					

SECTION IV · FIRE AND EXPLOSION HAZARD DATA							
FLASH POINT (Method used) 62°F PMCC	FLAMMABLE LIMITS	Lei	Uei				
EXTINGUISHING MEDIA CO ₂ , dry chemicals, alcohol type foams							
SPECIAL FIRE FIGHTING PROCEDURES Dilution of burning liquid with 22 to 25 volumes of water will effect extinguish-							
ment. Wear self-contained breathing apparatus.							
UNUSUAL FIRE AND EXPLOSION HAZARDS. Combustion products may contain hydrofluoric acid and must not be breathed.							

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TRADE NAME: W.I.N. 100167, SURFACTANT, FS-2

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE <u>400 ppm (skin) - ACC1H (1975)</u> EFFECTS OF OVEREXPOSURE

None expected except for giddiness. Low toxicity. Approxmimately lethal dose =

17,000 mg/kg (rats).

EMERGENCY AND FIRST AID PROCEDURES Skin: Wash with soap and Water. Eyes: Flush with water for at least 15 min and

call a physician. Inhalation: Move to fresh air. Ingestion: Induce vomiting and

call a physician.

SECTION VI - REACTIVITY DATA

STABILITY UNST		ABLE		Excessiv	s TO AVOID Je heat, sparks and open flames.	
		BLE	XXXX	-		
INCOMPATABILITY (Materials to avoid) Anhydride, isocyanate, monomer, and organometallic contamination.						
HAZARDOUS DECO Carbon monox	MPOSI ide,	carbon di	ts loxide,	hydroflu	poric acid.	
HAZARDOUS POLYMERIZATION		MAY OCCUR			CONDITIONS TO AVOID	
		WILL NOT OCCUR		xxx		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Eliminate all sources of ignition. Flush small spills to the sewer with water.

Large spills should be collected for disposal.

WASTE DISPOSAL METHOD Dispose of in a sanitary landfill according to local, state and fereral regulations

SECTION VIII - SPECIAL PROTECTION INFORMATION

Air supplie	OTECTION <i>iSpecify typel</i> d masks in closed area.		
VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLC Rubber	VES	EYE PROTECTIO	N
GTHER PROTECT	VE EQUIPMENT		

Eye bath and safety shower

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Keep away from heat, sparks and open flames. Keep container closed

CTHER PRECAUTIONS

Use with adequate ventilation. Do not take internally.

PAGE (2)

Form OSHA-20

100167



Western Petroleum Services

W.I.N. 100167



Surfactant

Flash Point: 62°F PMCC Net Content: 429 lb(195 kg) 54 gal(204 L) @ 60°F

DIRECTIONS:

For Proper Use, Refer to Service Bulletin No.(s) 531.0 WG

SPECIFIC USAGE: Use at the rate of 1/2 to 4 gal/1000 gal of treatment fluid.

When Handling This Product Employees MUST WEAR: Rubber gloves, goggles.

FOR INDUSTRIAL USE ONLY WARNING

FLAMMABLE LIQUID Keep away from heat, sparks and open flames. Keep container closed when not in use. Use with adequate ventilation. Do not take internally. *FIRST AID:* Skin: wash with soap and water. Eyes: Flush with water for at least 15 minutes and call a physician. Inhalation: Move to fresh air. Ingestion: Induce vomiting and call a physician. *SPILL OR LEAK:* Eliminate all sources of ignition. Flush small spills to the sewer with water. Large spills should be collected for disposal. Dispose of in a sanitary landfill according to local, state and federal regulations. *FIRE FIGHTING:* Dilution of burning liquid with 22 to 25 volumes of water will effect extinguishment. Wear self contained breathing apparatus. Use CO₂, dry chemical or alcohol type foams. Combustion products may contain hydrofluric acid and must not be breathed.

Refer to MSDS and SPM-04-04 for Safety Requirements.



.....D.O.T. PROPER SHIPPING NAME: Flammable liquid, n.o.s., contains methanol, UN1993*****



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE:

August' 8, 1990

499641

SEC	ΓΙΟΝ Ι	
Supplier's Name		EMERGENCY TELEPHONE NO.
The Western Company of North America		(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101		
CHEMICAL NAME AND SYNONYMS Blend	TRADE M HS-2	NAME AND SYNONYMS
CHEMICAL FAMILY Aldehyde	FORMULA Proprietary	Blend W.I.N. 499641
SECTION IA HAZA	RDOUS MATER	IAL CLASSIFICATION
		(20 /)

D.O.I. PROPER SHIPPING NAME	None	(RQ /)
NAME OF HAZARDOUS COMPONENT	None	
HAZARD CLASS	None	
IDENTIFICATION NUMBER	None	
D.O.T. LABEL(S) REQUIRED	None	
PRECAUTIONARY LABEL	None	

CAS 75	7/3-12-	$\underline{\bigcirc}$
SECTION II - HAZARDOUS INGREDIENTS	× (U	(LV Inits)
None		
	-	
•		

SECTION III - PHYSICAL DATA						
BOILING POINT (⁶ F.)		. 219	SPECIFIC GRAVITY (H20=1)	1.27		
VAPOR PRESSURE (mm Hg.)		24	PERCENT, VOLATILE BY VOLUME (%)			
VAPOR DENSITY (AIR=1)	······································		EVAPORATION RATE (
SOLUBILITY IN WATER		Miscible				
APPEARANCE AND ODOR	Colorless	liquid	Odor: None			

N/A			
ENTING HENING MEDIA			NZA
Use water fog, CO, or dry chemical ext:	inguishing media		
SPECIAL FIRE FIGHTING PROCEDURES			
Firefighters should be equipped with se	elf-contained breathing	apparatus a	nd
turnout gear	,	•	
UNUSUAL FIRE AND EXPLOSION HAZARDS			

PAGE (1) of (4 **)** R-3F(01/86)

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TRADE NAME: W.I.N. 499641 HS-2

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THRESHOLD LIMIT VALUE FFFCTS OF OVEREXPOSURE COntact with the liquid or its vapors causes irritation of the eyes, skin and Tespiratory tract. Ingestion of small amounts causes severe disturbances including mausea and vomiting. EMERGENCY AND FIRST AID PROCEDURES EMERGENCY AND FIRST AID PRODUCTS N/A ESTABLLITY UNSTABLE CONDITIONS TO AVOID N/A ESTABLLY UNSTABLE CONDITIONS TO AVOID N/A ESTABLE N/A MAY OCCUR X ENTRY MULL NOT OCCUR X ENTRY ESTED TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLEO SDIDIES SHOULD be contained, solidified and placed in suitable containers for disposal in a RCRA licensed facility. This material is RCRA hazardous due to its properties. #SECTION VII - SPECIAL PROTECTION INFORMATION ESSIMATORY PROTECTION GRAVED THE SHORE AND THE PROTECTION INFORMATION ESSIMATORY PROTECTION GRAVED THE SHORE AND THE PROTECTION INFORMATION ESSIMATORY PROTECTION GRAVED THE SHORE AND THE PROTECTION ENFORMATION ESSIMATORY PROTECTION START AND PROTECTION INFORMATION ESSIMATION USE STORE SHOLED CONTAINS TO SHORE AND THE PROTECTION ENFORMATION ESSIMATION USE OF THE SAID CONTAINS TO EXAMPLE THE PROTECTION CHERICAL GOOGLES, WEAT A ADTORY PROTECTION ES TO MEET AND SHORES SHOLE DE EASIE OF SHORE AND THE PROTECTION CHERICAL GOOGLES, WEAT A ADTORY PROTECTION STORE SHOLED CONTAINS TO SHORE AND THE PROTECTION CHERICAL GOOGLES, WEAT A ADTORY PROTECTION EDURES SHOLED CONTAINS ADDORED CONTAINS TO SECTION INFORMATION ESSIMATION ENT AND HADDLING AND STORING ESSIMATION ESSI	<u></u>	SE	CTION	V · HEAI	LTH HAZARD	DATA		
Precisor of oversexposure	THRESHOLD LIMIT	T VALUE						
Contact with the liquid or its vapors causes irritation of the eyes, skin and temptatory tract. Ingestion of small amounts causes severe a disturbances including nausea and vomiting. Difference of the eyes, skin and temptators of the eyes and the end of t	EFFECTS OF OVER	EXPOSURE	. V					
Including nusses and voniting.	Contact with	h the liquid o	r its v	vapors ca	uses irritat	ion of the eyes, skin and		
ENDERGENCY AND FIRST AID PROCEDURES EYES - Immediately wash eyes with running water for 15 min, get immediate medical attention. Skin - wash affected areas with water while removing clothing. Launder contaminated clothing before rause. Ingestion - if wallowed. do not induce vomiting. Dilute with water or milk. Inhalation - move to fresh air, aid in breathing if necessary. and get immediate medical attention. SECTION VI - REACTIVITY DATA TABLE SECTION VI - REACTIVITY DATA TABLE N/A SECTION VII - REACTIVITY DATA TABLE N/A SECTION VII - REACTIVITY DATA NA MAY OCCUR N/A MAY OCCUR WILL NOT CCUR SECTION VII - SPILL OR LEAK PROCEDURES TEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OF SPILED Spill ON LEAK MARCEDURES TEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OF SPILED Spire Section VII - SPECIAL PROCECTION INFORMATION IS properties. IS properties. SECTION VIII - SPECIAL PROTECTION INFORMATION	including n	ausea and vomi	ting.					
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Form OSHA-20



MATERIAL SAFETY DATA SHEET

DATE: August 8, 1990

SEC	TION I	
Supplier's Name		EMERGENCY TELEPHONE NO.
The Western Company of North America		(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101		
CHEMICAL NAME AND SYNONYMS Blend	TRADE NA HS-2	AME AND SYNONYMS
CHEMICAL FAMILY Aldehyde	FORMULA Proprietary	Blend W.I.N.499641

SECTION IXA - - SPECIAL PRECAUTIONS

IN CASE OF SPILLS OR LEAKS: Material is a RCRA regulated product. Spills should be contained, absorbed and placed in suitable containers for disposal in a RCRA licensed facility.

IN CASE OF FIRE: Use water foam, CO₂ or dry chemical extinguishing media. Firefighters should be equipped with self-contained breathing apparatus and turnout gear.

EMPTY CONTAINERS: All labeled precautions must be observed when handling, storing and transporting empty containers due to product residues. Do not reuse this container unless it is professionally cleaned and reconditioned.

DISPOSAL: Spilled material, unused contents and empty containers must be disposed of in accordance with local, state and federal regulations. Refer to our Material Safety Data Sheet for specific disposal instructions.

ATTENTION: This product is sold for use by industrial institutions.



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MATERIAL SAFETY DATA SHEET

DAJE: August 8, 1990

SECT	SECTION I					
Supplier's Name	EMERGENCY TELEPHONE NO.					
The Western Company of North America	(817) 731-5100					
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101						
CHEMICAL NAME AND SYNONYMS Blend	TRADE NAME AND SYNONYMS HS-2					
CHEMICAL FAMILY Aldehyde	Proprietary Blend W.I.N. 499641					

SECTION X - LABEL COPY

FOR INDUSTRIAL USE ONLY

WARNING: Contact with the liquid or its vapors causes irritation of the eves, skin and respiratory tract. Ingestion may result in acute poisoning, characterized by severe abdominal disturbances, central nervous system depression and possible respiratory or renal failure. Prolonged inhalation of the vapors may result in irritation or unconsciousness. Chronic overexposure may lead to liver and kidney damage. This product contains trace amounts of a chemical known to the State of California to be a carcinogen. Use with local exhaust. Wear an approved organic vapor respirator when vapors are generated. Wear chemical goggles, protective gloves and clothing as necessary to prevent contact. Wear a full face shield if splashing may occur. Eyewash fountains and safety showers must be easily accessible.

FIRST AID:
FOR EYES: In case of contact, immediately wash with running water for 15 minutes. Get immediate medical attention.
FOR SKIN: In case of contact, wash affected areas with water while removing contaminated clothing. Get immediate medical attention. Launder contaminated clothing before reuse.
FOR INGESTION: If swallowed, DO NOT INDUCE VOMITING.
Dilute with water or milk and get medical attention. Never give fluids or induce vomiting if the victim is unconscious or having for INHALATION: If breathed in, move to fresh air. convulsions.
Aid in breathing if necessary and get immediate medical attention.

ATTENTION! After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precuations listed for this product. Donot cut, puncture or weld on or near this container. Refer to MSDS and SPM-04-04 for other safety requirements.

page (₄ **) of (**₄ **)** R-3F(01/86)

499617

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Date: July 25, 1991

SUPPLIER'S NAME The Western Company EMERGENCY TELEPHONE NO. (817) 731-5433 ADDRESS (Number, Street, City, State and 2/P Code) 515 Post Oak Blvd., Houston, Texas 77027 CHEMICAL NAME AND SYNONYMS TRADE NAME AND SYNONYMS HEA CHEMICAL FAMILY FORMULA W.I.N. 499617 D.0.1, PROFER SHIPPING NAME Corrosive Liquid, n.o.s. (RQ 200 lbs) Thioures NAME OF HAZARDOUS COMPONENT Hydrochloric Acid			SE	CTI	ON I				
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D.O.T. PROPER SHIPPING NAME Corrosive Liquid, n.o.s. (RQ 200 lbs) Thioures NAME OF HAZARDOUS COMPONENT Hydrochloric Acid	SECT	ION IA	- HAZARDO	US	MATERIAL CLASSIF	ICATION			
NAME OF HAZARDOUS COMPONENT Hydrochloric Acid HAZARD CLASS Corrosive IDENTIFICATION NUMBER UN 1760 D.O.T. LABEL(S) REQUIRED Corrosive PRECAUTIONARY LABEL SECTION II - HAZARDOUS INGREDIENTS % TLV (Units) Thiourea 1-5 None Formaldehyde < 1	D.O.T. PROPER SHIPPING NAME	Corro	sive Liquid, n.o.s.		(RQ 200 lbs)	Thiourea	1		
HAZARD CLASS Corrosive IDENTIFICATION NUMBER UN 1760 D.O.T. LABEL(S) REQUIRED Corrosive PRECAUTIONARY LABEL SECTION II - HAZARDOUS INGREDIENTS % TLV (Units) Thiourea SECTION II - HAZARDOUS INGREDIENTS % TLV (Units) Thiourea 1-5 None Formaldehyde <1	NAME OF HAZARDOUS COMPONENT	Hydrc	chloric Acid						
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D.O.T. LABEL(S) REQUIRED Corrosive PRECAUTIONARY LABEL SECTION II - HAZARDOUS INGREDIENTS % TLV (Units) Thiourea 1-5 None Formaldehyde < 1		UN 17	760						
SECTION II - HAZARDOUS INGREDIENTS % TLV (Units) Thiourea 1.5 None Formaldehyde < 1	D.O.T. LABEL(S) REQUIRED	Corro	sive						
SECTION II - HAZARDOUS INGREDIENTS % TLV (Units) Thiourea 1-5 None Formaldehyde <1	PRECAUTIONARY LABEL						2010 an ang sa		
Thiourea 1-5 None Formaldehyde < 1	SECTION II -	HAZAI	RDOUS INGRE	EDIE	INTS	%	TL	/ (Units)	
Formaldehyde < 1	Thiourea					1-5		None	
Orthotoluidine < 1	Formaldehyde					< 1		1 ppm*	
Substituted Triazine 40-50 None Hydrochloric Acid > 15 C-5 ppm SECTION III - PHYSICAL DATA BOILING POINT (*F) > 212*F SPECIFIC GRAVITY (H ₂ 0=1) 1.06-1.08 VAPOR PRESSURE (mm Hg) PERCENT, VOLATILE BY VOLUME (%) 1.06-1.08 VAPOR DENSITY (AIR=1) EVAPORATION RATE (Orthotoluidine					< 1	2 F	pm (skin)	
Hydrochloric Acid > 15 C-5 ppm SECTION III - PHYSICAL DATA BOILING POINT (*F) > 212°F SPECIFIC GRAVITY (H ₂ O=1) 1.06-1.08 VAPOR PRESSURE (mm Hg) PERCENT, VOLATILE BY VOLUME (%) 1.06-1.08 VAPOR DENSITY (AIR=1) EVAPORATION RATE (Substituted Triazine			·····		40-50		None	
SECTION III - PHYSICAL DATA BOILING POINT (*F) > 212°F SPECIFIC GRAVITY (H ₂ O=1) 1.06-1.08 VAPOR PRESSURE (mm Hg) PERCENT, VOLATILE BY VOLUME (%) 100-1.08 VAPOR DENSITY (AIR-1) EVAPORATION RATE (Hydrochloric Acid					> 15	C	≻5 ppm	
BOILING POINT ("F) > 212"F SPECIFIC GRAVITY (H,O=1) 1.06-1.08 VAPOR PRESSURE (mm Hg) PERCENT, VOLATILE BY VOLUME (%) Image: Complete State of the			SECTION III	• 1	PHYSICAL DATA			, <u>1999 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19</u>	
VAPOR PRESSURE (mm Hg) PERCENT, VOLATILE BY VOLUME (%) VAPOR DENSITY (AIR=1) EVAPORATION RATE (BOILING POINT ("F)		> 212°F		SPECIFIC GRAVITY (H2O=1)			1.06-1.08	;
VAPOR DENSITY (AIR-1) EVAPORATION RATE (VAPOR PRESSURE (mm Hg)				PERCENT, VOLATILE BY VOLU	ME (%)			ج د ستان ج ر
SOLUBILITY IN WATER Complete APPEARANCE AND ODOR Aromatic odor SECTION IV - FIRE AND EXPLOSION HAZARD DATA FLASH POINT (Method used) None EXTINGUISHING MEDIA Carbon dioxide, water, foam or dry chemical SECCIAL FIRE EXCURPTING SPROCEDURES Wear positive preserve self-contained breathing spaceture and full protecting elething	VAPOR DENSITY (AIR=1)					1)			
APPEARANCE AND ODOR Aromatic odor SECTION IV - FIRE AND EXPLOSION HAZARD DATA FLASH POINT (Method used) None FLAMMABLE LIMITS Lei U EXTINGUISHING MEDIA Carbon dioxide, water, foam or dry chemical SECCUTING SPOCEDURES Wear positive pressure self-contained breathing sposeture and full protective electronic			Complete						
SECTION IV - FIRE AND EXPLOSION HAZARD DATA FLASH POINT (Method used) None FLAMMABLE LIMITS Lei U EXTINGUISHING MEDIA Carbon dioxide, water, foam or dry chemical U	APPEARANCE AND ODOR Aroms	tic odor							
FLASH POINT (Method used) None FLAMMABLE LIMITS Lei U EXTINGUISHING MEDIA Carbon dioxide, water, foam or dry chemical SECURI SIDE EXCURPTION SECURITY	SEC	CTION	IV - FIRE AN	ND I	EXPLOSION HAZAR	DATA			
EXTINGUISHING MEDIA Carbon dioxide, water, foam or dry chemical	FLASH POINT (Method used) None	h Anna ann an Anna	FI				Lei		Ue
	EXTINGUISHING MEDIA Carbo	n dioxid	a, water, foam or (dry c	hemical				
SPECIAL FIRE FIGHTING PROCEDURES THE AUBUNG PROSSURE SENSOTIALITED DEALITING APPALATUS AND THE PROCEDURES	SPECIAL FIRE FIGHTING PROCEDURES	Wear	positive pressure	self-	contained breathing appar	atus and full	protective c	lothing.	

TRADE NAME: W.I.N. 499617

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE Inhalation: Inhalation of mist can cause injury (burns) to the respiratory tract. Ingestion: Toxic. Can cause shock and loss of consciousness. May be fatal if swallowed. Eyes: Contact with eyes can cause burns and eye damage. Skin: Contact with skin can cause burns. May cause allergic skin reaction/dermatitis. Chronic: Contains O-Toluidine – may cause cyanosis, abnormal blood forming system function with anemia or red blood cell destruction. CARCINOGENICITY: Formaldehyde: Listed by the International Agency for Research of Cancer as a probable carcinogen to humans on the basis of animal evidence, but human data is inadequate (IARC Group 2B). Listed by the National Toxicology Program as reasonably anticipated to be carcinogenic. Listed by ACGIH as an A2 Industrial Substance Suspect of Carcinogenic Potential for Man. O-Toluidine: Listed by the International Agency for Research on Cancer (IARC Group 2A) as a probable carcinogen to humans on the basis of at least limited human data. Listed by the National Toxicology Program as reasonably anticipated to be carcinogenic. Listed by the National Toxicology Program as reasonable carcinogenic. Listed by the National Agency for Research on Cancer (IARC Group 2A) as a probable carcinogen to humans on the basis of at least limited human data. Listed by the National Toxicology Program as reasonably anticipated to be carcinogenic. Listed by the National Toxicology Program as reasonably anticipated to be carcinogenic. Listed by the National Toxicology Program as reasonably anticipated to be carcinogenic. Listed by the National Toxicology Program as reasonably anticipated to be carcinogenic. Listed by the National Toxicology Program as reasonably anticipated to be carcinogenic. Listed by the ACGIH as an Industrial Substance of Carcinogenic Potential for Man. Thiourea: Listed by the International Agency for Research on Cancer (IARC Group 2B). Listed by the National Toxicology Program (NTP) as an anticipated human carcinogen.

EMERGENCY AND FIRST AID PROCEDURES Eyes: Immediately flush eyes in a directed stream of water for at least 15 minutes while forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. GET MEDICAL ATTENTION. Skin: Immediately remove contaminated clothing and shoes. Flush skin thoroughly with water for at least 15 minutes. Rinse clothing. If irritation persists, GET MEDICAL ATTENTION. Ingestion: DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION. (Medical personnel – use cautious lavage to avoid aspiration.) Inhalation: Remove to fresh air and remove contaminated clothing. If breathing is difficult, administer oxygen. If respiration stops, give mouth to mouth resuscitation. GET MEDICAL ATTENTION.

SECTION VI - REACTIVITY DATA						
STABILITY	UNSTABLE		CONDITIONS TO AVOID Keep from freezing.			
	STABLE	x				
INCOMPATABILITY (Materials to avoid)	Alkalies, strong o	xidizing agents				
HAZARDOUS DECOMPOSITION PRODUCTS						
	MAY OCCUR		CONDITIONS TO AVOID None known.			
	WILL NOT OCCUR	×				
	SECTION VII -	SPILL OR LEA	AK PROCEDURES			
STEPS TO BE TAKEN IN CASE MATERIAL IS	RELEASED OR SPILLED	Wear protective	clothing. Dike to contain spill. Absorb or otherwise			
collect spill and place in suitable dr	um for disposal.					
WASTE DISPOSAL METHOD Either	incinerate or put in a	landfill with appro	wal of regulatory agency.			
SEC	TION VIII - SPE	ECIAL PROTE				
RESPIRATORY PROTECTION (Specify type)						
VENTILATION LOCAL EXHAUST X SPECIAL						
MECHANICAL (General) OTHER						
PROTECTIVE GLOVES Neoprene or po	lyvinyl gloves and app	propriate protective	e clothing			
EYE PROTECTION Chemical gogg	les or face shield					
	approved respirator	where TLV/PEL m	nay be exceeded. Eye wash station should be in close			
proximity.		11111111111111111111111111111111111111				
	SECTION IX	- SPECIAL P	PRECAUTIONS			
PRECAUTIONS TO BE TAKEN IN HANDLING	AND STORING Protect	from freezing. Do	not get in eyes, on skin or clothing. Material is toxic.			
Use with adequate ventilation. Avoi	d breathing vapors.					
OTHER PRECAUTIONS Wash thorough	v after handling. For	industrial use only	/			

PAGE (2) OF (2) R-3F (09/90)



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE:

• 17FEB86

SECTION I					
Supplier's Name	EMERGENCY TELEPHONE NO.				
The Western Company of North America	(817) 731-5100				
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101					
CHEMICAL NAME AND SYNONYMS Acetylenic alcohols, amine quats, methano	I INHIBITOR, acid, I-10D				
CHEMICAL FAMILY amines and acetylenic alcohols	FORMULA W.I.N. 499618				

SECTION IA - HAZARDOUS MATERIAL CLASSIFICATION
D.O.T. PROPER SHIPPING NAME flagmable liquid, corrosive, n.o.s.
NAME OF HAZARDOUS COMPONENT methanol, acetylenic alcohols, organic amines
HAZARD CLASS Flammable Liquid, Corrosive
IDENTIFICATION NUMBER UN2924
D.O.T. LABEL(S) REQUIRED Flammable liquid and corrosive

PRECAUTIONARY LABEL Attached

SECTION II - HAZARDOUS INGREDIENTS		TLV (Units)
methanol	65	200
propargyl alcohol		1_1_
formamide		20
heavy aromatic naptha - 100 ppm; ethyl octynol - 1 ppm; isopropanol		400

SECTION III - PHYSICAL DATA					
BOILING POINT (°F.)	192	SPECIFIC GRAVITY (H20=1) (@ 25°C)	0.800		
VAPOR PRESSURE (mm H9.) (MeOH @ 21.2°C)	100	PERCENT, VOLATILE BY VOLUME (%)	80		
VAPOR DENSITY (AIR=1)	1.20	EVAPORATION RATE	2.07		
SOLUBILITY IN WATER	dispersib	le			
APPEARANCE AND ODOR dark brown 1	iguid. pi	ne odor			

SECTION IV · FIRE AND EX	PLOSION HAZARD DAT	'A	
FLASH POINT (Method used) 52°F PMCC, ASTM D93-73	FLAMMABLE LIMITS	Lei	Uel
EXTINGUISHING MEDIA CO2, alcohol foam, dry c	hemical		
SPECIAL FIRE FIGHTING PROCEDURES Use water spray to cool fire-exposed surfac	es and to protect pe	<u>rsonnel.</u>	
			#***
Respiratory protection required. Full body	protection needed i	f fumes,	<u>mist or</u>
liquid may be contacted.			

TRADE NAME: W.I.M. 499618 INHIBITOR, acid, I-10D

SECTION V · HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE ethyl octynol - 1 ppm propargyl alcohol, formamide, methanol, naphtha, isopropanol (1,20,200,100,400 ppm) EFFECTS OF OVEREXPOSURE anesthesia, nausea, headache, dizziness, blindness, convulsions, death - may be fatal if Eye Contact - permanent blindness inhaled/absorbed via skin - severe irritant to skin -chronic:liver,lung,kidney EMERGENCY AND FIRST AID PROCEDURES flush skin and eyes with water for 15 min and remove to fresh air - call a doctor; artificial respiration: if swallowed, induce vomiting if victim is conscious -

100-200 ml usually fatal; no known antidote - treat symptoms

SECTION VI · REACTIVITY DATA CONDITIONS TO AVOID STABILITY UNSTABLE conditions - open flames, sparks, heat X STABLE INCOMPATABILITY (Materials to avoid) strong oxidizers, mineral acids, olefins, esters, alkylene oxides, cyanohydrides HAZARDOUS DECOMPOSITION PRODUCTS DOES NOT decompose unless burned, but vapors are very toxid Decomposes, when burned, into HCl acid and toxic smoke and fumes CONDITIONS TO AVOID MAY OCCUR HAZARDOUS POLYMERIZATION X WILL NOT OCCUR

SECTION VII · SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED eliminate ignition sources; keep public away - vapors can be fatal; avoid contact

and evacuate occupants from down wind areas; prevent from entering sewers, water sources,

areas - advise authorities of contact with sewer, water, soil, vegetation

WASTE DISPOSAL METHOD DANGER! contain liquid with sand/earth; recover by pumping or with suitable absorbent -

consult expert on disposal

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Use NIOSH/MSHA approved self-contained or respirator with amine cartridges. LOCAL EXHAUST SPECIAL VENTILATION greater than 60 fpm hood/face velocity explosion proof MECHANICAL (General) OTHER equal to outdoors N/A EYE PROTECTION PROTECTIVE GLOVES splash goggles rubber OTHER PROTECTIVE EQUIPMENT

chemical-resistant suit and boots

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN MANDLING AND STORING close container when not in use - containers hazardous when empty - observe all

precautions given in this sheet - wear protective equipment

OTHER PRECAUTIONS keep away from heat, sparks, flames - contains acetylenic alcohols, no known

antidote - permanent blindness

low

499620



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: 19SEP85

SECTI	
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America	(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	
CHEMICAL NAME AND SYNONYMS Acetylenic alcohols, amine quats, methano:	I INHIBITOR, acid, I-17A
CHEMICAL FAMILY amines and acetylenic alcohols	W.I.N. 499620

SECTION IA HAZARDOUS MATERIAL CLASSIFICATION

D.O.T. PROPER SHIPPING NAME flammable liquid, corrosive, n.o.s.

NAME OF HAZARDOUS COMPONENT methanol, acetylenic alcohols, organic amines

HAZARD CLASS Flammable Liquid, Corrosive

IDENTIFICATION NUMBER UN2924

D.O.T. LABEL(S) REQUIRED Flammable liquid and corrosive

PRECAUTIONARY LABEL Attached

SECTION II · HAZARDOUS INGREDIENTS	*	TLV (Units)
methanol	50	200 200
propargyl alcohol		1
formamide		20
heavy aromatic naptha - 100 ppm; ethyl octynol - 1 ppm; isopropanol		400

SECTION III · PHYSICAL DATA						
BOILING POINT ("F.)	192	SPECIFIC GRAVITY (H20-1) (@ 25°C)	0.820			
VAPOR PRESSURE (mm Hg.) (MeOH @ 212°C) 100	PERCENT, VOLATILE BY VOLUME (%)	63			
VAPOR DENSITY (AIR=1)	1.20	EVAPORATION RATE	2.07			
SOLUBILITY IN WATER	dispersibl	e				
ADDEADANCE AND ODOD dark brown 1	iouid of					

APPEARANCE ANO ODOR dark brown liquid, pine odor

.

SECTION IV · FIRE AND EXPLOSION HAZARD DATA						
FLASH POINT (Method used) 12.2 C. PMCC. ASTM D93-73	FLAMMABLE LIMITS	Lei	Uei			
EXTINGUISHING MEDIA CO2, alcohol foam,	dry chemical		<u>_</u>			
SPECIAL FIRE FIGHTING PROCEDURES Use water spray to cool fire-exposed s	urfaces and to protect pe	ersonnel.				
UNUSUAL FIRE AND EXPLOSION HAZARDS Respiratory protection required. Full	body protection needed i	if fumes, mi	st or			
liquid may be contacted.						

TRADE NAME: W.I.N. 499620, INHIBITOR, acid, 1-17A

SECTION V · HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE ethyl octynol - 1 ppm propargyl alcohol, formamide, methanol, naphtha, isopropanol (1,20,200,100,400 ppm) EFFECTS OF OVEREXPOSURE anesthesia, nausea, headache, dizziness, blindness, convulsions, death - may be fatal if Eye Contact - permanent blindness inhaled/absorbed via skin - severe irritant to skin -chronic:liver,lung,kidney EMERGENCY AND FIRST AID PROCEDURES flush skin and eyes with water for 15 min and remove to fresh air - call a doctor; artificial respiration: if swallowed, induce vomiting if victim is conscious -

100-200 ml usually fatal; no known antidote - treat symptoms

• •	•	SECTIC	
STABILITY	UNSTABLE		conditions - open flames, sparks, heat
	STABLE	X	
INCOMPATABILITY Strong oxidize HAZARDOUS DECO Decomposes, Wi	(Materials to avoid) TS, mineral MPOSITION PRODU Ten burned,	acids, ucts Does Into HC1	olefins, esters, alkylene oxides, cyanohydrides s not decompose unless burned, but vapors are very toxi l acid and toxic smoke and fumes
HAZAROOUS	MAY OCCL	JR	CONDITIONS TO AVOID
POLYMERIZATION	WILL NOT	OCCUR	X
· ·			

SECTION VIL - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED eliminate ignition sources; keep public away - vapors can be fatal; avoid contact

and evacuate occupants from down wind areas; prevent from entering sewers, water sources,

areas - advise authorities of contact with sewer, water, soil, vegetation

WASTE DISPOSAL METHOD DANGER! contain liquid with sand/earth; recover by pumping or with suitable absorbent -

consult expert on disposal

SECTION VIII - SPECIAL PROTECTION INFORMATION

		بريجي والمراجع والمراجع والمتكر فالمتكرة النتكر مطربين والمتعر والمتعربين والمراجع والمراجع والمراجع والمراجع والمراجع
RESPIRATORY PRO	TECTION (Specify type)	
Use NIOSH/MSH	<u>A approved self-contained or r</u>	espirator with amine cartridges.
VENTILATION	greater than 60 fpm hood/fac	velocity explosion proof
	MECHANICAL (General) equal to our	doors N/A
PROTECTIVE GLOV	ES E E E	VE PROTECTION splash goggles
OTHER PROTECTIV	E EQUIPMENT chemical-resistant	suit and boots

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING close container when not in use - containers hazardous when empty - observe all

precautions given in this sheet - wear protective equipment

CTHER PRECAUTIONS keep away from heat, sparks, flames - contains acetylenic alcohols, no known

antidote - permanent blindness

PAGE (2)

Form OSHA-20

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Suppliar's Name			BALAGENCY TEL	prione ng.	, ,
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P. O. BOX 186. Pt. WOFTH. TX	78101	TRADEN	MAE AND SYNONY	1	
Proprietary blend		PERMULA	ion Inhibitor	<u>1-18A</u>	
Corresson inhibitor		Propr	ietary blend	WIN 49	962
SECTION	NIA HAZAR	DOUS MATER	AL CLASSIFI	CATION	n on oak
D.G.T. PROPER SHIPPING NAME FT ALTER	able Liquid.	Correstve. n	. 0. 5.	2 3 3	
NAME OF HAZARDOUS COMFONENT Me	thenol, Prop	argy1 Alcohol			
HAZARD CLASS Flammable Liquid	. Corrosive	Liquid			
IDENTIFICATION NUMBER UN2924		· · · · · · · · · · · · · · · · · · ·	an a		
D.O.T. LABEL (S) REQUIRED Flammab	<u>le Liquid, C</u>	orrestve Ltqu	1d	an anton yang ang ang ang ang ang ang ang ang ang	
PRECAUTIONARY LABEL Attached	and a state of the state of the state of the	é			
		AND A REAL			5 (
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SECTION II · MA	ZARDOUS ING	ABDIENTS			
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SECTION II • HAT Methanol Propargyl alcohol Quaternary amine salt	ZARDOUS ING	ABDIENTS			
SECTION II • HAT Methanol Propargyl alcohol Quaternary amine salt Heavy aromatic naphtha		ABDIENTS			
SECTION II • HAT Methanol Propargyl alcohol Quaternary amine salt Heavy aromatic naphtha	CTION III - P	HYSICAL DATA			
SECTION II - HAA Methanol Propargyl alcohol Quaternary amine salt Heavy aromatic naphtha SE Conume senor (7.)	2ARDOUS ING CTION III - P 145(calc.)	HYSICAL DATA	· · · · · · · · · · · · · · · · · · · ·		
SECTION II - HAA Methanol Propargyl alcohol Quaternary amine salt Heavy aromatic naphtha SE conume source (7.) Varian processing (name Ma) & 100°F	2ARDOUS ING CTION III • P [145(calc.) [165	HYSICAL DATA	· (hgo=31 8 60 ⁰ f		1 s 200 1 s 1 o 1 o 0.95
SECTION II - HAA Mathanol Propargyl alcohol Quatermary amine salt Heavy aromatic naphtha SE contine common 0 100°F MARCH CERENTY (200001 0 1 atm	2ARDOUS ING CTION III • P 145(calc.) 165 4.0	HYSICAL DATA			
SECTION II - HAA Mathanol Propargyl alcohol Quatermary amine salt Heavy aromatic naphtha SE contine common of 100°F MANOR GEAMITY (MIGPLI & 1 atm ESTIMATIN IN WATER	2ARDOUS ING CTION III • P 145(calc.) 165 4.0 E0luble	HYSICAL DATA	/(rt20=11 0 60 ⁰ F 8,		d 200 1 5 1 6 1 6
SECTION II - HAA Mathanol Propargyl alcohol Quatermary amine salt Heavy aromatic naphtha SE continue commun. 0 100°F MANOR GENERY (MICOLL 0 1 atm CORMANDE AND DESA Dark red-en	ZARDOUS ING CITON III · P T45(calc.) 165 4.0 501uble ber: Bunsent	HYSICAL DATA			d 200 1 5 1 - 100
SECTION II - HAA Mathanol Propargy 1 alcohol Quatermary amine salt Heavy aromatic naphtha SE continue convr (*.) VARCH PRECEDER (RAM MA) 0 100°F VARCH PRECEDER (RAM MA) 0 100°F VARCH PRECEDER (RAM MA) 0 100°F MARCH PRECEDER (RAM MA) 0 100°F	CTION III · P T45(calc.) 165 4.0 Eeluble ber: Bunsent · FIRE AND F	HYSICAL DATA	1 (mao=11 0 60 ⁰ F 8, 7 7 8, 7 8, 7 8, 7 8, 7 8, 7 8, 7 8		05 (c

tinguish with alcohol-type foam or dry chamical. Cover unionited liquid with foam.

