

## OVERVIEW:

**Thermal desorption is a physical separation process where contaminated soils are heated to desorb organic contaminants from the soil matrix to air recovery either via vapour or liquid recovery systems. This can be undertaken in situ or ex situ depending upon the site constraints and requirements of the project.**

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## OUR ADVANTAGES:

- Able to remediate recalcitrant contaminants
- Can cope with a wide range of contaminants and combinations of contaminants
- Can be a rapid solution
- Can be used in saturated fine soils

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## TECHNIQUE:

### **Ex Situ**

Excavated soils require soil processing (commonly coarse material screening) prior to delivery to the thermal treatment equipment.

A common thermal desorption design is the rotary dryer, which are indirect or direct-fired horizontal cylinders. The cylinder is normally inclined and rotated to move the contaminated soil along the cylinder.

Principally rotary desorption units volatilise contaminants via application of heat and tumbling of the soil. The vapour produced can either be recovered as liquid, or as gas, treated either using sorbent media or burners

### **In Situ**

Often it is more suitable to treat contamination in situ. Thermal Desorption can be applied directly to the source contaminated area on many sites where other techniques are deemed unsuitable.

Heat is applied to subsurface contamination, either by electro-resistive methods, passing an electrical current through the subsurface to resistively heat the material, or via conductive heating, using heating rods to provide heat to the contaminants.

As with Ex situ, the methods provide heat to desorb contaminants of concern from their host matrix. This can be used within saturated soils, utilising the steam produced from heating groundwater to further desorb. The technique is normally coupled to a recovery system. This can be liquid pumps, or more often Vapour extraction systems. Contaminants can then be either condensed as liquid or treated as offgas.