



DEEP
Green
FOR A CLEAN FUTURE



Thermopile© In-situ

Thermopile[©] In-situ

Now there is a solution to treat effectively highly contaminated soil without having to dig it up!

In addition to prosperity, our industrial development has also brought about environmental problems. This does not only involve air and water pollution, but there is also increasing concern about the contamination of our soil and the associated threat to public health. It is estimated that there are 3.5 million potentially contaminated sites in the EU countries alone.



Contamination in urban areas

For developing land on which the soil is contaminated, to build houses for example, cleaning the soil is a considerable burden, not just financially but also for the immediate surrounding area. Excavation means movements of transport, closed roads, noise, dust and odours. Yet an alternative whereby the organic contamination can be completely removed on site has not been available. However, with Thermopile[©], the new thermal treatment technology by Deep Green, this is now possible.

Thermopile[©]: the special features

The owner of the land is cleared of (future) liability

Through the use of Thermopile[©] the organic contaminants in the soil are completely gasified by heating after which the contaminants are completely oxidised in the oxidiser. In this way the owner of the land is cleared of any (long-term) liability.

Efficient energy use

Classical thermal treatment requires a lot of energy. Thermopile[©] uses the required fuel efficiently: maximum use is made of the calorific value in the contaminated soil (e.g. oil) and the gases are reutilised in the process of heating the soil. Thereby, energy consumption has been dramatically reduced.

Environmentally friendly

The total air emissions of CO₂ are eight times lower than in traditional thermal cleaning.

Reduced burden for the surrounding area

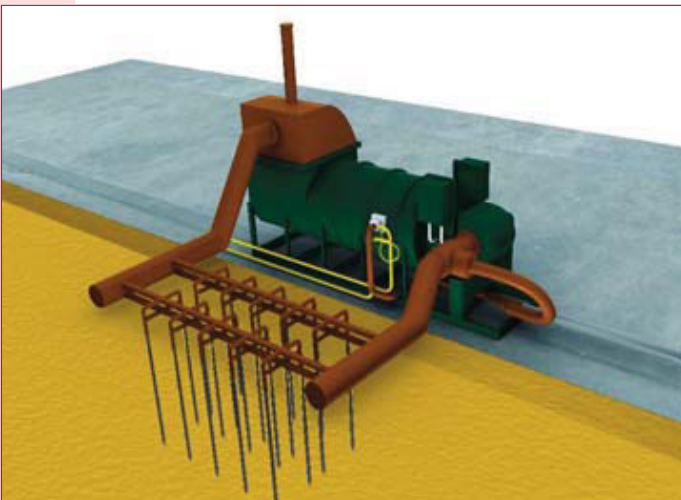
For the surrounding area there is a minimal burden due to noise and smell. No closed roads, no lorry traffic transporting the soil.



Thermopile©: the technology

The strength of Thermopile© is that the system is surprisingly simple yet very effective. Using the “traditional” thermal method, the soil is loaded into a rotating kiln and heated to the temperature at which the contamination gasifies. The soil is then clean and the contaminated gases are treated at a higher temperature (900–1100°C) in an oxidiser.

Thermopile© uses the same principle but follows a different process. A system of coaxial pipes is laid in the soil. Hot air is passed through the inner pipe. In this way the soil is gradually heated by conduction. The contamination gasifies and is aspired and drawn to an oxidiser where it is oxidised. Then the burnt gas is drawn back into the heating pipes. The process is semi-closed: maximum use is made of the generated heat.



Examples of implemented projects

The first projects with Thermopile© In-situ have amply demonstrated the effectiveness of the system. In Brussels, contamination from leaking oil tanks next to the metro was cleaned. To prevent the instability of the underground line located next to it, limited excavation was possible. 3,000 m³ of soil up to a depth of twelve meters were cleaned within two months with Thermopile©.

In the underground car park of the Maltese embassy in Brussels, soil contaminated by leaking oil tanks was successfully treated. Thermopile© was effective despite the fact that the car park was three storeys below street level where the oxidiser was set up. The site was cleaned to less than 10 ppm in less than a fortnight.

Information and documentation

Further information on Thermopile© In-situ can be obtained on our website www.deep-green.com, or from Marten Kingmans - mkingmans@deep-green.com - +31 (0)6 23 29 57 01



***Thermopile© can also be used after the soil has been excavated.
This can take place both on-site and off-site.
See the Thermopile off-site brochure for further explanations.***

***In 2007 Deep Green has won the
Brussels Innovation Award with Thermopile©.***