12-38-91 DECEAM FERM TESTERN CO TROWLEY.

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	ŝĘ	CTION	V - HEAL	TH HAZAR	DATA		
THRESHOLD UM	TVALUE SEE	Section	11		1999-1999-1999-1999-1999-1999-1999-199		
Corrosive.	And are anest cause in the	burns a Netic. ina ta	nd perma Innalaci mouth e	nent skin (on or skin sophagus au	damage. Vi adsorption nd stomage	adors may on can ca h. loss o	cause headac use clinuness f'vision or d
Tush eyes or on skin. If c dminister av If individual warm and cuic	skin with wet vercome by vap tificial peni is conscious. at and call a n	ar for ors, re rarion give m hysicia	15 min. move imm if braat hik or w	and call a addataly to hing it of atar to di	ohvsicia o tresn a opped. D iute cont	n. If ava ir and ca o not ind ants or s	ilable. usa s il a physicia uce vomiting. comach. kaep
a <u>de al constan mandance de al a</u> ngere.		SECTIO	N.VI - RI	EACTIVITY I	DATA		
STABILITY	UNISTABLE		CONDITION	SIDVA OF	N/A		
	STABLE	X					
INCOMPATABILIT	Y (Malandis (O Greis)	Stre	three pro	zing agent	3		
HAZARGOUS BEC	DMPOSITION PROBLIC	:NC				an an the second second	
HAZAROOUS	MAY GEELA			CONDITIONS	TO AVOID	N/A	
MOPPLANE WITH	WILL NOT O	ecua	X			•	
	SECT	ION VII	- SPILL	OR LEAK PF	ROCEDUR		
STEPS TO AR TAN Eliminate so liquid with Recover by g	SECT LEN IN CASE MATERI UTCES of igniti sand or earth. Unming or with	ION VII AL IS ABL Ion. Wi Oo no a suit:	- SPILL	OR LEAK PF MALES M	ROCEDURE Numerind an matarials	ES TERS. Con such as	ntain_spilled sawdust.
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U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration



MATERIAL SAFETY DATA SHEET

DATE: August 17, 1990

SEC	TION I	
Supplier's Name	EMERGE	ENCY TELEPHONE NO.
The Western Company of North America		317) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101		
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND	SYNONYMS
CHEMICAL FAMILY Surfactant Blend	Proprietary	W.I.N.499655

SECTION IA HAZARDOUS MATERIAL CLASSIFICATION							
D.O.T. PROPER SHIPPING NAME	Flammable liquid (n.o.s.)	(RQ	1)			
NAME OF HAZARDOUS COMPONENT	Methanol						
HAZARD CLASS	Flammable liquid						
IDENTIFICATION NUMBER	UN 1993						
D.O.T. LABEL(S) REQUIRED	Flammable			· · · · · · · · · · · · · · · · · · ·			
PRECAUTIONARY LABEL	Flammable						

SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)]
Methanol (67561) 1	5-25	200	pm
Heavy Aromatic Naptha (64742945)	3-6	100	pm
· · · ·	Γ]

SECTION III - PHYSICAL DATA				
BOILING POINT ("F.)	ND	SPECIFIC GRAVITY (H20=1)	0.94	
VAPOR PRESSURE (mm Hg.)	ND	PERCENT, VOLATILE BY VOLUME (%)	25	
VAPOR DENSITY (AIR=1)	ND	EVAPORATION RATE	ND	
SOLUBILITY IN WATER Dispersible				
APPEARANCE AND ODOR Dark liqu	id with meth	anol/alkyl amine odor		

SECTION IV · FIRE AND EXPLOSION HAZARD DATA						
FLASH POINT (Method used) 62 F (PMCC)	FLAMMABLE LIMITS					
EXTINGUISHING MEDIA Foam, dry chemical, CO,, water spray.						
SPECIAL FIRE FIGHTING PROCEDURES Water spray may be used to cool fire expos	ed metal containers to	prevent				
re-ignition from hot surfaces. Do not bre	athe smoke or hot fume	es.				
UNUSUAL FIRE AND EXPLOSION HAZARDS		•				

PAGE (1) of (3) R-3F(01/86)

TRADE NAME: W.I.N. 499655, 1-22

SECTION V · HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE Eyes - irritation, burning, itching and pain. Skin contact - irritation, redness.

Inhalation - may cause nausea, vomiting. Ingestion - nausea, vomiting, light headedness.

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EMERGENCY AND FIRST AID PROCEDURES Eyes - flush copiously with water immediately for 15-20 min. Get medical treatment Skin contact - wash with soap and water. Remove clothing and launder before reuse. Inhalation - remove from exposure. Control delirium, avoid respiratory delirium. Ingestion - drink water to dilute. Induce vomiting. Get emergency medical treatment for ingestion of methanol.

SECTION VI - REACTIVITY DATA						
STABILITY				CONDITION Oper	IS TO AVOID 1 flames	
	STABLE		X		·	
Strong oxidi	<i>(Materials t</i> zers, m:	<i>o avoid)</i> ineral	acids	•		
MAZAROOUS DECO Oxides of ca	mposition rbon and	PRODUC 1 nitro	r s gen.			
HAZARDOUS	ма	Y OCCUR			CONDITIONS TO AVOID	
POLYMERIZATION	WI	LL NOT O	CUR	X		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Stop the flow of liquid, eliminate sources of ignition. Dike or prevent spreading

of liquid. Vacuum up. Absorb or scrape up contaminated soil and place into

container for later disposal.

Dispose waste by incineration under controlled conditions or put in chemical

landfill.

SECTION VIII - SPECIAL PROTECTION INFORMATION

In closed areas, use NIOSH approved organic vapor respirator.					
VENTILATION	Recommended		SPECIAL		
	MECHANICAL (General) With explosion proof circuits				
PROTECTIVE GLOV Neoprene	ES	EVE PROTECTION Salety gog	gles		
OTHER BROTECTIV	E COLUBRENT				

Eye wash stations, ample water supply, showers, protective clothing.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in cool, dry area. Ground containers and lines during transfer to

eliminate static electricity. OTHER PRECAUTIONS

Do not ingest.

PAGE (2) of (3) R-3F(01/86)

Form OSHA-20

Pacesetters

ttachment to and continuation of

MATERIAL SAFETY DATA SHEET

DATE:

777404

SECTION I						
Supplier's Name	EMERC	SENCY TELEPHONE NO.				
The Western Company of North America	((817) 731-5100				
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101						
CHEMICAL NAME AND SYNONYMS	TRADE NAME AN	D SYNONYMS				
CHEMICAL FAMILY Surfactant Blend	FORMULA Proprietary	W.I.N.499655				

SECTION X - LABEL COPY

FOR INDUSTRIAL USE ONLY

FIRST AID: FOR EYES: In case of contact, flush copiously with water immediately for 15 to 20 minutes. Get medical treatment. FOR SKIN: In case of contact, wash with soap and water. Remove contaminated clothing and wash skin with soap and water. Launder clothing before re-use. FOR INGESTION: If swallowed, drink water to dilute. Induce vomiting. Get emergency medical treatment for ingestion of methanol. FOR INHALATION: If breathed in, remove from exposure. Control delirium, avoid respiratory depression. HANDLING: Employees must wear

ATTENTION! After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precuations listed for this product. Donot cut, puncture or weld on or near this container. Refer to MSDS and SPM-04-04 for other safety requirements.

PAGE (3) of (3) R-3F(01/86) . |

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	I.S. DEPARTN	IENT OF LABOR	
	ional Safety ar	d Health Administration	
MATERIA	AL SAFE	TY DATA SHEET	
Pacesellers		DATE: 60CT86	
	SEC		
Supplier's Name		EMERGENCY TELEPH	ONE NO.
The Western Company of North ADDRESS (Number, Street, City, State, and ZIP)	America Codel	(817) 731-5	100
P. O. Box 186, FL. Worth, TX	76101	TRADE NAME AND SYNONYMS	• • •
CHEMICAL FAMILY		FORMULA HILLING AGENT, WATER,	<u> W7-499572</u>
<u>qalacto - mannans, quar deriv</u>	varive	W.I.N. 49	9572
SECTIO	NIA HAZA	RDOUS MATERIAL CLASSIFICA	TION
D.O.T. PROPER SHIPPING NAME NOT	regulated	· · · · · · · · · · · · · · · · · · ·	
NAME OF HAZARDOUS COMPONENT	N/A		:
HAZARD CLASS	N/A		
IDENTIFICATION NUMBER	N/A		
D.O.T. LABEL(S) REQUIRED	N/A		
PRECAUTIONARY LABEL	attached		
SECTION II - HA	ZARDOUS IN	GREDIENTS	X (Units)
CAS[39421-75-5]Guar gum, 2-hyd	roxypropy]	ether, Acute oral LD ₅₀ (rats)>50	g/kg9515mg/r
proprietary nonionic surfactan	<u>t</u>	limits not	established
Quartz, CAS[1480-60-7]		respirabl	.e 0.1mg/m
SE	CTION III - F	HYSICAL DATA	
BOILING POINT ("P.)	N/A	SPECIFIC GRAVITY (H30-1)	~1.3
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT, VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE	N/A
SOLUBILITY IN WATER	forms cel		
APPEARANCE AND OCOR off-white	powder, bear	like odor	
APPEARANCE AND ODOR off-white	powder, bear	like odor	
APPEARANCE AND ODOR Off-white SECTION IV	powder, bear FIRE AND E	XPLOSION HAZARD DATA	Uer
APPEARANCE AND ODOR OFF-white SECTION IV FLASH POINT (Mothod und) Solid - not applicable EXTINGUISHING MEDIA	powder, bear - FIRE AND E	EXPLOSION HAZARD DATA	Ue
APPEARANCE AND ODOR off-white SECTION IV FLASH POINT (Moined und) Solid - not applicable EXTINGUISHING MEDIA Use water carbon dioxide, dr SPECIAL FIRE FIGHTING PROCEDURES Wear self-contained positive	powder, bear FIRE AND E y chemical o pressure br	like_odor EXPLOSION HAZARD DATA FLAMMABLE LIMITS REB_Section_IXA or foam. reathing apparatus and full fir	Uer re fighting
APPEARANCE AND ODOR off-white SECTION IV FLASH POINT (Moined und) Solid - not applicable EXTINGUISHING MEDIA Use water carbon dioxide. dr SPECIAL FIRE FIGHTING PROCEDURES Wear Self-contained positive protective clothing.	powder, bear FIRE AND E y chemical (pressure br	Iike_odor EXPLOSION HAZARD DATA FLAMMABLE LIMITS Rep Section IXA or foam. reathing apparatus and full fire	Ue re fighting
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			-HADIT.WORDER 35 F.12	
				•
TRADE NAME	. W.I.N. 49	9572. (SELLING AGENT, water, WZ-499572	_
	S	ECTION	V · HEALTH HAZARD DATA] .
THRESHOLD LIMIT	VALUE			1
EFFECTS OF OVER Ingestion(swi Inhalation(b Contains ing Skin(contact contains ing Eye(contact) ingredients Chronic effe	Exposure No allowing) Cor reathing) No redjents which and absorptic redients which No specific which may caus cts of exposur tions "for f	specif specif may c may c may c inform inform e No e No	The information available for this product. materials that may be slightly toxic. ic information available for this product; however ause irritation to the respiratory tract if inhaled specific information available for this product; however ause skin irritation with repeated and/or prolonged ation available for this product; however, contains re eve injury framage reversible specific information available. See Section IX details	weve cont
Emergency an	d First Aid Pr	ocedur	es: See Section IXA on Page 3	
	•	SECTIO	DN VI - REACTIVITY DATA	
STABILITY	UNSTABLE	•	CONDITIONS TO AVOID Fire. excessive heat	
	STABLE	Y	,	
INCOMPATABILITY	(hlaterials to avoid)	<u> </u>	known	
HAZARDOUS DEC	MPOSITION PRODU	CTS		
		car	bon dixoide carbon monoxide	
HAZAROOUS POLYMERIZATION	MAY OCCUI			
	WILL NOT C	CCUR '	X	
······································				
	5201			
CHERRY NO OF TAKE	NUN CASE MATERI	AL 15 951		•
AVOID CTEATI	IN IN CASE MATERI	AL 15, AEL	reathing dust. Wet material is slippery.	
Avoid creatin Dry powder: Wet material	n in case matering dust clouds Carefully scoo	and b b up o to pre	reathing dust. Wet material is slippery. reathing dust. Wet material is slippery. r vacuum and place in disposal container. vent spreading. Absorb with inert material, collect	
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The Western Co	mpany of Nort	th Amer	ica			(8	17) 731-5	100
P. O. Box 186,	Ft. Worth,	TX 76101	1		1			
Proprietary to	rmulation			ARCIO	CELLIN	AME AND	water,W2	-499572
jalacto-mannan,	guar gum de	rivativ	e ſ	- CHMO	W.I.N	4995	72	
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Western Petroleum Services

W.I.N. 499572

WZ-499572

SSB NO. 681.5

GELLING AGENT

Emergency Phone No. 817-731-5433

LOT NO. E7316AS1

NET WET

LB

Manufactured For

The Western Company of North America P.O. BOX 186 FORT WORTH, TEXAS 76101

SAFETY INFORMATION

HANDLING PRECAUTIONS-FIRST AID RECOMMENDATIONS

Skin 5 Eye Contact - Considered to be non-Irritating to eyes and skin based on animal tests.

Inhalation - Considered to be non-hazardous but use with proper care and handling precautions to prevent unnecessary contact with or inhalation of product dusts.

PROTECTIVE EQUIPMENT

Safety glasses; Nulsance dust mask if use causes dusting.

SPILL CLEANUP/WASTE DISPOSAL

Observing noted special precautions, pick up spilled material and containerize. Vacuum or sweep area to remove residues. Use water with caution; product becomes slippery when wet.

This product, if disposed of as shipped, is not a hazardous waste as defined in 40 CFR 261. Dispose of in an approved landfill in accordance with state and local regulations.

FIRE EXTINGUISHING MEDIA

Water, CO2, Foam, Dry Chemical

SPECIAL PRECAUTIONS

Powders may form explosive mixtures with air. Do not store or handle in the presence of heat or an ignition source. Do not allow powder or dust to accumulate in work or storage areas.

Product becomes slippery when wet.

11/62

Refer to MSDS and SPM-04-04 for additional Safety Information.

For Industrial Use Only

DOT HAZARO CLASS - NOT RESTRICTED

HAZARD CLASSIFICATION					
Health	Fire	Reactivity	Specific		
1	1	0	-		

WCNA-108368(05/86)	
Vince Whelan	FW - Accident Prevention
From Robert W. Anderson RWA	AtFW - Chemical Technology Development
Date	^{B9} RECEIVED
	MAY 1 5 1989
RE: <u>Safety Information Update</u>	R.E.F.C.
This is to inform you of revisions, add	itions, deletions or replacement of
products or chemicals and the relevant s	afety data.
<u>Western Trade Name</u> : Maxioil₩	<u>W.I.N.</u> : 100256
Chemical Name (if not trade named):	
Addition Revision _X_ Replacemen	t Deletion to product line
Western Product <u>X</u> Western System	_
CementingStimulation	
DOT Proper Shipping Name & I.D. Num	<pre>per (SPM-04-02): Combustible liquid,n.o.s.</pre>
DOT Hazardous Material Class: combu	stible material (NA1993)
Label: combus	stible liquid
<u>Chemical Storage Class (SPM-04-01)</u> :	II.1.
Chemical First Aid Guide Class (SPM	<u>-04-04)</u> :
Eyes <u>*</u> Lungs <u>B</u> Skin <u>G</u>	Mouth Y
EPA Hazardous Waste Classification:	gnitable waste, DOO1; corrosive waste, DOO2
Reportable Quantity: RQ 20,000 /	9091
Material Safety Data Sheet: Attache	ed XXX Not Available
On Fi	le at Research <u>XXX</u>
	RECEIVED
	MAY 12 1989
cc: Legal Services Product Specification File (original	Legal Department
Attachments · MSDS	
Label Precautionary Statement	
Noto: If dolation attack and a	

Note: If deletion, attach copy of page(s) to be deleted, write delete across the page(s) attached.



U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: 14APR89

SECT	FION I				
Supplier's Name	EMERGENCY TELEPHONE NO.				
The Western Company of North America (817) 731-5100					
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	·····				
CHEMICAL NAME AND SYNONYMS Proprietary blend TRADE NAME AND SYNONYMS GELLING AGENT,011,Maxioil W(J-257					
CHEMICAL FAMILY Organic phosphate ester	FORMULA W.I.N. 100256				
SECTION IA HAZARDOUS MATERIAL CLASSIFICATION					
D.O.T. PROPER SHIPPING NAME Combustible	liquid, n.o.s. RQ 20000/9091				

NAME OF HAZARDOUS COMPONENT Aromatic naphtha

HAZARD CLASS Combustible liquid

IDENTIFICATION NUMBER NA 1993

D.O.T. LABEL(S) REQUIRED Combustible

PRECAUTIONARY LABEL attached

SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)
heavy aromatic naphtha CAS#[64742-94-5] 50	-60	
naphthalene CAS#[91-20-3]	<3	

	SECT	ION III - P	HYSICAL DATA		
BOILING POINT (°F.)			SPECIFIC GRAVITY (H2O=1)	@ 60 [°] F	0.986
VAPOR PRESSURE (mm Hg.)		0.2	PERCENT, VOLATILE BY VOLUME (%)		50%
VAPOR DENSITY (AIR=1)		6.1	EVAPORATION RATE		475
SOLUBILITY IN WATER	emu	lsifiable	pH of 10% solution		1-2
APPEARANCE AND ODOR Brow	m liquid	with hydr	ocarbon odor	÷	

	- 40-477 - 400 JONE	- <u></u>	. <u></u>
SECTION IV - FIRE AN	ND EXPLOSION HAZARD DA	ГА	
FLASH POINT (Methody used)	FLAMMABLE LIMITS	Lei	Uei
150 F (PFICC)		0.9%	6.0%
CO2, dry chemical, foam			
SPECIAL FIRE FIGHTING BROCEDURES Water may be ineffective			
		<u></u>	
UNUSUAL FIRE AND EXPLOSION HAZARDS		•	
None			

-	:	SECTION	V - HEAL	TH HAZARD I	DATA
THRESHOLD LIMIT None establis	shed for the	product.	See app	endix B3 of	the 1976 TLV guide.
EFFECTS OF OVER May cause sev	EXPOSURE Vere eye or s	kin irri	tation.		
EMERGENCY AND Eyes: Flush t	FIRST AID PROCES	th water	for at lo	east 15 minu	ites. Call a physician. Skin
Ingestion: Do	not induce	vomiting	. Give mi	lk. Call a p	physician immediately. pump
stomach.		·····			
		SECTIC	NVI - RE	ACTIVITY DA	TA
STABILITY	STABILITY UNSTABLE CONDITIONS TO AVOID			· · · · · · · · · · · · · · · · · · ·	
	STABLE	XXXX			· · · ·
INCOMPATABILITY	(Materials to avoid)				
HAZARDOUS DEC	DMPOSITION PROD	UCTS			• • • • • • • • • • • • • • • • • • • •
<u>COCOif_i</u>	<u>incomplete co</u>	mbustion	occurs.	CONDITIONS TO	AV/010
HAZARDOUS	MAY OCC	UR			
POLYMERIZATION	WILL NOT	OCCUR	XXXX		
			I		
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Form OSHA-20



Western Petroleum Services

W.I.N. 100256 MAXIOL W DIL GELLING AGENT

Net Content; 406 1b(185 kg) 54 gal(204 L) @ 76°F For Proper Use, Refer to Service Bulletin No. 260.0"*

SPECIFIC USAGE: Use at the rate of 10 to 30 gal/1000 gal of oi USE MAXIOIL ACTIVATOR AS A COMPLEXER AT 6 - 9 PERCENT RATIOS OF MAXIOIL 'NUTE: AMINES PRESENT IN OILS MAY PREVENT GELLATION.

H2S PRESENT IN OILS MAY PREVENT GELLATION.

FINELY DIVIDED SOLIDS SUCH AS PARAFFINS OR ASPHALTINES PRESENT IN OILS MAY PREVENT CELLATION.

When Handling This Product Employees MUST WEAR: RUBBER GLOVES, RUBBER APRON, SAFETY GOGGLES AND APPROVED RESPIRATOR.

FOR INDUSTRIAL USE ONLY WARNING! CAUSES IRRITATION TO SKIN AND EYES.

DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. HEAR GOGGLES OR FACE SHIELD WHEN HANDLING. AVOID PROLONGED OR REPEATED BREATHING OF VAPOR. USE WITH ADEQUATE VENTILATION. DO NOT TAKE INTERNALLY. KEEP AWAY FROM HEAT AND OPEN FLAME. KEEP CONTAINER CLOSED WHEN NOT IN USE.

IN CASE OF CONTACT, WASH SKIN WITH SOAP AND WATER; FOR EYES, IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES, AND GET MEDICAL ATTENTION. REMOVE CONTAMINATED CLOTHING AND WASH BEFORE REUSE. CONSULT A PHYSICIAN IF CHEMICAL CAUSES BURN OR IRRITATION. IF INGESTED, CONSULT A PHYSICIAN AT ONCE. ATTENTION! After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precuations listed for this product. Donot cut, puncture or weld on or near this container.

Refer to MSDS and SPM-04-04 for Safety Requirements.




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U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration MATERIAL SAFETY DATA SHEET

DATE: 20JUN88

SEC	CTION I	·	
Supplier's Name			EMERGENCY TELEPHONE NO.
The Western Company of North America	-		(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101			
CHEMICAL NAME AND SYNONYMS Proprietary blend		TRADE N. Deemu 1	ame and synonyms sifier, LT-22
CHEMICAL FAMILY Surfactant	FORMUL	A	W.I.N.100135

SECTION IA HAZARDOUS MA	ATERIAL CLASSIFICATIO	N
D.O.T. PROPER SHIPPING NAME Flammable liquid, n.o.s.	RQ 5500/2500	
NAME OF HAZARDOUS COMPONENT Methanol		
HAZARD CLASS Flammable Liquid	• • • • • • • • • • • • • • • • • • •	·.
IDENTIFICATION NUMBER UN1993		•
D.O.T. LABEL(S) REQUIRED Flammable liquid		
PRECAUTIONARY LABEL Attached	· · · · · · · · · · ·	

SEC	FION II	•	IAZA	RDOU	IS ING	RED	ENTS				-		· .	*	TLV (Units)
Methanol		:			·	. • .	ء بريون		•	•		. •	- 1	0-20	200pp
Isopropanol		•	79. 1 M	::::::::::::::::::::::::::::::::::::::	•i•re a	:	••••••			· · · · ·		· · · ·	<u>.</u>	<5	400pp
			 .			•		• · •·· •···				•	• • • •		
	·*					<u> </u>					.		- ".*-	-:	· ·

SECTION III - PHYSICAL DATA						
BOILING POINT (°F.)	· · · · · ·	SPECIFIC GRAVITY (H20=1) 0 600F	0.968			
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)				
VAPOR DENSITY (AIR=1)		EVAPORATION RATE				
SOLUBILITY IN WATER	Soluble					
APPEARANCE AND ODOR Light amber 1	iquid; no	nspecific odor	· • •			

SECTION IV . FIRE AND EX	PLOSION HAZARD DATA		
FLASH POINT (Method used) 930F(340C) PMCC	FLAMMABLE LIMITS	Lei	Uet .
EXTINGUISHING MEDIA Water spray, dry chemical, carbon dioxide,	or foam		
SPECIAL FIRE FIGHTING PROCEDURES Wear self-contained breathing apparatus.	lilute rapidly with la	rge volume	s of '~
water. Avoid breathing vapors or fumes.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Flammable. Keep heat, sparks, and fire awa	y. Produces toxic fur	nes when b	ourned.
Do not store with strong oxidants. Vapors a	re heavier than air.		• • • • •

TRADE NAME : W.I.N. 100135, DE-EMULSIFIER, LT-22

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE See Section II

EFFECTS OF OVEREXPOSURE Liquid is corrosive to eyes and skin. Harmful if ingested or absorbed through skin. Inhalation may cause dizziness, headaches, or unconsciousness. Ingestic can cause nausea, vomiting, or death. EMERGENCY AND FIRST ALD PROCEDURES Ingestion

Flush eves or skin with water for 15 min. and call a physician. If ingested, drink large quantities of water and call a physician. Do not induce vomiting. Launder clothes before reuse. If overcome by vapors, remove immediately to fresh air and call a physician.

SECTION VI - REACTIVITY DATA 1

ه د ه د دیکیست میده در	, I	· ·	SECTIC	N V	I - RE	ACTI	VITY	DATA				
STABILITY	UNST	ABLE		CON	DITION	S TO A	/010					
	STAB	ILE	X									
INCOMPATABILITY Avoid contai	<i>(Mater</i> ct wi	<i>ials to avoid)</i> th_strong	∟oxidi	zind	ı ager	nts.						
HAZARDOUS DECO Produces to:	MPOSI XIC C	TION PRODUC	ts carbon	and	HC1	when	burn	ed.				
HAZARDOUS		MAY OCCUR				COND	ITIONS	TO AVO	DID		·	
POLYMERIZATION		WILL NOT O	CCUR		Х				-	 ·		
								•	•••••			

SECTION VII • SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Extinguish all sources of ignition. Wash down with water or soak up on sand and dispose of in an approved industrial waste landfill. Do not wash down with water where runoff will contaminate important water sources.

WASTE DISPOSAL METHOD Incinerate in an incinerator equipped with an afterburner and scrubber or bury

SECTION VIII - SPECIAL PROTECTION INFORMATION

Sec. Sugar

in an approved industrial landfill.

RESPIRATORY PRO	TECTION (Specify type)	loquato vontil	ation
none require	su in normai use, assuming au	requare ventil	
VENTU ATION	LOCAL EXHAUST		SPECIAL
	Normally sufficient	1. A	
	MECHANICAL (General)		OTHER
	If local exhaust is not ac	lequate	
PROTECTIVE GLOV		EYE PROTECTION	
Chemical res	sistant	Face shield	or goggles
OTHER PROTECTIV	E EQUIPMENT		
Chemical res	istant boots and apron, if p	ossibility of	contact during use exists.

SECTION IX - SPECIAL PRECAUTIONS

Avoid contact with eyes, skin and clothing. Make sure all electrical equipment is explosion-proof. Store away from heat, sparks and open flames. Do not store with strong oxidizers.

Do not transfer to improperly marked containers. Keep container closed when not in use. Do not add any foreign material to container.

PAGE (2)

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Western Petroleum Services

W.I.N. 100135



Flash Point: 93°F(34°C) PMCC Net Content: 440 lb. (200 kg) 55 gal. (208 L) @ 60°F (15.6°C) DIRECTIONS:

FOR PROPER USE, REFER TO SERVICE BULLETIN NOS.: 10.0, 85.0, 130.0, 529.0 SPECIFIC USAGE: Use at the rate of 0.5 to 5.0 gal/1000 gal. of water, acid, brine or oil-based stimulation fluids.

FOR INDUSTRIAL USE ONLY WARNING

FLAMMABLE LIQUID: Keep away from heat, sparks, and open flame. Wear appropriate protective clothing and eye protection. Use with adequate ventilation. Keep container closed when not in use. May cause irritation of the eyes and skin. May be harmful if inhaled or swallowed.

FIRST AID: For eye contact flush eyes with water for at least 15 minutes and get medical attention. For skin contact wash skin thoroughly with soap and water. Remove contaminated clothing. If irritation develops get medical attention. If overcome by vapors remove to fresh air. If breathing is effected give oxygen and call a physician. If breathing has stopped start resuscitation and call a physician. If swallowed do not induce vomiting. Drink large amounts of water and call a physician.

FIRE ACTION: Use waterspray to cool fire exposed surfaces and protect personnel. Extinguish preferentially with dry chemical, foam, waterspray or waterfog. Full protective clothing and NIOSH/OSHA approved self-contained breathing apparatus required for fire fighting personnel. May explode in heat of fire. Flammable vapors may spread away from spill. Incomplete thermal decomposition may produce toxic gases.

SPILL OR LEAK ACTION: Use protective equipment. In confined spaces wear selfcontained breathing apparatus. Remove ignition sources. Isolate area. Stop leak where safe. Contain and absorb spill with sorbent material. Dispose in accordance with local, state and federal regulations.

STORAGE AND DISPOSAL: Store away from heat sparks and open flame with closures in place. If empty container retains product residues, all hazard precautions must be observed. Insure that reconditioner and disposer are aware of the hazards associated with this product. Dispose of according to local, state and federal regulations.

REFER TO MSDS AND SPM-04-04 FOR SAFETY REQUIREMENTS.



* * * * DOT. PROPER SHIPPING NAME: Flammable liquid, n.o.s. (contains methanol) UN1993 * * * * *

-	R-6 (03/84)
To	Bob Slaughter At FW - Accident Prevention
From_	Robert W. Anderson RWA FW - Research & Development Center
	DateDecember 18, 1985
	RE: <u>Safety Information Update</u>
	This is to inform you of revisions, additions, deletions or replacement of products or chemicals and the relevant safety data.
	Western Trade Name: LT-21
	<u>Chemical Name (if not trade named):</u> <u>W.I.N.</u> : 100138
	Addition Revision X_ Replacement X_ Deletion to product line
	Western Product <u>X</u> Western System
	Cementing Stimulation _X_ Used for Warehouse Blending Only
	DOT Proper Shipping Name & I.D. Number (SPM-04-02): Flammable liquid, n.o.s.
i	(UN1993)
	DOT Hazardous Material Class: flammable material
	Label: flammable liquid
	Chemical Storage Class (SPM-04-01): II.1.
	Chemical First Aid Guide Class (SPM-04-04):
	Eyes * Lungs B Skin G Mouth O
	EPA Hazardous Waste Classification: Ignitable D001
	Material Safety Data Sheet: Attached X Not Available
	On File at Research X

cc: Product Specification File (original) Legal Services

Attachments: MSDS Label Precautionary Statement

"A man's judgement is no better than his information"

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration



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MATERIAL SAFETY DATA SHEET

DATE: 14JUN85

• SECT	ION I
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America	(817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	
CHEMICAL NAME AND SYNONYMS Proprietary blend	SUSPENDING AGENT, LT-21-37
CHEMICAL FAMILY	FORMULA WIN 100138
D.O.T. PROPER SHIPPING NAME Flammable liqui	id, n.o.s.
NAME OF HAZARDOUS COMPONENT methanol	id, n.0.8.
HAZARD CLASS Flammable liquid	
IDENTIFICATION NUMBER UN 1993	
D.O.T. LABEL(S) REQUIRED Flammable liquid	
PRECAUTIONARY LABEL attached	

X SECTION II - HAZARDOUS INGREDIENTS	%	TLV (Units)
methanol W	20	200ppm
	·	

SECTION III - PHYSICAL DATA						
BOILING POINT (°F.)	162°F	SPECIFIC GRAVITY (H20=1) @ 60°F	1.06			
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	30			
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (=1)				
SOLUBILITY IN WATER	soluble					
APPEARANCE AND ODOR Clear a	mber liquid; o	odor of varnish				

LASH POINT (Method used)	FLAMMABLE LIMITS	Lei	Uel
XTINGUISHING MEDIA	_	····· I ······························	ł
Dry chemical, carbon dioxide, al	icohol foam		
SPECIAL FIRE FIGHTING PROCEDURES Addition of water will reduce the	ne intensity of the flame.		
		<u></u>	
UNUSUAL FIRE AND EXPLOSION MAZARUS		•	

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RADE NAME:	W.I.N	1.100138	,SUSPENDING	AGENT,	LT-21
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SECTION V · HEALTH HAZARD DATA 200 DDE TOT methanol EFFECTS OF OVEREXPOSURE Swallowing the liquid causes inebration, headache, nausea, and vomiting leading to severe illness, blindness or perhaps death. EMERGENCY AND FIRST AID PROCEDURES Skin: flush with plenty of water. Eyes: flush with water and get medical attention Inhalation: remove to fresh air and give artificial respiration. If breathing has stopped, call a physician. If swallowed, induce vomiting at once. Then give 2 tablespoons of baking soda in a glass of water. Call a physician. SECTION VI - REACTIVITY DATA CONDITIONS TO AVOID STABILITY UNSTABLE Sparks, heat and fires. STABLE XXX INCOMPATABILITY (Materials to avoid) HAZARDOUS DECOMPOSITION PRODUCTS CONDITIONS TO AVOID MAY OCCUR HAZARDOUS POLYMERIZATION WILL NOT OCCUR XXX SECTION VII - SPILL OR LEAK PROCEDURES STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Eliminate all sources of ignition. Flush spilled material with large volumes of water. Dike large spills and dump to salvage tank. WASTE DISPOSAL METHOD Incinerator. SECTION VIII - SPECIAL PROTECTION INFORMATION RESPIRATORY PROTECTION (Specify type) Self-contained breathing apparatus SPECIAL VENTILATION Preferred MECHANICAL (General) Acceptable OTHER EVE PROTECTION Chemical safety goggles or face shield PROTECTIVE GLOVES Impervious gloves OTHER PROTECTIVE EQUIPMENT Impervious apron and boots; eye bath and safety shower SECTION IX - SPECIAL PRECAUTIONS PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING May be fatal or cause blindness if swallowed. Keep away from heat, sparks and fires. Do not leave container open. OTHER PRECAUTIONS



W.I.N. 100138

SILT SUSPENDING AGENT

Flash Point: 54°F(12°C) PMCC Net Content: 466 lb(212 kg) 54 gal(204 L) @ 77°F

DIRECTIONS:

For Proper Use, Refer to Service Bulletin No.(s) 85.0, 721.0

SPECIFIC USAGE: Use at a concentration of 1 to /Ogallons per 1000 gallons of acid.

