PetroFIX® Excavation Blend

Quick Dosing Guide for:

Hydrocarbon Excavations and Spill-Response Trench Barriers

Overview

This guide provides estimated dose rates for petroleum hydrocarbon treatment in excavations following UST removal, or source removal, and emergency spill-response trench barriers. The doses assume placement in the saturated zone, including the smear zone and water-table fluctuation interval. Rule-of-thumb doses support quick field decisions but are not designed on their own to meet site-specific cleanup targets or regulatory requirements. REGENESIS provides free site-specific design estimates. Remove recoverable free product before application.

Packaging & Rounding

The dose rates in Tables 1 and 2 are the amount of PetroFix Excavation Blend needed for the selected contamination level (Low, Medium, or High). Calcium sulfate blend (CSB) is supplied in addition to this amount. To size your order:

1. Calculate the dose: treatment area or soil volume × dose rate from Table 1 or 2.
2. Round to the nearest 1,200-lb supersack. Order at least one supersack.
3. CSB will be added at 25% of the supersack weight, or 300 lb (six 50-lb bags) per 1,200-lb supersack.

If rounding down, make sure the applied dose still covers the intended footprint or soil volume. When in doubt, round up. See the other side for calculation examples.

When Additional Groundwater Treatment May Be Needed

PetroFix Excavation Blend applied at the rates in these tables is the primary in-excavation treatment. Additional groundwater treatment is typically only needed when dissolved-phase impacts are expected to remain below or downgradient of the excavation, such as when the smear zone extends below the dig depth or a downgradient plume remains after source removal. In these cases, PetroFix Remediation Fluid may be injected in addition to the excavation treatment to target the groundwater plume. Contact REGENESIS for a site-specific design or use the online PetroFix design software to generate a preliminary grid design.

Application

PetroFix Excavation Blend is applied in the excavation base, or as treated backfill in an intercept trench, to treat residual groundwater contamination and reduce risk to onsite and downgradient receptors. It can be applied directly into standing water or worked into the base and lower sidewalls, across the smear zone, using a toothed excavator bucket. Activated carbon rapidly sorbs dissolved-phase hydrocarbons and limits leaching from residual mass in the excavation footprint. The calcium sulfate blend (CSB) then drives enhanced anaerobic biodegradation of the sorbed mass for long-term treatment. See the PetroFix Excavation Blend Application Guide for mixing and placement methods.

Step 1: Contamination Level Assessment

Cues	Low	Medium	High
Smear zone	Essentially fully removed; excavation extends into groundwater	Most removed; <25% remains in contact with GW (infrastructure, depth, or regulatory limits)	>25% remains in contact with GW
Staining	None to faint discoloration	Moderate, localized	Heavy, continuous
Odor	None to trace	Occasional product odor	Strong, persistent product odor
PID (sidewall soils)	Low / near background	Intermittent significant readings	Consistently elevated
Free product (LNAPL)	None	Sheens	Continuous sheens or intermittent LNAPL layers only (<1 cm)

Step 2: Dose Selection

Table 1 – Excavation Base-Area Dosing:

Use when dosing across the footprint (base) of an open excavation. Values are per unit of base area.

Soil Type	Low	Medium	High
Coarse (Sand / Gravel)	1.2 lb/ft² 5.9 kg/m²	2.7 lb/ft² 13.2 kg/m²	3.6 lb/ft² 17.6 kg/m²
Mixed (Silty Sand)	1.4 lb/ft² 6.8 kg/m²	3.5 lb/ft² 17.1 kg/m²	4.6 lb/ft² 22.5 kg/m²
Fine (Clay / Silt)	2.0 lb/ft² 9.8 kg/m²	5.1 lb/ft² 24.9 kg/m²	6.7 lb/ft² 32.7 kg/m²
Doses are PetroFix Excavation Blend only. CSB is supplied in addition (see Packaging & Rounding).			

Table 2 – Backfill and Trench Dosing:

Use for pre-blended backfill placed at or below the water table and for intercept trenches. Values are per unit of soil volume treated.

