

PETROGUARD

HYPER-IMMOBILIZING OIL AND CHEMICAL SPILL SOLIDIFIER

PetroGuard is a dry, white granular high capacity instant solidifying absorbent. PetroGuard is used to immobilize liquid hydrocarbon and chlorocarbon spills (oil and chemicals) on land or water to a recoverable solid, with minimal overall volumetric increase. The most unique and important characteristic of PetroGuard is that once absorbed, liquids will not be released, even under pressure. Production of toxic vapors will be dramatically reduced or eliminated with the application of PetroGuard.

PetroGuard is certified by the USEPA as a sorbent under as specified in Title 40 of the Code of Federal Regulations of the National Contingency Plan

PetroGuard has a strong affinity for hydrocarbon-based liquids, particularly the primary aromatic compounds. Key features are:

- **Hyper-immobilizing**
- **Vapor Suppressing**
- **Hydrophobic**
- **Oleophilic**
- **Super-absorbent**
- **Will not release under pressure**
- **Non-toxic**
- **Non-catalytic activity**

Example organics absorbed and immobilized

Crude Oil and petroleum products

Chlorosilanes and related chemicals

Silicone oils

Polynuclear aromatic hydrocarbons

Chlorinated hydrocarbons

Ethyl acetate

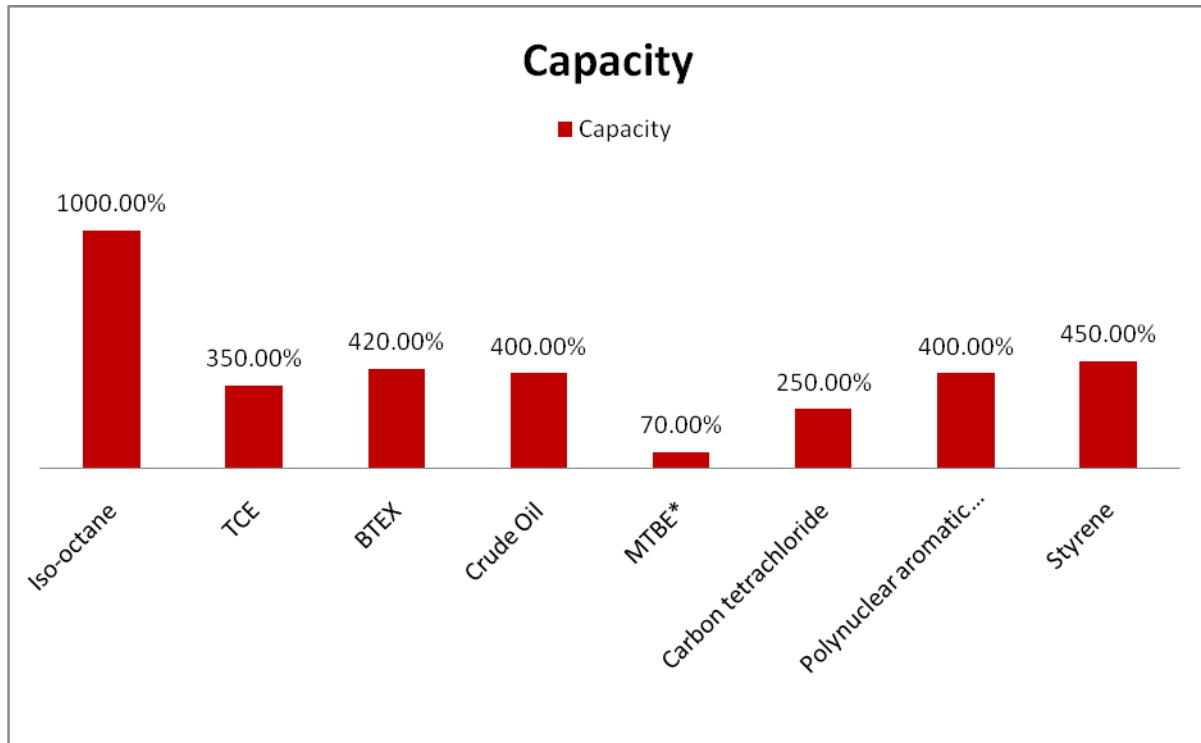
Trichloroethylene

Gasoline, diesel, fuel oil

Styrene

Naphtha

Loading Capacities by Weight (Weight to Weight)



Example: 1 lb of PetroGuard will absorb and solidify 4.5 lbs crude oil.