When Handling This Product Employees MUST WEAR: Chemical safety goggles or face shield, impervious gloves, impervious boots and apron.

FOR INDUSTRIAL USE ONLY WARNING

MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED.

Keep away from heat, sparks and

open flames.

FIRST AID: Swallowing the liquid causes inebriation, headache, nausea and vomiting, leading to severe illness, blindness or even death. Skin: flush with plenty of water. Eyes: flush with water and get medical attention. Inhalation: remove to fresh air and give artificial respiration. If breathing has stopped call a physician. If swallowed, induce vomiting at once. Then give 2 tablespoons of baking soda in a glass of water. Call a physician.

SPILL OR LEAK: Eliminate all sources of ignition. Flush spilled material with large volumes of water. Dike large spills and dump to salvage tank. Incinerate.

FIRE FIGHTING: Self-contained breathing apparatus and protective clothing. Dry chemical, carbon dioxide, alcohol foam.

Refer to MSDS and SPM-04-04 for Safety Requirements.



*****D.O.T. PROPER SHIPPING NAME: Flammable liquid, n.o.s., contains methanol (UN1993) *****

Occupational Safety and Health Administration MATERIAL SAFETY DATA SHEET

U.S. DEPARTMENT OF LABOR

DATE: 15 March 78

	SECTION I
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America ADDRESS (Number, Street, City, State, and Zif Code) P. O. Box 186. Ft. Worth, TX 76101	(817) / 51-5100
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNCHYMS
CHEMICAL FAMILY Surfactant	FORMULA Proprietary blend
SECTION IA HA	AZARDOUS MATERIAL CLASSIFICATION
D.O.T. PROPER SHIPPING NAME Flammable	liquid, n.o.s.

NAME OF HAZARDOUS COMPONENT Isopropanol

HAZARD CLASS Flammable liquid

IDENTIFICATION NUMBER UN1993

1.1

D.O.T. LABEL(S) REQUIRED Flammable liquid

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PRECAUTIONARY LABEL Attached

SECTION II - HAZARDOUS INGREDIENTS	%	TLV (Units)
Isopropanol	22	400ppm
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SECTION III - PHYSICAL DATA				
BOILING POINT (°F.)		SPECIFIC GRAVITY (H2O=1)	0.97	
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)		
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (
SOLUBILITY IN WATER	insoluble			
APPEARANCE AND ODOR LIOUI	d			

SECTION IV - FIRE AND E	XPLOSION HAZARD DAT	A	
FLASH POINT (Method used) 76°F (T.O.C.)	FLAMMABLE LIMITS	Lei	Uel
EXTINGUISHING MEDIA			
Water, dry chemical or CO,			
SPECIAL FIRE FIGHTING PROCEDURES			
<u>Use self-contained breathing apparatus.</u>			
UNUSUAL FIRE AND EXPLOSION HAZARDS			
<u>Flammable - Emits toxic fumes.</u>			·

TRADE NAME : LT-17

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE Not available

Corrosive to eyes and skin. Isopropyl alcohol vapors are harmful.

clothes before reuse.

SECTION VI - REACTIVITY TA

STABILITY	UNSTABLE		CONDITIO Avoid t	NS TO AVOID leat, flames and sparks	
	STABLE	X			
INCOMPATABIL Avoid co:	ITY (Materials to avo ntact with st	nd) Tong oxid	izing ma	aterials.	
HAZARDOUS DE	ECOMPOSITION PRO	DUCTS			
HAZARDOUS	MAY OC	CUR		CONDITIONS TO AVOID	
POLYMERIZAT	ON WILL N	OT OCCUR	x		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Eliminate sources of ignition. Flush spill area with water spray or absorb on

sawdust and incinerate.

WASTE DISPOSAL METHOD Incinerate in incinerator equipped with afterburner and scrubber.

SECTION VIII - SPECIAL PROTECTION INFORMATION

				-
RESPIRATORY PA	OTECTION (Specify type)			
None requi	red under normal use.		•	
VENTILATION	LOCAL EXHAUST		SPECIAL	
	MECHANICAL (General)	·	OTHER	£
PROTECTIVE GLC	VES	EYE PROTECTIO	N	
Rubber		Face shiel	d or goggles	
OTHER PROTECT	VE EQUIPMENT			
I I I I I				

Rubber boots and apron for direct handling.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN MANDLING AND STORING Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Store away from heat and open flames.

OTHER PRECAUTIONS

Do not transfer to improperly marked containers

PAGE (2)

Form OSHA-20



Western Petroleum Services



SPECIAL WETTING AGENT

Manufactured for

For Proper Use, Refer to Service Bulletin No.(s): 20.0 WG & 140.0 WG

SPECIFIC USAGE:

Use at the rate of 1 to 5 gallons per 1000 gallons of hydrochloric acid.

NOTE: LT-17 Is cationic.

When Handling This Product Employees MUST WEAR: Chemical goggles, rubber abron and rubber gloves

FOR INDUSTRIAL USE ONLY KEEP OUT OF REACH OF CHILDREN

PRECAUTIONARY STATEMENT: WARNING!

HAZARDOUS LIQUID AND VAPOR, IF ABSORBED THROUGH THE SKIN OR INHALED, HARMFUL IF SWALLOWED. Avoid contact with skin, eyes and clothing. Avoid breathing mist or vapor. Do not take internally, FIRST AID: In case of contact with eyes or skin, immediately flush with plenty of water for 15 minutes; for eyes get medical attention. Remove contaminated clothing and shoes at once. Wash thoroughly before re-use.

Refer to Stimulation Services Technical Bulletin No. 1020.0W for safety requirements.

IMPORTANT! The physical, chemical and toxicological properties of this product have not been thoroughly investigated; exercise due care in its use and handling.

The Western Company of North America P.O. BOX 186 • FORT WORTH, TEXAS 76101

.....D.O.T. PROPER SHIPPING NAME: FLAMMABLE LIQUID N.O.S. (CONTAINS ISOPROPANOL)

	FW - Accident Prevention 1001
Robert W. Anderson RWA	AtFW - Research & Development Center
Date	26 5 E 9 84
RF: Safety Information Undate	
Re. survey information opace	
This is to inform you of revisions	s, additions, deletions or replacement of
products or chemicals and the relev	vant safety data.
Western Trade Name: SURFACTANT, LT.	-25
Chemical Name (if not trade named)	: <u>W.I.N.</u> : 100144
Addition Revision X Repla	acement X Deletion to product line
Western ProductX	Western System
Western Product X Cementing Stimulation X	Western System Used for Warehouse Blending Only
Western Product X Cementing Stimulation X DOT Proper Shipping Name & I.I	Western System Used for Warehouse Blending Only D. Number (SPM-04-02): Flammable liquid,
Western Product X Cementing Stimulation X DOT Proper Shipping Name & I.I	Western System Used for Warehouse Blending Only D. Number (SPM-04-02): Flammable liquid, n.o.s. (UN1993)
Western Product X Cementing Stimulation X DOT Proper Shipping Name & I.1 DOT Hazardous Material Class:	Western System Used for Warehouse Blending Only D. Number (SPM-04-02): Flammable liquid, n.o.s. (UN1993) Flammable material
Western Product X Cementing Stimulation X DOT Proper Shipping Name & I.I DOT Hazardous Material Class: Label:	Western System Used for Warehouse Blending Only D. Number (SPM-04-02): Flammable liquid, n.o.s. (UN1993) Flammable material Flammable liquid
Western Product X Cementing Stimulation X DOT Proper Shipping Name & I.I DOT Hazardous Material Class: Label: Chemical Storage Class (SPM-04	Western System Used for Warehouse Blending Only D. Number (SPM-04-02): Flammable liquid, n.o.s. (UN1993) Flammable material Flammable liquid 4-01): II.1.
Western Product X Cementing Stimulation X DOT Proper Shipping Name & I.I DOT Hazardous Material Class: Label: Chemical Storage Class (SPM-04 Chemical First Aid Guide Class	Western System Used for Warehouse Blending Only D. Number (SPM-04-02): Flammable liquid, n.o.s. (UN1993) Flammable material Flammable liquid 4-01): II.1. s (SPM-04-04):
Western Product X Cementing Stimulation X DOT Proper Shipping Name & I.I DOT Hazardous Material Class: Label: Chemical Storage Class (SPM-04 Chemical First Aid Guide Class Eyes * Lungs B Skip	Western System Used for Warehouse Blending Only D. Number (SPM-04-02): Flammable liquid, n.o.s. (UN1993) Flammable material Flammable liquid 4-01): II.1. s (SPM-04-04): n G Mouth 0
Western ProductX Cementing Stimulation _X U DOT Proper Shipping Name & I.I DOT Hazardous Material Class: Label: Chemical Storage Class (SPM-O4 Chemical First Aid Guide Class Eyes_*_ Lungs_B_ Skin EPA Hazardous Waste Classifica	Western System Used for Warehouse Blending Only D. Number (SPM-04-02): Flammable liquid, n.o.s. (UN1993) Flammable material Flammable liquid 4-01): II.1. s (SPM-04-04): nGMouthO ation: Ignitable waste, D001
Western ProductX Cementing Stimulation _X U DOT Proper Shipping Name & I.I DOT Hazardous Material Class: Label: Chemical Storage Class (SPM-Od Chemical First Aid Guide Class Eyes _*_ Lungs B Skin EPA Hazardous Waste Classifica Material Safety Data Sheet: A	Western System Used for Warehouse Blending Only D. Number (SPM-04-02): Flammable liquid, n.o.s. (UN1993) Flammable material Flammable liquid 4-01): II.1. s (SPM-04-04): n_GMouthO ation: Ignitable waste, D001 Attached XNot Available

Replace all previous data with this new information.

cc: Product Specification File (original)
 Legal Services

Attachments: MSDS Labe1 Precautionary Statement

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U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration



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MATERIAL SAFETY DATA SHEET

DATE: 26 SEP 84

SECTION I			
Supplier's Name	EMERGENCY TELEPHONE NO.		
The Western Company of North America	(817) 731-5100		
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	ò		
CHEMICAL NAME AND SYNONYMS Proprietary blend	TBORFACTANT, 21-25		
CHEMICAL FAMILY Surfactant	W.I.N. 100144		

SECTI	ON IA HAZARDOUS MATERIAL CLASSIFICATION
D.O.T. PROPER SHIPPING NAME	Flammable liquid, n.o.s.
NAME OF HAZARDOUS COMPONENT	Isopropanol
HAZARD CLASS	Flammable liquid
IDENTIFICATION NUMBER	UN1993
D.O.T. LABEL(S) REQUIRED	Flammable liquid
PRECAUTIONARY LABEL	Attached

SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)
Isopropanol	30	400ppm

SECTION III - PHYSICAL DATA				
BOILING POINT (°F.)		SPECIFIC GRAVITY (H20=1) @ 25°C	1.08	
VAPOR PRESSURE (mm Hg.) @ 100°F	<16 psia	PERCENT, VOLATILE BY VOLUME (%)	15	
VAPOR DENSITY (AIR=1) IPA/H_0		EVAPORATION RATE		
SOLUBILITY IN WATER	miscible	РН	8.5	

APPEARANCE AND ODOR Light amber clear liquid - isopropanol odor

SECTION IV + FIRE AND EXPLOSION HAZARD DATA						
FLASH POINT (Method used) 67°F PMCC	FLAMMABLE LIMITS Not known	Lei	Uei			
EXTINGUISHING MEDIA CO_2 , dry chemical, foam						
SPECIAL FIRE FIGHTING PROCEDURES						
None						
· .						
UNUSUAL FIRE AND EXPLOSION HAZARDS May evolve toxic SO, fumes.						
× .						

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SECTION V + HEALTH HAZARD DATA

Not established for the product EFFECTS OF OVEREXPOSURE See attached Section IXA

EMERGENCY AND FIRST AID PROCEDURES Wash spills from skin with water. If eye contact occurs, flush with plenty of water and consult a physician if irritation persists. If ingested, consult a physician.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITION	S TO AVOID	
	STABLE	X			
INCOMPATABILIT	∀ (Materials to avoid)	Stro	ng oxidiz	ers	· ·
HAZARDOUS DEC	OMPOSITION PROD	UCTS SI	0.		
HAZARDOUS MAY OCC		UR	^	CONDITIONS TO AVOID	
POLYMERIZATIO	N WILL NOT	OCCUR	X		

SECTION VIL · SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED . Absorb large spills with sawdust or other absorbant material and transfer to a

container for disposal. Small spills and residue may be flushed to the drain

with water. WASTE DISPOSAL METHOD

complete incineration in accordance with local ordinances.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

	none_no	rmally required	·
VENTILATION	LOCAL EXHAUST	·	SPECIAL
}	MECHANICAL (General)	······································	OTHER
PROTECTIVE GLO	Rubber	EYE PROTECTION	Chemical goggles
OTHER PROTECT	IVE EQUIPMENT		

• •

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING See attached Section IXA

OTHER PRECAUTIONS

PAGE (2) of (3)

Form OSHA-20

Attachment to and continuation of



Supplier's Name

MATERIAL SAFETY DATA SHEET

DATE: 26 SEP 84

SECTION I

FORMULA

EMERGENCY TELEPHONE NO.

The Western Company of North America ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101 CHEMICAL NAME AND SYNONYMS

Proprietary blend CHEMICAL FAMILY Surfactant SURFACTANT, LT-25

(817) 731-5100

W.I.N. 100144

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SECTION IXA - - SPECIAL PRECAUTIONS

SECTION V - HEALTH HAZARD DATA

Effects of overexposure - Specific laboratory toxicity information on LT-25 has not been obtained. From its chemical nature, toxicity problems are not expected; but, since it is an excellent wetting agent, there is the possibility that some individuals may be allergic to it. LT-25 has been manufactured for more than twenty-five years and no toxicity problems have been encountered to our knowledge, either at our plant or in customers' plants.

LT-25 is not intended for internal consumption. It is assumed that it is irritating to eyes and that it could cause corneal injury if left in contact. Repeated exposure or prolonged contact with skin may cause irritation or chapping by removal of natural oils.

SECTION IX - SPECIAL PRECAUTIONS

<u>Handling and Storing</u> - LT-25 is handled similarly to concentrated solutions of other common detergents and wetting agents and no special precautions are taken. Avoid contact of the skin and eyes with the concentrated product. In accordance with good industrial hygiene wear elbowlength gloves, goggles or side-shield spectacles and normal protection for the body and head when handling LT-25 in large quantities. Wash spills from the skin without undue delay and wash the face and hands after exposure. If contact with the eyes occurs, flush with water using an eye cup or eye fountain; secure medical attention if irritation persists. Soiled clothing is readily cleaned by laundering.

LT-25 may be stored in its shipping container at normal indoor or outdoor temperatures. Freezing will affect the physical condition of this product, but will not damage it. Thaw and mix before using.

PAGE (3) of (3) ...



DIRECTIONS

FOR PROPER USE, REFER TO SERVICE BULLETIN NO .: 170.046, 537.0 WG

LT-25 MUST BE ADDED "ON THE FLY" TO ANY INHIBITED ACID.

HANDLING LT-25 REQUIRES THE USE OF RUBBER APRON, RUBBER GLOVES, SAFETY GOGGOLES AND AN APPROVED RESPIRATOR.

FOR INDUSTRIAL USE ONLY

HARNING!

FLAMMABLE. MAY CAUSE IRRITATION TO SKIN

AND EYES. DO NOT USE, STORE, SPILL OR POUR NEAR HEAT, SPARKS OR OPEN FLAME. KEEP CONTAINER CLOSED WHEN NOT IN USE. AVOID CONTACT WITH SKIN, EYES, AND CLOTHING. AVOID PROLONGED OR REPEATED BREATHING OF VAPORS. USE WITH ADEQUATE VENTILATION. DO NOT TAKE INTERNALLY.

IN CASE OF CONTACT, WASH SKIN WITH SOAP AND WATER; FOR EYES, IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION. REMOVE CONTAMINATED CLOTHING AND WASH BEFORE REUSE. CONSULT A PHYSICIAN IF CHEMICAL CAUSES BURNS OR IRRITATION. IF INGESTED CONSULT A PHYSICIAN AT ONCE.

ATTENTION: SINCE EMPTY CONTAINERS CAN STILL CONTAIN PRODUCT RESIDUES, CONTINUE TO OBSERVE LABEL EVEN WHEN EMPTY. DO NOT REUSE EMPTY CONTAINER FOR ANY PURPOSE.

Refer to MSDS and SPM-04-04 for Safety Requirements.



				499684		
00	U.S. DEPARTMI cupational Safety and	ENT OF LABOR		<u>-</u> -		
MATERIAL SAFETY DATA SHEET						
VV		Date: Fe	ebruary 28,	, 1991		
	SECT	ION I				
SUPPLIER'S NAME The Western Company		EMERGENCY TELEPHONE	NO. (817) 731-5	100		
ADDRESS (Number, Street, City, State and ZIP Code)	P. O. Box 186, Ft. Wo	orth, TX 76101				
CHEMICAL NAME AND SYNONYMS Biend		TRADE NAME AND SYNON	YMS LT-32			
CHEMICAL FAMILY Nonionic Surfactant		FORMULA Proprietary	Blend	W.I.N. 499684		
SECTION IA	- HAZARDOUS	MATERIAL CLASSI	FICATION			
D.O.T. PROPER SHIPPING NAME Flamm	mable liquid	(RQ /)			
NAME OF HAZARDOUS COMPONENT ISOPIC	opanol			·····		
HAZARD CLASS Flami	mable liquid					
IDENTIFICATION NUMBER UN 1	993					
D.O.T. LABEL(S) REQUIRED Flam	mable liquid					
PRECAUTIONARY LABEL Flame	mable liquid		وبالمراجع والمتعاركين والاقتمار أستعمركن	·		
SECTION II - HAZAI	RDOUS INGREDI	ENTS	%	TLV (Units)		
Isopropyl Alcohol			·····			
Oxyalkylated Alcohol						
	SECTION III -	PHYSICAL DATA				
BOILING POINT (*F)	157	SPECIFIC GRAVITY (H2O-1)		0.9		
VAPOR PRESSURE (mm Hg)		PERCENT, VOLATILE BY VOL	UME (%)	N/A		
DENSITY (Ibs/gal) 60°F	7.5		=1)	N/A		
SOLUBILITY IN WATER	emulsifiable, slightly soluble					
APPEARANCE AND ODOR Clear, colorles	s liquid; strong	and the state of the	The second s	nander val gave destruction and the state of the state of the		
SECTION	IV - FIRE AND	EXPLOSION HAZAR	D DATA			
FLASH POINT (Method used) 155°F (68°C)	Seta CC FLAMA	ABLE UMITS Not available		Lei Uei		
EXTINGUISHING MEDIA Use water spra	y, al∞hol foam, dry cl	hemical or carbon dioxide				
SPECIAL FIRE FIGHTING PROCEDURES Use	water spray to cool fire	exposed surfaces and w	ater spray to dis	sperse the vapors. Full		
protective clothing and full piece positive pre	essure self-contained b	reathing apparatus for fire	e fighters.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Flam	mable liquid can relea	se vapors that form flam	nable mixtures	at temperatures at or		
			*			

PAGE (1) OF (3) R-3F (09/90)

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(Continued on next page)

Form OSHA-20

TRADE NAME: W.I.N. 499684, LT-32

	SECTION V	- HEALTH HAZ	ARD DA	TA	
EFFECTS OF OVEREXPOSURE Eye CA	ontact: Causes notic	ceable pain, moderate	a irritation,	and transient corne	a injury. Skin Contact:
Causes slight irritation; readily abso	orbs through skin in to	oxic amounts. Inhalati	ion: Cause	es respiratory tract	irritation, liver & kidney
damage, and central nervous system	n effects. Ingestion:	May cause headache,	, dizziness,	nausea, vomiting,	liver and kidney injury.
EMERGENCY AND FIRST AID PROCEDURES	Eyes: Immediately	y flush with large amo	ounts of wa	ter for at least 15 m	ninutes. Get prompt
medical attention. Skin: Flush with	large amounts of wat	ter. Use scap if availa	able. Remo	ove grossly contam	inated clothing and
launder before reuse. Inhalation: In	nmediately remove af	fected victim from exp	posure. Ac	Iminister artificial re	espiration if breathing is
stopped. Keep at rest. Seek medic	al attention. Ingestion	n: If conscious, give 1	1 or 2 glass	ses of water to drin	k and induce vomiting by
sticking finger down throat. Take in	nmediately to hospital	I. If vomiting cannot t	be induced	, take immediately	to hospital.
	SECTION	VI - REACTIVIT			
STABILITY	UNSTABLE		CONDITION	IS TO AVOID	Heat or flame
	STABLE	×			
INCOMPATABILITY (Materials to avoid)	Avoid chlorine, flo	ourine, and other stron	ig base oxi	dizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS	Acrid smoke and	irritating furnes when	heated to	decomposition. Pro	oducts of combustion
include carbon monoxide and carbo	on dioxide.		<u>.</u>		
HAZARDOUS MAY OCCUR			CONDITIONS TO AVOID		
POLIMERIZATION	WILL NOT OCCUR	×			
	SECTION VII -	SPILL OR LEAK	PROCE	DURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS	RELEASED OR SPILLED	Eliminate sources o	of ignition.	Prevent additional	discharge of material.
Prevent liquid from entering sewers	, water courses, or lov	wareas. Contain spil	led liquid v	with sand or earth.	Do not use combustible
materials such as sawdust. Recove	r by pumping (use an	explosion proof pum	p or hand	pump) or with a su	itable absorbent.
WASTE DISPOSAL METHOD Consult a	n expert on disposal (of recovered materials	and ensu	re conformity to loc	al disposal regulations.
SEC	TION VIII - SPE	ECIAL PROTECT	ION INFO	ORMATION	
RESPIRATORY PROTECTION (Specify type)	NIOSH/OSHA ap	proved respirators ma	y be neces	sary to prevent ove	erexposure by inhalation.
VENTILATION	LOCAL EXHAL	JST		SPECIAL	
	MECHANICAL	. (General) Recommen	nded	OTHER	
PROTECTIVE GLOVES Chemical resist	tant gloves				
EYE PROTECTION Chemical gogg	les				
OTHER PROTECTIVE EQUIPMENT Eyewi	ash fountains and safe	ety showers should be	e easily acc	æssible.	
	SECTION IX	- SPECIAL PRI	ECAUTIC	DNS	
PRECAUTIONS TO BE TAKEN IN HANDLING	AND STORING				
OTHER PRECAUTIONS Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers					

to flame or other sources of ignition.

PAGE (2) OF (3) R-3F (09/90)

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Form OSHA-20

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499684

ATTACHMENT TO AND CONTINUATION OF



.

MATERIAL SAFETY DATA SHEET

Date: February 28, 1991

SECT	
SUPPLIER'S NAME The Western Company	EMERGENCY TELEPHONE NO. (817) 731-5100
ADDRESS (Number, Street, City, State and ZIP Code) P. O. Box 186, Ft. Wo	orth, TX 76101
CHEMICAL NAME AND SYNONYMS Blend	TRADE NAME AND SYNONYMS LT-32
CHEMICAL FAMILY Nonionic Surfactant	FORMULA Proprietary Blend W.I.N. 499684
SECTION X -	LABEL COPY
FOR INDUSTR	IAL USE ONLY

FIRST AID:

FOR EYES:	In case of contact, immediately flush eyes with large amounts of water for at least 15 minutes. Get prompt medical attention.
FOR SKIN:	In case of contact, flush with large amounts of water; use soap if available. Remove grossly contaminated clothing and launder before reuse.
FOR INGESTION:	If swallowed and conscious, give 1 or 2 glasses of water to drink and induce vomiting by sticking finger down throat. Seek medical attention. Do not attempt to induce vomiting or give anything by mouth to an unconscious person.
FOR INHALATION	I: If breathed in, immediately remove affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Seek medical attention.
FOR HANDLING:	Employees must wear long sleeves, chemical resistant gloves, and chemical goggles.
ATTENTION	After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precautions listed for this product. Do not cut, puncture, or weld on or near this container. Refer to MSDS and SPM-04-04 for other safety requirements.

CHEMICALS USED AT THE FARMINGTON, NEW MEXICO FACILITY

			VESTERN		HAZ	LB/GAL.
PRODUCT	TYPE	<u>Stored</u>	CONTAINER	VIN NO.	<u>NO.</u>	QUANTITY
MAXIOIL	L	WAREHOUSE	5 GAL PLASTIC PAIL	100162	26	182 G
MAXIOIL 2	L	WAREHOUSE	55 GAL PLASTIC DRUM	499606		425 G
METHANOL	L	WAREHOUSE	55 GAL STEEL DRUM	100102	28	100 G
NINE 40	L	WAREHOUSE	55 GAL STEEL DRUM	100472	27	110 G
NITROGEN	L	TANK	ABOVEGROUND	100225	21	228,710 G
PARATROL L	L	WAREHOUSE	55 GAL STEEL DRUM	100463	26	220 G
PERLITE	S	WAREHOUSE	30 LB BAG	100436	NA	730 L
POZ	S	SILO		100317	NA	105,825 L
SALT	S	WAREHOUSE	50 & 80 LB BAG	100112,100114,100116,100404	NA	22,824 L
SAND	S	SILO		100002-100013,100122,100419	NA	2,797,917 L
SAND	S	SILO		100421	NA	50,000 L
SAPP	S	WAREHOUSE	50 LB BAG	100323	NA	774 L
SF+3	S	WAREHOUSE	50 LB BAG	499648	NA	9,000 L
SFLA	S	WAREHOUSE	30 LB BAG	499649		60 L
SILICA FLOUR	S	WAREHOUSE	50 LB BAG	100121		9,000 L
SODIUM BICARBONATE	S	WAREHOUSE	50 LB BAG	100080	NA	5,350 L
SS-1	S	WAREHOUSE	30 LB BAG	100335		60 L
TF-4	S	WAREHOUSE	50 LB BAG	100290	NA	929 L
THIXAD	S	WAREHOUSE	100 LB BAG	100318	NA	2,008 L
THRIFTY LITE	S	WAREHOUSE	100 LB BAG	100275	NA	1,726 L
TIC	L	WAREHOUSE	55 GAL STEEL DRUM	100151	26	378 G
WAX BEADS	S	WAREHOUSE	65 LB BAG	100134		311 L
WE-1L	L	WAREHOUSE	55 GAL STEEL DRUM	100273	NA	453 G
WESTBLOCK	S	WAREHOUSE	50 LB BAG	100219		600 L
WESTPROP 4	L	WAREHOUSE	55 GAL STEEL DRUM	499594		55 G
WR-6, WR-15	S	WAREHOUSE	50 LB BAG	100284,100287	NA	380 L
WZ-499576	S	WAREHOUSE	50 LB BAG	499576		267 L
WZ-499625	S	WAREHOUSE	30 LB BAG	499625		520 L
WZ-499673	S	WAREHOUSE	225 LB FIBER DRUM	499673		675 L
WZ-499683	L	WAREHOUSE	55 GAL STEEL DRUM	499683		110 G
XR-2L	Ł	WAREHOUSE	55 GAL PLASTIC DRUM	100091	NA	210 G
XYLENE	L	WAREHOUSE	55 GAL STEEL DRUM	100105	27	55 G

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	munion on this form is furn oso. Uso or dissommation	af all or any part of this .		or purpose may result i	in a visiation of low of ca	una unun ner de used far Jashtute greunds far legal	uny ether- schen,]
		S	ection 1 NA	AE & PRODUCT	<u> </u>			
ANUFACTURE	R'S NAME		CITY. :	STATE, ZIP CODE	744.00	EMERGENCY PH	ONENU	IMBE
DOUI		TAREATED BA 10	IULDA, UKLAHOMA 741UZ MEDICAL: 517-636-2243					
Jul + 14	1975	De	trick I	Gil K. Ant.	it Time	NIGHT: 918-627-384		42.74
RADE NAME	,	ra		SYNONYMS	The second second			
	منظر المراجع ا	· - <u></u>		J242	.			-
			Section 2	INGREDIENT	5		+ *	1.
				· •	. . .		1	
							1	
An aque	ous solutio	n of sodiu	m alumina	te				
wyud							l	
					. .			
	- 9		Section 3	PHYSICAL DAT	Ά			
DILING POIN	T ("F.)	<u> 240</u>	icable	SOLUBILITY I	N WATER		<u> 77 MJ</u>	150
APOR PRESS	UKE (mmHgat 20°c)	Not appl	icable	SPECIFIC GR	BY VOLUME	11.40 6 6	<u>0-1</u>	
APPEARANCE	Light amb	per liquid		ULATILE	01 TULUME	AUDTOX	<u>au</u>	
		Section 4	FIRE AND E	XPLOSION HAZ	ARD DATA			_
LASH POINT	AND METHOD USED	3	, .	FLAMMABLE LI	INITS ISTP IN AIRI			•
None °F	Non-c	compustible		J. F. L. NOT	applicable	Not	appli	102
KTINGUISHING	WATER		ALCOHOL		DRY		7 4	
PECIAL FIRE	FIGHTING PROTEC	TION EQUIPMENT A	NO HAZAROS			L NOT ADD	LICAL	<u>ore</u>
None						•		
			•	•				
	<u></u>		Section 5 RF	ACTIVITY DAT				
STAR		ONDITIONS TO AVE	210					
NORHAL	CONDITIONS)	May nood	uce lance	amoun+c	of heat on	contect	+ Ъ	
X STABLE	UNSTABLE	strong a	arge .cid.	aurounts	UL LEAL UL	JUNIAUL WI		
	MATERIALS TO AVE	010						
	WATER			CORROSIVE	OXIDIZING			
BILITY	OTHER		ad					
		X						
None	LUMPOSITION PRO	00015		•				
		CONDITIONS TO AVO	210		<u></u>			
AZARDOUS	OCCUR							
OLYMEDIT	WILLNOT							
POLYMERIZ-	XOCCUR							
POLYMERIZ-	TAKEN IN CASE MA	Sectio TERIAL IS RELEASE	DOR SPILLED	R LEAK PROC	EDURES		· · · · · · · · · · · · · · · · · · ·	
POLYMERIZ	roner prote	ective equi	ipment, co	over the s	pill with	an absorben	it	
CLYMERIZ.	Toher brock	sand and so	coop or st	novel into	waste con	tainers for	•	
USING P Tateria	1 such as			excess wat	er.			
CLYMERIZ-	1 such as s 1. Flush	residual aw	ay with e					
CLYMERIZ-	l such as s 1. Flush :	residual aw						
USING P materia disposa	l such as a 1. Flush and a 1 in accord	residual aw dance with	local reg	gulations.	·			

MATERIAL SAFETY DATA SHEET (CONT.) J242 DOW CHEMIC	AL U.S.A.
Section 7 HEALTH HAZARD DATA 100162	
Probably toxic, however greatest hazard is corrosion of tissues.	
	۹.
law cause a burn and sufficient corneal injury to result in some perman	ent
Liss of vision	
Prolonged or repeated contact may cause appreciable in fation, even a moderate burn	
WITH ASSORPTION	
ot likely to be absorbed through the skin in acutely toxic amounts.	·
TLV: None suggested Not likely to be a problem.	
EFFECTS OF OVEREXPOSIAL	······································
_ 	
EYE EYES: Immediately flush with plenty of water for at least 15	NEVER GIVE
minutes and get medical help immediately.	FLUIDS OR
SKIN: Promptly flush skin with plenty of water. Promptly	VOMITING
E FLOWING FEMOVE Contaminated Clothing and wash belote reduct.	IF PATIENT
get person to fresh air and get medical help.	cious an
<u>15³</u> <u>INGESTION</u> : Not likely a problem. If ingested, immediately	CONVULSIONS
"NUTES give large amounts of water (or milk if immediately	6
available) then induce vomiting and get medicul delp.	Ì
Section 3, SPECIAL PROTECTION INFORMATION	
FOCH FOOM VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.	
None likely to be needed.	
FESTECTIVE CLOTHING	
Clean, body-covering clothing, rubber gloves and apron, boots, face shi	eld
epending upon the circumstances.	
ETE SAFETY GLASSES SAFETY GLASSES CHEMICAL	
OTHER Eve fountain and washing facilities in	the
DA COUVALENT COCCLES TO THE APA	
Section 9 SPECIAL PRECAUTIONS OF OTHER COMMENTS	
Launder contaminated clothing before reuse. Store at temperatures above	e alea.
45°F.	
DO NOT SWALLOW. KEEP OUT OF FEACH OF CHILDREN.	
TE TO PHYSICIAN: No specific antidote known. Treatment depends upo	n the
sound judgment of the physician and upon the indiv	idual .
reactions of the patient. Nearly corrosive materi	al. Nd bo
under esophagesconic control	
The information herein is there in cool faith, but the extensed or im	oi.cd, 15 mages

ISSUED:	21JUN89
REVISED:	

SUPPLIER'S NAME:THE WESTERN COMPAADDRESS:P.O. BOX 186, FOREMERGENCY TELEPHONE:(817)731-5433	NY OF NORTH T WORTH, TE	AMERICA XAS 76101	
SECTION I - PRODUCT IDENTIFICATION			
TRADE NAME: Maxioil 2	Maxioil	· · · · · · · · · · · · · · · · · · ·	<u>W.I.N.;499606</u>
CHEMICAL FAMILY: phosphate ester C	HEMICAL NAM	E: propriet	ary blend
NFPA 704M RATING: <u>3</u> HEALTH <u>2</u> FLAMMAB O=insignificant 1=slight 2 DISCLAIMER: Information contained in or obligation and is accepted at recipi report, The Western Company makes no wa the merchantability or fitness of anyth	ILITY <u>0</u> R =moderate this repor ent's full rranties, e ing contain	EACTIVITY <u>0</u> 3=high t is furnished risk. In so p xpress or impl ed therein.	OTHER 4=extreme without charge roviding this ied, regarding
SECTION II - HAZARDOUS INGREDIENTS by 2	9CFR1910.12	00	
CHEMICAL NAME	<u>CAS #</u>	APPROX. %	TLV (UNITS)
petroleum distillate	1330-20-7	<28%	$\frac{\text{PEL} = 100 \text{ ppm}}{\text{Th} \Delta = 100 \text{ ppm}}$
phosphoric acid	7664-38-2	<1%	TWA = 100 ppm STEL <u>₹</u> 150 ppm 1mg/m
SECTIGN III - PHYSICAL AND CHEMICAL PRO	PERTIES		
PHYSICAL FORM: liquid SO	LUBILITY IN	WATER: inso	luble
DENSITY: 0.97 g/cm @ 60°F(16°C) VI	SCOSITY(CP)		· · · · · · · · · · · · · · · · · · ·
VAPOR PRESSURE(mm Hg): <1 est VA pH (@ 5%): 1.5-2.0 ME	POR DENSITY	(air = 1): <u>>1.</u> : <u>N/A</u> °F(°C)	0
NOTE:	<1		
SECTION IV - FIRE AND EXPLOSION HAZARD	DATA 	••••••••••••••••••••••••••••••••••••••	
FLASH POINT/method used: <u>>120°F(49°C)TC</u> FLAMMABLE LIMITS: ND LEL:	C UEL:		·· · · ·
EXTINGUISHING MEDIA: Foam, dry chemica	1, CO wate	r fog or spray	
protective equipment, including NIOSH/M	shA approve	d, self-contai	ned breathing
apparatus. Cool exposed containers wit UNUSUAL FIRE AND EXPLOSION HAZARDS: Mat	h water spr erial is co	ay. Avoid vap mbustible. Va	ors. pors are heavier
than air and may travel along ground to	ignition s	ource.	
NA = not applicable			······

