

# **Baroid** Environmental, Safety and Transportation Data Sheet

## BAROID

<b>I PRODUCT IDENTIFICATION</b>		
SUPPLIER NL BAROID	TELEPHONE NO 713/987-5900	
ADDRESS P.O. BOX 1675      HOUSTON, TEXAS 77251		
TRADE NAME BAROID*		
GENERIC DESCRIPTION BARITE, BARIUM SULPHATE, BARYTES		
<b>II HAZARDOUS INGREDIENTS</b>		
MATERIAL OR COMPONENT		HAZARD DATA
SILICA		LOW CONCENTRATIONS OF
		CRYSTALLINE SILICA (SiO <sub>2</sub> )
		IN THE FORM OF QUARTZ,
		CRISTOBALITE, AND TRIDYMIT
		MAY BE PRESENT
		(SEE SECTION V)
<b>III PHYSICAL DATA</b>		
BOILING POINT (°F) <div style="text-align: center;">NA</div>	MELTING POINT 2901°F	FREEZING POINT NA
SPECIFIC GRAVITY (H <sub>2</sub> O = 1) 4.2	VAPOR PRESSURE (mm Hg) NA	
VAPOR DENSITY (AIR = 1) NA	SOLUBILITY IN H <sub>2</sub> O, % BY WT. LOW	
% VOLATILES BY VOL. NA	EVAPORATION RATE (BUTYL ACETATE = 1) NA	
APPEARANCE AND ODOR WHITE TO GRAY TO TAN POWDER, ODORLESS		Density @ 20° C. 4.5 @ 15°C
PH ND		

NA = Not Applicable    ND = Not Determined

All information, recommendations and suggestions herein concerning our product are based upon tests and data developed to date. However, it is the user's responsibility to determine the safety, toxicity, and suitability for his own use of the product described herein. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by NL Petroleum Services, Inc. as to the effect of our use of the product.

to be obtained on the safety and toxicity of the product nor does NL Petroleum Services, Inc. assume any liability arising out of use by others of the product referred to herein. Nor is the information herein to be construed as absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist. For full product safety data and other pertinent information, please refer to the product safety data sheet and other relevant regulations.

**IX. SPECIAL PRECAUTIONS**

**PRECAUTIONARY STATEMENTS**

DO NOT INGEST  
AVOID INHALATION AND PROLONGED SKIN CONTACT

**RECOMMENDED LABEL**

FRONT PANEL: CAUTION

SEE BACK PANEL FOR CAUTION BEFORE USE

BACK PANEL: CAUTION

THIS PRODUCT CONTAINS FREE SILICA. PROLONGED INHALATION OF THE POWDER MAY RESULT IN LUNG DISEASE. AVOID CREATING DUSTY CONDITIONS AND USE A NIOSH APPROVED DUST RESPIRATOR.

**OTHER HANDLING AND STORAGE REQUIREMENTS**

STORE IN SHELTERED AREA OR COVER FOR MOISTURE PROTECTION

**DEPARTMENT OF TRANSPORTATION INFORMATION**

PROPER SHIPPING NAME: NOT REGULATED

HAZARD CLASS: NOT HAZARDOUS

HAZARDOUS SUBSTANCE: NONE

LABEL: NONE REQUIRED

PREPARED BY **NL Barold**  
ENVIRONMENTAL SERVICES

DATE  
JULY, 1987

# BEST Sheet

## IV FIRE AND EXPLOSION DATA

THIS PRODUCT IS NOT FLAMMABLE OR EXPLOSIVE.

EXTINGUISHING MEDIA: WATER, FOAM, CARBON DIOXIDE

## V HEALTH HAZARD INFORMATION

CARCINOGENICITY — NOT ON NTP, IARC OR OSHA LISTS

ACUTE ORAL LD<sub>50</sub>

ACUTE DERMAL LD<sub>50</sub>

AQUATIC TOXICITY (LC<sub>50</sub>)

7500 ppm

### ROUTES OF EXPOSURE AND EFFECTS

TLV FOR RESPIRABLE DUST

10 MG/M<sup>3</sup>

% RESPIRABLE QUARTZ + 2

TLV FOR "TOTAL DUST"

30 MG/M<sup>3</sup>

% QUARTZ + 3

IF CRISTOBALITE OR TRIDYMITE IS DETECTED, USE ONE-HALF THE VALUE CALCULATED FROM FORMULAE FOR QUARTZ

SKIN: POTENTIAL IRRITANT: PROLONGED CONTACT MAY CAUSE DERMATITIS

EYES: IRRITANT

INHALATION: IRRITATION TO LUNGS, NOSE, AND THROAT; PROLONGED INHALATION MAY CAUSE LUNG INJURY OR DISEASE

### EMERGENCY AND FIRST AID PROCEDURES

EYE: IRRIGATE IMMEDIATELY WITH WATER. IF IRRIGATION PERSISTS, CONTACT PHYSICIAN.  
FLUSH SKIN WITH WATER.