Soil Type	Low	Medium	High
Coarse (Sand / Gravel)	0.3% by soil mass 8.1 lb/cy 4.8 kg/m³	0.6% by soil mass 18.2 lb/cy 10.8 kg/m³	0.8% by soil mass 24.0 lb/cy 14.2 kg/m³
Mixed (Silty Sand)	0.3% by soil mass 9.4 lb/cy 5.6 kg/m³	0.8% by soil mass 23.4 lb/cy 13.9 kg/m³	1.1% by soil mass 30.9 lb/cy 18.3 kg/m³
Fine (Clay / Silt)	0.5% by soil mass 13.8 lb/cy 8.2 kg/m³	1.4% by soil mass 34.2 lb/cy 20.3 kg/m³	1.8% by soil mass 45.1 lb/cy 26.8 kg/m³
Doses are PetroFix Excavation Blend only. CSB is supplied in addition (see Packaging & Rounding).			

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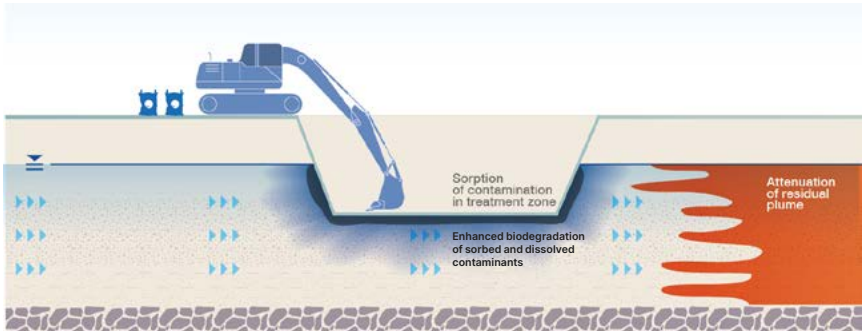
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Example Dosing Calculations:

Two quick illustrations of how to move from field conditions to a supersack count.

Example 1 – Open Excavation (Base-Area Method)

Scenario: An open excavation in coarse soil with a 20 × 20 ft floor. Contamination level assessed as “medium”.

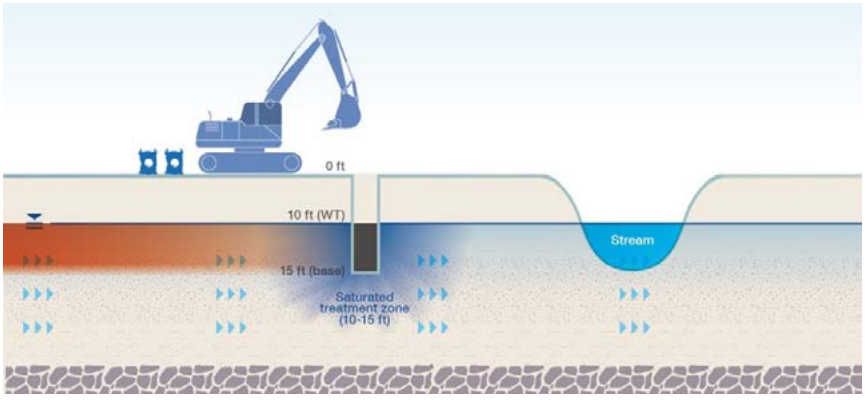


Base area	20 ft × 20 ft = 400 ft²
Dose rate	2.7 lb/ft²
Total dose	400 ft² × 2.7 lb/ft² = 1,080 lb
Supersacks	1,080 lb ÷ 1,200 lb = 0.9 → Order 1 supersack (300 lb CSB also supplied)

Dose rate found in Table 1, Coarse soil, Medium tier

Example 2 – Emergency Trench Barrier (Soil-Volume Method)

Scenario: A 50 ft x ~3 ft wide (one trackhoe bucket) trench in coarse soil with “high” contamination. The saturated interval spans 5 ft from 10 to 15 ft bgs.



Treated volume	50 ft × 3 ft × 5 ft = 750 ft³ ÷ 27 = 27.8 cy
Dose rate	24.0 lb/cy
Total dose	27.8 cy × 24.0 lb/cy = 667 lb
Supersacks	667 lb ÷ 1,200 = 0.56 → Order 1 supersack (300 lb CSB also supplied)

Dose rate found in Table 2, Coarse soil, High tier

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