NA = not applicable ND = not determined

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SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE:TLV (ACGIH)petroleum distillate100 ppm(IWA)	OSHA PEL 100 ppm
phosphoric acid 1 mg/m ^o	<u>1 mg/m </u>
target organs (29CFR1910.1200, Appendix A, Target organs):	
FEFECTS OF OVEREXPOSURE: INHALATION: Material is correst	ve Inhalation of
vapor may cause severe irritation of respiratory system.	
EYE CONTACT: Eye contact may cause corneal damage result	ing in permanently
SKIN CONTACT: Material is absorbed through skin and may c	ause systemic poisoning
INGESTION: May be harmful if ingested.	
EMERGENCY AND FIRST AID PROCEDURES:	
EYES: Flush immediately with large amounts of water for a Call a physician if irritation persists	t least 15 minutes.
SKIN: Immediately wash with large amounts of water while	removing contaminated
clothing and shoes. Contact a physician. Discard clothing	ng and shoes.
INGESTION: DO NOT induce vomiting. If conscious/drink la	rge amounts of water
and contact a physician.	
INHALATION: Remove immediately to fresh air. Call a phys	ician. If breathing is
irregular or stopped, administer artificial respiration, a	and call a physician.
NOTE TO PHISICIAN.	
CAUTION: This petroleum distillate can produce irritating	and a burning
sensation.	······································
SECTION VI - REACTIVITY DATA	
STABILITY: UNSTABLE STABLE	X
CONDITIONS TO AVOID: heat, sparks and open flame	
INCOMPATIBILITY (materials to avoid): <u>oxidizers</u>	
HAZARDOUS DECOMPOSITION PRODUCTS: carbon monoxide, oxides of	of phosphorous
HAZARDOUS POLYMERIZATION: MAY OCCUR WILL NO	
CONDITIONS TO AVOID: NA	
COMMENTS: NA	
SECTION VII - SPECIAL PROTECTION INFORMATION	
RESPIRATORY PROTECTION(specify type): as needed air puri	fying. half facepiece
with cartridge/canister - organic vapor w/dust mist prefi	lters.
VENTLATION: Use mechanical ventilation whonever product	ic used in a confined
ventilation. Use mechanical ventilation whenever product	is used in a contined
space, is heated or is agitated.	is used in a contined
space, is heated or is agitated. PROTECTIVE GLOVES: chemical resistant	TS USED IN a CONTINED
space, is heated or is agitated. PROTECTIVE GLOVES: chemical resistant EYE PROTECTIONS: goggles	
space, is heated or is agitated. PROTECTIVE GLOVES: chemical resistant EYE PROTECTIONS: goggles OTHER PROTECTIVE EQUIPMENT: If used at elevated temp; low or at high altitude respiratory protection may be required	wer atmos. pressure

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W.I.N. 499606, GELLING AGENT, oil, Maxioil 2	PAGE 3 OF
SECTION VIII - SPILL AND DISPOSAL INFORMATION	
Resource Conservation and Recovery Act/RCRA, 40CFR Hazardous Waste Classification: corrosive & is Comprehensive Emergency Response, Compensation and I <u>Hazardous Substance(s)</u> <u>phosphonic acid, petroleum distillate</u> 30, Refer to Section XI for more regulatory information SPILL CONTROL AND RECOVERY: SMALL LIQUID SPILLS: <u>Soak up residue and small sp</u> sand, or dirt and place in salvage containers.	261, Subpart C&D(Appendix 8) <u>gnitable</u> Code No: <u>D002 & D00</u> Liability Act/CERCLA,40CFR302 <u>prtable Quantity, 1bm(kg)</u> <u>000 gal(243900 1bm/110612)</u> n. <u>ills with absorbent clay,</u>
LARGE LIQUID SPILLS: Don appropriate protective cl	othing and respiratory
Approach area upwind if possible. Shut off leak is and pump large spills into salvage containers.	f it can be done safely. Dik
State and local regulations.	in accordance with federal,
SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: <u>Store in cool</u> , dry area. Control ignition source;	tore in well-ventilated area. keep away from heat, sparks
and open flame.	
WPS CHEMICAL STORAGE CLASSIFICATION SPM 04-01: 1. OTHER PRECAUTIONS: NA	<u>l.1.</u>
SECTION X - PRECAUTIONARY LABEL INFORMATION	
	· · · · · · · · · · · · · · · · · · ·
Avoid inhalation of vapors or mists. Do not get in Keep container closed when not in use. Wear suital skin when handling. Use with adequate ventilation	n eyes, or skin or on clothing ble protection for eyes and Avoid contact with
oxidizers.	
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SECTION XI - REGULATORY IN	FORMATION	
The Govermental Regulation this product are:	s, not covered elsewhere	in this MSDS, which apply to
DOT HAZARDOUS MATERIAL REG DOT Proper Shipping N	ULATIONS, 49CFR172: ame: corrosive liquid, n	.o.s. RQ: 243900 (110612)
Hazardous Component(s	: IN1760 Label Required:	corrosive
Hazard Classification	: corrosive Placard:	corrosive
TOXIC SUBSTANCES CONTROL A product are either on the premanufacturing notificat	CT/TSCA, 40CFR710:The cho Inventory List(8b) or hav ion (PMN).	emical ingredients in this ve been cleared by
FEDERAL AIR POLLUTION CONT This product does not cont	ROL ACT/Clean Air Act, 40 ain ingredients covered 1	DCFR60.111 and 40CFR61.112: by this Act.
FEDERAL WATER POLLUTION CO This product does not cont	NTROL ACT/Clean Water Act ain ingredients covered l	t, 40CFR401.15 and 40CFR116: by this Act.
SUPERFUND AMENDMENTS and R List of Toxic Chemicals, 4	EAUTHORIZATION ACT (1986) OCFR372.313:)/SARA Title III:
Substance	CAS Number	Weight Percent, %
phosphoric acid	<u></u>	<1 <28%
Extremely Hazardous Substa This product does not cont MATERIAL SAFETY SHEET REQU has found this product to X Immediate (acut	nces, 40CFR355, Appendix ain ingredients covered l IREMENTS, 40CFR370.311 & be hazardous. The EPA has e) health hazard	A & B: by this Act. 312: Our hazard evaluation zard categories are:
X Fire hazard	of pressure bazard	

W.I.N. 100102, ALCOHOL, Methanol, absolute

AAATEDIAL CAFETY DATA CUPET	< 55 /		No	3	54
MATERIAL SAFETT DATA SHEET	AIE	ICES	10.		-
CORPORATE RESEARCH & DEVELOPMENT	AL		MET	HYL ALC	OHOL
SCHENECTADY, N. Y.		MATION	1	Revision	A
			Date	Novemb	er 1977
VATERIAL IDENTIFICATION					
OTHER DESIGNATION: Methanol, Wood alcohol, GE M CAS\$ 000 067 561	aterial	D5B51,	ASTM D	01152, C	н _з он,
MANUFACTURER: Available from many suppliers.					
SECTION II. INGREDIENTS AND HAZARDS		x	н	AZARD C	ATA
Methyl Alcohol		ca 100	TLV : or	200 ppm* 260 mg/	(Skin) m3
*Current OSHA TLV; ACGIH (1977) TLV adds (skin) r	notatio	n			_
which indicates a potential contribution to over exposure via absorption through the skin.	erall				
NIOSH has recommended a 10-hr TWA of 200 ppm with	n a		Hum	an, oral	LDLo
ceiling of 800 ppm (15 minute sample).				340 mg/k	g
	1				
SECTION III. PHYSICAL DATA				•	· · · · · · · · ·
Boiling point at 1 atm, deg C 64.5SpecVapor density (Air=1) 1.1VolaVapor pressure @ 21.2°C, mm Hg - 100EvapWater solubility Totally miscibleMole	tiles, oration cular of	ravity (2 X h rate (C weight	0°/4°(C14=1)	;) 	0.791 ca 100 1 32.04
Appearance & Odor: A clear, colorless liquid wi which is detectable at 50 to	th a cl i 100 p	haracteri pm and ab	stic a ove in	alcohol n air.	odor
SECTION IV. FIRE AND EXPLOSION DATA				LOWER	UPPER
Flash Point and Method Autoignition Temp. Flam	mabilit	y Limits	In Air	4	36 6
Extinguishing media: CO ₂ , dry chemical, alcohol Methyl alcohol fires are Class B fires, use a It is a moderate explosion hazard and dangerous sparks or flames and can react vigorously with Firefighters should use self-contained breathing full protective clothing where this material i place.	foam, blanke fire h oxidi appara s invol	and wate ting effe azard whe zing ager tus with ved in a	er miss ect to en expo its. full fire	t or fog smother osed to facepied in an en	fire. heat, ce and closed
SECTION V. REACTIVITY DATA					
Methyl alcohol is a flammable material, but it is use conditions. It does not undergo hazardou Avoid contact with strong oxidizing agents such sulfuric acid. Oxidation products in air include oxides of carl	ls stab is poly as nit pon and	le under merizatio rates, po nitrogen	norma on. erchlo	l storag	e and

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W.I.N. 100102, ALCOHOL, Methanol, absolute

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SECTION VI.HEALTH HAZARD INFORMATIONTLV 200 ppm (Skin) or 260 mg/m²Methanol is a poisonous, narcotic chemical that may exert its effects through inhalation, skin absorption or ingestion. Body elimination of methanol is slow, and the toxic effects can be compounded by repeated excessive exposures over several days. Toxic effects are exerted upon the nervous system, especially the optic nerve. Ingestion can produce blindness. Symptoms of overexposure include dizziness, blurring of vision, nausea, cardiac depression, muscular incoordina- tion and narcosis. Solvent action can dry the skin and cause dermatitis.FIRST AID: Inhalation: Remove victim to fresh air and prevent further exposure for 7 days. Obtain medical assistance if victim is not fully normal within 10 minutes. Skin Contact: Wash affected area with soap and water; apply skin lotions. Eye Contact: Irrigate withrunning water for 15 minutes. Get medical help. Ingestion: Drink 3 glasses milk, water or 4% sodium bicarbonate. Obtain immediate medical aid for gastric lavage. (NIOSH recommends inducing vomiting if victim is conside SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURESNotify safety personnel. Remove all sources of ignition; provide adequate ventilation. Absorb on vermiculite, paper or other absorbent. Burn in an approved incinerator or open pit away from buildings and people.Dispose of large quantities of waste via a licensed waste solvent disposal company or reclaim via filtration and distillation procedures. It can be incinerated.
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Spills in sensitive areas may be diluted and flushed to ground with a water spray. Do not flush to sewer. Follow Federal, State and local regulations.
SECTION VIII. SPECIAL PROTECTION INFORMATION
 Provide adequate ventilation to meet TLV requirements. Exhaust ventilation with 100 1fm minimum should be used where vapor exposure is likely. Preventskin contact by wearing rubber gloves. Protective aprons, boots and face shields should be used where splashing may occur. Use safety glasses in other areas of use. Remove methanol contaminated clothing promptly. Eye wash stations and safety showers should be available in areas of use. Exhaust fans should be explosion proof. No smoking in areas of use.
Respirator protection for emergency: Use air-supplied or self-contained respirators above TLV. A full facepiece is required above 2000 ppm.
SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS
Prevent skin contact! Do not breathe vapors! This material is poisonous when introduced into the body metabolism. Do not ingest! Store in a well-ventilated, fire proof area. Ground and electrically interconnec containers for transfer. Use spark-proof tools. Keep away from heat and ignition sources. No smoking in areas of storage or use. NIOSH recommends preplacement medical exams for industrially exposed workers.
periodic medical surveillance, and prompt eye examinations for eye contact
with methanol or for any overexposure. APPROVALS: MIS, CRD 9, M, Mules
Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information. General Electric Company estends no warronties, makes no representations and assumes no responsibility and Safety
as to the occuracy or suitability of such information for application to purchaser's MEDICAL REVIEW:
GENERAL CA ELECTRIC

W.I.N. 100105, SOLVENT, Xylene



GENERAL 🚱 ELECTRIC

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W.I.N. 100105, SOLVENT, Xylene

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SECTION VI. HEALTH HAZARD INFORMATION Inhalation of xylene at the TLV may cause mild i persons. Concentrations from 100-200 oppn may Vapor levels >200 ppm can have an anesthesic e irritation and skin defatting. Eye contact ma tion of xylene may cause poisoning. One ounce he a herard of this material is swallowed	TLV 100 ppm or 435 mg/m ³ Fritation and dizziness in sensitive cause pauses, headache and depression
Inhalation of xylene at the TLV may cause mild i persons. Concentrations from 100-200 oppn may Vapor levels >200 ppm can have an anesthesic e irritation and skin defatting. Eye contact ma tion of xylene may cause poisoning. One ownce be a bayard of this material is swallowed	Fritation and dizziness in sensitive cause bauses, headache and depression
Vapor levels >200 ppm can have an anesthesic e irritation and skin defatting. Eye contact ma tion of xylene may cause poisoning. One ownce he a barard of this material is swallowed	ffact "Child and and the start up to the
AR & Havard I' curs. Matcitat te swatthafd.	y cause burning and irritation. Inge or more may be fatal. Aspiration ca
FIRST AID:	an . Cat madient extensiont
<u>Skin Contact</u> : Wash with soap and water. Remo place lost skin oils with approved lotions o <u>Inhalation</u> : Remove victim to fresh air. Rest attention if symptoms persist or if nausea o <u>Ingestion</u> : Get medical attention immediately! saline cathartic, but do not induce vomiting	ve contaminated clothing promptly. R r creams. ore breathing if required. Get medic r collapse has occurred. Give white mineral oil demulcent and ; unless directed by a physician.
Maintain observation of patient for pessible del	ayed onset of pulmonary edema.
SECTION VII. SPILL, LEAK, AND DISPOSAL	PROCEDURES
Notify safety personnel. Remove all ignition so Use vermiculite or sand to absorb spill; scrap a covered metal container. The absorbed mater placed in cardboard boxes and burned in an inc away from sensitive locations with a water stre <u>DISPOSAL</u> : Scrap liquid may be atomized into an posed of via a licensed solvent disposal compa claimation procedures may prove economical. F tions.	urces. Frovide adequate ventilation. a up with nonsparking tools and place ial may be burned in an open pit, or inerator. Spilled liquid can be flus am; flush to open area <u>not</u> to sewer! approved incinerator, or it may be di ny. When large amounts are involved ollow Federal, State, and Local regul
Aquatic toxicity rating TLm 96: 100-10 ppm.	
SECTION VIII. SPECIAL PROTECTION INFORM	ATION
Provide general ventilation and efficient exhaus to meet TLV requirements and to control heavie velocity for exhaust hoods. Use approved orga periods of nonroutine work or emergency situat self-contained respirators for higher and unkn Buna-N rubber gloves and aprons should be worn t Safety glasses or goggles should be used for e be readily accessible to use areas.	t ventilation (explosion-proof equipm r-than-air vapors. Use >100 lfm face mic vapor canister respirators for sh lons at up to 1000-2000 ppm and appro- lown vapor levels. Full facepiece requi to prevent contact of xylene with the bye protection and systems stations sh
Comprehensive preplacement and biennial medical not limited to, liver, kidney, gastrointesting	examinations to be directed toward, build disorders, skin irritation, and the
central nervous system.	
	· · · · ·
SECTION IX. SPECIAL PRECAUTIONS AND CO	MMENTS
Store in closed containers in a clean, cool, wel heat, sources of ignition and strong oxidizing physical damage. Bond and ground metal contai safety cans for small amounts. Use honsparkin Smoking in areas of use or storage. Prevent skin contact and remove contaminated clo	1-ventilated area, away from sources agents. Protect containers from ners when transferring liquid. Use m is tools for work in solvent areas. N othing promptly. Avoid repeated or pr
longed breathing of vapor. Do not ingest!	
DATA SOURCE(S) CODE: 1-12,19-21,23,26,31,34,37-3	APPROVALS: MIS O. M. Nulan
Addigments as to the suitability of Information herein for purchaser's purposes are Arcassarily purchaser's responsibility. Therefore, although reasonable care has back taken in the preparation of such information, General Electric Company extends no warranties, makes no representations and assumes no responsibility es to the occuracy or suitability of such information for application to purchaser's Inforded purposes or for consequences of its use.	Industrial Hygiene A // //-26-80
	MEUICAL REVIEW: December 5, 198

U.S. DEPARTMENT OF LABOR



Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: September, 1984

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SEC	TION I
Supplier's Name	EMERGENCY TELEPHONE NO.
The Western Company of North America ADDRESS (Number, Street, City, State, and ZJP Code) P. O. Box 186, Ft. Worth, TX 76101	(817) 731-5100
CHEMICAL NAME AND SYNONYMS Proprietary blend	De-emulsifier Nine-40
CHEMICAL FAMILY Surfactant	FORMULA W.I.N. 100472

SECT	ION IA HAZARDOUS MATERIAL CLASSIFICATION
D.O.T. PROPER SHIPPING NAME	Flammable Liquid, n.o.s.
NAME OF HAZARDOUS COMPONENT	Methanol
HAZARD CLASS	Flammable Liquid
IDENTIFICATION NUMBER	UN1993
D.O.T. LABEL(S) REQUIRED	Flammable Liquid
PRECAUTIONARY LABEL	Attached

 SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)
Xylene	2	100ppm
 Methanol		200ppm
Isopropanol		400ppm
Heavy Aromatic Naphtha		100ppm

. S	ECTION III -	PHYSICAL DATA	
BOILING POINT ("F.)	162	SPECIFIC GRAVITY (H20=1)	0.881
VAPOR PRESSURE (mm Hg.)	200	PERCENT, VOLATILE BY VOLUME (%)	62
VAPOR DENSITY (AIR=1) @ 100°F	>5	EVAPORATION RATE (n-Butyl Acetate=1)	2.03
SOLUBILITY IN WATER	Dispers	ible	
APPEARANCE AND ODOR light vel	low liquid.	hydrocarbon odor	

SECTION IV - FIRE AND EX	PLOSION HAZARD DAT	A	
FLASH POINT (Method used) 52°F Seta CC-ASTM	FLAMMABLE LIMITS		Uel 36.0
EXTINGUISHING MEDIA Dry chemical, foam, water spray or water fo	g		
SPECIAL FIRE FIGHTING PROCEDURES Use water spray to cool fire exposed surface	es and to protect per	sonnel.	
UNUSUAL FIRE AND EXPLOSION HAZARDS Respiratory protection required for fire-fi	ghting personnel.		

[sopropanol,	Metha	anol, Xyl	ene, h	neavy aron	matic naphtha (400, 200, 100, 100 ppm)
FFECTS OF OVERE	XPOSU	RE	ng to	ekin and	
Thread Pro	1000	d on son		akin and	
MERGENCY AND F	IRST A	ID PROCEDU	RES	SKIN CON	lact may cause dermatitis
Remove to fre	sh a	<u>ir. If n</u>	ot bre	eathing, a	apply artificial respiration and call
a physician.	Imm	ediately	flush	eyes with	n plenty of water for at least
15 minutes.	Call	a physic	ian.	If skin o	contact occurs, wash with soap and water.
			SECTIO		
TABILITY			1		
	UNST		ļ	None	
	STAB		x		
NCOMPATABILITY Strong oxidiz	(Materi ing	ais io avoid) agents			
AZARDOUS DECO	mposi emit	smoke, f	cts lumes.	CO and	CO ₂
AZARDOUS		MAY OCCUP	۹		CONDITIONS TO AVOID
OLYMERIZATION		WILL NOT C	CCUR	x	1
•	I				
	_				
<u> </u>		SECT	ION VI	I - SPILL	OR LEAK PROCEDURES
TEPS TO BE TAKE	N IN C	SECT	ION VI	I - SPILL	
TEPS TO BE TAKE Keep public a	N IN C	SECT ASE MATERIA Eliminat	ION VI	I - SPILL LEASED OR S ICE OF 1g	OR LEAK PROCEDURES
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I

WESTERN PETROLEUM SERVICES W.I.N. 100472

NINE-40

De-emulsifier

FLASH POINT: 52'F(11'C) SETAFLASH

DANGER!

EXTREMELY FLANMABLE **MAY CAUSE FLASH FIRE HAY CAUSE EYE BURNS** CAUSES SKIN IRRITATION ON PROLONGED CONTACT HRY BE A SKIN SENSITIZE

MADE IN U.S.A.

MANUFACTURED FOR: COMPANY OF NORTH AMERICA THE WESTERN

EATCH NO. P. 0. BOX 195 FORT MORTH, TEXAS 75101

PRECAUTIONS:

CLOSED. WASH THOROUGHLY AFTER HANDLING.

FIRST AID:

INNEDIATELY FLUSH EVES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN. NASH SKIN WITH SOAP AND WATER.

*** D_0_T__PROPER_SHIPPING_NAME#**

FLAMMABLE N. O. S.

FIRE FIGHTING:

USE NATERSPRAY TO COOL FIRE EXPOSED SURFAC-ES AND PROTECT PERSONNEL. EXTINGUISH WITH DRY CHEMICAL OR ALCOHOL-TYPE FUAM. HATER-SPRAY MAY BE INEFFECTIVE AS AN EXTINGUISH-ING AGENT.

USE INSTRUCTIONS:

FOR PROPER USE, REFER TO SERVICE BULLETIN NUMBER 552. 0 LIC

SPECIFIC USAGE 0.5-10.0 CAL/1000 CAL HCL, HCL/HF BLENDS, AND HCL/ACETIC ACID BLENDS.

- NET CONTENTS: 55 U.S. GALLONS 208.2 LITERS

SPILL CONTROL:

KEEP AUAY FROM HEAT, SPARKS, AND OPEN KEEP PUBLIC AUAY. ELIMINATE SOURCES OF FLAME. BO NOT GET IN EYES. REAR CHEMICAL IGNITION. DARN OCCUPANTS OF DOUBUIND AREAS SAFETY GOGGLES. AUDID CONTACT WITH SKIN OR OF FIRE AND EXPLOSION HAZARD SHAT OFF PLOTHING AUOID BREATHING MISTS OF MAPORS, SOURCE IF POSSIBLE TO DO SO SAFELY PREMENT USE WITH VENTILATION EQUAL TO UNOBOLINUCTED LIQUID FROM ENTERING SEVERS. UNTERCOOPDES-OUTDOORS IN MODERATE BREEZE, KEEP CONTAINER OR LOW AREAS. ADVISE AUTHORITIES IF MA-TERIAL HAS ENTERED A MATERCOUPSE OF SELEC OR HAS CONTAMINATED SOIL OR DECENTION. CONTAIN SPILLED LIQUID WITH SAND OR EARTH, AND DILUTE WITH WATER RECOVER BY PUDPING OR WITH SUITABLE ABSORBENT CONSULT AN EX-PERT ON DISPOSAL OF RECOVERED MATERIAL AND ENSURE CONFORMITY WITH LOCAL DISPOSAL REGU-LATIONS WARNING: EMPTY CONTAINER HAZARDOUS

OBSERVE ALL PRECAUTIONARY MEASURES ON THIS LABEL. CONTAINER NAY BE HAZARDOUS WHEN EMPTY, STORE EMPTY CONTAINERS ANALY FROM HEAT AND FLAME WITH DRUM PLUGS CLOSED. DO NOT OUT OR NELD. ENSURE COMPLIANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS IN DISPOSING OF THIS CONTAINER, RESIDUAL CON-TENTS, OR RINSING. TRIPLE RINGE CONTAINER AND OFFER FOR RECYCLING, RECONDITIONING, OR DISPOSAL IN AN APPROVED MANNER. ENSURE RE-CONDITIONERS, PECYCLERS, OR DISPOSAL ARE AVARE OF HAZARDS ASSOCIATED WITH CONTENTS.

LIQUID AIR CORPORATION

INDUSTRIAL GASES DIVISION

W.I.N.100225, GAS, cryogenic liquid, Nitrogen



Material Safety Data Sheet

PRODUCT NAME Liquid Nitrogen TELEPHONE (415) 977-6500 EMERGENCY RESPONSE INFORMATION ON PAGE 2 CAS NUMBER LIQUID AIR CORPORATION TRADE NAME AND SYNONYMS 7727-37-9 <u>Please see last dace.</u> One California Plaza, Suite 350 CHEMICAL NAME AND SYNONYMS 2121 N. California Blvd. Walnut Creek, California 94596 <u>Liquid Nitrogen</u> MOLECULAR WEIGHT ISSUE DATE OCTOBER 1, 1985 FORMULA CHEMICAL FAMILY AND REVISIONS CORPORATE SAFETY DEPT. Liquefied N₂ Inert 28,013 HEALTH HAZARD DATA (SEE NOTE ON LAST PAGE) TIME WEIGHTED AVERAGE EXPOSURE LIMIT Nitrogen is defined as a simple asphyxiant. Oxygen levels should be maintained at greater than 18 molar percent at normal atmospheric pressure which is equivalent to a partial pressure of 135 mm Hg (ACGIH, 1984-85). SYMPTOMS OF EXPOSURE * Effects of exposure to high concentrations so as to displace the oxygen in air secessary for life may include any, all or none of the following: o Loss of balance or dizziness; o Tightness in the frontal area of the forehead: o Tingling of the tongue, fingertips or toes; (Continued on last page.) TOXICOLOGICAL PROPERTIES Nitrogen is nontoxic but the liberation of a large amount in a confined area could displace the amount of oxygen in air necessary to support life. Frostbite effects are a change in color of the skin to gray or white possibly followed by blistering. National Toxicology Yes Listed as Carcinogen I.A.R.C. OSHA Yes Yes \mathbf{X} X or Potential Carcinogen \mathbf{X} Monographs No Program No No RECOMMENDED FIRST AID TREATMENT PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO NITROGEN. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given mouth-to-mouth resuscitation and supplemental oxygen. Medical assistance should be sought immediately. For dermal contact or frostbite, flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or deep tissue freezing. Judgements as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the disbaration of such information, Liquid Air Corporation extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to burchaser s

intended purposes or consequences of its use. Since Liquid Air Corporation has no control over the use of this product, it assumes no liability for damage or loss of product resulting from proper (or

improper) use or application of the product. Data Sheets may be changed from time, Be sure to consult the latest edition.

None						
· · · · · · · · · · · · · · · · · · ·						
		PHYSIC	AL DATA	L .		
301LING POINT				LIQUID DENSITY AT BOILING POINT 50 48 1b/f+ ³ (808 607 kg/m ³)		
VAPOR PRESSURE @ 70°F (21.1°C) above the			GAS DENSITY AT 70°F 1 atm			
critical temp. of -232.51°F (-146.95°C)			.07245	.07245 lb/ft ³ (1.1605 kg/m ³)		
coefficient	= .01557	20°C) Bunsen	-346.0	04°F (-	210.002°C)	
APPEARANCE AND O	DOR riess odori	ess liquid			······································	
					• •	J
	00 11650	FIRE AND EXPLOS	SION HAZ			
N/A			n c	E FLAMMABLE LIMITS % BY VOLUME N/A		
EXTINGUISHING MED		· _			ELECTRICAL CLASSIFICATION	
NONT LAMMADIC	e, inert Ing procedures	·			Nonnazardous	
N/A						
UNUSUAL FIRE AND	EXPLOSION HAZARD	S	<u></u>	··· •· ·· ·	······································	<u> </u>
N/A						
N/A						
N/A		REACTI				
		REACTIN		A].
N/A STABILITY Unstable			VITY DAT	A		
N/A STABILITY Unstable Stable	X		VITY DAT	A		
N/A STABILITY Unstable Stable NCOMPATIBILITY (M	X laterials to avoid)		VITY DAT	A		
N/A STABILITY Unstable Stable NCOMPATIBILITY (M NO ne HAZARDOUS DECOM	X laterials to avoid) POSITION PRODUCT			A		
N/A STABILITY Unstable Stable NCOMPATIBILITY (M None HAZARDOUS DECOM	X laterials to avoid) POSITION PRODUCT			A		
N/A STABILITY Unstable Stable NCOMPATIBILITY (M NO NE IAZARDOUS DECOM NO NE IAZARDOUS POLYMI May Occur	X laterials to avoid) POSITION PRODUCT ERIZATION	REACTIN CONDITIONS TO AVOID		A		
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	W.I.N.100225,	GAS,cryogenic liquid,Nitrogen Page 3
RESPIRATORY PROTECTION (Specify typ	 Positive pressure air line w 	ith mask or self-contained
breathing apparatus sh	nould be available for emergency	use.
VILATION	LOCAL EXHAUST	SPECIAL
Jee Local Exhaust	MECHANICAL (Gen.)	OTHER ,
on ruse page.		
PROTECTIVE GLOVES		
Loose fitting, insulat	ed	·····
Safety nonnies or nias	ses plus face shield	
OTHER PROTECTIVE EQUIPMENT		
Safety shoes		
·	SPECIAL PRECAUTIONS	
DOI Shipping Name: N DOI Shipping Name: N DOT Shipping Label: N	itrogen, refrigerated liquid (cr Nonflammable Gas DOT Haza	yogenic liquid) I.D. No.: UN 1977 ard Class: Nonflammable gas
SPECIAL HANDLING RECOMMENDATION	IS	
See note on last page SB-2 and CGA pamphlets	re Spill or Leak Procedures. A ; P-9, P-12 and P-14.	lso see CGA Safety Bulletin
SB-2 Oxygen Deficier	nt Atmospheres	
P-9 The Inert Gases	s - Argon, Nitrogen and Helium	
P-12 Safe Handling of	of Cryogenic Liquids	
P-14 Accident Prever	ntion in Oxygen-Rich and Oxygen-I	Deficient Atmospheres
For additional handling recomme	ndations consult L'Air Liquide's Encyclopedia de Ga	z or Compressed Gas Association Pamphlet P-1.
PECIAL STORAGE RECOMMENDATION	S	
See note on last page and CGA pamphlets P-9	re Spill or Leak Procedures. A , P-12 and P-14.	lso see CGA Safety Bulletin SB-2
Do not store cylinders gas can cause suffoca	s in sub-surface or closed (poor. ation without warning.	ly ventilated) areas. Nitrogen
For additional storage recommen	ndations consult L'Air Liquide's Encyclopedia de Ga	z or Compressed Gas Association Pamphlet P-1.
SPECIAL PACKAGING RECOMMENDATI	ONS	
Liquid nitrogen canno 18-10 stainless steels alloys, brass, bronze CGA Safety Bulletin SE	t be handled in carbon or low a s are acceptable as are copper an , silicon alloys, Monel [®] , Incone 3-2 and CGA pamphlets P-9 and P-1	lloy steels. Eighteen-eight and nd its alloys, nickel and its 1 ⁵ , and beryllium. Also see 12.
OTHER RECOMMENDATIONS OR PREC	autions	
Liquefied gas cylinder these products. Ship by the owner or with	rs should not be refilled except nent of a compressed gas contain nis (written) consent is a viola	by qualified producers of er which has not been filled tion of Federal Law (49CFR).

W.I.N.100225, GAS, cryogenic liquid, Nitrogen



LIQUID AIR CORPORATION

ADDITIONAL DATA

TRADE NAME AND SYNONYMS: (Continued)

Liquid Nitrogen; LIN; Nitrogen, refrigerated liquid (cryogenic liquid)

HEALTH HAZARD DATA: (Continued)

Note: Except where specified, the health hazard data and most of the other data in this material safety data sheet are for <u>gaseous</u> nitrogen. <u>One volume of liquid</u> <u>nitrogen at its boiling point and atmospheric pressure will vaporize into approximately 695 volumes of gaseous nitrogen at 70°F (21.1°C) and 1 atmosphere</u>.

SYMPTOMS OF EXPOSURE: (Continued)

o Weakened speech leading to the inability to utter sounds;

o Rapid reduction in the ability to perform movements;

- o Reduced consciousness of the surroundings;
- o Loss of tactile sensations;
- o Heightened mental activity.

It should be recognized that it is possible that none of the above symptoms may occur in nitrogen asphyxia so that there are no <u>definite</u> warning symptoms.

Contact with the cryogenic liquid or cold piping containing the liquid can cause tissue freezing or frostbite on dermal contact or if splashed into the eyes.

* For additional information, refer to L'Air Liquide's Encyclopedie des Gaz.

NOTE re SPILL OR LEAK PROCEDURES:

Liquid nitrogen is delivered to a customer into stationary vacuum-jacketed vessels at the customer's location or in portable vacuum-jacketed "liquid" cylinders.

Stationary customer-site vessels should be operated in accordance with the manufacturer's and Liquid Air Corporation's instructions. Do not attempt to repair, adjust, or in any other way modify the operation of these vessels. If there is a malfunction or other type of operational problem with the vessel, contact the closest Liquid Air Corporation location immediately.

Liquid nitrogen cylinders should be used only in well-ventilated areas and in accordance with the manufacturer's and Liquid Air Corporation's instructions. These cylinders must <u>always</u> be kept in an upright position. Specialized hand trucks are needed for their movement. A "first in-first out" inventory system should be used with these cylinders.

LOCAL EXHAUST: (Continued)

To prevent accumulation of high concentrations so as to reduce the oxygen level in the air to less than 13 molar percent.


