

Earth ReClaim™ Sorbent

*Earth's Natural Oil-Binding Materials for Immediate
and Effective Reclamation of Oil Spills*

TECHNICAL BULLETIN #2

APPLICATION





Eco Renaissance™ Environmental Products

Earth ReClaim™

"Reclaiming the oil reclaiming the Sea"

Earth ReClaim™ Product

We call our product "Earth ReClaim™" to speak to its function, composition and mode of action. Earth ReClaim™ is an oil binding material for immediate and effective reclamation of oil spills. It works with all types of oil. Earth ReClaim™ uses nature's nanotechnology to reclaim the oil and reclaim the earth. The power of natural nanotechnology comes not from the chemistry but from the high surface areas and the natural physical properties of the mined materials themselves. Earth ReClaim™ is composed of natural and modified natural scoriaceous material found naturally in the earth which is currently obtained by mining and metallurgy.

Earth ReClaim™ is a sorbent material and consists solely of the materials listed in § 300.915(g) (1) of the NCP. Earth ReClaim™ however exhibits some of the properties of solidifiers with one distinct difference: it does not transform the oil chemically into a new substance but uses natural physical properties instead to agglomerate the oil into a semi solid mass that can be readily harvested. There is another unique difference. The physical process used for agglomeration and solidification can be reversed by high heat, and the oil can be reclaimed and the raw materials recycled or disposed. Hence Earth ReClaim™ has the benefits of sorbents with some of the properties of solidifiers without the toxic and disposal issues. Earth ReClaim™ is enviro-friendly.

Earth ReClaim™ is also formulated to achieve three things as the means to providing a total solution to oil spills: (a) reclaim the oil; (b) naturally eliminate malodors found in or the result of the use of oil; and (c) permanently and irreversibly bind toxic heavy metals found in oil and transferred by oil into the Earth.

The reaction time for the agglomeration of oil to a semi rigid cake for light crude oil is approximately 5 minutes. Earth ReClaim™ adheres immediately to any petroleum based product and builds a solid mass without the detrimental attributes associated with oil. Its incorporation into the contaminant stream results in a recoverable, recyclable sub product of its original polluting form. All ingredients incorporated into our premier formula are derived from earth's inorganic resources and are Generally Regarded As Safe (GRAS) materials 100% safe to humans, the environment and fauna and flora.

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Application

Concrete, Asphalt, and Other Hard Surface Spills

For small spills on non-porous surfaces, Earth ReClaim™ can be broadcast directly onto the spill, spreading a thin layer from the outer edge into the middle of the spill. Oil and Earth ReClaim™ have a natural affinity for each other and Earth ReClaim™ will seek out the oil. Let remain on oil for at least 5 minutes or until noticeably absorbed. Brush or broom material into waste collection container.

Sand or Other Porous Surfaces

Add Earth ReClaim™ to cover the entire spill. Let stand for at least 5 minutes or until noticeably absorbed. If the layer soil affected by the oil is at least 5 cm (2 inches), harrow or mix the Earth ReClaim™ into the soil. Rake or collect the resultant material into waste collection container.

Larger Spills

For larger spills, Earth ReClaim™ would be applied in the same manner above. The amount of material to be added is proportional to the amount and depth of the oil spill. To recover solidified oil or hazardous materials from the spills on land, the spent material may be collected and swept up using an industrial vacuum cleaner, broom, or shovel. The material should be put into appropriate containers and disposed of in accordance with federal, state and local regulations or preferably returned to the manufacturer for reprocessing.

Concentration/Application Rate

In general, a 10% to 30% by weight application is required to solidify light, medium, and heavy oils. Solidification may occur faster if additional Earth ReClaim™ is applied. Since Earth ReClaim™ coalesces and aggregates with itself and with the oil, any additional material can be harvested along with the used material. The unused material may be reused or recycled with the harvested contaminated material. If unused material is still on the surface it may be redeployed, or directed by guided movement, to the new area for use.

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Disposal

The material should be put into appropriate containers and disposed of in accordance with federal, state and local regulations or preferably returned to the manufacturer for reprocessing.

Conditions for Use

Earth ReClaim™ is effective with all oils, and under any weather conditions; however, colder temperatures may slow the solidification process. The product is most effective on temperatures between 32°F and 120°F. Depending on the age and/or viscosity of the oil containing material, varying amounts of Earth ReClaim™ may be required to obtain complete solidification. Depending upon the viscosity of the oil the process of application and mixing may need to be varied depending upon field conditions. The recovered solidified oil or resultant non-hazardous materials may be landfilled, incinerated, used as a secondary fuel, or otherwise disposed of according to federal, state and local regulations or preferably returned to the manufacturer for reprocessing and reclamation.

Potential Benefits of Use of Earth ReClaim™ for Spills

- A method for the treatment of oil from open aqueous spills, leaking underground storage systems, and in contaminated soil.
- Reclamation of oil from oil spills through extraction of oil from matter composites.
- Prevention of the spread of oil on surfaces resulting in readily identifiable clumps that remain on the surface until harvested. Clumps do not leach out oil over time.
- Maintains the ability to identify, recognize, and control the movement of spilled oil after agglomeration.

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Unique Features of the Earth ReClaim™ Product

The following is a list of unique features for the Earth ReClaim™ Product relative to other oil treatment methods.

- Oil can be re-released after absorption unlike other sorbents or solidifiers.
- Can be used on the oil's surface, unlike some other sorbents.
- Uses absorption, adsorption, and two solidification processes.
- Both oleophilic (oil attracting) and hydrophobic (water repellent) unlike some other sorbents.
- Actually prefers oil and seeks it out.
- Solidification involves both hydrocarbon physical attraction enhanced by van-der-Waal's forces, and hydrogen bonding through mixed clathrate formation.
- Works with all types of oil.
- Works with oil with or without prior use of oil dispersant material.