



**DEEP
Green**
FOR A CLEAN FUTURE



Thermopile©

A new technology for the thermal treatment of contaminated soil:

Thermopile[©]

Deep Green introduces innovative technology for treatment of highly contaminated soil: Thermopile[©]

In addition to prosperity, our industrial development has also brought about environmental problems. This does not only involve pollution of the air and water, but there is also increasing concern over 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.

Thermal treatment: definitive removal of organic contamination

Compared with other methods the thermal treatment of contaminated soil has the advantage that the contamination is definitely removed and the owner is therefore cleared of (future) liability. Using the "traditional" thermal method the soil is excavated, loaded into a rotating kiln and heated to the temperature at which the contamination gasifies. The soil is then clean (with the exception of any metals present). The contaminated gases are then treated at a higher temperature (900–1100°C) in an oxidiser to produce clean waste gases.

Thermopile[©]: a completely new approach to thermal cleaning

Traditional thermal treatment as described has the drawback that a great deal of energy is used so that the costs are relatively high. Five years ago Deep Green started the development of a new technology with the following aims:

- ◆ Reduction in costs, particularly of energy
- ◆ Reduction in air emissions
- ◆ Making In-situ cleaning (without excavation) possible

With Thermopile[©] these aims are achieved.



Thermopile©: how it works

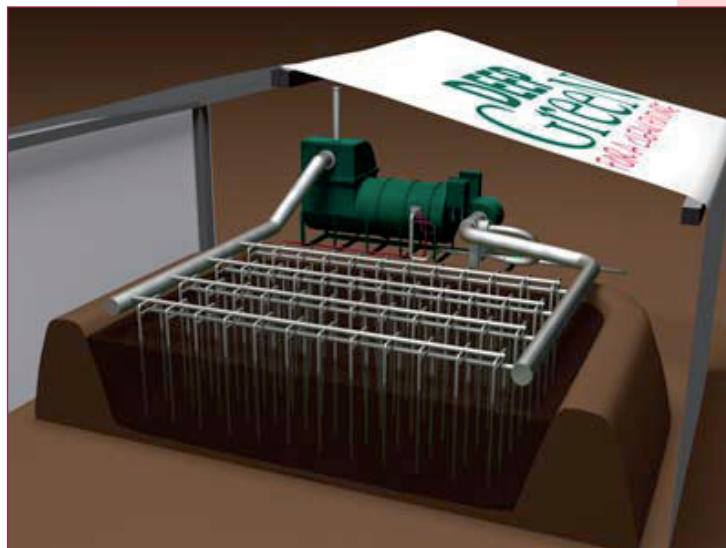
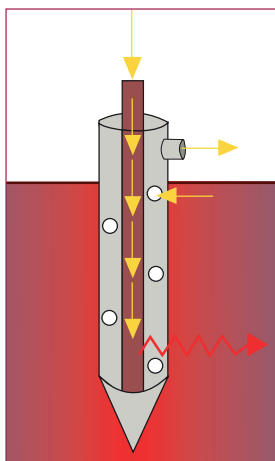
The development of Thermopile© is based on the following principles:

- ◆ Making as much use as possible of the calorific value of the contamination as a source of energy
- ◆ Greatest possible reutilisation of the generated heat
- ◆ Keeping the system simple in order to keep maintenance and operating costs low

Thermopile© is based on the principles of traditional thermal treatment (two phases: cleaning soil and cleaning waste gases), but in accordance with another process.

A system of coaxial pipes is laid in the soil. Hot gas is passed through the inner pipe. In this way the soil is gradually heated. The contaminants gasify. These waste gases are aspirated in the external pipe and drawn to an oxidiser in which the contaminants are broken down. Then the burnt gases are drawn back into the heating pipes.

Thermopile© is a semi-closed process in which maximum use is made of the generated heat.



Thermopile©: the applications

Thermopile© is unique in providing the possibility of In-situ treatment without the need for excavation (see the Thermopile© In-situ brochure).

Yet also where excavation is required Thermopile© offers the ideal solution for both on-site and off-site treatment. The excavated soil is stored in a specially prepared basin around four meters deep with a capacity of 4,000 tonnes of soil. The pipe system is incorporated and the soil is cleaned over a period of some 30 days. During this time soil can be stored in a second basin and can subsequently be cleaned.

Information and documentation

Further information on Thermopile© can be obtained on our website www.deep-green.com, or from Marten Kingmans- mkingmans@deep-green.com
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*In 2007 Deep Green has won the
Brussels Innovation Award with Thermopile©*