U.S. DEPARTMENT OF LABOR



Occupational Safety and Health Administration

DATE: July 1,1984

SECTION I						
Supplier's Name	Adama (· ·· · .		EMERGENCY T	ELEPHONE NO.	
The Western Company of North	America	· · · · · · · · · · · · · · · · · · ·]	(817)	731-5100	
ADDRESS (Number, Street, City, State, and ZIL P. O. Box 186, Ft. Worth, TX	<i>Code)</i> (76101					
CHEMICAL NAME AND SYNONYMS Proprietary blend Paraffin Control Paratrol L						
CHEMICAL FAMILY resin solutio	n	FORMULA	W.I	.N. 100463		
SECTI	ONIA HAZAR	DOUS N	ATERI	AL CLASS	IFICATION	
D.O.T. PROPER SHIPPING NAME	Combustible 1	liquid,	n.o.s.			
NAME OF HAZARDOUS COMPONENT	Contains ligh	nt arom	atic na	phtha		
HAZARD CLASS	Combustible n	nateria	1			
IDENTIFICATION NUMBER	NA 1993					
D.O.T. LABEL(S) REQUIRED	Combustible n	nateria	1			
PRECAUTIONARY LABEL	Attached			· · ·]	

SECTION II - HAZARDOUS INGREDIENTS					
light aromatic naphtha		25 ppm			
•`					
	;				

SECTION III · PHYSICAL DATA					
BOILING POINT (°F.)	SPECIFIC GRAVITY (H20=1) @ 60°F	0.90			
VAPOR PRESSURE (mm Hg.)	PERCENT, VOLATILE BY VOLUME (%)	65 -			
VAPOR DENSITY (AIR=1)	EVAPORATION RATE (=1)				
SOLUBILITY IN WATER					

FLASH POINT (Method used)	114 ⁰ F SFCC	FLAMMABLE LIMITS	Lei	Uel
EXTINGUISHING MEDIA	CO ₂ or dry chem	ical		
SPECIAL FIRE FIGHTING PROC	EDURES			
		<u></u>		

	SE	CTION	V - HEAL	TH HAZARD D	ΑΤΑ
THRESHOLD LIMI	TVALUE	nu¹	t establi	shed	·
EFFECTS OF OVE	REXPOSURE	Ser	e Attachn	nent	
	······································		<u></u>		······
EMERGENCY AND	FIRST AID PROCEDU	RES See	e Attachn	nent	
	· ·	SECTIO	N VI + RE	ACTIVITY DA	ΤΑ΄
STABILITY	UNSTABLE	<u> </u>	CONDITION	S TO AVOID	······································
	STABLE	X			
INCOMPATABILIT	Y (Materials to avoid)	<u></u>			
HAZARDOUS DEC	COMPOSITION PRODU	CTS	<u> </u>		
HAZARDOUS	MAY OCCU	۹		CONDITIONS TO A	AVOID
POLYMERIZATIO	N WILL NOT	CCUR	. X.		
			-	**************************************	
	SECT	ION VII	· SPILL (OR LEAK PROC	EDURES
STEPS TO BE TAN	KEN IN CASE MATERI	AL IS REL	EASED OR S	PILLED	
Dike to	prevent enteri	ng any	waterway	. Cover with	sand, dirt of suitable
chemical	adsorbent.	*			
WASTE DISPOSAL After ma	METHOD aterial is adso	rbed pi	ck up sa	nd, dirt or c	hemical adsorbent and take
to an ap	proved hazardo	us wast	e dispos	al site. Dis	pose of residue in accordance
with app	olicable waste	managen	ent regu	lations.	
	SECTION	VIII - S	PECIAL P	ROTECTION IN	TIV the use of a chemical
	ROTECTION (Specify t	ype)	vidge is	recommended.	TEV, the use of a chemical
RESPIRATORY P respirat	tor with organi	<u>c carti</u>	•		1.000.01
RESPIRATORY P respirat VENTILATION	tor with organi Local Extern	mended			SPECIAL
RESPIRATORY P respirat VENTILATION	LOCAL EXPANSI LOCAL EXPANSI RECOIL MECHANICAL (G	<u>c</u> cartr mended meral)			SPECIAL OTHER
RESPIRATORY P respirat VENTILATION PROTECTIVE GL	LOCAL EXPANS LOCAL EXPANS RECON MECHANICAL (G OVES Synthet	<u>c cartr</u> mended ^{neral}		EYE PROTECTION	other chemical goggles
RESPIRATORY P respirat VENTILATION PROTECTIVE GL OTHER PROTECT	LOCAL EXPLOSI LOCAL EXPLOSI MECHANICAL (GO OVES Synthet TIVE EQUIPMENT	ccartr mended :neral) ic		EYE PROTECTION	отнек chemical goggles
RESPIRATORY P respirat VENTILATION PROTECTIVE GL OTHER PROTECT	LOCAL EXPLOSI LOCAL EXPLOSI MECHANICAL (GO OVES Synthet TIVE EQUIPMENT	c_cartr mended meral)			SPECIAL OTHER chemical goggles
RESPIRATORY P respirat VENTILATION PROTECTIVE GL OTHER PROTECT	LOCAL EXPANS LOCAL EXPANS RECON MECHANICAL (GO OVES Synthet TIVE EQUIPMENT	C_CarLi mended meral) ;ic ECTION	IX - SPE	EVE PROTECTION	SPECIAL OTHER chemical goggles

PAGE (2) Of (3)

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Form OSHA-20

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Attachment to MSDS TRADE NAME: W.I.N. 100463, Paraffin Control, Paratrol L

Effects of overexposure

Inhalation: Vapor is a respiratory and mucous membrane irritant and may cause severe systemic injury. High concentrations cause nausea, headaches, dizziness, vertigo, narcosis and possible CNS depression. In extreme cases unconsciousness and pulmonary edema may result. Prolonged or repeated exposure of high vapor concentrations may cause kidney and liver damage.

100700

Skin and eye contact: A primary skin irritant. On repeated or prolonged skin contact, may cause dermatitis owing to dehydrating and defatting properties. May be readily absorbed through the skin. Contact with eyes causes severe irritation and may lead to persistent corneal opacity.

Ingestion: May cause severe gastrointestinal distress. Aspiration into lungs may cause pulmonary edema and chemical pneumonitis.

Emergency and First Aid Procedures

- For Skin: Wash skin with soap and water. If rash or irritation_develops, seek first aid.
- For Eyes: Flush eyes with plenty of water for 15 minutes. Consult a physician.
- For Inhalation: Remove to fresh air. Administer oxygen if necessary. Get medical attention if symptoms persist or exposure was severe.

For Ingestion: Do not induce vomiting. Get medical attention immediately. Administer activated carbon and perform gastric lavage if indicated.

Page (3) of (3)



Western Petroleum Services

W.I.N. 100463

PARATROL L

Paraffin Inhibitor

batch#012345

Flash Point: 114° F(46°C) SFCC

Net Contents: 414 lb(187.8 kg)

55 gal(208.2liter)@60° F

DIRECTIONS:

For Proper Use, Refer to Service Bulletin No.(s)

SPECIFIC USAGE: Use at the rate of 5-10 gal per 1000 gallon of water frac.

FOR INDUSTRIAL LISE ONLY **CAUTION!**

AVOID contact with eves, skin and clothing. WASH thoroughly after handling. KEEP container closed. AVOID breathing vapor. Use with adequate ventilation at elevated temperatures, this product may burn. Fire Fighting: Use foam, dry chemical or ∞_{2} . FIRST AID: For eves: In case of contact, wash eyes with plenty of water for at least 15 minutes. Call physician. In case of contact, flush skin with water. Wash For skin: clothing before reuse. For ingestion: If swallowed, do not induce vomiting. Get immediate medical attention. Administer activated carbon and perform gastric layage, if indicated. Employees must wear synthetic gloves and chemical Handling: qoqqles. ATTENTION: After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precautions listed for this product. Do not cut, puncture or weld on or near this container.

Refer to MSDS and SPM-04-04 for Safety Requirements.



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U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: 28MAY86

R.E.F.C.

SECTION I						
Supplier's Name	EMERGENCY TELEPHONE NO.					
The Western Company of North America	(817) 731-5100					
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	· · · · · · · · · · · · · · · · · · ·					
CHEMICAL NAME AND SYNONYMS Proprietary blend	GEL COMPLEXER, water, T.I.C.					
CHEMICAL FAMILY	ORMULA					
	H.1.N. 100151					
SECTION IA HAZARD	OOUS MATERIAL CLASSIFICATION					

D.O.T. PROPER SHIPPING NAM	E Flammable liquid, n.o.s.
NAME OF HAZARDOUS COMPONE	INT isopropanol
HAZARD CLASS Flatab	le liquid
IDENTIFICATION NUMBER	UN 1993
D.O.T. LABEL(S) REQUIRED	Flammable liquid
PRECAUTIONARY LABEL	attached

SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)
isopropanol	80	400ррш

SECTION III - PHYSICAL DATA						
BOILING POINT (°F.)		SPECIFIC GRAVITY (H:0=1) @ 25°C	0.842			
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	80%			
VAPOR DENSITY (AIR=1)		EVAPORATION RATE	364			
SOLUBILITY IN WATER	insoluble					

APPEARANCE AND ODOR Clear red liquid, acetyl acetone odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA							
FLASH POINT (Method used) 54 F (PMCC)	FLAMMABLE LIMITS	Lei	Uei				
Extinguishing MEDIA Any type CO., dry chemical or water							
SPECIAL FIRE FIGHTING PROCEDURES							
UNUSUAL FIRE AND EXPLOSION HAZARDS		•					

TRADE NAME: W.I.N.100151, GEL COMPLEXER, water, T.I.C.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE Unknow, isopropanol component, 400 ppm EFFECTS OF OVEREXPOSURE See attached

Is this material a sensitizer? No report of sensitization during 10 years of com-EMERGENAY ACCOUNTS Wash spills from skin with soap and water. If contact with eves occurs, flush then thoroughly with plenty of water and consult a physician if irritation persists. If the product is ingested, consult a physician.

SECTION VI - REACTIVITY DATA							
STABILITY	רצאט	VSTABLE		CONDITIONS TO AVOID			
	STAE	STABLE XXX			Hydrolyzed slowly by water.		
INCOMPATABILI May cause Hazardous de None	TY (Mater rapid composi	uls to avoid) <u>corrosio</u> TION PRODUC	n <u>of f</u> e cts_	errous met	- als		
		MAY OCCU	2		CONDITIONS TO AVOID		
POLYMERIZATIC	м	WILL NOT OCCUR		XXX			

SECTION VIL - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Collect large spills with sawdust or other absorbent solid. Small spills and re-

sidures may be flushed to the drain with water.

WASTE DISPOSAL METHOD

Pour waste on the ground in a protected dumping area. Bury or burn in accordance

with local ordinances.

SECTION VIIL - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION Specify types

VENTILATION	LCCAL EXHAUST	SPECIAL		
	MECHANICAL (Generai)		OTHER	
PROTECTIVE GLO ELDOW leng	ves th	EVE PROTECTION Goggles or	Face shield	
OTHER PROTECT	IVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING See attached

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GTHER PRECAUTIONS See attached

PAGE (2) of (3)

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MATERIAL SAFETY DATA SHEET

DATE: 28MAY86

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SECTION I					
Supplier's Name	EMERGENCY TELEPHONE NO.				
The Western Company of North America	(817)_731-5100				
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101					
CHEMICAL NAME AND SYNONYMS Prodrietary Blend	GEL COMPLEXER, water, T.I.C.				
metal chelate	W.I.N. 100151				

SECTION IXA - - SPECIAL PRECAUTIONS

SECTION V - HEALTH HAZARD DATA - Effects of Overexposure

"T.I.C." appears to be slightly toxic when administered to rats in single doses. The ALD was 5,000 mg/kg of body weight. Ten daily doses of 1,000 mg/kg over a two-week period caused depressed rate of weight gain, salivation and restlessness during the period of treatment. One animal died two days after the tenth dose. The others showed no pathological lesions attributable to "T.I.C." when sacrificed after the tenth treatment of ten days later. There was definite indication of cumulative toxicity when fed repeatedly at a high dose level.

Laboratory studies of the effect of "T.I.C." on the skin and eyes have not been made. The material is assumed to be an irritant.

SECTION IX - SPECIAL PRECAUTIONS - handling and Storage

Handle "T.I.C." in accordance with good industrial hygiene. Avoid unnecessary personal contact and wear goggles and protective gloves when handling substantial quantities. Wash spills from the skin with soap and water without undue delay. Wash the face and hands after exposure.

"T.I.C." is classified as a flammable liquid and shipping containers carry the I.C.C. red label. This classification arises from the 80% isopropanol content in the product. Do not expose "T.I.C." to flames or sparks.

"T.I.C." may be stored in its original shipping container at normal indoor or outdoor temperatures. Containers must be kept tightly closed to prevent the loss of isopropanol and to prevent contact with water or water vapors. "T.I.C." may cause rapid corrosion of some metals, particularly ferrous metals.



Western Petroleum Services

W.I.N. 100151

T.I.C.

GEL COMPLEXER

Flash Point: 54°F(12°C) Net Content: 364 lb(165kg) 54 gal(196 L)@ 60°F

DIRECTIONS:

For Proper Use, Refer to Service Bulletin No.(s) 380.0, 381.0, 381.1,

384.0, 385.0, 386.0

SPECIFIC USAGE: Use at the rate of 1 to 3 gal. per 1000 gal. of frac fluid.

NOTE: Moisture degrades product. Keep from moisture. Use with T.I.C. Injector only. Do not batch mix into frac fluid.

When Handling This Product Employees MUST WEAR: Chemical goggles, rubber apron, and rubber gloves.

FOR INDUSTRIAL USE ONLY WARNING

FLAMMABLE. MAY

CAUSE IRRITATION. Keep away from heat, sparks and flames. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated breathing of vapors. Use with adequate ventilation. Keep container closed. Wash thoroughly after handling.

FIRST AID: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. Flush skin with water. Wash clothing before reuse.

FIRE: In case of fire, flood with water or "alcohol" foam or use dry chemical or CO_2 .

SPILL OR LEAK: Contain or soak up with sand or earth. Flush balance to a waste water treatment system.

ATTENTIONI After this container has been emptled, it may contain flammable and toxic liquid or vapor; observe all warnings and precuations listed for this product. Donot cut, puncture or weld on or near this container. Refer to MSDS and SPM 04 04 for Safety Requirements.



D.O.T. PROPER SHIPPING NAME: Flammable liquid, n.g Contains isopropanol (UII1993)*****

R-341 (01/86

100219

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: 15 Mar. 78

 SECTION I

 Supplier's Name
 EMERGENCY TELEPHONE NO.

 The Western Company of North America
 (817) 731-5100

 ADDRESS (Number, Street, City, State, and ZIP Code)
 (817) 731-5100

 P. O. Box 186, Ft. Worth, TX 76101
 TRADE NAME AND SYNONYMS

 Benzoic Acid
 TRADE NAME AND SYNONYMS

 CHEMICAL FAMILY
 FORMULA

 Organic Acid
 CGH5 COOH (well graded)

SECTION IA HAZARDOUS MATERIAL CLASSIFICATION

D.O.T. PROPER SHIPPING NAME ORM-E, n.o.s. (RQ5000/2270)

NAME OF HAZARDOUS COMPONENT 🛛 Benzoic acid 🗡

HAZARD CLASS

IDENTIFICATION NUMBER NA9094

D.O.T. LABEL(S) REQUIRED None

PRECAUTIONARY LABEL

SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)
×.		
-		

SECTION III · PHYSICAL DATA						
BOILING POINT (⁶ F.)	480°	SPECIFIC GRAVITY (H20=1) 28°F	1.316			
VAPOR PRESSURE (mm Hg.) solid		PERCENT, VOLATILE				
VAPOR DENSITY (AIR=1)		EVAPORATION RATE	1			
SOLUBILITY IN WATER @ 25°C = 0.34%	slight					

APPEARANCE AND ODOR White flakes or crystals - slight odor

FLAMMABLE LIMITS	Lei	Uei
		· · · · · · · · · · · · · · · · · · ·

100219

SECTION V - HEALTH HAZARD DATA

THR	ES	HOI	-0	L 1	MIT	VALUE	

Not available EFFECTS OF OVEREXPOSURE

Liquid is irritating to eyes. May be harmful if swallowed or absorbed through skin.

EMERGENCY AND FIRST AID PROCEDURES Flush eyes for 15 min. and get medical attention. Wash skin thoroughly with soap

and water and get medical attention if irritation or redness develops. Launder

clothes before reuse.

SECTION VI · REACTIVITY DATA

STABILITY	JNSTAB			CONDITION Keep aw	s to avoid ay from heat,	sparks and	open flames.
	STABLE		X		•	-	•
INCOMPATABIL	ITY (Materials	<i>to avoid)</i> strong	oxidi	zing agen	ts.		
HAZARDOUS DE	COMPOSITIO	N PRODUC	τ 5				
HAZARDOUS	M	AY OCCUR	1		CONDITIONS TO A	VOID	
POLYMERIZATI	on W	WILL NOT OCCUR					
							· · · · · · · · · · · · · · · · · · ·

SECTION VIL - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Extinguish all sources of ignition. Wash down with water or soak up on sand and dispose of in an approved industrial waste landfill. Do not wash down with water

where runoff will contaminate important water sources. WASTE DISPOSAL METHOD

Incinerate in an incinerator equipped with an afterb urner and scrubber or bury.

in an approved industrial landfill.

SECTION VIIL - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)						
None require	d in normal use.					
VENTILATION	LOCAL EXHAUST	;	SPECIAL			
	MECHANICAL (General)		OTHER			
PROTECTIVE GLOV	/ES	N				
Rubber		ld or goggles				
OTHER PROTECTIVE EQUIPMENT						

Rubber boots and apron, if possibility of contact during use exists

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Store away

from heat, sparks and open flames.

OTHER PRECAUTIONS

Do not transfer to improperly marked containers. Keep container closed when

not in use.

PAGE (2)

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WESTERN

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Date: April 6, 1992

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SECTION 1						<u>Bata a de</u>		
SUPPLIER'S NAME The Western Company	EMERGENCY TELEPHONE NO. 1-800-732-9876							
ADDRESS (Number, Street, City, State and ZIP Code)	ADDRESS (Number, Street, City, State and ZIP Code) 515 Post Oak Blvd., Houston, Texas 77027							
CHEMICAL NAME AND SYNONYMS BODTODY ACC	hol Solution		TRADE NAME AND SYNON	MS West	prop 4 Act	vator		
CHEMICAL FAMILY ISOPROPH Alcohol Solution			FORMULA		W.I.N. 496	594	an site and no	
SECTION IA	- HAZAR	DOUS	MATERIAL CLASSI	FICATIO	N			
D.O.T. PROPER SHIPPING NAME Flammable Liqui	id, n.o.s.				(RC		')	
NAME OF HAZARDOUS COMPONENT Contains is	opropyl alcohol	1		_				
HAZARD CLASS Flammable Liquid								
IDENTIFICATION NUMBER UN 1993								
D.O.T. LABEL(S) REQUIRED Flammable								
PRECAUTIONARY LABEL			and a state of the		an an min a contar a una r	N. S. N		
SECTION II - HAZAF	RDOUS ING	REDIE	NTS*	%		TLV	(Units)
Isopropanol (67=63-0)				30 - 5	0	400 ppm		
Alcohois C11-15-Secondary, Ethoxylated (6	8131-40-8)			40 - 7	0			
* This product contains no chemicals subjec	t to the reportin	ng requi	rements of Section 313					
of Title III of the Superfund Amendments ar	n d Reauthoriza	tion Act	of 1986.				Sector Dates and the	
SECTION III - PHYSICAL DATA								
BOILING POINT ("F)			SPECIFIC GRAVITY (H20-1)				0.907	
VAPOR PRESSURE (mm Hg)			PERCENT, VOLATILE BY VOLI	JME (%)				
VAPOR DENSITY (AIR-1)					1)			
SOLUBILITY IN WATER	Soluble	e	FREEZING POINT				15°F	
APPEARANCE AND COOR clear liquid, isopropy	APPEARANCE AND OCOR clear liquid, isopropyl alcohol odor							
SECTION IV - FIRE AND EXPLOSION HAZARD DATA								
FLASH POINT (Method used) 53°F (T.C.C.)	LABLE LIMITS			اها		Ųы		
EXTINGUISHING MEDIA water spray, dry chemical, foam or CO,								
SPECIAL FIRE FIGHTING PROCEDURES								
UNUSUAL FIRE AND EXPLOSION HAZARDS Flammable Liquid and vapor. Vapor is heavier than air and may settle in low places or travel								
outward to a source of ignition and flashbac	k. Keep liquid	and vap	or away from heat, spark,	, flame an	d other igi	ition s	ources,	
including, but not limited to, pilot lights, heaters, cigarettes, electric motors and static discharge.								

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Form OSHA-20

TRADE NAME: W.I.N. 499594

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SECTION V -	HEALTH HAZ	'ARD DATA
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THRESHOLD LIMIT VALUE	THRESHOLD LIMIT VALUE					
EFFECTS OF OVEREXPOSURE "Isopropand	ol (Note revised OSH	IA PEL): May cause in	ver damag	e based on animal data. May cause kidney		
damage based on animal data. Can	cause central nervo	ous system depression	n. Signs a	nd symptoms may include headache,		
dizziness, nausea, vomiting, unconsc	lousness and even a	sphyxiation. See Foo	thole C.	ACGIH TLV: 400 PPM (983 MG/M3)		
STEL OSHA PEL: 400 PEL: 400 PPM	(980 MG/M ³) TWA;	500 PPM (1225 MG/	M ³) STEL	*Alcohols, C11-15-Secondary, Ethoxylated:		
May cause allergic skin reaction. See	e Footnote C. ACGI	H TLV: NONE ESTA	BLISHED.	OSHA PEL: NONE ESTABLISHED.		
Footnote C: As of the date of issuar	nce of this document	t, this material has no	t been liste	d by NTP, IARC or OSHA as a carcinogen.		
EMERGENCY AND FIRST AID PROCEDURES	Ingestion: If accident	tally swallowed, dilute	by drinkin	g large quantities of water. Immediately		
contact poison control center or hosp	oital emergency room	n for any other additio	mai treatm	ent directions. Inhalation: Remove to fresh		
air. Skin Contact: in case of irritatio	on, flush with water.	Eye Contact: Immed	liately flus	h eyes with plenty of water for at least		
15 minutes. Eyellds should be held a	apart during irrigation	n to insure water cont	act with er	tire surface of eyes and lide. Call a		
physician.	a na ang ang ang ang ang ang ang ang ang					
	SECTION	VI - REACTIVI				
STABILITY	UNSTABLE		CONDITION			
	STABLE	x				
INCOMPATIBILITY (Materials to avoid) Stro	ong oxidizers and red	lucing agents				
HAZARDOUS DECOMPOSITION PRODUCTS	oxides or carbon					
HAZARDOUS	MAY OCCUR		CONDITIO	NS TO AVOID		
	WILL NOT OCCUR X					
S	SECTION VII -	SPILL OR LEAK	PROCE	DURES		
STEPS TO BE TAKEN IN CASE MATERIAL IS F	ELEASED OR SPILLED	Eliminate all ignition (ources. L	arge quantities: Enclose with diking		
material to prevent seepage into natu	ural bodies of water,	then consult Western	Company	of North America. Small quantities: Soak		
up with absorbent material and remo	ove to a chemical dis	posal area.	•••			
WASTE DISPOSAL METHOD Recover free	a liquid. Absorb resid	due and dispose of ac	cording to	local, state/provincial, and federal require-		
ments. Empty container: May conta	un explosive vapors.	DO NOT cut, punctu	re or weld	on or nearby.		
SECT	TION VIII - SPE	CIAL PROTECT	ON INFO	ORMATION		
RESPIRATORY PROTECTION (Specify type) Where air contaminants can exceed acceptable criteria, use NIOSH/MSHA approved respiratory						
protection equipment.						
VENTILATION See Section IVA	LOCAL EXHAL	JST X		SPECIAL		
	MECHANICAL	. (General)		OTHER		
PROTECTIVE GLOVES Yes	<u></u>					
EYE PROTECTION Goggies			. <u></u>			
OTHER PROTECTIVE EQUIPMENT						

PAGE (2) OF (5) R-3F (09/90) (Continued on next page)

Form OSHA-20

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TRADE NAME: W.I.N. 499594

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Keep container closed. Keep drum out of sun and away from heat. Store in a

cool, dry place. Empty container may contain product residues. DO NOT cut, torch or reuse without commercial cleaning. Loosen

closure cautiously before opening. Keep away from heat, sparks, flame and other ignition sources. Use with adequate ventilation.

OTHER PRECAUTIONS

PAGE (3) OF (5)

(Continued on next page)

Form OSHA-20

R-3F (09/90)

ATTACHMENT TO AND CONTINUATION OF



MATERIAL SAFETY DATA SHEET

Date: April 6, 1992

SECTION I					
SUPPLIER'S NAME The Western Company EMERGENCY TELEPHONE NO. 1-800-732-9876					
ADDRESS (Number, Street, City, State and ZIP Code) 515 Post Oak Blvd., Houston, Texas 77027					
CHEMICAL NAME AND SYNONYMS BODTOPYI Alcohol Solution TRADE NAME AND SYNONYMS Westprop 4 Activator					
CHEMICAL FAMILY ISOPROPYI Alcohol Solution FORMULA W.I.N. 490594					
SECTION IXA - SPECIAL PRECAUTIONS					

CONTROL MEASURES

If airborne contaminants are generated when the material is heated or handled, sufficient ventilation in volume and air flow patterns shall be provided to keep air contaminant concentration levels below acceptable criteria.

ENGINEERING CONTROLS: The following exposure control techniques may be used to effectively minimize employee exposure: local exhaust, ventilation enclosed system design, process isolation and remote control in combination with appropriate use of personal protective equipment and prudent work practices. These techniques may not necessarily address all issues pertaining to your operations. We, therefore, recommend that you consult with experts of your choice to determine whether or not your programs are adequate.

PAGE (4) OF (5)

R-3F (09/90)

ATTACIMENT TO AND CONTINUATION OF	ATTACHMENT	TO	AND	CONTI	NUA	TION	OF
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MATERIAL SAFETY DATA SHEET

Date: April 6, 1992

SECT	10N I				
SUPPLIER'S NAME The Western Company	EMERGENCY TELEPHONE NO. 1-800-732-9876				
ADDRESS (Number, Street, City, State and ZIP Code) 515 Post Oak Blvd.,	Houston, Texas 77027				
CHEMICAL NAME AND SYNONYMS Bopropyl Alcohol Solution	TRADE NAME AND SYNONYMS Westprop 4 Activator				
CHEMICAL FAMILY Isopropyl Alcohol Solution	FORMULA W.I.N. 499594				
SECTION X -	LABEL COPY				
FOR INDUSTR	IAL USE ONLY				
FIRST ALD:					
FOR EYES : In case of contact, immediately flush eyes w	ith plenty of water for at least 15 minutes. Call a physician.				
FOR \$KIN : In case of contact, flush with water.					
FOR INGESTION: If swallowed, dilute with large quantities of v emergency room for additional instructions.	rater. Immediately contact poison control center or hospital				
FOR INHALATION: If breathed in, remove to fresh air.					
FOR HANDLING: Employees must wear gloves, goggles.					
ATTENTIONII After this container has been emptied, it may co precautions listed for this product. Do not cut, p SPM-04-04 for other safety requirements.	ntain flammable and toxic liquid or vapor; observe all warnings and puncture, or weld on or near this container. Refer to MSDS and				

PAGE (5) OF (5)

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MATERIAL SAFETY DATA SHEET

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CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N.Y. 12305



CLM-	zß
W.1.N.	499625
No	94

MAGNESIUM OXIDE

Date October 1981

SECTION I. MATERIAL II	DENTIFICATION						
MATERIAL NAME: MAGNESIUM 02	LIDE						
OTHER DESIGNATIONS: Calcin	ed Brucite, Magnesia, Pe	riclase,	MgO, G.H	E. Material	L D4C3	57,	
CAS #(001 309 484						
MANUFACIURER: AVAILADIE M Malkincki	codt. Inc.	.ncluaing:					
P.0. Box	M						
Paris Ke	ntucky 40361 Tel: (60 IS AND HAZADDS	0)_987-70	00				
SECTION II. INGREDIEN	IS AND HAZARDS			ITAZAI			
Magnesium Oxide			>97	8-hr TWA	l5 mg/ (fume)	′m ³ *	
*Current OSHA Standard.	ACGIH (1981)			Human, In TCLo 400/1	nalati ng/m ³	on	
TLV for fume is lOmg/m ³	(as Mg)			Hometor T	-0,	nahant	
				TDLo 500m	z/hg	aciieali	
				30 W-I	IFX: N	IEO	
SECTION III. PHYSICAL	DATA						
Boiling point, 1 atm, deg C 3600 Specific Gravity (H ₁ O=1) ca 3.7 Solubility in water @ 20C, mg/L 6.2 Melting point, deg C >2500 Molecular Weight 40.31							
Appearance and Odor: White powder, odorless							
SECTION IV. FIRE AND	EXPLOSION DATA			LO	NER U	IPPER	
Flash Point and Method	Autoignition Temp. Fla	mmability	Limits	In Air			
Noncombustible material. Use extinguishing media that is appropriate for surrounding fire.							
Firefighters should wear self-contained breathing apparatus as this material can become airborne.							
SECTION V. REACTIVITY	DATA						
This is a stable material and handling conditions This alkaline material can It reacts violently with	in closed containers at It does not polymerize. absorb CO ₂ and H ₂ O from chlorine trifluotide an	room temp n air. It nd phospho	perature is sol prus pen	under nor uble in aq tachloride	mal st ueous	corage acids.	

No. 94

SECTION VI. HEALTH HAZARD INFORMATION TLV 15mg/m ³ (fume) Inlation of freshly generated magnesium oxtice fube can cause an acute toxic reaction called metal fume fever* along with leukorytosis, cough and chest pain. Exposure to NgO dust can produce irritation of the eyes and nasal passages. FIRET AID: Section Contact: Flush thoroughly with running water for 15 min. including under eyelids. Skin Contact: Remove contaminated clothing. Wath affected area with soap and water. Industrial sestion of the eyes and nasal passages. Section: Remove to fresh air. Restore and/or support breathing as required. Ingestion: Contact physician. Give water to drink to dilure. Section VII. SPILL, LEAK, AND DISPOSAL PROCEDURES Provide adequate ventilation. Clean up personnel may need respirator protection against dust or fumes. Pick up spills and place in appropriate containers for disposal or recovery (avoid dusting conditions). Flush residue with water. Ployederal, State and Local regulations. Aquito toXicity in nature with low solubility in water. Ployederal, State and Local regulations. Aquito toXicity in appropriate containers in the workplace where dust or fumes may be generated. An air-supplied or self-contained breathing apparatus can be used below 750 mg/m³, with a full faceplice needed have 150 mg/m³. Section VIII. SPECIAL PROTECTION INFORMATION Section X.X. SPECIAL PRECAUTIONS AND COMMENTS Store in tightly closed containers in a cool, qry, well-ventilated area away from acids. Protect: conta		NU. <u>94</u>						
 Alation of freshly generated magnesium oxide fuße can cause an acute toxic reaction called metal fume fever* along with leukocytosis, cough and chest pain. Exposure to %g0 dust can produce irritation of the eyes and nasal passages. <u>FIRST AID:</u> <u>Eye Contact</u>: Flush thoroughly with running water for 15 min. including under eyelids. <u>Skid Contact</u>: Remove contaminated clothing. Wash affected area with soap and water. <u>Inhalation</u>: Remove to fresh air. Restore and/or support breathing as required. <u>Ingestion</u>: Contact physician. Clow water to drink to dilute. Seek medical assistance for further treatment, observation and support. *Response to Mg0 fume is milder than to 2n0 fume. SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES Provide adequate ventilation. Clean up personnel may need respirator protection against dust or fumes. Pick up spills and place in appropriate containers for disposal or recovery (avoid dusting conditions). Flush residue with water. PISPOSAL: Deposit in a approved landfill. Mg0 is considered to be of low toxicity in nature with low solubility in water. Polow Federal, State and Local regulations. AQUATIO TOXICITY: Tim 96: >1000 ppa SECTION VIII. SPECIAL PROTECTION INFORMATION Provide local exhaust ventilation to meet TLV requirements in the workplace where dust or fumes may be generated. An if-supplied or self-contained breathing apparatus can be used below 750 mg/m³, with a full facepiece meeted above 150 mg/m³. Avoid eye contact by use of chemical safety progelies where dust or fumes may be generated. An if-supplied or self-contained stating conditions may occur. Wear protective clothing appropriate for the work situation. Eyewash station and washing facilities should be accessible to use area. Store in tightly closed containers in a cool, dry, well-ventilated area away from acids. Protect containers from physical damag	SECTION VI. HEALTH HAZARD INFORMATION	TLV 15mg/m ³ (fume)						
FIRST ATD: Eve Contact: Flush thoroughly with running water for 15 min. including under eyelids. Skin Contact: Remove contaminated clothing, Wash affected area with soap and water. Indelation: Contact physician. Give water to drink to dilute. Seek medical assistance for further treatment, observation and support. *Response to MgO fume is milder than to ZnO fume. SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES Provide adequate ventilation. Clean up personnel may need respirator protection against dust of fumes. Pick up spills and place in appropriate containers for disposal or recovery (avoid dusting conditions). Flush the vide water. DISPOSAL: Deposit in an approved landfill. MgO is considered to be of low toxicity in nature with low solubility in water. Follow Federal, State and Local regulations. AQUATIC TOXICITY: TLm 96: >1000 ppm SECTION VIII. SPECIAL PROTECTION INFORMATION Provide local exhaust ventilation to meet TLV requirements in the workplace where dust or fumes may be generated. An air-supplied or self-contained breathing apparatus can be used below 750 mg/m3, vith a ful faceisce needed above 150 mg/m3. Avoid eye contact by use of chemical safety poggles where dusty conditions may occur. Wear protective clothing appropriate for the work situation. Eyewash station and washing facilities should be accessible to use area. Store in tightly closed containers in a cool, dry, well-ventilated area away from acids. Protect containers from phys	halation of freshly generated magnesium oxide fume can cause an acute toxic reaction called metal fume fever* along with leukocytosis, cough and chest pain. Exposure to MgO dust can produce irritation of the eyes and nasal passages.							
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				DEN	FIVER				
U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration JAN 16 13:									
	ERIAL SAFE	TY DATA SHE		Human	Resources				
Date: December 1990									
	SECT	ON I							
SUPPLIER'S NAME The Western Company		EMERGENCY TELEPHONE N	NO. (817)7	31-5100	<u></u>				
ADDRESS (Number, Street, City, State and ZIP Code)	P. O. Box 186, Ft. Wo	nth, TX 76101							
CHEMICAL NAME AND SYNONYMS Proprietary		TRADE NAME AND SYNON	YMS Ultra	Perm CRB					
CHEMICAL FAMILY Peroxide		FORMULA N/A		W.I.N.	499673				
SECTION 14	- HAZARDOUS	MATERIAL CLASSI	FICATIO	N					
D.O.T. PROPER SHIPPING NAME Oxidi	zing Material n.o.s.	(RQ /)						
NAME OF HAZARDOUS COMPONENT Potas	ssium Persulfate								
HAZARD CLASS Oxidi	izing Material								
IDENTIFICATION NUMBER UN 1	479								
D.O.T. LABEL(S) REQUIRED Oxidi	zər			_					
PRECAUTIONARY LABEL Attac	hed								
SECTION II - HAZA	RDOUS INGREDIE	ENTS	%		TLV (Units)				
Potassium Persulfate CAS # [7727-21-1]			85						
	ىرىنى ئەربىغ ئىلار بىرىكى ب ئىلىنى ئىلى بىرىكى بى								
	SECTION III - I	PHYSICAL DATA							
BOILING POINT ("F.)	N/A	SPECIFIC GRAVITY (H20-1)			2-2-5				
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT, VOLATILE BY VOL	UME (%)		< 1%				
VAPOR DENSITY (AIR=1)	N/A EVAPORATION RATE (=1) N/A					
SOLUBILITY IN WATER OVER SEVERAL HOURS 88%									
APPEARANCE AND COOR Off-white to amber p	owder with slightly swe	et odor							
SECTION IV - FIRE AND EXPLOSION HAZARD DATA									
FLASH POINT (Method used) N/A FLAMMABLE LIMITS Lei Ue									
EXTINGUISHING MEDIA Water, carbon dioxide, foam, dry chemical									
SPECIAL FIRE FIGHTING PROCEDURES Wear self-contaminated breathing apparatus if exposed to fumes. Use water spray to cool fire									
exposed surfaces and to protect personnel.									
UNUSUAL FIRE AND EXPLOSION HAZARDS Combustible; decomposes with exothermic reaction; can generate own source of oxygen.									
Firefighters should wear self-contained breathing apparatus in the positive pressure mode with full facepiece when there is a									
possibility of exposure to smoke, fumes, or hazardous decomposition products.									