Process Characteristics

PetroGuard's capacity depends upon the active material to selectively absorb molecules with suitable solubility characteristics, directly into its internal structure. This allows the polymer to absorb very large quantities of molecules. Molecules are partitioned into the polymeric regions of the medium, with exceptional affinity for non-polar organic compounds. Once deactivation has taken place, PetroGuard will form an interlocking network matrix with a rubber-like consistency.

Uses

PetroGuard is the ideal product for oil spill responders because of its ability to permanently and safely lock up floating oil upon contact. PetroGuard will not re-release oil once absorbed, even under pressure. PetroGuard is non-toxic and environmentally friendly. The solidified matrix will remain afloat until collected, is non-polluting and will not have a degrading effect on the environment. PetroGuard is ideally suited as an emergency spill response absorbent because of its rapid immobilizing characteristics through a wide range of temperature.

PetroGuard will quickly absorb and render safer, all petroleum products and crude oil as well as hydrocarbon based chemicals including those that are highly reactive or vapor producing,.

For hazardous chemical response situations, PetroGuard will prevent or reduce production of acid fumes from reaction when these chemicals are exposed to air or water. PetroGuard will also eliminate or drastically reduce explosive vapor production. Absorbed chemicals are easily handled and disposed of as a solid by incineration.

PetroGuard is also an ideal product for the control of liquid hydrocarbons during industrial maintenance procedures, such as servicing feed lines.

The primary function of PetroGuard is to prevent further migration of any spilled, un-dissolved or floating product. PetroGuard particulate can be applied in its free form directly to the spill either manually or with mechanically assisted devices using air or water adduction systems. Application by airdrop can be facilitated by existing aircraft dispensing systems now in use for applying dispersants from C130 type aircraft. The treated and solidified oil can then be corralled with containment booms and recovered as a solid by skimmers or by scooping with nets.

PetroGuard's weight to weight capacity in field applications can vary depending on method of application, environmental conditions and the presence of other chemicals such as surfactants or dispersants. Wave action actually enhances the absorption process due to mixing or stirring effects.

Emergency Response Planning

In situations where the danger of inadvertent spills exists, adequate stores of PetroGuard are recommended as an ideal component of established emergency response program. Because of PetroGuard's rapid immobilizing characteristics, it is an ideal product for quick response situations. It is the ideal product for hazardous as well as for many appropriate non-hazardous spill applications. PetroGuard is listed in the 2004 SEHSC Emergency Response Manual as "Polymeric Absorbing Deactivating Powder". PetroGuard and PetroLite meet the definition of a "sorbent" as specified in Title 40 of the Code of Federal Regulations of the National Contingency Plan.

Disposal

Spent PetroGuard is best disposed of by incineration. Its high BTU value makes PetroGuard an excellent candidate for fuel blending. PetroGuard has a BTU content more than 19,000 BTU's per pound, with very little ash residue.

Depending on leaching test (TCLP) requirements, spent PetroGuard may also be land filled. However, specific regulations and analytical documentation for landfill disposal should be obtained from the appropriate regulatory agencies (local, state and/or national). Certain types of cleanup applications may result in the classification of the spent materials as hazardous. In such instances, the material

should be disposed of through an approved hazardous waste disposal service and the appropriate documentation

Storage

STABILITY: Stable	HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS AND MATERIALS TO AVOID: Avoid contact with strong oxidizing agents such as ozone, liquid oxygen, chlorine, permanganate, etc.	
HAZARDOUS DECOMPOSITION PRODUCTS: None	
SHELF LIFE: Indefinite	

The Material Safety Data Sheet (MSDS) indicates PetroGuard is non-toxic and non-hazardous based on current regulatory standards. Other regulations may apply for specific applications.

Physical Characteristic

MATRIX STRUCTURE	ORGANIC POLYMER
PHYSICAL FORM	WHITE
PARTICLE SIZE	20-60 MESH
MOISTURE CONTENT	<0.5%
APPARENT DENSITY	LB/CF 14.5
ASH CONTENT (%)	<0.01
FLASH POINT	NOT APPLICABLE.
MSDS	AVAILABLE UPON REQUEST

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