SWALLOW: GIVE WATER AND INDUCE VOMITING.

IF INHALED IN LARGE AMOUNTS MOVE TO FRESH AIR.

# BEST Sheet

## VI REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY

STABLE

INCOMPATIBILITY

NONE

HAZARDOUS DECOMPOSITION PRODUCTS

NONE

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

## VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

NORMAL HOUSEKEEPING, SWEEP UP AND SALVAGE.

NEUTRALIZING CHEMICALS

NA

WASTE DISPOSAL METHOD

DESIGNATED LANDFILL

## VIII INDUSTRIAL HYGIENE CONTROL MEASURES

VENTILATION REQUIREMENTS

MECHANICAL, GENERAL ROOM VENTILATION  
USE LOCAL VENTILATION TO MAINTAIN TLV (SEE SECTION V)

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY

USE A NIOSH APPROVED MECHANICAL FILTER RESPIRATOR FOR NONTOXIC DUSTS, IF DUST  
CONCENTRATION EXCEEDS 10mg/m<sup>3</sup>

EYE

GOGGLES

GLOVES

WORKING GLOVES

OTHER CLOTHING AND EQUIPMENT

# BEST Sheet

## VI REACTIVITY DATA

### CONDITIONS CONTRIBUTING TO INSTABILITY

NONE

### INCOMPATIBILITY

NONE

### HAZARDOUS DECOMPOSITION PRODUCTS

NONE

### CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION

WILL NOT OCCUR

## VII SPILL OR LEAK PROCEDURES

### STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

SWEEP UP SPILLED MATERIAL AND DISPOSE BY DUMPING, INCINERATION. IN SOLUTION FLUSH WITH WATER TO SEWER OR WASTE TREATMENT FACILITY.

### NEUTRALIZING CHEMICALS

NA

### WASTE DISPOSAL METHOD

A NONBIODEGRADABLE MATERIAL.  
DISPOSE OF IN DESIGNATED LAND FILL.

## VIII INDUSTRIAL HYGIENE CONTROL MEASURES

### VENTILATION REQUIREMENTS

GENERAL

### SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

#### RESPIRATORY

NIOSH APPROVED RESPIRATOR FOR NONTOXIC DUST

#### EYE

GOGGLES, FACESHIELD

#### GLOVES

GENERAL PURPOSE WORK GLOVES

#### OTHER CLOTHING AND EQUIPMENT

EYEWASH

# M - I D R I L L I N G F L U I D S, L.L.C.

5950 North Course Drive, Houston, TX 77072

## TRANSPORTATION & MATERIAL SAFETY DATA SHEET

TRADE NAME : M-I BAR

EMERGENCY TELEPHONE NUMBER:

HMIS HAZARD RATING : HEALTH 0  
FLAMMABILITY 0  
REACTIVITY 0  
PERSONAL PROTECTION E

(713) 561-1600

(713) 561-1300

DAY OR NIGHT

### PREAMBLE

M-I Drilling Fluids, L.L.C. is pleased to furnish this data at your request independent of any sale of the product. While every effort has been made to accurately describe this product and associated manifestations, some of the data are obtained from the open literature, independent laboratory studies, or other sources beyond our direct supervision. We cannot make any assertion as to the reliability or completeness; therefore, the User may rely thereon only at User's risk. We have made no effort to censor nor to conceal deleterious aspects of this product. Since we cannot anticipate or control the many different conditions under which this information and our products may be used, we make no guarantee that the health and safety precautions we have suggested will be adequate for all individuals and/or situations. Likewise, we make no guarantee or warranty of any kind that the use or disposal of this product is in compliance with all federal, state or local laws. It is the obligation of each User of this product to determine and comply with the requirements of all applicable statutes. M-I Drilling Fluids, L.L.C. will furnish, upon request, any additional information to assist the User; however, no warranty, either expressed or implied, nor liability of any nature with respect to the product or to the data herein is made or incurred hereunder.