TRADE NAME: W.I.N. 499673

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	SECT	ION V	- HEALTH HAZ		ТА	
THRESHOLD LIMIT VALUE LD 50 = 113	30 mg/kg (ra	at) (potas:	sium persulfate)			
EFFECTS OF OVEREXPOSURE Inhalation	: No signific	cant haza	rd. Fumes may be o	enerated ir	operations using heat. Exposure to fumes	
may result in redness tearing & itch	ing in the ev	es togett	per with soreness in th		d throat with coughing. Indestion: No data	
evailable: potassium persulfate is sli	ohtly hazard	lous. Skie	n: No data available:	ootassium	persulfate is non-irritating but may be a	
sensitiver to allergic persons. Eves:	No data av	ailable: o	otassium persulfata is	minimally		
sensure to turner caused by heating		airabio, p	n Chemical listed a		an: No citation found	
	H evoced		e from overheating or		on remove to fresh sir. If not breathing	
give artificial respiration. If breathing	a is difficult.		pen. Call a physiciar	n. In case	of contact, wash skin with soap and	
water Wash eves with copious amo	ounts of wate	er.	<u> </u>			
	SE	CTION	VI - REACTIVI		1999 - Chanal State - Change and Chanal Are - Chanal Are - Chanal	
STABILITY	UNSTABLE		x	CONDITION		
	STABLE		^	agents.		
INCOMPATABILITY (Materials to avoid) A	lkylene oxide	es, acid a	nhydrides, inorganic	acids, halo	gens, phosphorous trichloride, aldehydes.	
monomers, polymerizable esters, all	kalis, halides	, heavy n	netals, oxidizable mat	terials.		
HAZARDOUS COMBUSTION OR DECOMPOS	TION PRODUCT	rs Aceta	aldhyde, crotonaldehy	de, aceton	e, acetic acid, carbon monoxide, carbon	
dioxide, hydrocarbons, turnes of sul	furic acid mi	ist, oxyge	n which supports con	nbustion ar	nd oxides of sulfur and nitrogen.	
HAZARDOUS	MAY OCCUR	1		CONDITIO	NS TO AVOID	
POLYMERIZATION	WILL NOT O	CCUR	×	1		
	SECTION	VII -	SPILL OR LEAK	PROCE	DURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS	RELEASED OR	SPILLED	Sweep up to avoid sli	ipping haza	ard. Material should be put into an	
approved DOT container, diluted wit	th large quar	ntities of	water, and disposed o	of according	g to the outline for waste disposal below.	
WASTE DISPOSAL METHOD All recover	ed material s	should be	e packaged, labeled, t	ransported	, and disposed or reclaimed in	
conformance with applicable laws a	nd regulation	ns. Recia	aim where possible. I	vote: Obse	erve all federai, state and local laws.	
SEC	TION VIII	- SPE	ECIAL PROTECT	ION INFO	DRMATION	
RESPIRATORY PROTECTION (Specify type)						
VENTILATION	م	CAL EXHAL	JST		SPECIAL	
	ME	CHANICAL	. (General) X		OTHER	
PROTECTIVE GLOVES Chemically resistant						
EYE PROTECTION Safety glasses meeting the specification of ANSI Standard Z 87.1						
OTHER PROTECTIVE EQUIPMENT Chemically resistant apron						
SECTION IX - SPECIAL PRECAUTIONS						
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Keep in closed containers when not in use. Store in cool, dry place with						
adequate ventilation. Do not store near heat or open flame.						
OTHER PRECAUTIONS Temperature over 90°F causes caking. Avoid breathing dust. Avoid prolonged contact with skin.						

PAGE (2) OF (2) R-3F (09/90)

Form OSHA-20



WESTERN PETROLEUM SERVICES

W.Z. 499673 III TRA PFRM CRB

pounds

Net Content:

Manufactured for:

DIRECTIONS

For Proper Use, Refer to Service Bulletin No.(s): 362.0 SPECIFIC USAGE: Use at the rate of 0.01 to 10 lbm per 1000 gal of water based frac fluids.

FOR INDUSTRIAL LISE ONLY WARNING!

Strong oxidizer. Contact with combustible material, and excessive heat may cause fire. Decomposes rapidly in presence of moisture. Temperature over 90°F causes caking. Store in clean, cool, dry place, separately from flammable materials. Use only dry, clean, scoops, etc. and do not leave utensils in container. Sweep up and remove spillage immediately. Keep container closed when not in use. Avoid breathing dust. Avoid prolonged contact with the skin. Call a physician.

NOTES TO PHYSICIAN: Aside from allergic reactions, exposure problems are related to oxidizing properties and resemble, and are treated like, those caused by strong acids. However, attempts to neutralize with basic or halide-containing materials should be avoided because of possible exothermic reaction. Flooding of exposed areas with water is suggested but gastric lavage or emesis induction for ingestions are probably contraindicated because of possible aggravation of esophageal injury and the expected absence of system effects. Demulcents may be helpful. Treatment otherwise is supportive and symptomatic.

FIRST AID: FOR EYES:

In case of contact, wash with water for at least 15 minutes. FOR SKIN: FOR INGESTION: FOR INHALATION: If breathed in, HANDLING:

In case of contact, wash with water. Wash clothes before reuse. If swallowed, give water, do not induce vomiting, Employees must wear chemical goggles, rubber gloves and neoprene covered shoes.

DO NOT USE AFTER

Refer to MSDS and SPM-04-04 for Safety Requirements.

THE WESTERN COMPANY OF NORTH AMERICA

P.O. BOX 186, FORT WORTH, TEXAS 76101

Emergency Telephone: (617) 731-5100 or 731-5433

R-3G1 (01/86) **D.O.T. PROPER SHIPPING NAME: Oxidizer, n.o.s. contains Potassium Persulfate (UN 1492)**

X9661

				779	600	
0	U.S. DEPARTMI ccupational Safety and	ENT OF LABOR d Health Administration			-	
MAT WESTERN	ERIAL SAFE	TY DATA SHE	ET			
UU		Date: Fe	ebruary 1,	1991		
	SECT	ION I	na z na z Alfonia (hr. 1999)			
SUPPLIER'S NAME The Western Company		EMERGENCY TELEPHONE	NO. (817) 731-	5100		
ADDRESS (Number, Street, City, State and ZIP Code)	P. O. Box 186, Ft. Wo	onth, TX 76101	·····			
CHEMICAL NAME AND SYNONYMS Proprietary	Siend	TRADE NAME AND SYNON	IYMS Clay Ma	aster 5		
CHEMICAL FAMILY Oxyalkylated Amine Quat		FORMULA Proprietary	W.I.N	. 499683		
SECTION 1/	A - HAZARDOUS	MATERIAL CLASSI	FICATION			
D.O.T. PROPER SHIPPING NAME Flam	mable liquid	(RQ /)			
NAME OF HAZARDOUS COMPONENT Met	anol					
HAZARD CLASS Flar	mable liquid					
IDENTIFICATION NUMBER UN	993					
D.O.T. LABEL(S) REQUIRED Flam	mable liquid				····	
PRECAUTIONARY LABEL Flam	imable		<u></u>	·····		
SECTION II - HAZA	RDOUS INGREDI	ENTS	%	TLV	(Units)	
Methanol			15-20	20	0 ppm	
					·	
				<u> </u>		
	SECTION III - I	PHYSICAL DATA		<u> </u>		
BOILING POINT (*F)	ND	SPECIFIC GRAVITY (H2O=1)			1.04	
VAPOR PRESSURE (mm Hg)	ND	PERCENT, VOLATILE BY VOL	UME (%)		ND	
VAPOR DENSITY (AIR=1)	ND		•1)		ND	
SOLUBILITY IN WATER	soluble	l	<u></u>			
APPEARANCE AND OOOR Light amber li	quid with methanol odc		والمراجعة والمعاونة والمتركبين والمتركب والمتركبين			
SECTION	IV - FIRE AND I	EXPLOSION HAZAR				
FLASH POINT (Method used) 55°F (PMCC)	FLAMN	AABLE LIMITS		6.7 Lei	36.0 Uel	
EXTINGUISHING MEDIA Foam, dry chemical, CO 2 and water spray. Do not use alcohol foam.						
SPECIAL FIRE FIGHTING PROCEDURES Use	caution. Drums may e	explode in fire conditions.				

PAGE (1) OF (3) R-3F (09/90)

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(Continued on next page)

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Form OSHA-20

TRADE NAME: W.I.N. 499683

SECTION V - HEALTH HAZARD DATA						
EFFECTS OF OVEREXPOSURE Eyes: Inita	ation, burning, itchin	ig and pain. Skin Cor	ntact: Irriti	ation, redness. Sensitized skin may show		
signs of dermatitis. Inhalation: May	irritate the nose and	throat and cause cou	ighing. Ing	gestion: Nausea, vomiting, light headedness		
and other symptoms of methanol poi	isoning.					
EMERGENCY AND FIRST AID PROCEDURES	Eyes: Immediately	flush copiously with	water for 1	5-20 minutes. Get medical treatment. Skin		
Contact: Remove contaminated clot	thing, and wash skin	with soap and water.	Launder	clothing before reuse. Inhalation: Remove		
to fresh air. Give oxygen if breathing	is labored. Call a	physician. Ingestion:	If victim is	s conscious, give 2 glasses of water and		
induce vomiting. Call a physician.						
	SECTION	VI - REACTIVI				
STABILITY .	UNSTABLE		CONDITION	NS TO AVOID Open flames		
	STABLE	x				
INCOMPATABILITY (Materials to avoid)	Strong oxidizer					
HAZARDOUS DECOMPOSITION PRODUCTS	Oxides of nitroge	n and carbon				
HAZARDOUS	MAY OCCUR		CONDITION	NS TO AVOID None known		
	WILL NOT OCCUR	×				
s	SECTION VII -	SPILL OR LEAK	PROCE	DURES		
STEPS TO BE TAKEN IN CASE MATERIAL IS R	RELEASED OR SPILLED	Stop the flow of liqu	uid. Elimir	hate sources of ignition. Dike or prevent		
spreading of liquid. Wear NIOSH app	proved respirator or	self-contained breathi	ng apparat	tus. Vacuum up, absorb or scrape up		
contaminated soil and place into con	tainers for disposal.					
WASTE DISPOSAL METHOD Dispose	e by incineration unc	der controlled conditio	ns or put i	n chemical landfill.		
SECT	10N VIII - SPE	ECIAL PROTECTI	ON INFO	ORMATION		
RESPIRATORY PROTECTION (Specify type)	NIOSH approved	respirator recommend	ded for use	in closed area.		
VENTLATION	LOCAL EXHAL	JST Recommended		SPECIAL Air supply recommended when entering tanks to clean up spills.		
	MECHANICAL (General) Recommended OTHER					
PROTECTIVE GLOVES Neoprene				· · · · · · · · · · · · · · · · · · ·		
EYE PROTECTION Safety goggles						
OTHER PROTECTIVE EQUIPMENT Longsleeve shirt						
SECTION IX - SPECIAL PRECAUTIONS						
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Ground containers and liners during transfer to eliminate static electricity.						
OTHER PRECAUTIONS Do not drink, eat or smoke in storage area.						

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PAGE (2) OF (3) R-3F (09/90)

(Continued on next page)

Form OSHA-20

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ATTACHMENT TO AND CONTINUATION OF

MATERIAL SAFETY DATA SHEET

Date: February 1, 1991

	SECTION I							
SUPPLIER'S NAME	he Western Company	EMERGENCY TELEPHONE NO. (817) 731-5100						
ADDRESS (Number, St	reet, City, State and ZIP Code) P. O. Box 186, Ft. Wo	rth, TX 76101						
CHEMICAL NAME AND	SYNONYMS Proprietary Blend	TRADE NAME AND SYNONYMS Clay Master 5						
	Oxyalkylated Amine Quat	FORMULA Proprietary W.I.N. 499683						
	SECTION X -	LABEL COPY						
	FOR INDUSTRIAL USE ONLY							
FIRST AID:	In case of contact, immediately flush copious	ly with water for 15-20 minutes						
	in case of contact, infinediately hush copious	ly with water for 15-20 minutes.						
FOR SKIN:	FOR SKIN: In case of contact, wash with soap and water. Remove contaminated clothing and wash skin with soap and water. Launder clothing before re-use.							
FOR INGESTION:	if swallowed, if victim is conscious, give 2 glasses of water and induce vomiting. Call a physician.							
FOR INHALATION:	If breathed in, remove to fresh air. Give oxygen if breathing is labored. Call a physician.							
FOR HANDLING:	Employees must wear neoprene gloves and s	safety goggles.						
ATTENTION!! After this container has been emptied, it may contain flammable and toxic liquid or vapor; observe all warnings and precautions listed for this product. Do not cut, puncture, or weld on or near this container. Refer to MSDS and SPM-04-04 for other safety requirements.								



Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: FEB, 1985

100041

	SECT	IONI	~	
Supplier's Name			EMERGENCY TELEPH	ONE NO.
The Western Company of North Ameri	lca		(817) 731-	5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 7610	L			
CHEMICAL NAME AND SYNONYMS 50% solution of citric acid		TRADE Citri	NAME AND SYNONYMS C Acid, Liquid	(XR-2L)
CHEMICAL FAMILY citric acid		FORMULA	W.I	.N. 100091
SECTION IA	HAZAF	DOUS MATER	RIAL CLASSIFICA	TION
D.O.T. PROPER SHIPPING NAME	Corros	ive Liquid, n	.Q.S.	
NAME OF HAZARDOUS COMPONENT	Citric	Acid		
HAZARD CLASS	Corros	ive Liquid, n	<u>,0.S.</u>	
IDENTIFICATION NUMBER	UN1760			
D.O.T. LABEL(S) REQUIRED	Corros	ive Label mus	t be applied	
PRECAUTIONARY LABEL	Attach	ed		

SECTION II - HAZARDOUS INGREDIENTS	*	TLV (Units)
Citric Acid	50	
· · ·		

SECTI	ON III -	PHYSICAL DATA	
BOILING POINT (°F.) not established		SPECIFIC GRAVITY (H20=1)	1.2
VAPOR PRESSURE (mm Hg.) Dot established		PERCENT, VOLATILE BY VOLUME (%) not established	
VAPOR DENSITY (AIR-1) hot established		EVAPORATION RATE	
SOLUBILITY IN WATER	1,25		

APPEARANCE AND ODOR Clear, colorless to faintly vellow-green liquid.essentially no odor

S	ECTION IV - FIRE	AND EXPLOSION HAZARD DAT	Α		
FLASH POINT (Method used)	N/A	FLAMMABLE LIMITS	Lei	Uet	
EXTINGUISHING MEDIA	N/A				
SPECIAL FIRE FIGHTING PROCEDURES					
UNUSUAL FIRE AND EXPLO	SION HAZARDS		•		

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TRADE NAME W.I.N. 100091	,ACID,citric,50%	solution,XR-2L
	وينصفنا والمتقابية ويتوجه والمتعادي والمتعادي والمتعادي والمتعادي والمتعادي والمتعادي والمتعادي والمتعادي والم	

		SE	CTION	V · ł	IEA	LTH HAZARD	DATA	
THRESHOLD LIMI	TVALUE	No 1	LV est	ablis	shed			
EFFECTS OF OVE	REXPOS	JRE Mav	be mil	d eve	an	d skin irrit;	ant	
<u> </u>								
EMERGENCY AND	FIRSTA	ID PROCEDU	RES E1.			contract with	water and fluch ave cont	201
	-]			1511 54	<u> </u>	contact with	water and ridsh eye conc	
1mmediat	ely wi	th plenty	OI Wa	iter.	- 260	ek medical ca	are for eyes.	
		<u> </u>						
			SECTIC		• RI	EACTIVITY DA		
STABILITY	UNST	ABLE		COND	ITION	S TO AVOID		
	STAB	LE	Y	N]/A		······································	
INCOMPATABILIT	V (Materi	als to avoid)	A	•				
HAZARDOUS DEC	OMPOSIT	TION PRODUC	TS					
<u> </u>	1	MAX OCCUP				CONDITIONS TO	AVOID	
HAZARDOUS POLYMERIZATIO	N	HAZARDOUS MAY OCCUR POLYMERIZATION				+		
			~~ ~			1 .		
······································		WILL NOT O	CCUR		<u>X</u>	N/A		
	I	WILL NOT O	CCUR		<u>X</u>	N/A		
	I	SECTI			<u>X</u>		CEDURES	
STEPS TO BE TAK		SECTI	ION VII	- SPI	X ILL (DR LEAK PROG	CEDURES	
STEPS TO BE TAK	EN IN C	SECTI	ION VII	- SPI	X ILL (DR LEAK PROC	CEDURES	
STEPS TO BE TAK Do not a	EN IN C	SECT	ION VII	- SPI	X ILL (OR S	OR LEAK PRO	CEDURES	
STEPS TO BE TAK	EN IN C	SECTI ASE MATERIA	ION VII	- SPI	X ILL (OR 5	OR LEAK PROG	CEDURES	
STEPS TO BE TAK Do not a WASTE DISPOSAL	EN IN C	SECTI ASE MATERIA to recov	ON VII	- SPI EASED		N/A OR LEAK PROC PILLED	CEDURES	
STEPS TO BE TAM Do not a WASTE DISPOSAL	EN IN C	SECTI ASE MATERIA to recov	ON VII	- SPI EASED		DR LEAK PROG	CEDURES	
STEPS TO BE TAK Do not a WASTE DISPOSAL	EN IN C	SECTI ASE MATERIA to recov	ON VII	- SPI EASED		DR LEAK PROG	CEDURES	
DO NOT A	EN IN C	SECTI ASE MATERIA to recov	ION VII	- SPI EASED		DR LEAK PROC	CEDURES	
STEPS TO BE TAM Do not a waste disposal	EN IN C	SECTION	VIII - S	- SPI		N/A OR LEAK PROG PILLED drains. ROTECTION IN		
STEPS TO BE TAK Do not a waste disposal	EN IN C	SECTION NON (Specify ty)	VIII - S	- SPI EASED		DR LEAK PROG PILLED drains. ROTECTION IN		
STEPS TO BE TAK Do not a WASTE DISPOSAL RESPIRATORY PR VENTILATION	EN IN C	SECTION NON (Specify ry)	VIII - S	- SPI EASED		DR LEAK PROG PILLED drains. ROTECTION IN	CEDURES SPECIAL	
STEPS TO BE TAK Do not a WASTE DISPOSAL RESPIRATORY PR		SECTION SECTION Flush SECTION SECTION SECTION SECTION	VIII - S	- SPI EASED Vater SPECIA None None		DR LEAK PROG PILLED drains.	CEDURES IFORMATION SPECIAL OTHER	
STEPS TO BE TAM DO NOT A WASTE DISPOSAL RESPIRATORY PR VENTILATION PROTECTIVE GLO	EN IN CA	SECTION SECTION D Flush SECTION DN (Specify ty) DL EXHAUST IANICAL (Gen	VIII - S pej york el	- SPI EASED Vater SPECIA None None		N/A OR LEAK PROC PILLED drains. ROTECTION IN	CEDURES	

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

None normally required. OTHER PRECAUTIONS

None

PAGE (2)

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Form OSHA-20

W.I.N. 100105, SOLVENT, Xylene 318 No. MATERIAL SAFETY DATA SHEET. **XYLENE** CORPORATE RESEARCH & DEVELOPMENT Amixed isomers) S SCHENECTADY, N. Y. 12305 Revision C NFORMATION Phone: (518) 385-4085 DIAL COMM 8*235-4085 Date November 1980 SECTION I. MATERIAL IDENTIFICATION MATERIAL NAME: XYLENE (mixed isomers) OTHER DESIGNATIONS: Xylo1, Dimethylbenzene, C6H4 (CH3)2; ASTM D843, D845 and D846; GE Material D5B9, CAS #001 330.207. Available from many suppliers, including EXXON Company USA and Shell Chemical Company. MANUFACTURER: أفكر وروبه ومرافعه SECTION 11. INGREDIENTS AND HAZARDS x HAZARD DATA Xylene (o. m, p-isomers) >90 8-hr TWA 100 ppm (skin)** Other C7 to C9 Hydrocarbons* <10 or 435 mg/m3 Xylene Typical *Material may contain ethylbenzene (8-hr TWA 100 ppm) and Human, Inhalation traces of toluene and Co aromatic and aliphatic hydro-• TCLO 200 ppm carbons. Some commercial products may contain over 10k (Irritation Effects) non-xylene hydrocarbons, mostly ethylbenzene. **Current OSHA standard and ACGIH (1980) TLV. NIOSH has Rat, oral proposed a 10-hr TWA of 100 ppm with a 200 ppm ceiling LD_{50} 4.3 g/kg level (10 min. sample). - -Human, oral LDLo 50 mg/kg STATUS: NCI bioassay for carcinogenesis study 9/78., TLV set to prevent irritant effects and CNS depression. SECTION III. PHYSICAL DATA See See 1 mr 3 - -و الراسي من الم ---- 135-145* Specific gravity (120-1) Boiling range, 1 atm, deg C -0.86-0.87 Vapor pressure at 20 C, mm Hg -- ca 6 Vapor density (Air=1) ------ 3.7.... Volatiles, Z ca 100 0.6 Solubility in water -106.18 Appearance & Odor: Light colored or colorless, mobile liquid with an aromatic odor. The recognition threshold (100% of test panel) is about 0.3 ppm in air (unfatigued) for xylene. *Wider and narrower boiling range materials are commercially available. SECTION IV. FIRE AND EXPLOSION DATA LOWER UPPER Flash Point and Method Autoignition Temp. Flammability Limits In Air >77 F (TCC) 867 F Volume I 7 Extinguishing Media: Use dry chemical, foam, CO2, and water fog or ateam to provide a smothering effect on fire. A water stream can scatter flames. A spray of water may be used to cool fire-exposed containers. This flammable liquid is a dangerous fire hazard and a moderate explosion hazard when exposed to heat or flame. Heavier-than-air yapors can flow floring Burfaces The distant ignition sources and flash back. 1 135 . 1 . Firefighters should use self-contained breathing apparatus. SECTION V. REACTIVITY DATA 3 **3** 7 g lefbilli franki lite This material is stable in closed containers at room temperature. It does not polymeríze. It is flammable (OSHA Class IG liquid) and can form explosive mixtures with air. Keep away from sources of heat, sources of ignition and strong oxidizing agents. Thermal-- - - oxidative degradation in air can produce toxic vapors and gases, including carbon monoxide and oxides of nitrogen. د و در مورودو ور ار

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W.I.N. 100105, SOLVENT, Xylene

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SECTION VI. HEALTH HAZARD INFORMATION	TLV 100 ppm or 435 mg/m ³		
Inhalation of xylens at the TLV may cause mild irritation and dizziness in sensitive persons. Concentrations from 100-200 ppm may cause hauses, headache and depression.			
Vapor levels >200 ppm can have an anesthesic effect. Skin contact may produce mild			
tion of xylene may cause poisoning. One ounce or more may be fatal. Aspiration can			
be a hazard if this material is swallowed. FIRST ATD:			
Eye Contact: Irrighte with water for 15 minu	tes. Get medical attention!		
Skin Contact: Wash with soap and water. Rem place lost skin dils with approved lotions	ove contaminated clothing promptly. Re-		
Inhalation: Remove wictim to fresh air. Res	tore breathing if required. Get medical		
Attention if symptoms persist of if nausea <u>Ingestion</u> : Get medical attention immediately	or collapse has occurred. I Give white mineral oil demulcent and		
saline cathartic, but do not induce vomitin	g unless directed by a physician.		
SECTION VII. SPILL, LEAK, AND DISPOSAL	PROCEDURES		
Notiry safety personnel. Kemove all ignition s Use vermiculite or sand to absorb spill; scra	ources. Provide adequate ventilation. pe up with nonsparking tools and place in		
placed in cardboard boxes and burned in an in	rial may be burned in an open pit, or cinerator. Spilled liquid can be flushed		
DISPOSAL: Scrap liquid may be atomized into an	approved incinerator, or it may be dis-		
claimation procedures may prove economical. tions.	any. when large amounts are involved re- Follow Federal, State, and Local regula-		
Aquatic toxicity rating TLm 96: 100-10 ppm.			
SECTION VIII. SPECIAL PROTECTION INFOR	MATION		
Provide general ventilation and efficient exhaust ventilation (explosion-proof equipment to meet TLV requirements and to control heavier-than-air vapors. Use >100 lfm face velocity for exhaust hoods. Use approved organic vapor canister respirators for short periods of nonroutine work or emergency situations at up to 1000-2000 ppm and approved self-contained respirators for higher and unknown vapor levels. Full facepiece required Buna-N rubber gloves and aprons should be worn to prevent contact of xylene with the skin Safety glasses or goggles should be used for eye protection and eyewash stations should be readily accessible to use areas.			
Comprehensive preplacement and biennial medical not limited to, liver, kidney, gastrointestir	examinations to be directed toward, but al disorders, skin irritation, and the		
central nervous system.			
SECTION IX. SPECIAL PRECAUTIONS AND CO	DMMENTS		
Store in closed containers in a clean, cool, well-ventilated area, away from sources of heat, sources of ignition and strong oxidizing agents. Protect containers from physical damage. Bond and ground metal containers when transferring liquid. Use meta safety cans for small amounts. Use nonsparking tools for work in solvent areas. No Smoking in areas of use or storage. Prevent skin contact and remove contaminated clothing promptly. Avoid repeated or pro- longed breathing of vapor. Do not ingest!			
DATA SOURCE(S) CODE: 1-12,19-21,23,26,31,34,37-3	APPROVALS: MIS . O. M. M. Du		
Subgruents as to the suitability of information herein for purchaser's purposes are Accessarily purchaser's responsibility. Thierefore, although resonable care has been shape in the gregonation of such harmatine. Cancerd Flactuite Communi-	Industrial Hygiene AI		
extends no worranties, makes no representations and assumes no responsibility es to the occuracy or suitability of such information for application to purchaser's banded and assume that the manual of the sum	and Safety 11-26-10		
untended purposes or for consequences of m use.	MEDICAL REVIEW: December 5, 1980		
GENERAL 🍪 ELECTRIC			

TABLE OF CONTENTS BY W.I.N.

W.LN.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
100002-100100	Prop, Sand	Sand (Quartz)
100013-100014	Prop, Sand	Sand (Quartz)
100015-100016	Prop, Sintered Bauxite	Bauxite, Sintered
100017-100018	Prop, CRC	Westprop 4
100019-100024	Cement	Cement
100025-100034	Plug, Cement	None
100041-100044	Plug, Cement	None
100055-100056	Plug, Cement	None
100059-100064	Plug, Cement	None
100067-100079	Ball, Sealer	None
100080	Buffer	Sodium Bicarbonate
100081-100085	Ball, Sealer	None
100086	Prop, Sand	Sand (Quartz)
100087	Prop, Sintered Bauxite	Bauxite, Sintered
100088	Acid, HCl, 22 ⁰ Be	Hydrochloric Acid
100089	Ball, Sealer	None
100090	Acid, Citric	Critric Acid
100091	Acid, Citric	Citric Acid, Liquid
100092	Acid, HCl 20 ⁰ Be	Hydrochloric Acid
100093	Cement	Cement
100094	Acid, Hydroxyacetic	C-2
100095	Acid, Sulfamic	Sulfamic Acid/P-4
100096	Acid, Acetic, glacial	Acetic Acid/ac-1
100097	Acid, Formic	Formic Acid
100100	Biocide	X-Cide® 102W
100101	Biocide	X-Cide® 102
100102	Alcohol	Methanol
100103	Alcohol	IPA
100104	Solvent	WSA-1
100105	Solvent	Xylene
100106	Solvent	Kerosene
100107	Solvent	Cosdenol ^e 104
100108	Solvent	Varsol ^e 1
100109	Solvent	A-SOL®/Wellaid® 221
100111	Emulsifier	Wellaid [®] 266
100112	Salt	Calcium Chloride, Solid

+ PRECAUTIONARY LABEL ATTACHED MSDS NOT AVAILABLE AT THIS TIME

REVISED 03/92

TABLE OF CONTENTS BY W.I.N.

W.I.N.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
100113	Salt	Ammonium Chloride
100114	Sait	Potassium Chloride
100115	Brine	Calcium Chloride, 35%
100116	Block	Sodium Chloride (S-6)
100117	Accelerator, Cement	Diacel ^e A
100118	Fluidloss, Cement	Diacel® LWL
100119	Extender, Cement	Diacel ^e D
100120	Extender, Cement	Bentonite
100121	Fluidloss Agent	F-11/SF-3
100122	Fluidloss Agent	100 Mesh/SF-4
100123	Fluidloss Agent	Adomite® Mark II
100125	Fluidloss Agent	ASP* -530
100126	Inhibitor, Packer Fluid	ASP® -539D
100127	Scale Control	P-8
100128	Scale control	P-7
100129	Scale Control	P-9
100130	Gel Breaker, Oil	B-16/Sodium Acetate
100131	Block	S-3/Naphthalene
100135	De-Emulsifier	LT-22
100136	Surfactant	LT-17
100137	De-Emulsifier	⊦ 5
100138	Suspending Agent	LT-21
100139	. Emulsifier	E-9
100140	Surfactant	MS Concentrate
100141	Foamer	Foamex/LT-30
100142	Intensifier, Acid	Ammonium Bifluoride/AB-54
100143	Suspending Agent	CS-3
100144	Surfactant	LT-25
100146	De-Emulsifier	Aqua Flow
100147	Fluidloss Agent	Aquaseal 2
100149	Buffer	Buffer 2
100150	Gel Complexer, Water	CL-9
100151	Gel Complexer, Water	T.I.C.
100153	Gel Complexer, Water	CL-11
100154	Gel Complexer, Water	CL-12
100155	Anti-Foam, Stimulation	DF-1

+ PRECAUTIONARY LABEL ATTACHED • MSDS NOT AVAILABLE AT THIS TIME

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TABLE OF CONTENTS BY W.I.N.

W.I.N.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
n na 2011 – Naža – Constantin Stanovski stanovski stanovski stanovski stanovski stanovski stanovski stanovski s		
100156	ANTI-FOAM, cement	AF-11
100158	Acid, Boric, Anhydrous	Boron Oxide
100159	Gelling Agent, Oil	Maxioil HT/J-255
100160	Cement	Cement
100161	Gelling Agent, Oil	Maxioil/J-257
100162	Gelling Complexer, Oil	Maxioil Activator/J-242
100164	Gel Breaker, Oil	B-15/J-278
100167	Surfactant	FS-2
100170	Sequestering Agent	SC-100
100171	Gelling Agent, Water	J-13
100173	Gelling Agent, Water	J-12
100174	Acid, Acetic/Acetic Anhydride	AC-2
100175	Gel Breaker, Water	B-5
100176	Gel Complexer, Water	TDA-1 Activator
100177	Gelling Agent, Oil	G-17
100178	Base	Sodium Hydroxide (G-5)
100179	Base	Sodium Hydroxide (G-6)
100180	Gel Breaker, Oil	Westblock 4/B-20
100181	Foamer	Adofoam® BF-1
100184	Gel Complexer	Complexer 2-C
100185	Gel Breaker, Water	B-11
100186	Gel Breaker, Water	B-9
100189	Inhibitor, Acid	1-8
100191	Inhibitor, Acid	⊦16
100192	De-Emulsifier	Wellaid® 215
100193	Surfactant	LT-5
100196	Surfactant	Corexit [®] 7652
100197	Surfactant	WK-1
100198	Component	None
100200	Anti-Sludge Agent	AS-2
100201	Emulsifier	E-16
100205	Friction Reducer, Water	FR-20
100207	Gelling Agent, Water	9-6
100210	Buffer	Buffer 1
100211	Inhibitor, Acid/Sulfide Cracking	HS-I
100212	Surfactant	F-Flow

+ PRECAUTIONARY LABEL ATTACHED • MSDS NOT AVAILABLE AT THIS TIME

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TABLE OF CONTENTS BY W.I.N.

W.I.N.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
a da anna ann ann ann ann ann ann ann an		
100213	Clay Control	Claylok Concentrate/WT-4
100214	Gel stabilizer	Gel Master/ATR-1
100216	Scale Control	C-3
100217	Inhibitor, Scale	S-18/Arcohib® S-235
100218	Block	Westblock 1
100219	Block	Westblock 3X
100220	Block	Westblock 4
100221	Block	Westblock 3X
100222	Paraffin Control	Parasol D
100223	Base	Ammonium Hydroxide, 26 Be
100224	Gas	Carbon Dioxide, Liquified gas
100225	Gas	Nitrogen, Liquid Gas
100228	Intensified, Acid	Methyl Formate
100232-100235	Component	None
100237	Buffer	Buffer 4
100239-100245	Component	None
100247	Component	None
100249-100251	Component	None
100252	Fluidloss Agent, Spacer	SFLA-2
100256	Gelling Agent, Oil	Maxioil W/J-257W
100257-100258	Component	None
100261	Component	None
100262	Sequestering Agent	WZ-100262
100264-100265	Component	None
100266	Fluidloss Agent	100 Mesh/SF-4
100267	Fluidloss Agent, Cement	AGENT, CementCF-2
100269	Fluidloss Agent, Cement	CF-6
100271	Fluidloss Agent, Cement	CF-10
100272	Fluidloss Agent, Cement	CF-11A
100273	Extender, Cement	WE-1L
100274	Extender, Cement	Ataclay
100275	Extender, Cement	Thrifty Lite
100276	Weighing Agent, Cement	Hematite
100277	Weighing Agent, Cement	limenite
100280	Anti-Form, Cement	AF-11L
100281	Anti-Form, Cement	AF-HD

+ PRECAUTIONARY LABEL ATTACHED MSDS NOT AVAILABLE AT THIS TIME

Page 4 of 11

TABLE OF CONTENTS BY W.I.N.

