

Crude Oil Separation Using Ergofito DIL



PREAMBLE:

Crude oil spills are a common event in most oil producing countries.

Irrespective of the origin of the spill either by mechanical failure or terrorism acts, the end result is a pool of unwanted crude oil in the environment.

OIL POOLS:

If the crude oil spill is addressed immediately, the crude oil will be fluid and easy to pump. Over time, as the crude oil is exposed to nature in the form of sunshine, wind and often high temperatures, it will rapidly lose most of its volatiles (C1 to C10) and become denser.



The longer the crude is left in situ, the denser it will become and the more difficult to pump. The oil recovery then becomes difficult and expensive due to the now high density. Oil pools become very dense, extremely viscous and difficult to manage.

ERGOFITO DIL:

Ergofito DIL is a natural product specifically designed to decompose certain organic bonds that bind the weathered crude oil together with its surrounding soil or sludge, without affecting the quality of the crude or its inherent properties.

Ergofito DIL is applied with water at the following rate:

<u>PRODUCT</u>	<u>QUANTITY</u>	<u>WATER</u>
Ergofito DIL	0.50KG- 5KG	1000 litres

The quantity is dependent on the viscosity of the oil the weathering and the higher the Carbon links. A test trial is required to determine the required dilution rate

For every M³ of sludge (which is naturally mixed with soiled water) apply 200 litres of the above mixture, if the above amount is exceeded it will not affect performance or the sludge itself.

Separation will occur within minutes.

Soil, water and oil will form three well defined stratification levels.



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In-Situ test:



The above two containers demonstrates the oil separation.

Oil contaminated sludge with water and Ergofito Dil are put into a container.

The container in the forefront is before settling, the back container after three minutes.

