

Continuum oil clean-up and recovery from water using Thermally Expanded Graphite (TEG)

Every year the global oil and gas industry suffers a number of oil spills from a range of sources such as pipes, transport containers or ships. Many of these are unfortunately on water. These spills range from small leakages into rivers or lakes to major oil spills at sea. The resulting pollution can result in catastrophic damage to the natural environment and leave the water heavily polluted and of course the financial cost of cleaning up such spillages is very high and can have a long term negative commercial impact on the company responsible.

Continuum has a new, innovative and revolutionary solution to the problem of spilt oil on water.

It is called TEG (Thermally Expanded Graphite).

Not only will TEG clean up the oil spill but it will also recover the spilt oil in the process for re-use.

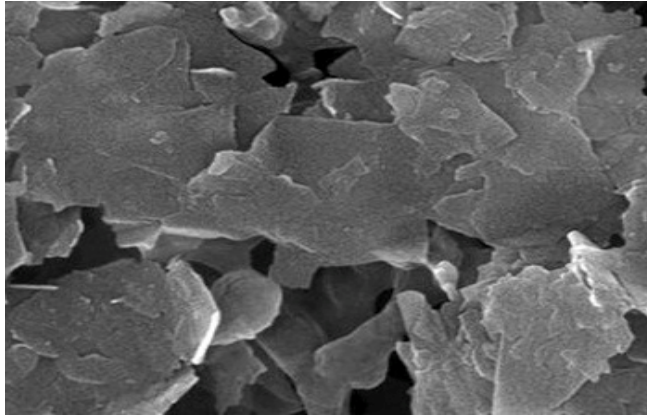
What is Thermally Expanded Graphite?

Thermally Expanded Graphite, or TEG for short, is an extremely lightweight, highly expandable graphite compound with multiple uses across a wide range of industries. It provides a large range of highly exploitable physical properties and in various forms has been used previously in the nuclear, aviation, automobile, shipbuilding, construction and chemical industries.

The TEG product has been specifically developed to provide a much needed solution to the global problem of treating oil spills on the surface of water. This without the need for chemical dispersants or biological agents, making TEG an important part of environmental protection and leaving treated water clean and unpolluted.

TEG is produced by heating pre-treated graphite to a very high temperature so that it expands to many times its original volume. One

kilogram of the TEG product displaces a total volume of well over one cubic metre of end product.



Microscope image of expanded graphite

Recovery of oil from the surface of the water

In the case of a spill on water the TEG solution is directly deployed onto the surface of the water either manually, in the case of a smaller incident, or through the use of a water cannon, with an added catalyst to make it compatible with TEG, or even through an air cannon. The TEG can be applied to either a constrained oil spill or even an unconstrained one as long as the spill surface is covered by the TEG product.

Once deployed the TEG is able to absorb up to one hundred times its own weight in oil in just one minute. Once the oil has been absorbed the TEG will remain floating on the surface of the water. The oil is now trapped by the TEG and removed from the water surface and thereafter poses no further environmental hazard. The oil soaked TEG may then be lifted off the surface of the water using a simple extraction system or skimmer which will deposit the oil laden TEG into a receptacle through a belt feed. The recovered TEG is then compressed in the receptacle provided to release the trapped oil before being passed through an evaporation unit which dries the TEG for future use. The dried product may be re-applied to the same spill, in the case of an ongoing clean-up, or bagged and stored ready for the next application. The TEG product may normally be used up to four times on an average density oil spill before it degrades, after which

it is bagged and disposed of. On average the TEG process will be able to reclaim up to 97% of the oil spilt which may then be recycled for future use.



The operational application of TEG

TEG is sold either in a compressed form in fifteen (15kg) kilo bags or generated on site by a TEG machine which expands the base material into the TEG product to be applied.

A single fifteen kilo bag is one cubic metre in size and is able to cover an area of up to five hundred (500) square metres. As the TEG can be reused up to four times, taking into account a normal type application on a shallow surface oil spill, this will allow for up to two thousand (2000) square metres of spillage to be treated from one fifteen (15kg) kilo bag.

In the case of a dense and viscous oil spill and oil slick you would expect coverage to be around twenty (20%) percent of that on a shallow spill application. In this case one bag of TEG would cover up to four hundred (400) square metres.

The TEG machines come in three sizes producing 250 kg, 500 kg or 1000 kg respectively of TEG per hour. The TEG machines would be best employed in a medium to high demand environment where the clean-up is being carried out on larger oil slicks and the use of the bagged product would prove onerous.

TEG works equally well in salt water as well as fresh water.

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The TEG solution is an innovative, cost effective and totally environmentally friendly solution to clean up oil spills on water. It has a very high rate of success and is applied quickly and efficiently. With up to 97% of the oil spilt also able to be recycled and re-used the TEG solution offers a financial return on investment that no other solution can offer.

For more information as to how TEG can work for you please contact Continuum at info@continuum.li