### 1. PRODUCT IDENTIFICATION

COMMON NAME : Barite (barium sulfate) CHEMICAL FORMULA : BaSO<sub>4</sub>  
MANUFACTURER : Manufactured for M-I Drilling Fluids CAS NUMBER : 7727-43-7  
PACKAGE QUANTITY : 45.4 kg (100 lb), bulk UNIT OF ISSUE : Kilogram (pound)  
USE : Drilling fluid additive APPLICATION : Weighting material  
FREIGHT DESCRIPTION : Oil well drilling fluid additive  
CONTAINER SPECIFICATIONS : Multiwall paper bag and bulk container meet DOT requirements (49 CFR 178)

### 2. HAZARDOUS INGREDIENTS

SERIAL OR COMPONENT	%	(A) OSHA PEL / (B) ACGIH TLV / (C) OTHER LIMITS RECOMMENDED
Barium sulfate, total dust [7727-43-7]	91-93	(A) 15 mg/m <sup>3</sup> (1) (B) 10 mg/m <sup>3</sup> (2)
Silica, crystalline quartz, respirable dust [14808-60-7]	4-6	(A) 10 mg/m <sup>3</sup> / (%SiO <sub>2</sub> +2) (1) (B) 0.1 mg/m <sup>3</sup> (2) (C) NIOSH TWA: 0.05mg/m <sup>3</sup> (3)
Mica, respirable dust [12001-26-2]	< 2	(A) 20 mppcf (1) (B) 3 mg/m <sup>3</sup> (2) (C) NIOSH TWA: 3 mg/m <sup>3</sup> (3)

### 3. PHYSICAL DATA

BOILING POINT (760 mm Hg) : N.A. MELTING POINT : 1580 C 2876 F  
pH (1% Soln.) : N.A. VAPOR PRESSURE @ 20 deg C : N.A.  
SPECIFIC GRAVITY (H<sub>2</sub>O=1) : 4.2-4.25 SOLUBILITY IN WATER @ 20 deg C : Insoluble  
VAPOR DENSITY (air=1) : N.A. EVAPORATION RATE (BUTYL ACETATE=1): N.A.  
PHYSICAL APPEARANCE : Powder FLASH POINT (method used) : N.A.  
BULK DENSITY : 1714-2163 kg/m<sup>3</sup> 107-135 lb/ft<sup>3</sup> ODOR & COLOR : Odorless, tan to gray

### 4. REACTIVITY DATA

PRODUCT IS STABLE? : Yes  
PRODUCT DECOMPOSES? : No  
PRODUCT POLYMERIZES? : No

INCOMPATIBILITY OTHER AIR HEAT ACID BASE WATER OXIDIZER  
None.  
(Specify)

Not Determined N.A.-Not Applicable <-Less Than >-Greater Than C-Ceiling Limit

Note: For additional information and interpretive assistance, see last page.

## 5. FIRE AND EXPLOSION HAZARD INFORMATION

PERCENTAGE LIMITS BY AIR, % BY VOL.	L.E.L.: N.D.	U.E.L.: N.D.	AUTO IGNITION TEMPERATURE: N.D.
PRODUCTS EVOLVED WHEN SUBJECTED TO HEAT BY COMBUSTION	Material is not combustible. When heated to decomposition it emits toxic fumes of SOx.		
EXTINGUISHING MEDIA	Carbon dioxide, dry chemical, foam and water spray or fog. Use water to cool fire-exposed containers.		
UNUSUAL FIRE FIGHTING PROCEDURES	Normal fire fighting procedures may be used.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	Heating with aluminum can cause an explosion (4)		

## 6. HEALTH HAZARD INFORMATION

PRIMARY ROUTES OF EXPOSURE	EYE CONTACT: X	SKIN CONTACT: X	SKIN ABSORPTION:	INHALATION: X	INGESTION:
	Eyes, skin, respiratory system and			CARCINOGENICITY	
	TARGET ORGAN: liver			NTP: No	IARC: No OSHA: No
ACUTE EFFECTS OF EXPOSURE	Particulate dusts may cause mechanical irritation to eyes, nose, throat, and lungs. Dust inhalation may lead to chronic bronchitis, emphysema, and bronchial asthma. Dermatitis and asthma may result from short contact periods.(4)				
CHRONIC EFFECTS OF EXPOSURE	The prolonged inhalation of dusts containing free silica may result in the development of silicosis, a disabling lung disease.(4) Crystalline silica is an IARC Group 2a probable human carcinogen.(5)				
TOXICITY DATA	Intraperitoneal-rat: TDLo 200 mg/kg:ETA.(4)				

## 7. EMERGENCY AND FIRST AID PROCEDURES

EYES	Hold eyelids apart and flush eyes with water for at least 15 minutes. Get medical attention if irritation persists.
SKIN	Wash thoroughly with soap and water. Remove contaminated clothing. If irritation develops, seek medical attention.
INGESTION	Drink water to dilute. Never give anything by mouth to an unconscious person. Seek medical attention.
INHALATION	If exposed to a high concentration of dust, remove to fresh air and restore breathing. Seek medical attention.
OTHER INSTRUCTIONS	Sensitive individuals should avoid further contact. If irritation persists, seek medical attention. Persons seeking medical attention should carry a copy of this MSDS with them.