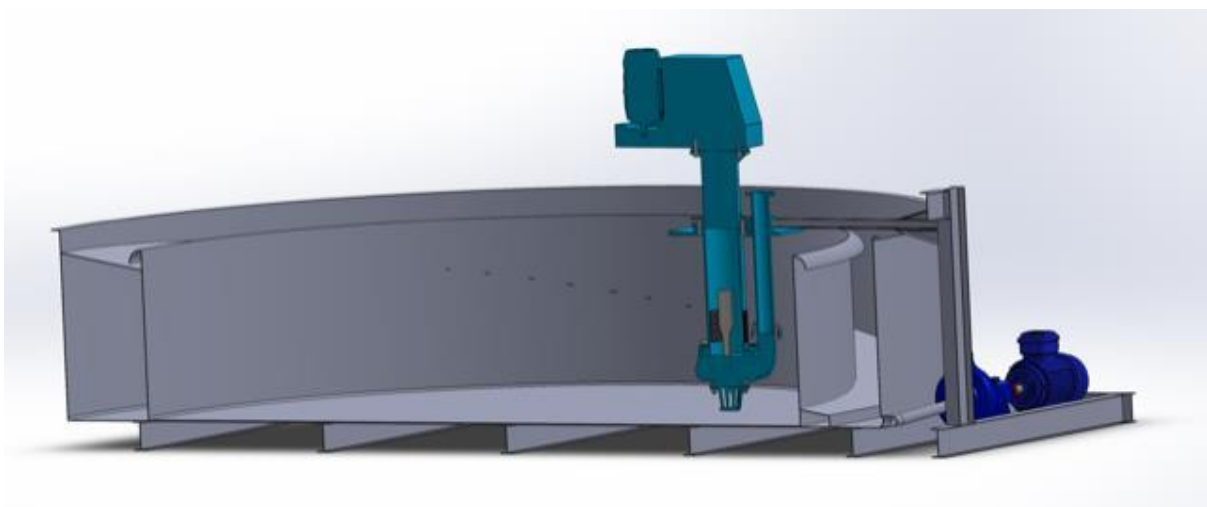
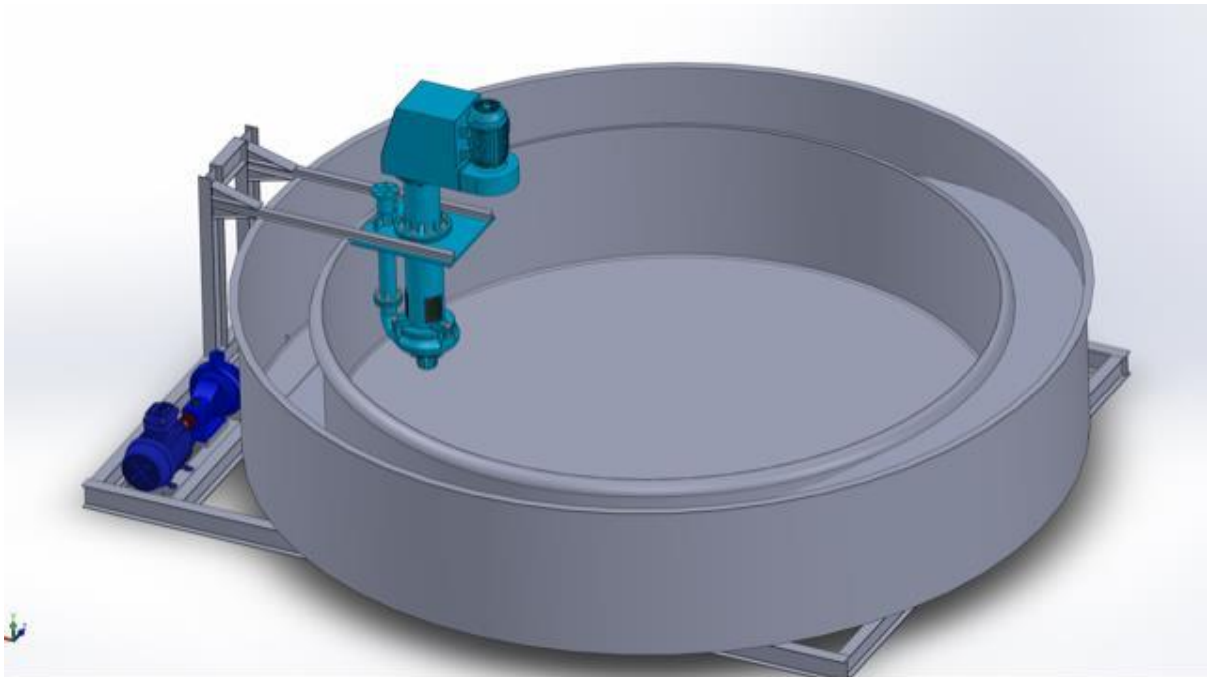
The separation becomes more defined and the water clearer, the oil at the top, water in the middle and the soil at the bottom.

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CRUDE SEPARATION AND RECOVERY:

Once separation is achieved, the crude recovery can take place in many ways, The diagram below demonstrates a simple and efficient separator. The now washed sediment can be returned to the field, the water re-used and the oil recovered.





OPERATION:

1. Crude oil/sludge is pumped into the inner tank.
2. Ergofito DIL is added in the inner tank
3. Some water is also added to the inner tank to help with the separation.
4. The slurry pump will mix all the oil, earth water and Ergofito DIL for two to three minutes.
5. Everything is stopped to allow all the crude to rise to surface, water in the middle and soil at the bottom
6. Once the separation is complete (around five minutes), additional water is added in the inner tank until the crude oil overflows into the outer tank.
7. Once all the crude oil has flowed into the outer tank, the oil is pumped to a pipeline or waiting road tanker, with the use of the blue pump.
8. The water, soil, asphaltenes and resins remaining in the inner tank are then pumped out using the slurry pump to the remediation area, where they are further remediated using Ergofito Aqua. The remaining sludge will have a TPH of less than 5000ppm
9. The next load is now ready to go.



CONCLUSION:

The above operation can be applied to sludge as well as crude mixed with soil, clay or sand.

It is an efficient rapid low cost way to clean up the environment and to safely recover oil.

The microbial action of Ergofito DIL allows this environmentally safe system to be deployed in most oil remediation difficult situations.