W.I.N.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
	an nag lananan malafa ku jana anggan kata kana kana kana kara bara dan na kata kana kana kana kana kana kana	ventan en venneg på sindelse forstels i venta for er venta forstelling för ventangete verk regelsere annandese Ventan er ventangete sindelse forstelse ventangete som er venta forstellingete verk regelsere annandeset forste
100282	Anti-Form, Cement	AF-L
100283	Retarder, Cement	WR-2
100284	Retarder, Cement	WR-6
100285	Retarder, Cement	WR-7
100286	Retarder, Cement	WR-10
100287	Retarder, Cement	WR-15
100288	Retarder, Cement	WR-2L
100289	Retarder, Cement	WR-6L
100290	Dispersant, Cement	TF-4
100291	Dispersant, Cement	TF-4L
100293	Emulsifier, Spacer	EE-200
100294	Lost Circulation Agent	Gilsonite
100295	Lost Circulation Agent	Cello-Seal
100296	Lost Circulation Agent	Tuf Plug
100297	Cement	Cement
100298	Lost Circulation Agent	Kwik-Seal®
100299	Lost Circulation Agent	Perma-Check
100301	Cement	Cement
100302	Prop, Sand	Sand (Quartz)
100304	Cement	Cement
100305	Spacer, Cement	Excello-Gel Concentrate
100306-100307	Lost Circulation Agent	Tuf-Plug
100308-100312	Component	None
100313	Gelling Agent	WZ-100313
100316	Weighing Agent, Cement	Barite
100317	Extender, Cement	Fly Ash/POZ
100318	Special Agent, Cement	Thixad
100319	Prop, Sand	Sand (Quartz)
100321	Extender, Cement	WL-1L
100322	Fluidloss Agent, Spacer	SFL-2
100323	Mud Removal Agent	Sodium Acid Pyrophosphate (SAPP)
100324	Special Agent, Cement	Lime, Hydrated
100325-100330	Special Agent, Cement	Sand (Quartz)
100332-100333	Component	None
100334	Emulsifier, Spacer	EE-100
100335	Special Agent, Spacer	SS-1

+ PRECAUTIONARY LABEL ATTACHED • MSDS NOT AVAILABLE AT THIS TIME

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TABLE OF CONTENTS BY W.I.N.

W.LN.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
100336-100339	Ball, Sealer	None
100342	Gravel	Sand (Quartz)
100344	Fluidloss Agent, Stim	Sodium Chloride
100345	Brine	Sodium Chloride Brine
100346	Ргор	Westprop 2
100347	Base	Sodium Hydroxide, Solid
100349	Gelling Agent, Water	J-15
100353	Foamer, Oil	Petro Foam 1
100354-100355	Component	None
100356	Weighing agent, Cement	Barite
100359	Gel Breaker, Water	B-12
100362	Foamer	Frac Foam 1
100364	Paraffin Control	Paratrol 150S
100365	Solvent	Diesel #2
100366	Solvent	Diesel #1
100367-100369	Component	None
100370	Fluidloss Agent, Stim	Frac Seal
100371	Component	None
100375	Anti-Foam, Cement	AF-S
100376	Component	None
100377	Gei Complexer, Water	CL-14
100378-100379	Component	None
100380	Extender, Cement	Cenospheres
100381	Fluidloss Agent, Spacer	SFLA 1
100383	Component	None
100384	Ball, Sealer	None
100386	Friction Reducer, Oil	FR-SAW
100387	Defoamer	AF-8L
100389	Polymeric Esters, Mixture (Alcohol Foamer)	WZ-100389
100391	Block	S-8/Paraformaldahyde
100393	Gas Control Agent, Cement	Flo-Lok 1 Aadditive
100394	Special Agent, Cement	ACS-1
100395	Retarder, Cement	WR-GA
100396	Special Agent, Cement	AT5 2
100398-100400	Component	None
100401	Gas Control Agent, Cement	Flo-Lok 2 Aadditive
	-	

+ PRECAUTIONARY LABEL ATTACHED • MSDS NOT AVAILABLE AT THIS TIME

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Page 6 of 11

TABLE OF CONTENTS BY W.I.N.

W.I.N.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
100403	Inhibitor, Packer Fluid	B-17
100404	Salt	Sodium Chloride
100409	Component	None
100411	Biocide	Frac Cide 11
100412	Lost Circulation Agent	Hi-Seal
100413-100414	Component	None
100415	Mud Removal Agent	Invercon 2
100418	Ргор	Bauxite, Sintered
100419-100421	Ргор	Sand (Quartz)
100422	Biocide	Frac Cide 2
100424	Component	None
100427	Intensifier, Acid	Ammonium Fluoride, 33%
100428-100431	Prop, IDP	Westprop 1
100432-100435	Prop, IDP	Westprop Lite
100436	Extender, Cement	Perlite
100437	Solvent	Toluene
100438	Brine	Zinc Bromide
100443	Lost Circulation Agent	Diacel ^e M
100444	Lost Circulation Agent	MICA
100445	Anti-Oxidant	Hydrazine
100446	Solvent	Lacquer Thinner
100447	Gel Complexer, Modifier	XDA-Saturn
100448	Surfactant	MAS
100449	Emulsifier, Cement	APS-3A
100450-100454	Drum	None
100455-100459	Bag	None
100460	Solvent	I-SOL 4
100461	Mud Removal Agent	Invercon 4
100462	Surfactant	Flo Back 10
100463	Paraffin Control	Paratrol L
100464-100466	Component	None
100467	Fluidloss Agent, Stim	Frac Seal M
100468	Prop, PRC	Westprop 3
100469	Paraffin Control	Paratrol 100S
100472	De-Emulsifier	Nine 40

+ PRECAUTIONARY LABEL ATTACHED • MISDS NOT AVAILABLE AT THIS TIME

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TABLE OF CONTENTS BY W.I.N.

W.I.N.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
100473	Synthetic Plastic	TF-Plus 500
100480	Prop, PRC	Westprop 3
100481	Blending Charges	None
100482	Labels	None
100483	Component	None
100484	Inhibitor, Acid	⊢ 17
100485	Gelling Agent, Oil	Maxioil XHT
100486	Biocide	Frac Cide 20
100487	Ball, Sealer	None
100488	Block	Westblock 5
100489	Prop, PRC	Westprop 3
100490	Prop, CRC	Westprop 4
100491	Gelling Agent, Acid	DSGATM
100492	Prop, CRC	Super Sand®
100493	Strip, Iron Test	None
100494	Fluidloss Agent, Cement	CF-16
100495	Salt	Sodium Chloride
100497-100498	Component	None
100499	Gel Complexer, Modifier	XLA-Saturn
100500	Dist	None
160133	Sand, Blast #4	Silica Dioxide
160111	Westweld	
283469	Surfactant	Hydro-Surf
499501	Gel Complexer, Water	CL-14W
499502	Gel Breaker, Water	Hydrogen Peroxide, 35%
499503-499505	Prop, CRC/IDP	Westprop 2
499506-499507	Lost Circulation Agent	Mud Save
499508	Fluidloss Agent, Cement	CF-14
499509	Fluidloss Agent, Stim	Aquaseal L
499510	Salt, Tracer	Ammonium Nitrate
499511-499512	Component	None
4995 13	Mud Removal Agent	Sodium Tripolyphosphate
499514	Friction Reducer, Water	FR-28
499515	Inhibitor, Acid	⊦18
499517	Gelling Agent, Water	J-20
499518	Gelling Agent, Acid	Acigel LT
		-

+ PRECAUTIONARY LABEL ATTACHED MSDS NOT AVAILABLE AT THIS TIME

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TABLE OF CONTENTS BY W.I.N.

W.LN.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
499519	Gel Breaker, Oil	WZ-499519
499520	Gelling Agent, Acid	Acigel
499521	Gel Complexer, Modifier	CLM
499522-499524	Gravel, CRC	Westpak 4
499526	Gel Breaker, Water	B-11L
499527	Inhibitor, Acid	10C
499528	Emulsifier, Spacer	WZ-499528
499529	Emulsifier, Spacer	WZ-499529
499532	Surfactant	BM-2W
499533	Retarder, Cement	WR-6LW
499534	Fluidloss Agent, Cement	CF-15L
499535-499536	Component	None
499537	Biostat	Calcium Hypochlorite
499540	Gel Complexer, Modifier	XLD-Saturn
499541	Gelling Agent, Water	4-ل
499545	Clay Control	Clay Master 4
499547	Lost Circulation Agent	Cottonseed Hull
499548	Paraffin Control	Paratroi 220S
499549	Paraffin Control	Paratrol 151S
499551	Filter, Element	None
499552	Biostat	Sodium Hypochlorite, 12%
499553-499559	Filter Element	None
499562	Cement	Cement
499563	Scale Control	Ultrasol Concentrate
499564	De-Emulsifier	Maxi-Flow
499567	Base	Ammonia, Anhydrous
499568	Gelling Agent, Acid	J-25
499569	Gel Complexer, Acid	CL-25
499570	Gel Breaker, Acid	B-30
499571	Fluidloss Agent, Stirn	Aquaseal WS
499572	Gelling Agent, Oil Slurriable	WZ-499572
499573	Gelling Agent, Water	J-20L
499574	Component	None
499575	Sequestering Agent	Sodium Erythorbate
499576	Special Agent, Cernent	WL-1P
499577	Cement	Cement

+ PRECAUTIONARY LABEL ATTACHED • MSDS NOT AVAILABLE AT THIS TIME

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MATERIAL SAFETY DATA SHEETS & PRECAUTIONARY LABELS

TABLE OF CONTENTS BY W.I.N.

W.I.N.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
	a na sa mana ang kana na sa kana na kana na kana na kana na kana na kana kana kana kana kana kana kana kana ka	nanda kana kana kana kana kana kana kana
499579	Gelling Agent, Water	WZ-499579
499580	Surfactant	EZ-Sol
499581-499584	Prop, IDP	InterpropTM 1
499585	Clay Control	WZ-499585
499587	Sequestering Agent	Nitrilotriacetic Acid (NTA)
499588	Special Agent, Cement	Silica, Fumed
499589	Anti-Sludge Agent	WZ-499589
499591	Drum	None
499593	Dryacide	
499594	Activator	Activator®
499595	Gelling Agent	WZ-499595 (Resin Activator)
499598	Gelling Agent, Water	WZ-499598
499599	Gelling Agent	WZ-499599 (J-4L)
499604	Fluidloss Agent, Cement	Polymer/CF-18
499613	Organic Polymer	WZ-499613
499617		⊢8A
499621	Corrosion Inhibitor	⊢18A
499623	Neutralizer, Acid	Methanol
499607	Gel Breaker	Sodium Perforate
499614-616	Dye, Blue, Red, Green	DYE
499617	Hydrochloric Acid	1-8A
499619	Complex Mixture	1-16A
499621	Corrosion Inhibitor	⊩18A
499623	Proprietary Blend	WZ-499623
499626	Aluminum Solution	CL-17
499641	Blend - Aldehyde	HS-2
499644	Proprietary Blend	CL-30 HT
499650	Gel Breaker	B-31
499651	Fluid Loss Additive, Cement	CF-18L
499653	Organic	Clay Treat
499654	Liquid Buffer	Buffer 5L
499655	Surfactant	⊦22
499656	Surfactant	Super Solv-O
499658	Organic Mixture	CF-19
499659	Mutual Solvent	WSA-2
499665	Solvent	WS-499665

+ PRECAUTIONARY LABEL ATTACHED • MSDS NOT AVAILABLE AT THIS TIME

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MATERIAL SAFETY DATA SHEETS & PRECAUTIONARY LABELS

TABLE OF CONTENTS BY W.I.N.

W.I.N.	MMIS DESCRIPTION	MSDS/PRODUCT NAME
	_	
499669	Foamer	
499673	Ultra Prem CRB	WZ-499673
499680	Anti-Static Agent	
499683	Oxyalkyated Amine Quat	Claymaster 5
499684	Nonionic Surfactant, Blend	LT-32
499685	Anti-Setting Agent	ASA-300
499686	Hydrocarbon Wax	Wax Beads, Melting Point 150°F
499687	Flammable Liquid	E-17
499691	Qxyalkyated Amine Quat	Claymaster FS
499692	2-Butanone Oxime	Gel Master 2L
499695	Proprietary Blend	J-22L
499696	Flammable Liquid	Coal Surf
499698	Alkaline Corrosive Liquid	Buffer-6L
499699	Enzyme Mixed	B-33
499700	Oxidizer	ZXL-3
499701	Proprietary Formulation	Gel Master 3
499702	Quaternary Ammonium Chloride	Clay Treat 2C
499705	Anti-Settling Agent	ASA-301
499708	Proprietary	WZ-499708

+ PRECAUTIONARY LABEL ATTACHED • MSDS NOT AVAILABLE AT THIS TIME



SECTION VII & VIII

CURRENT WASTE STREAM AND TREATMENT PROCEDURE

VII - WASTE STREAMS VIII - PROCEDURES

1. Truck Wash

The truck wash wastewater generated at the truck wash bay as a result of washing the truck exterior is made of three components; water, inert solids and oil. The water is separated from the oil and the water, approximately 15,000 gallons per month, is discharged to the City POTW.

The sand and dirt commingled in a sludge collected at the sump of the truck wash bay as a result of washing the exterior. Approximately three cubic yards per month is spread at the back of the yard.

The oil collected at the oil/water separator is stored in a 1,000 gallon steel underground waste oil storage tank until it is picked up by the vendor for recycling. This tank was tested on March 13, 1992 and passed the tightness test. Industrial Service Corporation, 2112 E 48th St., Lubbock TX picks up this oil for recycling.

2. Cement

Excess off-spec cement from well servicing activity is collected and stored in a waste bin until it is picked up for disposal by various people for personal use.

3. Used Oil (Truck Maintenance Area)

Approximately 300 gallons per month of used lubricating oil from truck oil changes generated at the maintenance shop is stored in the 1,000 steel underground waste oil storage tank and picked up for recycling. This tank was tested on March 13, 1992 and passed the tightness test. This oil is also picked up by Industrial Service Corporation, 2112 E 48th St., Lubbock TX, for recycling.

4. Spent Shop Solvents

Spent shop solvent, approximately 200 gallons per month, used for truck maintenance and parts cleaning is kept in drums in the General Maintenance Shop until picked up for recycling by the manufacturer. Safety-Kleen Corporation, 4200 A Hawkins Rd., Farming-ton, recycles this spent solvent.

5. Tires

About 75 per year of worn tires replaced from the trucks are kept in the General Maintenance Shop until picked up by Waste Management of Four Corners and places them in a landfill at their address, 101 Spruce, Farmington, NM.

6. Batteries

Used batteries are kept in the General Maintenance Shop until traded in for new batteries and are transferred from the hauler, Interstate Battery, 615 Mountain NW, Albuquerque NM, to the recycler, Johnson Control, 1550 E Kimberly Ave., Fullerton, CA. Approximately 60 per year are traded in.

7. Empty Drums

Approximately 300 empty drums each year are kept in the drum storage area on the north end of the property until returned to the warehouse if from Western chemicals and oil drums are returned to the vendor, Chemical Blending Service, 5000 W Industrial, Midland TX, for recycling.

8. Domestic Trash

Domestic trash generated by normal operations from the office and site buildings is placed in large receptacles that are picked by the trash trucks; the contents are dumped into the trucks and taken for disposal by Waste Management of Four Corners in their landfill at 101 Spruce, Farmington, NM. About 40 yards per month is picked up for disposal.

9. Domestic Sanitary Wastewater

This wastewater generated from sinks, showers and restrooms is piped into the POTW.

10. Used Filters

Used oil and fuel filters generated from oil changes and truck maintenance are drained with the oil going into the used oil underground storage tank and the filters put into the trash receptacle until picked up by the trash trucks for disposal in the landfill. Approximately 720 per year are picked up by Waste Management of Four Corners for disposal at their disposal site, 101 Spruce, Farmington NM.

11. Antifreeze

Used antifreeze generated during truck maintenance is stored in collection drums in the General Maintenance Shop, recycled and reused.

12. Scrap Metal

Scrap metal generated from miscellaneous truck repair and well maintenance/servicing is collected on site in drums and sold to Farmington Iron & Metal, 4805 Herrera Rd., Farmington, NM for recycling.

13. Field Waste Dump Station

The wastewater generated as a result of draining the manifolds of pump trucks, blenders and transport trucks is collected in an underground storage tank.

14. Acidic Wastewater

Acidic wastewater is collected in the 6,000 gallon underground storage tank where it is neutralized and re-used.



SECTION IX

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PROPOSED MODIFICATION

On February 20, 1992, a meeting was held regarding The Western Company of North America's Farmington (Western-Farmington) Facility's application for a Discharge plan. At the meeting was Lynn Loman, Les Baugh, Bill James, Phillip Box with Western, Denny Foust and Roger Anderson with the State of New Mexico. A time frame of 120 days was given for Western-Farmington to present a Discharge Plan.

Table IX.1 PROPOSED MODIFICATIONS

1. Safety Kleen Shop Parts Cleaner is utilized at Western's shop in three locations.

. Modification/Action:

Evaporation pans will be placed along side the parts cleaner where parts can drain. Residual liquid can be drained back into the cleaner equipment.

. Time Frame: Sept. - Dec. 1992

2. Wash bay - Inspection of drain lines and sand trap for proper operation.

. Modification/Action:

Have the trap and lines inspected by a contractor for condition and operation. This will determine if solids have plugged the line.

. Time Frame: Sept. - Dec. 1992

3. Sumps - All sumps are required to have visual leak detection done. These include Items:

B. Truck wash bay sumpG. Field wash tankD. Truck wash separatorH. SPC tank

Modification/Action:

Each sump will be cleaned annually and inspected for cracks or damage to walls. Records will be maintained on date of inspection and method and records kept in the facility environmental files. If internal inspection indicates leaks or damage, repair will be made and an inspection outside of the tank or sump will follow.

Time Frame:

B. and D. Sept. - Dec. 1992 G. and H. Jan. - Feb. 1993

- 4. Drums Storage All drums with product must be stored on an impermeable pad with a containment berm or wall to contain storm water.
 - . Modification/Action:

The drum storage area for product will be modified to have a concrete base with asphalt or concrete berm for storm water containment. See Item I, Figure 3-2.

Time Frame: 1993

- 5. Need an annual water analysis of water discharged to the POTW from the oil/water separator.
 - . Modification/Action:

Have TCLP run annually on water using EPA Method 601/602.

- . Time Frame: December, 1992
- 6. Separator-Oil Audit disposal firm's license.
 - . Modification/Action:

Request a copy of the license authorizing the disposal firm to operate in New Mexico. This license must be on file at our Facility and referenced on each load for disposal.

- . Time Frame: Sept. 1992
- 7. Separator Oil Tank Needs containment.
 - . Modification/Action:

A berm or wall will be constructed around the separator oil tank to prevent storm water discharge. See Item D, Figure 3-2.

- . Time Frame: 1993
- 8. Test Tank Needs containment.
 - . Modification/Action:

A concrete containment wall will be constructed around the test tank. See Item E, Figure 3-2.

- . Time Frame: 1993
- 9. Wash Bay and Shop Sludges and Solids Disposal Need a method of containment to dry and dispose of these waste materials.
 - . Modification/Action:

A concrete pad approximately 30'x30' with a 24" containment wall will be constructed in the northwest corner of the property. See Item F, Figure 3-2. This will allow for proper containment and drying of these waste sludges. A TCLP test will be run annually to get a characterization of the material.

Time Frame: July - Sept. 1992

- 10. Oil Soaked Soil Located on the north end of the property.
 - . Modification/Action:

Soil will be removed and placed in the wash bay solids evaporation tank per Item 9.

- . Time Frame: 1992
- 11. Field Waste Dump Station Needs oil stained soil cleaned up at end of the ramp. See Item G, Figure 3-2.
 - . Modification/Action:
 - 1. Improve cleaning frequency of ramp area.
 - 2. Remove oil soaked soils and place in the containment area for disposal.
 - . Time Frame: 1992/1993
- 12. Acid Tank Containment Need to complete the containment wall at the acid dock. See Item J, Figure 3-2.
 - . Modification/Action:

Construct a wall to complete existing walls around the acid dock containment area. The containment should hold 1-1/3 the tank volume.

. Time Frame: 1992/1993

13. Waste Management at Warehouse

. Modification/Action:

Chemicals should be collected in drums and disposed of at a proper disposal site or use a waste management company to dispose of these materials.

- . Time Frame: 1992
- 14. Fuel and Oil Spill Containment Needs better control of fuel and oil spills at the fuel island. See Item C, Figure 3-2.
 - . Modification/Action:

Construct a new containment wall at the fuel island tank area.

. Time Frame: 1993

15. Lab Practices - Prevent toxics from entering sewer system.

. Modification/Action:

Remove all chromate, lead acetate and di-chomates from the lab and have them shipped to the Woodlands Research Center.

. Time Frame: 1992

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SECTION X

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6

INSPECTION PLAN

INSPECTION PLAN

The Western Company of North America's (Western-Farmington) facility is inspected monthly (to be performed during the calendar month) by the designated Environmental Coordinator on site using an inspection check list. The facility is also inspected yearly by the Environmental Supervisor sent from The Western-Houston Corporate Office (form included). Corrective action will be taken whenever deficiency is found. The actions taken are documented, dated and signed by the Environmental Coordinator on site.

Pressurized line leak detectors were installed on pressurized motor fuel lines by H & S Enterprises (3100 Bloomfield Highway, Farmington, NM 87401) on August 29, 1990 and tightness tests were conducted on the pressurized fuel lines. Envirotech, Inc. (5796 US Hwy 64-3014, Farmington NM 87401) performed tightness tests of these tanks on January 11, 1992. These tanks are scheduled to be tested each year.

The 1,000 gallon used oil tank was tested on March 13, 1992 and tested tight.

If a problem is indicated during any tank testing that would indicate a leak the OCD will immediately be notified by the Western-Houston Corporate office. If any visual inspection is made and a possible problem is indicated, further investigations will be made.

PAGE 1 OF 2

THE WESTERN COMPANY OF NORTH AMERICA SITE FACILITY ENVIRONMENTAL INSPECTION REPORT

LOCATION:	DATE:	BY:	
	ITEM	OK	A
RECORDS:			
Is the environmental filing system i	in good order?		
Have the disposal records been file	ed?		
Have the daily tank gauging record	ls been filed?		_
Have the environmental inspection	records been filed?		
Have permits and registrations bee	n filed?		
Have the environmental reports to time?	the Government been submit	ted on	
Has the test data been filed?			
YARD:			
Is the yard clean, free of trash & o	il stains, overall?		
Are all of the spills cleaned?			
Is all the vegetation healthy?			
Are the drainage ditches clean with	h no oil sheen on the standing	water?	
Is the pH of the surface water in the between 6 & 8?	he yard or in the drainage ditc	h	
Is there an effort to assure that no off the site?			
Is there an effort to assure that no	pollutant is flowing to our site	e?	
FUEL ISLAND:			
Are all spills promptly cleaned and	oil stain free?		
Is the slab clean and oil stain free?)		
Are tank valves in good working of	rder?		
MAINTENANCE SHOP:			
Is the place clean?			
Is the waste oil collecting area clea	in with minimum oil stain?		
Is the waste antifreeze being prope	erly handled?		
Are the waste oil & waste antifree: labeled and dated?	ze collection drums being prop	perly	
Is the Safety Kleen apparatus work	ting properly?		
_25_02			

PAGE 2 OF 2

THE WESTERN COMPANY OF NORTH AMERICA SITE FACILITY ENVIRONMENTAL INSPECTION REPORT

6

LOCATION:	DATE:	<u>BY:</u>		
ITEM			OK	A
DRUM STORAGE:				
Is there an effort to eliminate empty drums?				
Are all containers in good condition?				
Are all containers properly labeled with read	dable labels?			
Are all containers closed?		-		
Are all spills cleaned and leaks properly fixe left on the ground?	ed with no chemicals			
WET CHEMICAL STORAGE AND DISPEN	NSING AREA:			
Are all spills cleaned up, floors cleaned and	leaks properly fixed?			
Are all containers properly labeled with read	dable labels?			·
Are proper chemical dispensing procedures	practiced?			
Is the place clean and dry?				
ACID TANK:				
Are all spills cleaned up and leaks properly	fixed?			
Is the overfill storage tank routinely checked	l for pH?			
Is the tank properly labeled with a readable	label?			
TRUCK WASH AREA:				
Is the waste storage tank routinely checked	for proper pH?			
Is the waste storage tank full?				
DRY CHEMICAL STORAGE AREA:				
Is the place clean and dry?				
SPC AREA:				
Is the place clean and free of oil stains?				
Are all spills cleaned?				
TRUCK INTERIOR CLEANING STATION	•			
Is the place clean and the ground free of oil	stain?			
Is the waste storage tank routinely checked	for proper pH?			
Is the waste storage tank full?				

THE WESTERN COMPANY OF NORTH AMERICA SITE FACILITY ENVIRONMENTAL INSPECTION REPORT

page 1 of 2

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LOCATION: PARAING TOO	DATE: 7/10/11	BY: BENNIT
ITEMS:	OK	<u> </u>
RECORDS		
IS THE ENVIRONMENTAL FILING SYSTEM IN (HAVE THE DISPOSAL RECORDS BEEN FILED? HAVE THE DAILY TANK GAUGING RECORDS BET HAVE THE ENVIRONMENTAL INSPECTION RECO FILED? HAVE PERMITS & REGISTRATIONS BEEN FILE HAVE THE ENVIRONMENTAL REPORTS TO THE BEEN SUBMITTED ON TIME? HAS THE TEST DATA BEEN FILED?	GOOD ORDER?	
YARD:		
IS THE YARD CLEAN, FREE OF TRASH & OIL OVERALL? ARE ALL OF THE SPILLS CLEANED? IS ALL VEGETATION HEALTHY? ARE THE DRAINAGE DITCHES CLEAN WITH NO ON THE STANDING WATER? IS THE PH OF THE SURFACE WATER IN THE THE DRAINAGE DITCH BETWEEN 6 & 8? IS THERE AN EFFORT TO ASSURE THAT NO O ACIDIC FLUID IS FLOWING OFF THE SITE? IS THERE AN EFFORT TO ASSURE THAT NO P IS FLOWING TO OUR SITE?	OIL SHEEN VARD OR IN OILY OR	
FUEL ISLAND:		
ARE ALL SPILLS PROMPTLY CLEANED AND OI FREE? IS THE SLB CLEAN AND OIL STAIN FREE? ARE TANK VALVES IN GOOD WORKING ORDER?	L STAIN	
MAINTENANCE SHOP:		
IS THE PLACE CLEAN? IS THE WASTE OIL COLLECTING AREA CLEAN MINIMUM OIL STAIN? IS THE WASTE ANTIFREEZE BEING PROPERLY ARE THE WASTE OIL & WASTE ANTIFREEZE C DRUMS BEING PROPERLY LABELED & DATED? IS THE SAFETY KLEEN APPARATUS WORKING I	WITH V HANDLED? V COLLECTION V PROPERLY? V	

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SITE FACILITY ENVIRONMENTAL INSPEC	CTION REPORT
LOCATION: FARMINGTON	DATE: 7/10/91 BY: BEAM
ITEMS:	OK
DRUM_STORAGE:	
IS THERE AN EFFORT TO ELIMINATE EM ARE ALL CONTAINERS IN GOOD CONDITI ARE ALL CONTAINERS PROPERLY LABELS LABELS? ARE ALL CONTAINERS CLOSED? ARE ALL SPILLS CLEANED & LEAKS PRO	DED WITH READABLE
WET CHEMICAL STORAGE & DISPENSING	AREA:
ARE ALL SPILLS CLEANED UP, FLOORS PROMPTLY FIXED? ARE ALL CONTAINERS PROPERLY LABELE LABELS? ARE PROPER CHEMICAL DISPENSING PRO PRACTICED? IS THE PLACE CLEAN AND DRY?	CLEANED & LEAKS
ACID TANK:	!
ARE ALL SPILLS CLEANED UP & LEAKS IS THE OVERFILL STORAGE TANK ROUTI pH? IS THE TANK PROPERLY LABELED WITH	PROPERLY FIXED? NELY CHECKED FOR A READABLE LABEL?
TRUCK WASH AREA:	
IS THE WASTE STORAGE TANK ROUTINEI PROPER pH? IS THE WASTE STORAGE TANK FULL?	Y CHECKED FOR
DRY CHEMICAL STORAGE AREA:	
IS THE PLACE CLEAN & DRY?	<u> </u>
SPC AREA:	•
IS THE PLACE CLEAN AND FREE OF OIL ARE ALL SPILLS CLEANED?	STAINS?
TRUCK INTERIOR CLEANING STATION:	
IS THE PLACE CLEAN AND THE GROUND STAIN? IS THE WASTE STORAGE TANK ROUTINEI	FREE OF OIL
PROPER pH? IS THE WASTE STORAGE TANK FULL?	

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ENTRONMENTAL INSPECTION, Date: 7/10/91 DISTRICT FARMINGTON, BY: BENNY HO NOTE 1: NEED TO CAP ALL DRUMC, TRANSFETZ NOTE 2: NEED TO FOR GAUGING RE-GORD

TO ENVIRONMENTEL FILE AT END OF EACH MONTH

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THE WESTER SITE FACIL	n company of north Americ Ity environmental inspect:	a Ion report	page	1 of 2
LOCATION:	FARMINGTON	DATE: a/z	1/91 BY:	BENNYHO
ITEMS:	ĸĸĸĸĸĸŎŦŎijĔŎġĬĸĸĊĬŎĸŎŎŦŎŎŎŗĸŎĬĬŊĊŎſſŎĬŎſŎŢĬĸŎŎŎĸĸĸŎĬŎĹĸĸſĔŖŎŊŗĸĸĸġŎĬĸĬŎĬŎĬŎĬĬĬĬŎĸŢŎĸĬĬĸĿŎŗĸŎĿŎĬ	ng Nanapatan ang kanang pangan ang kang nang kang kang kang kang	OK	. <u> </u>
RECORDS				
IS THE ENVI HAVE THE DI HAVE THE DI HAVE THE EN FILED? HAVE PERMIN HAVE THE EN BEEN SUBMIN HAS THE TEN	IRONMENTAL FILING SYSTEM I ISPOSAL RECORDS BEEN FILED ALLY TANK GAUGING RECORDS INVIRONMENTAL INSPECTION RE IS & REGISTRATIONS BEEN FI INVIRONMENTAL REPORTS TO TH FTED ON TIME? ST DATA BEEN FILED?	N GOOD ORDER? 97 BEEN FILED? CORDS BEEN LED? HE GOVERNMENT		1007E 1 NOTE 1 MITE 2
YARD:				
IS THE YAR OVERALL? ARE ALL OF IS ALL VEGH ARE THE DR ON THE STAN IS THE PH (THE DRAINAG IS THERE AN ACIDIC FLUT IS THERE AN IS FLOWING	D CLEAN, FREE OF TRASH & C THE SPILLS CLEANED? ETATION HEALTHY? AINAGE DITCHES CLEAN WITH NDING WATER? DF THE SURFACE WATER IN TH SE DITCH BETWEEN 6 & 8? N EFFORT TO ASSURE THAT NO ID IS FLOWING OFF THE SITE N EFFORT TO ASSURE THAT NO TO OUR SITE?	DIL-STAINS, NO OIL SHEEN HE YARD OR 'IN O OILY OR POLLUTANT		
FUEL ISLAND ARE ALL SP: FREE? IS THE SLB ARE TANK VI	D: ILLS PROMPTLY CLEANED AND CLEAN AND OIL STAIN FREE? ALVES IN GOOD WORKING ORDE	OIL STAIN R?		wr:3
MAINTENANC	<u>seop:</u>			
IS THE PLAC IS THE WAS MINIMUM OI IS THE WAS ARE THE WAS DRUMS BEINC IS THE SAFI	CE CLEAN? TE OIL COLLECTING AREA CLE L STAIN? TE ANTIFREEZE BEING PROPER STE OIL & WASTE ANTIFREEZE 3 PROPERLY LABELED & DATED TY KLEEN APPARATUS WORKIN	AN WITH LY HANDLED? COLLECTION 2 G PROPERLY?		

06/19/90

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LOCATION: FARMINGTON	DATE: 2/2	1/9/ BY:	BENNY
ITEMS:		OK	<u>A</u>
DRUM STORAGE:			
IS THERE AN EFFORT TO ELIMINATE EMPTY ARE ALL CONTAINERS IN GOOD CONDITION? ARE ALL CONTAINERS PROPERLY LABELED & LABELS? ARE ALL CONTAINERS CLOSED? ARE ALL SPILLS CLEANED & LEAKS PROMPT NO CHEMICAL LEFT ON THE GROUND?	DRUMS? /ITH READABLE 'LY FIXED WITH		NOTE 4
WET CHEMICAL STORAGE & DISPENSING ARE	<u>IA:</u>		
ARE ALL SPILLS CLEANED UP, FLOORS CLE PROMPTLY FIXED? ARE ALL CONTAINERS PROPERLY LABELED W LABELS? ARE PROPER CHEMICAL DISPENSING PROCED PRACTICED? IS THE PLACE CLEAN AND DRY?	CANED & LEAKS WITH READABLE		
ACID TANK:	!		
ARE ALL SPILLS CLEANED UP & LEAKS PRO IS THE OVERFILL STORAGE TANK ROUTINED PH? IS THE TANK PROPERLY LABELED WITH A R	PERLY FIXED? Y CHECKED FOR EADABLE LABEL?	_v	
TRUCK WASH AREA:			
IS THE WASTE STORAGE TANK ROUTINELY OF PROPER PH? IS THE WASTE STORAGE TANK FULL?	CHECKED FOR		
DRY CHEMICAL STORAGE AREA:			
IS THE PLACE CLEAN & DRY?		<u> </u>	·
SPC AREA:			
IS THE PLACE CLEAN AND FREE OF OIL ST ARE ALL SPILLS CLEANED?	AINS?		Note 6
TRUCK INTERIOR CLEANING STATION:			
IS THE PLACE CLEAN AND THE GROUND FRI STAIN? IS THE WASTE STORAGE TANK ROUTINELY (EE OF OIL CHECKED FOR		
PROPER pH? IS THE WASTE STORAGE TANK FULL?			

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ENVIRONMENTAL COMPLIANCE INSPECTION DISTRICT: FARMINGTON DATE: 2/21/91 BY: BENNY HO NOTE 1 : DISPOSAL RECORDS CTURES BATTERIES. SAFETY KLEEN, & WASTE OIL) NEEDS TO BE FILED AT IN THE ENVIRONMENTAL FILES NOTEZ: MONTHLY ENVIRONMENTAL INSPECTION IS REQUIRED NOTE 3: NEEDS TO KEEP FUEL SPILL TO MINIMUM, NOTE 4: ONZEDS TO PLACE EMPTY DRUMS RIGHT SIDE UP, CAPPED AND TOP CLEANED NOTES: NEEDS TO LOOK INTO POSTRE TANK LEAK. NOTE 6: NEEDS TO CLEAN DIESEL SPILL.

	MATERIAL USE	D			р Э-(Petroleum Marketing & Income Equipment 2407 Boyl Bullaihous U FARMINGTON: 	326-11 863-44
	DESCRIPTION	PR	ICE	<u> </u>		MEMBER	
3	Leak Detectors	170	00	510	00	PE 7 2 S Enterprises, Inc. F 2	6594
3	Check Valves	15	00	45	00	97UM ROOMENI INS	94.000
3	Line Test	135	00	405	00	Farmington, New Mexicu 87490 SENT AUG	24 19:
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						ADDRESS LOCATION	
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						TYPE OF HODEL	
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BCIC/WW

ENVIROTECH INC.

UNDERGROUND TANK TESTING • SITE ASSESSMENT • SITE REMEDIATION

5796 U.S. HIGHWAY 64 - 3014 FARMINGTON, NEW MEXICO 87401 PHONE: (505) 632-0615

April 1, 1992

Attn: Mr. Les Baugh

Western Company of North America 3250 Southside River Road Farmington, New Mexico 87401

RE: Used Oil Tank Integrity Testing

Project No: 92101

Dear Mr. Baugh:

Enclosed please find the results of testing for the integrity of the used oil tank at the Western Company of North America, Farmington Facility located at 3250 Southside River Road, Farmington, New Mexico.