## 8. OCCUPATIONAL CONTROL MEASURES

RESPIRATORY	Wear a NIOSH/MSHA-approved high efficiency particulate respirator when exposure exceeds the recommended limits (see MSDS Section 2).
VENTILATION	Supply natural or mechanical ventilation adequate to keep exposures below the recommended exposure limits (see MSDS Section 2).
SKIN	Wear gloves and long protective clothing. Wash thoroughly after handling. Wash clothes and clean shoes before reuse.
EYES	Wear safety glasses with sideguards meeting ANSI Z87.1-1989. Insure proper fit for best protection.
OTHER PROTECTIVE EQUIPMENT	Ordinary measures of personal hygiene should be observed. Avoid contact with eyes, skin and clothing and inhalation of dust.

## 9. SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING	WARNING! CONTAINS CRYSTALLINE SILICA, inhalation of which may cause cancer. May cause eye, skin and respiratory tract irritation.
PRECAUTIONS FOR TRANSPORTATION HANDLING AND STORAGE	Use dustless systems for handling, storage, cleanup. Minimize dust exposure during use. See MSDS Section 8. Protect containers from heat and moisture.

N.D.-Not Determined N.A.-Not Applicable <-Less Than >-Greater Than  
Note: For additional information and interpretive assistance, see last page.

## 10. SPILL OR LEAK PROCEDURES

TO BE TAKEN IF MATERIAL  
RELEASED OR SPILLED

Wear proper protective equipment (MSDS Section 8). Contain the spill and minimize dust. Re-package or recycle if possible, or place in a suitable waste container. Keep out of sewers and waterways.

WASTE DISPOSAL  
METHOD

This product is not a RCRA hazardous waste. Product or non-RCRA empty containers are Tl cl 2 waste. RCRA empty containers are Tl cl 2 waste.

## 11. U.S. GOVERNMENT & OTHER REGULATORY AGENCY CONTROLS

SARA TITLE III ACUTE: X CHRONIC: X FIRE: REACTIVITY: SUDDEN RELEASE OF PRESSURE:

Barium sulfate, crystalline silica and mica are listed by worker right-to-know laws in IL, PA and MA. Crystalline silica and mica are on the Canadian 1% IDL.

## 12. TRANSPORTATION INFORMATION

### A. DEPARTMENT OF TRANSPORTATION (DOT)

CLASSIFIED AS A HAZARDOUS MATERIAL ACCORDING TO DOT (49 CFR 172): No

PROPER SHIPPING NAME : N.A.

HAZARD CLASS : N.A.

IDENTIFICATION NO. : N.A.

LABEL(S) REQUIRED : N.A.

EXCEPTIONS & PACKAGING REQUIREMENTS (SEE SECTION) : N.A.

MAXIMUM QUANTITY PASSENGER AIRCRAFT : N.A.

IN ONE PACKAGE CARGO AIRCRAFT : N.A.

### B. AIR TRANSPORT REGULATIONS (IATA/ICAO)

PROPER SHIPPING NAME : N.A.

UN NO.: N.A.

HAZARD CLASS : N.A.

FLASH POINT : N.A. deg F

N.A. deg C

MAXIMUM QUANTITY PASSENGER AIRCRAFT : N.A.

PACKAGING (SEE SECTION) : N.A.

IN ONE PACKAGE CARGO AIRCRAFT : N.A.

PACKAGING (SEE SECTION) : N.A.

### C. INTERNATIONAL MARITIME ORGANIZATION REGULATIONS (IMO)

SUBSTANCE NAME : N.A.

UN NO.: N.A.

HAZARD CLASS : N.A.

CLASS NO. : N.A.

PAGE NO. : N.A.

LABEL(S) : N.A.

FLASH POINT : N.A. deg F

N.A. deg C

DESCRIPTION : Oil well drilling fluid additive (barium sulfate)

## 13. ADDITIONAL INFORMATION

### References:

- (1) OSHA Permissible Exposure Limits, 29 CFR 1910, Subpart Z, Section 1910.1000, Air Contaminants.
- (2) 1994-1995 Threshold Limit Values and Biological Exposure Indices; American Conference of Governmental Industrial Hygienists: Cincinnati, (1995).
- (3) NIOSH Pocket Guide to Chemical Hazards; National Institute for Occupational Safety and Health: Cincinnati, (1991).
- (4) Lewis, R.J. Sr., (ed.), Sax's Dangerous Properties of Industrial Materials, 8th Edition, Vols. I-III, VNR, New York, (1992).
- (5) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Silica and Some Silicates, Vol. 42; World Health Organization: Lyon, France, (1987).

FOR ADDITIONAL INFORMATION CONTACT:  
Manager, Environmental Affairs (713) 561-1507

Prepared by : Samuel J. Hoskin  
Date Prepared : Revised: August 1, 1995

N.D.-Not Determined N.A.-Not Applicable <-Less Than >-Greater Than  
Note: For additional information and interpretive assistance, see last page.

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