

XOILER – soil & water decontamination agent

Project analyzes

XOILER is an innovative and effective soil & water decontamination agent.

The hereinafter document refer to three soil decontamination projects, executed in Israel through the recent weeks as utilizing XOILER as a treating and stabilizing reagent.

The result of the treatment show a significant stabilization effect of the decontamination treatment executed by XOILER.

Background:

The Israeli environment authority has adopted both European and American directives of soil decontamination activities.

In order to execute a cleanup process in any contaminated soil, the performer must sample the soil and check the content of contaminators agents as using the following laboratory protocols:

TPH (total petroleum hydrocarbon):

Before treatment: EPA 8015D (TPH (C10-C40) DRO, GRO, and, for new technologies also Leaching (EN 12457/2 water- 1:10 protocol) test for extracting the oil into water and then EPA 418.1 protocol for analyzing the amount of oil in the water or EPA8015D on the leachate.

After treatment:

The results must be compared to the limit value index, issue by the EPA, in our case the limit for free usage is 500 mg/kg.

Metals:

Before treatment: Leaching (EN 12457/2 water- 1:10 protocol) test for extracting metals and then analyzing with EPA 6010 protocol.

TOC, DOC, TDS are all extracting by leaching (EN 12457/2 water- 1:10 protocol) and analyzing through EN 1484, EN 16169

After treatment: Leaching (EN 12457/2 water- 1:10 protocol) test for extracting metals and then analyzing with EPA 6010 protocol.

Project #1- Beer Shiva PARK

Old sewage treatment plant, 32 thousands ton of contaminated soil, the land flooded with industrial wastewater contain heavy metals and oil.

Main contaminators:

	Before treatment	after treatment	limit value (*)
TPH	9263 Mg/Kg	3.4 Mg/Kg	5 000 Mg/Kg
Metals (Zink)	4355 Mg/Kg	6.8 Mg/Kg	2 000 Mg/Kg
TOC	60 030 Mg/Kg	836 Mg/Kg	50 000 Mg/Kg

(*) To be used as covering soil in mixed waste tipping site (domestic waste landfill).

Project #2- Nimra Landfill

As a result of Crude oil-spill in south Israel, a soil in a national park next to the city of Eilat has been contaminated by this oil, the contaminated soil has been transferred to Nimra Landfill.

This landfill utilizes as a tipping site for domestic waste.

In order to use the soil as a covering soil, the Value of TPH through leaching test (EN-12457/2 1:100 protocol) must be lower than 5000 Mg/Kg dry sludge.

Soil content is 50 000 Tons.

In this case, the pilot phased exams different quantity of XOILER reagent in a constant batch of 13 ton soil.

Best results achieved at ratio of 60 Kg XOILER mixed with batch of 13 ton of soil containing 19 000 to 21 000 Mg/Kg petroleum.

In this case the Analyzing protocol was EPA 8015D in order to find GRO, DRO and ORO, after leaching with EN-12457/2 1:100 protocol.

Main contaminators:

	Before treatment	after treatment	limit value(*)
TPH	21000 Mg/Kg	190 Mg/Kg	5 000 Mg/Kg

(*) To be used as covering soil in mixed waste tipping site (domestic waste landfill).

Project #3- Crud Oil-tank bottom sludge

Bottom sludge of oil reservoir must be remove periodically, oil will be extract from the sludge, and the sludge should be treated one way or another in order to be evacuate.

One of the evacuation targets are landfills of solid domestic waste..

The TPH level in the said sludge is normally 300 000 to 600 000 Mg/Kg.

In order to evacuate decontaminated soil to a domestic waste landfill the value of TPH in the extracted liquid through EN 12457/2 water 1:10 protocol must be lower than 5000Mg/Kg (calculated in dry sludge).

Our client will treat over 70 000 ton annually.

Clients cod name is FREDI-Ashdod

Main contaminators:

	Before treatment	after treatment	limit value(*)
TPH	>500 000 Mg/Kg	1.3 Mg/Kg	5 000 Mg/Kg
TOC	775 500 Mg/Kg	58.7 Mg/Kg	50 000 Mg/Kg

(*) To be use as covering soil in mixed waste tipping site (domestic waste landfill).

Attached Full lab. Reports issued by an accredited laboratory.