The testing was conducted by Mr. Rex Farnsworth of Envirotech, Inc. on March 13, 1992. The subject used oil tank was reportedly 500 gallons and tested tight.

Please contact us should you have any questions regarding the testing or results. Thank you for allowing Envirotech, Inc. the opportunity to be of service on this project.

Respectfully submitted, ENVIROTECH, Inc.

Rex N. Farnsworth General Superintendent

Enclosure:

Tank Tighness Test

RNF:MKL/mkl

2101U0.TST

	AINLAY TANK 'TEGRITY TE	STER [™] FI	ELD TES	ST DATA	
1 TANK	NAME ADDRESS			рно 327	NE -6222
OPERATOR	3250 South S'de Kin	. RD.			
.	Farmicton. nomico.				
2	IDENTIFICATION CAPACITY-GALS.	MANUFACTUR	ER STEE	L/FIBRGLS.	AGE—YRS.
	Used a L 1000			FEL.	for log
TANKS TO					, , ,
BEIESIED					
³ WATER TABLE	DISTANCE FROM GRADE TO WATER	· / 			<u></u>
4	TANK WILL BE FILLED (TIME) ON	3 1/2 192	· ·		
TANK	EXTRA 5 GALS PRODUCT AVAILABLE FROM	- Jhop -			
FILL-UP	FILL UP TO BE ARRANGED BY MR.	Brough	<u> </u>	PHONE 50	51327-6
	CONTACT AT STORAGE TERMINAL IS MR.	ş		PHONE ()
5	NAME ADDRESS		<u> </u>	РНС	 DNE
OUTSIDE	Enviroted The		50	5-632	20115
CONTRACTORS			······································		
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OFFICIALS	Los Brough.			32	2-6222
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SPECIAL					
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PRECAUTIONS					
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TEST	TANK IDENT	TANK IS	TANK IS		TEST DATE
RESULTS	LISE OSL			005	3-13-9
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ST-6 (459-916) REV. 1/90

CERTIFICATION	SIGNED Rux 1 - 89
•	FOR (TEST COMPANY) Environtent Inc
· ·	ADDRESS 5296 Hy 64 - 2014
	TANNIG MMW. 10 87401
	STATE ZIP

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	10	INCLUDE ENOUGH INFO TO ACCUBATELY IDENTIFY TANK (NUMBER/CONTENTS/POSITION ETC.)
	TANK I.D.	TANK DIAMETER INS FILL PIPE LENGTH 26 INS
	11 WATER IN TANK	(a) START WATER IN TANK INS (c) END WATER IN TANK INS (b) START WATER IN TANK GALS (d) END WATER IN TANK GALS
11 X	12 PRODUCT VOLUME	(a) NOMINAL CAPACITY /000 GALS (c) DEDUCT WATER IN TANK GALS (b) ACTUAL CAPACITY /002 GALS (d) TOTAL PRODUCT VOL. /002 GALS (FROM TANK CHART) (e) PIPING 3 GALS GALS (f) TOTAL /005 GALS GALS
En Ukate A	13 FILL PIPE EXTENSION	(a) HEIGHT OF WATER TABLE ABOVE TANK BOTTOM =(h) INS (b) DENSITY OF TANK PRODUCT =(w) LB/CU. IN. (FROM TABLES) DENSITY OF EXTERNAL WATER = 0.036 LB/CU. IN. (c) ADDITIONAL HEAD REQUIRED = $\frac{(h) \times 0.036}{(w)} = \frac{\times 0.036}{=} = 1000000000000000000000000000000000000$
MPANY	14 PRELIM TEST DATA	(a) A.P.I. GRAVITY <u>31, #</u> AT <u>63</u> °F (b) A.P.I. GRAVITY <u>31, 3</u> AT 60°F (c) COEFF. OF EXPANSION <u>00044882</u>
2.0 R. 2.0 FAMMALL 192 TES	15 TEST DATA	(a) START TEST 9.25 AM/PM: END TEST $1.4.5$ AM/PM: TEST TIME 1.00 MINS. (b) TEMPERATURE CHANGE DURING TEST = (SLOPE OF "BEST FIT" LINE) × (TEST TIME) = .0006 × $1/0$ = $3/066$ °F. (c) VOL. CHANGE DUE TO TEMP = PRODUCT VOL × TEMP. CHANGE × COEFF. EXP. = 1005 (121) × 0.46 (15b) × 000448 (2440) = $5/029$ GALS. (d) TOTAL LIQUID VOL. ADDED SUBTRACTED AT END OF TEST
Ress South	16 NOTES	

Envirotech Inc.

UNDERGROUND TANK TESTING • SITE ASSESSMENT • SITE REMEDIATION

5796 U.S. HIGHWAY 64 - 3014 FARMINGTON, NEW MEXICO 87401 PHONE: (505) 632-0615

February 17, 1992

Western Co. Mr. Les Baugh 3250 Southside River Rd. Farmington, NM 87401

RE: Ainlay Tank 'Tegrity Tester Field Test Data

Dear Mr. Baugh:

Enclosed, please find a copy of the 'Tegrity Tester test data that was competed at the Western's Farmington facility.

We appreciate working with you on this matter, if we can be of further help, don't hesitate to call.

Sincerely,

Rex N. Farnsworth General Superintendent

RNF/tjg

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1	NAME	ADDRESS			· PHO	INE
TANK	Western C	<u>.</u>			<u> </u>	27-6222
OPERATOR	3250 55	utholde Rbe	nRl.		· · ·	<u>.</u>
	Frankton	norextico.	·····	· · · · ·		
2	IDENTIFICATION	CAPACITY-GALS.	MANUFACTURE	R STEE	L/FIBRGLS.	AGE-YRS.
	newoil	/000	· / ·	3	t-jel-	
TANKS TO	Unlerged.	8000			Teet.	10 1/15
BETESTED	Devil	1/0000	<u> </u>	2	T-ol	10 Uns
	the sime	10000			Tal	O Un-
³ WATER TABLE	DISTANCE FROM GR	ADE TO WATER	51 📾			
4	TANK WILL BE FILLE	D <u> <i>PM</i></u> (TIME) ON	110192			
TANK	EXTRA 5 GALS PRODU	JCT AVAILABLE FROM	55 DRu	<u></u>		
FILL-UP	FILL UP TO BE ARRAN	NGED BY MR	<u>عرح ،</u>		PHONE DO	51322-622
	CONTACT AT STORAG	GE TERMINAL IS MR.			PHONE (
5	NAME	ADDRESS			РНС	
OUTSIDE	Envinote	oh Inc.			6	32-0-515
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6	NAME			1.22	РНО	NE 20-
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Γ	10	INCLUDE ENOUGH INFO. TO ACCURATELY IDENTIFY TANK. (NUMBER/CONTENTS/POSITION, ETC.)						
	TANK I.D.	TANK DIAMETER HTTP: INS FILL PIPE LENGTH 48" IN	vs_					
	11 WATER IN TANK	(a) START WATER IN TANK INS (c) END WATER IN TANK IN (b) START WATER IN TANK GALS (d) END WATER IN TANK GAL	IS _S					
	12 PRODUCT VOLUME	(a) NOMINAL CAPACITY /000 GALS (c) DEDUCT WATER IN TANK GALS GALS (b) ACTUAL CAPACITY /000 GALS (d) TOTAL PRODUCT VOL. /000 GALS (FROM TANK CHART) (e) PIPING GALS (f) TOTAL /000 GALS	ALS ALS ALS					
	13 FILL PIPE EXTENSION	(a) HEIGHT OF WATER TABLE ABOVE TANK BOTTOM = (h) INS (b) DENSITY OF TANK PRODUCT = (w) tB/CU . IN. (FROM TABLES) DENSITY OF EXTERNAL WATER = (w) tB/CU . IN. (c) ADDITIONAL HEAD REQUIRED = (h) $\times 0.036$ $\times 0.036$ = NOTE: TO AVOID POSSIBLE TANK DAMAGE THE ADDED PRESSURE FROM A FILL PIPE EXTENSION MUST NEVER EXCEED 5 P.S.I.	1					
	14 PRELIM TEST DATA	(a) A.P.I. GRAVITY $29 4$ AT 40 °F (b) A.P.I. GRAVITY $29 4$ AT 60° F (c) COEFF. OF EXPANSION 00044200						
	15 TEST DATA	(a) START TEST $\cancel{505}$ AM/PM: END TEST $\cancel{635}$ AM/PM: TEST TIME $\cancel{90}$ MINS. (b) TEMPERATURE CHANGE DURING TEST = (SLOPE OF "BEST FIT" LINE) × (TEST TIME) = $\cancel{90}$ × $\cancel{90}$ = +/- $\cancel{92}$ °F.						
		(c) VOL CHANGE DUE TO TEMP = PRODUCT VOL * TEMP CHANGE * COEFF EXP. $= 1005 (121) \times 372 (15b) \times 000442004c) = \bigcirc 1 - 319 (0)$ (d) TOTAL LIQUID VOL ADDED/SUBTRACTED AT END OF TEST.	AL AL					
		(e) VOL CHANGE NOT DUE TO TEMP {(c) + (d)] = $.319 + .298 = +/21$ (f) LEAK RATE =(e) × 60 = $.21 \times 60 = .014$ G.P.H. TIME OF TEST (MINS) 90 (15a).	GAL					
		THIS LEAK RATE DOES/DOES NOT EXCEED THE STANDARD OF 0.050 G.P.H. DESCRIBED IN NATIONA FIRE PROTECTION ASSOC., BULLETIN N.F.P.A. 329. THE TANK IS TIGHTE / THE TANK IS NOT TIGHT						
00	16 NOTES	•						
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10	INCLUDE ENOUGH INFO. TO ACCURATELY IE	ENTIFY	TANK. (NUMBER/CONTENTS/	POSITION, ETC.)			
TANK I.D.	TANK DIAMETER	INS		48.	INS		
11 WATER IN TANK	(a) START WATER IN TANK	INS GALS	(c) END WATER IN TANK	0	INS GALS		
12 PRODUCT VOLUME	(a) NOMINAL CAPACITY 7000 (b) ACTUAL CAPACITY 702/ (FROM TANK CHART)	_ GALS _ GALS	(c) DEDUCT WATER IN TA (d) TOTAL PRODUCT VOL (e) PIPING (f) TOTAL	NK 0 <u>802/</u> 5 026	GALS GALS GALS GALS		
13 FILL PIPE EXTENSION	 (a) HEIGHT OF WATER TABLE ABOVE TANK I (b) DENSITY OF TANK PRODUCT DENSITY OF EXTERNAL WATER (c) ADDITIONAL HEAD REQUIRED NOTE: TO AVOID POSSIBLE TANK DAMAGE THE AD EXCEED 5 P.S.I. 	DED PRE	= (h) INS = (w) LB/CU = (h) x 0.036 (w) = (w) = (w) = (w) = (w) = (w) = (b) x 0.036 (w) = (c) x 0.036 (c) x 0.036	. IN. (FROM TABL 1. IN. 0.035 =	E5) IN NEVER		
14 PRELIM TEST DATA	(a) A.P.I. GRAVITY <u>63.2</u> AT <u>72</u> °F (b) A.P.I. GRAVITY <u>66-</u> AT 60°F (c) COEFF. OF EXPANSION <u>00071628</u>						
15 TEST DATA	(2) START TEST 1255 AM/PM: END TEST 1425 AM/PM: TEST TIME 100 MINS. (b) TEMPERATURE CHANGE DURING TEST = (SLOPE OF "BEST FIT" LINE) × (TEST TIME) = 10006 × 100 = +/- 306 °F.						
	(c) VOL CHANGE DUE TO TEMP - PRODUCT $= \frac{\sqrt{226}}{(d) \text{ TOTAL LIQUID VOL ADDED/SUBTRACT}}$ (e) VOL CHANGE NOT DUE TO TEMP [(c) + (f) LEAK RATE =(e) \times 60 TIME OF TEST (MINS) THIS LEAK RATE DOES/DOES NOT E FIRE PROTECTION ASSOC., BULLET	. (121) × . (121) × . (d)] 	ND OF TEST. 000 + 60 = 000 000 + 60 = 000 HE STANDARD OF 0.050 G.P.1 329.	$\frac{4c_1}{c} = \frac{+/-34}{-34}$ $= \frac{+/-34}{-34}$ $= \frac{+/-34}{-34}$ $= \frac{-4}{-34}$ G.P.H. H. DESCRIBED IN	GALS		
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SECTION XI

CONTINGENCY PLAN/EMERGENCY RESPONSE PLAN

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CONTINGENCY/EMERGENCY RESPONSE PLAN

This Emergency Response Plan is necessary for the district and its personnel to minimize personal injury, property damage and business interruptions caused by any catastrophe; such as, fire, flood, storm, tornado, etc.

In the event of an emergency, all employees will proceed to The Western Company's sign on the front lawn in a safe and orderly fashion. At this time a head count will be taken by the Team Coordinators to determine if any employee is missing. The Dispatcher will notify all Team Leaders of employees that may be on jobs or days off. Two Team Coordinators and two Team Leaders will make a sweep of the facility by means of the Buddy System to locate any missing persons or vendors that may be on the yard.

1. <u>Chemical Spill/Release Reporting and Containment</u>

EmTech Environmental Services, Inc. - 1-800/336-0909

This is a 24 hour emergency response service for spills/releases that is contracted to assist Western with any emergencies. Every District has been provided with this information to assist them in handling emergencies. This company has been provided a site plan, MSDSs for chemicals handled at each District and the contact people at each District.

Emergency Telephone Numbers

- A. Emergency Number 911
- B. Electrical Utility 505/327-7701
- C. Gas Utility 505/325-2889
- D. Water Utility 505/327-7701
- E. Telephone 1-555-1653
- F. Poison Control Center 1-800/432-6866
- G. District Manager 505/334-1855

Equipment for Containment

A. Foutz & Bursom Co. - 325-3712 After hours: Greg Swapp - 632-9569 Larry Sanders - 334-2348 Steve Foutz - 334-2656

II. Action Team Members

A. <u>Action Team make-up and duties</u> - All operations concerning evacuation, rescue, spill containment, fire fighting procedures, securing utilities, medical (First Aid), public relations, clean-up and all clear to re-enter areas, will be handled by the district action team. This team will be made up of the district manager, operations supervisors, assistant operations supervisors and maintenance supervisor.

Names of team members:

Lynn Loman, District Manager 908 Highway 550 Flora Vista, NM 505/334-1855

Terry Gorman, Operations Supervisor

Flora Vista, NM 505/334-3570

Duane McCoy, Maintenance Supervisor 1221 Camina Flora Farmington, NM 87401 505/327-6532

Les Baugh, Facilities Supervisor 4509 Celtic Farmington, NM 87401 505/327-5844

Ted Randolph, Field Engineer 3512 Kayenta Farmington, NM 87401 505/327-2059

Les Baugh, Environmental Coordinator 4509 Celtic Farmington, NM 87401 505/327-5844

TEAM COORDINATORS TEAM LEADERS

Lynn Loman Duane McCoy Les Baugh Jay Savage Mark Knight Terry Lattin Mike Rose Barry Holman

TEAMS

ALL DISTRICT EMPLOYEES

Teams will be set up to handle any type situation that may require removal of equipment or a spill on the facility. At **NO** time will a team or teams be ordered into an area that is unsafe. The "All Clear" signal to re-enter areas will come from Western management. The Team members will assign their standbys in the event of absence.

B. In the event the Emergency Preparedness Plan is implemented, the Dispatch Office will serve as a command center. If this is unsafe, the secondary command post will be The Western Company sign on the front lawn.

III. Fire Fighting Procedures

- A. <u>Hazardous Materials Handling</u> If a fire cannot be put out immediately with hand held portable fire extinguishers, the area will be evacuated and the Fire Department will be summoned by dialing 911. Material Safety Data Sheet books should be consulted and made available to the Fire Department in order to ascertain what, if any, hazards might be encountered in the fire. These books are kept in the following places:
 - 1. Dispatch Office
 - 2. District Lab
 - 3. Training Office
 - 4. Maintenance Supervisor's Office
 - 5. Chemical Warehouse
- B. <u>Fire Extinguisher Locations</u> Fire extinguishers in the main office are located at the entrance of the Dispatch Office; at the entrance of the lounge; outside the Conference Room; at the door near the storage room next to the sales office and just outside the District Manager's office.
- C. <u>Securing Utilities</u> The master shutoff points are at the **SOUTHEAST CORNER** of the **MAINTENANCE BUILDING.** The **RED VALVE** is the **gas**, the **YELLOW ARROW** on the electric box points to the **main breaker** for all <u>ELECTRICAL</u> <u>POWER</u>. This will shutdown all gas and electricity on the facility.

In case of an uncontrolled <u>acid spill</u> or fire where the acid tank is involved, turning the <u>fluorescent orange</u> valve on the acid tank will stop all flow.

In case of an uncontrolled <u>nitrogen discharge</u> from the storage tanks, turning the <u>fluorescent orange</u> valves on the tanks should stop all flow.

- D. <u>Fire Fighting Water Available</u> The main water shut-off valve, a **red-handled valve**, is located at the **southeast corner** of the facility in a concrete lined pit with a metal cover.
- IV. Evacuation of Personnel and Equipment
 - A. <u>Personnel</u> All personnel on the district facility will meet at The Western Company sign on the front lawn. From that point, all personnel will go to the nearest safe point near the District to receive information on rescue, recovery and control measures to be taken.

B. <u>Equipment</u> - Only equipment that is to be used in control and containment will be removed from the facility. Also any equipment that could be in immediate danger that can be removed without risking any personal harm or injury to personnel in the area should be removed. Equipment used to contain hazardous material spills will be moved to a safe place on the facility until ready for use.

In the event any emergency makes it necessary to evacuate a specific work area or the entire premises, the following guidelines should be followed, in addition to those already set forth. As an area is evacuated and it is safe to do so:

Shop Area, Iron Shop and Wash Bay:

Turn off all operating equipment such as diesel, gasoline or electric motors and engines, welders-gas and electric, grinders, saws, parts washers, sprayers, compressors and anything that might be or become a hazard if left unattended.

Fuel Island:

Turn off all operating equipment such as diesel, gasoline or electric motors and engines, fuel and oil dispensers and anything that might be or become a hazard if left unattended.

Sand Plant and Test Tank Area:

Turn off all operating equipment such as diesel, gasoline or electric motors and engines, tank discharge valves and anything that might be or become a hazard if left unattended.

SPC, Chemical Warehouse, Acid, Nitrogen and Propane Docks:

Turn off all operating equipment such as diesel, gasoline, electric or propane motors and engines, tank discharge valves and anything else that might be or could become a hazard if left unattended.

Front Office, Lab, Training and Locker Room Areas:

Turn off anything that might be or could become a hazard if left unattended.

ALL AREAS

Evacuate using the safest and most direct route possible!

V. Security

All outside persons, except fire fighting personnel, will be kept off the facility until the "All Clear" has been given. The district manager will assign all those in charge of this duty. All outsiders must be kept out of the dangerous areas. The possibility of explosion, fumes, radioactive materials, etc., may be present and complete measures must be taken to control its confinement.

VI. Radioactive Material Handling

In the event there is an emergency that involves a densitometer containing radioactive materials; the Radiation Safety Officer (Brian Ault) and the Radiation Safety Supervisor (Mike Rose) will be immediately notified.

No one will be permitted into the area until the RSO and the RSS have determined that it is safe to do so.

VII. Public Relations

The district policy is to cooperate fully with members of the press and representatives of the public. District policy is to provide all possible factual information as quickly as possible within the normal limits of safety and security. The District Manager will designate the person or persons responsible for this activity.

VIII. Serious Injuries and Fatalities

A personal visit by the District Manager and any other personnel assigned is recommended when informing the family of the circumstances. This should be done as soon as possible and in a manner in line with Western philosophy and procedure.

- IX. Medical
 - A. In the event of a serious accident or injury, a person qualified in American Red Cross Standard First Aid is on duty during all hours of operation. Using the procedures set by the American Red Cross, first aid will be initiated and followed until the Emergency Medical Services arrive.
 - B. In case of chemical poisoning, a call should be placed to the nearest poison control center available. Consult the Material Safety Data Sheets manual to find information on first aid measures to be taken until qualified help can be reached.
- X. Spill Control and Containment
 - A. <u>Acid Tank Failure</u> First, clear the area of all personnel and give first aid to the injured. Establish security measures and keep all personnel clear of the area. An action team comprised of the district manager, facilities manager and safety & training supervisor will select personnel to start clean-up and containment procedures. A forklift will be activated and utilized to move soda ash and lime to the lowest point in the facilities to dam up fluid flow and neutralize strong acid on the surface. Construction companies in the area will be contacted to bring in materials to strengthen the dam so as to contain all fluid within the facilities. Next will be the ordering of clean-up equipment, ie; front loader, dump trucks, fill material, vacuum trucks, etc. Western (district) transports will be positioned on the east side of the maintenance shop and office area. There the vacuum trucks will meet with the transports to begin pulling fluid off the ground and washing down with fresh water to force the strong fluid to the low point in the yard where all fluid on the ground will be pulled into the vacuum trucks and moved to a disposal well or area.

After all fluid has been removed from the ground, clean-up and repair operations will commence using all district personnel available. The action team will coordinate all operations.

B. <u>Hazardous Material Leakage</u> - When there is a leak or suspected leakage at a hazardous materials storage facility, efforts must be made to stop the leakage as soon as possible without endangering personnel safety. Containment dikes will be built to contain the spillage; the spill picked up by absorbent material and placed inside containers or containment area before disposal by a qualified disposal company. The incident will be reported to the National Response Center, the local authority and Western's corporate environmental office.



MAIN OFFICE









SECTION XII

GEOLOGICAL/HYDROLOGICAL EVIDENCE

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The Animas River is approximately 1 mile northwest of the property line. The San Juan River is approximately 1.5 miles south of the facility.

Only a very heavy rain storm could cause any significant flooding due to run-off. In the event of heavy run-off none of the underground storage tanks would be threatened.

There is a berm and ditch on the east side of the property to control run-off from neighboring property. On the west property line there is a drainage channel to control run-off from Western's property.



SECTION XIII

COMPLIANCE INFORMATION



Ron McKeel director of real estate and facilities construction

February 18, 1991

Underground Storage Tank Bureau 1190 Saint Francis Drive Harold Runnels Bldg. N 2164 Santa Fe, New Mexico 87503

RE: Amended UST Registration Form - The Western Company of North America - Farmington, New Mexico Facility

Gentlemen:

Enclosed is an amended Underground Storage Tank (UST) Registration Form for the Western Company of North America's Farmington, New Mexico Facility. The pressurized fuel piping was upgraded with line leak detectors and the pressurized piping was tightness tested.

If you have any questions or require additional information, please contact me at (713) 629-2861.

Sincerely, Мскее

RMK:1b enclosure

ustregst.ltr

Notification for Underground Storage Tanks

Normalion for onderground Storage I	CITINS STATEMENT AND A STATEME
UNDERGROUND STORAGE TANK BUREAU 1190 St. Francis Drive	ID NUMBER STATE USE ONLY
Harold Runnels Bldg. N. 2164 Santa Fe, New Mexico 87503	Date Received
GENERALIN	FORMATION
Norther than is required by Federal is of an all underground tanks that have been used to store regulated substances since Jonary 1, 1974, that are in the ground is an all hay 8, 1986, or that are brought two we after May 8, 1986. The biformation requested is required by Section 9880 of the Resource Conservation and Recovery Act. (RCRA), or anaryperised by Section 9880 of the Resource Conservation and Recovery Act. (RCRA), or anaryperised by Section 9880 of the Resource Conservation and Recovery Act. (RCRA), or anaryperised by Section 9880 of the Resource Conservation and Recovery Act. (RCRA), and anaryperised by Section 9880 of the Resource Conservation and Recovery Act. (RCRA), and anaryperised by Section 9880 of the Resource Conservation and Recovery Act. (RCRA), and anaryperised by Section 9880 of the records, your know indge, belief, or reconserved that the information you provide will be based on reasonably available incorrect, or in the aberne of such records, your know indge, belief, or reconserved and the records, or in the aberne of underground tanks that sore regulated substances must anaryperised or local ageneses of the existence of their tanks. On net mean - (a) in the case of an underground storage tank in we on November 3, 1984, or brought into we after that date, any perion who wins an underground storage tank in we before November 3, 1984, or brought into we after the date, any perion who wins an underground storage tank in we before November 3, 1984, or the storage, use of any underground storage tank in we before November 3, 1984, but no longer in we on that date, any perion who wins an underground worage tank is well to combination of as we. What Tanks Are biotude? Underground storage tank is defined as any one or combination of tanks that (1) in used to contain an accumulation of "regulated substances," and (2) whose volume tinciuding contains an accumulation of furingenet. The second are not subset to nois franks are take actueded? Tanks removed from the ground are not subset to nois fran	 4. pipeline facilities finefulding gathering lanes) regulated under the Natural Gas Pipeline Safety Act of 1988, or the Hazardous Liquid Pipeline Safety Act of 1979 or which is an intrividue pipeline facility regulated under State laws. 5. which is an intrividue pipeline facility or lagrous. 6. which is an intrividue pipeline facility or lagrous. 6. which is an intrividue pipeline facility or lagrous. 6. which is an intrividue pipeline facility or lagrous. 6. which is an intrividue pipeline facility or lagrous. 6. which is an intrividue pipeline facility or lagrous. 7. flow through process tasks: 8. hund trap or psoceased gathering line-directly related to ril or gas production and gathering operation: 7. flow through process tasks: 8. hund trap or psoceased gathering line-directly related to ril or gas production and gathering operation: 8. while the flow. 7. What Substates Are Covered: The notalization requirements apply to underground while a sharedous in vection life (14) of the Comprehensive Environmental Response. Comprehension and Lubling Act of 1990 (CERCLAL with the exception in those while periods and lagrandous waste under Subtitle C of RCRA. It also includes periods and lagrandous waste under Subtitle C of RCRA. It also includes periods and section provide sharedous waste under Subtitle C of RCRA. It also includes periods and standous waste under Subtitle C of RCRA. It also includes periods and standous waste under Subtitle C of RCRA. It also includes periods and standous waste under Subtitle C of RCRA. It also includes periods and standous waste under Subtitle C of RCRA. It also includes periods and standous waste under Subtitle C of RCRA. It also includes periods and the provide and standard conduction of temperiod and page. Mbare Te Neathy? Completed notalization forms should be sent to the address given at the tap of this page. Mbare Te Neathy? I. On serv of unde
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Pisase Indicate Name of Principal CERCLA Substance					
Chemical Abstract Service (CAS) No. Mark box II if tank stores a mixture of substances d. Unknown					
1. Additional information (for tanks permanently taken out of service) a. Estimated date last used (mo/yr) Estimated quantity of substance remaining (gal.) c. Mark box II if tank was filled with inert material (e.g., sand, concrete)		<u> </u>			

3PA Form 7530-1 (11-85) Reverse

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Name (from Section 1) Western Co. NA Location (from Section II) Farmington Page No. 2 of 2 Page s							
A VIDESCRIPTION OF UNDE GROUND STORAGE TANKS (Compatible for sech to, althis locality)							
te Identification No. (e.g., ABC-123), or Tarity Assigned Sequential Number (e.g., 1,2,3)	Tank No. 6	Tank No. 7	Tank No. 8	Tank Nor 9	Tank No.		
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212255 Indicate Name of Principal CERCLA Substance OR Chemical Abstract Service (CAS) No. Mark box II if tank stores a mixture of substances d. Unknown							
a. Estimated date last used (mo/yr) Estimated quantity of substance remaining (gal.) c. Mark box 12 if tank was filled with inert material (e.g., sand, concrete)	, 						

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ATTACHMENT

Pressurized line leak detectors were installed on pressurized motor fuel lines. Tightness tests were conducted on pressurized fuel lines. Work was completed on August 29, 1990 by H&S Enterprises 3100 Bloomfield Highway

Post Office Box 1050 Farmington, New Mexico 87401 (505) 326-1118

l.



State of New Mexico

ENVIRONMENT DEPARTMENT

JUDITH M. ESPINOSA SECRETARY

RON CURRY *DEPUTY SECRETARY*

UNDERGROUND STORAGE TANK INVOICE FOR THE 1991 - 1992 YEAR

Invoice Number: UST-0-965-80

DEC 9 1991

Account : WESTERN CO OF NORTH AMERICA ATTN BENNY HO 515 POST OAK BLVD SUITE 915 HOUSTON TX 770279407 1991 Amount Due-Past Due:\$1,300.00 Adjustments: \$.00 Total Amount Due:\$1,300.00

Date : 03-DEC-91

Invoices for 1991-1992 were mailed out June 12, 1991. Payment for your tank fees has not bee received by this office. Balances from the 1990-1991 billing will also appear on the 1991-1992 invoice.

If payment is not received within 30 days from the date of this invoice, The Environment Department will collect late fees and penalties in accordance with Part III, Section 302, LATE PAYMENT PENALTIES OF THE UNDERGROUND STORAGE TANK REGULATIONS. If these tank(s) have been sold or removed, please send a letter of explanation, including names and dates so that this office can invoice the proper owner.

Please mail payment to the address listed below ONLY. Utilize a check or money order. DO NOT SEND CASH. Please list your invoice number on your check. If you have questions or problems with this billing, please call the Underground Storage Tank Bureau at 827-0216, 827-0188, or 827-2913.

PLEASE DETACH AND RETURN THIS SECTION WITH YOUR PAYMENT

Make Checks Payable To : UNDERGROUND STORAGE TANK BUREAU

Mail Checks To: NEW MEXICO ENVIRONMENT DEPARTMENT, PSB ATTN: USER FEE COLLECTIONS, RM S4051 HAROLD RUNNELS BUILDING 1190 ST FRANCIS DRIVE - PO BOX 26110 SANTA FE, NM 87502

Invoice Number: UST-0-965-80

Account : WESTERN CO OF NORTH AMERICA ATTN BENNY HO 515 POST OAK BLVD SUITE 915 HOUSTON TX 770279407 1991 Amount Due-Past Due:\$1,300.00 Adjustments: \$.00 Total Amount Due:\$1,300.00

Date : 03-DEC-91

Amount Enclosed:

Harold Runnels Building • 1190 St. Francis Drive • P.O. Box 26110 • Santa Fe, New Mexico 87502 (505) 827-2850 FAX (505) 827-2836

TANK LOCATION	1990 TANKS 1	991 TANKS
ICNA FARMINGTON DISTRICT 250 SOUTH SIDE RIVER RD CARMINGTON NM 87401	9	9
ESTERN CO OF NORTH AMERICA THE NDUSTRIAL PARK RTESIA NM 88210	4	4
ESTERN CO OF NORTH AMERICA THE A EST COUNTY RD 2708 OBBS NM 88240	1	0
** 990 TANK TOTAL = 14 991 TANK TOTAL = 13 **		

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STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION P.O. Box 968, Santa Fe, New Mexico 87504-0968 (505) 984-0020 STEVEN ASHER, Director

AIR QUALITY BUREAU

TONEY ANAYA GOVERNOR

ROBERT McNEILL SECRETARY

ROBERT L. LOVATO, M.A.P.A. DEPUTY SECRETARY

> JOSEPH F. JOHNSON DEPUTY SECRETARY

MAR 5 1984 Law & Administration

March 2, 1984

Ms. Kay Lamb Legal Assistant The Western Co. of North America P.O. Box 186 Fort Worth, TX 76101

RE: Modification to the Farmington Cement Blending Plant - Bulk Cement Blending/Storage Facilty

Dear Ms. Lamb:

Your permit application to modify the Farmington Cement Blending Storage facility located at 320 South Side River Road, Farmington, NM 87401 was received by the Division on February 27, 1984.

The results of our review show that the estimated total particulate emissions from the facility to be 6.6 lb/hr and 598.6 lb/yr. These emissions are less than 10 lb/hr or 25 ton/yr and thus in accordance with New Mexico Air Quality Control Regulation No. 702, paragraph A, no permit is required to modify the above mentioned facility.

The estimated emissions do not exceed 2000 pounds per year from this facility and, therefore, in accordance with New Mexico Air Quality Control Regulation No. 703 a Registration Certificate is not required. If you make any changes in the facility in the future please contact our Division.

Your cooperation with the Division is greatly appreciated. If we can be of any further help, please contact us at the above address or phone number.

Sincerel.

Deodat Blagwandin, P. E. New Source Review Unit Stationary Sources Section

DB:10



STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION P.O. Box 968, Santa Fe, New Mexico 87503 (505) 827-5271

> Thomas E. Baca, M.P.H., Director ENGINEERING SECTION

Bruce King GOVERNOR

George S. Goldstein, Ph.D. SECRETARY

Larry J. Gordon, M.S., M.P.H. DEPUTY SECRETARY

May 28, 1979

CERTIFIED MAIL NO. 375352 RETURN RECEIPT REQUESTED

The Western Company of North America P.O. Box 186 Forth Worth, Texas 76101

200.000

RE: Sand Storage and Acid Storage capacity increases at relocated Farmington operations - Application No. 243

Attention: Ms. Kay Lamb, Legal Assistant

To Whom it May Concern:

Your permit application and registration received May 28th concerning additional capacity to sand and acid storage tanks at Western's Farmington facility has been reviewed.

The estimated emissions resulting from your plant expansion are less than ten pounds per hour or less than 25 tons per year.

Therefore, in accordance with Regulation 702 (since <10 lbs/hr, <25 tons tons/yr) the plant expansion may proceed. A permit is not required.

This letter supercedes the temporary permit of May 10, 1979 issued by Mr. D. E. Tryk, Chief, Engineering Section.

If you have any questions feel free to contact the undersigned.

Sincerely, ard C'heal

Richard C. Neal, P.E. Air Pollution Engineering Review

RCN:10

RECEIVED MAY **31** 1979 LEGAL DEPARTMENT



December 7, 1978



Ms. Kay Lamb, Legal Assistant The Western Company of North America Box 186 Fort Worth, TX.76101

Dear Ms. Lamb:

The information you supplied regarding the Western Company sand and acid facilities at Farmington, Hobbs, and Artesia has been reviewed by this Section. Based on this information it is our opinion that these facilities are in compliance with New Mexico Air Quality Control Regulations.

Thank you for your cooperation in this matter.

Sincerely,

There

James G. Lareau, P.E. Air Pollution Engineering Review Unit

JGL:10



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CITY OF FARMINGTON, NEW MEXICO 800 MUNICIPAL DR. FARMINGTON, NEW MEXICO 87401 505/327-7701

To : Western Company of North America Farmington, New Mexico

October 10, 1989

Preliminary Discharge Limits

CONSITUENT

	CONCENTRATION, mg/1				
Benzene	0.00				
Toluene	0.01				
Ethylbenzene	0.75				
Xylon-	0.75				
ay teneg	0.62 0.01				
The second secon					
Ethylene dibromide Total naphthalenes plus monomethylnaphthalenes	0,0001				
	0.03				
Lead					
Iron	0.05				
Manage	1.0				
nanganese	0.02				

Thank You ! Gary K. Lee Environmental Coordinator City Of Farmington N.M. 800 Municpal Drive Farmington N.M. 87401 Phone 327-7701 ext.1409