MICROBIND
TECHNICAL SUMMARY

PHYSICAL PROPERTIES

Product Name	MicroBind
Physical Form	Liquid
Color	Dark brown to black
Solubility	100%
pH Neat	7.0 – 8.0
Density	8.8
Boiling Point	100ºC

Complete information on health hazards, protective equipment, handling precautions, environmental hazards and disposal is listed in the current MicroBind Safety Data Sheet (SDS) for this product.

PRODUCT SUMMARY

MicroBind has been specifically designed and made available for the oil and gas industry to assist in the remediation of produced saltwater impact to soil. MicroBind is unlike other technologies that reposition salt, such as driving it below the root structure. It permanently binds the salt ions, Sodium (Na^+) and Chloride (Cl^-) to its molecular structure, thus effectively removing their damaging components from the environment.

MicroBind is an organic molecule found naturally in nature. It is a bound molecule that naturally attracts both cationic and anionic molecules. The patented process by which MicroBind is formulated essentially "un-winds" the molecule. Once unwound, the molecule contains five functional groups that are then stripped of the bound contaminants. Furthermore, the functional groups are then adjusted to be more ion specific. The open reactive sites, bind or react with the charged Na^+ and Cl^- ions present in the saltwater.

Additionally, as the charged sites on the molecule become filled with the sodium and chloride, the molecule "rewinds" itself and the salt becomes encapsulated within the organic structure. This obviously adds another layer of protection to prevent the salt from ever being released or reforming. This described process is aided biologically with the added microbes breaking existing carbon bonds in the molecule which then allows for cross-bonding to take place. This rewinding or encapsulation process takes time depending on specific site conditions and the weather (water, temperature, etc).

The process is very similar to the process that has been used for years to bind metals and other contaminants in soil. Once the Na and Cl ions are bound within the molecule, they will not be released or reform to cause damage to the soil.

MicroBind is a concentrated product that readily biodegrades.

PRODUCT BENEFITS

- Effective at recovering salt damaged soils
- Removes the contaminant from the environment
- Results may be obtained within months rather than years with other available competitive products
- Extremely cost effective when compared to other remedial options or dig and haul
- Quick, easy, and safe to use

FIELD MIXING PROCEDURES

Mixing Concentrates

MicroBind is usually delivered as a concentrate and **must** be diluted with water to work properly. Solutions can be formulated by premixing or eduction. It is not necessary to provide high shear agitation when preparing a batch of solution since MicroBind is 100% soluble in water. It is recommended that when preparing the solution you first add the water into the mix container and then follow by the addition of MicroBind.

For premixing, the following procedure may be used:

1. Add the correct amount of water to the container.
2. Depending on the desired strength, add the correct amount of MicroBind to the container.

Suitability of Purpose

This material is made available for the use by professionals or persons having technical skills to be used at their own discretion and risk. Nothing herein is to be taken as a license to use MicroBind without the proper permits, approvals, etc. of the appropriate regulatory agencies, nor are the protocols provided as instructions for any site specific application of MicroBind. All Enviro Clean products should be used in compliance with all federal, state, and local rules and regulations.

APPLICATION PROTOCOLS

Application rates and the number of applications necessary will vary with the severity of the salt conditions and depth of impact. Once diluted, product must be used within 24 hours.

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