Soil, Sediment, Bedrock and Sludge

Hot Gas Decontamination

Introduction/Description:

The Hot Gas Decontamination procedure entails increasing the temperature of the contaminated material to 250 °C for a specific period of time. The gas effluent from the material is then treated in an afterburner system to remove all volatilised contaminants.

The method eliminates a waste that at present is stored and needs disposal as a hazardous material. Operating conditions are site-specific.

Applicability:

The method is appropriate for process equipment needing decontamination for reuse. It is valid for explosive items, such as mines and shells being demilitarised or scrap material that is impacted by explosive materials.

Hot gas decontamination can additionally be utilised for buildings or structures associated with ammunition plants, arsenals, and depots involved in the manufacture, processing, loading, and storage of pyrotechnics, explosives, and propellants.

Limitations:

- Costs for this process are higher than open burning.
- Flash chamber design should take into consideration potential explosions from improperly demilitarised mines or shells.
- Rate at which equipment or material can be decontaminated is slower than open burning.

Data Needs:

- Types and weight of explosives present.

Performance Data:

Items decontaminated for approximately 6 hours at a minimum temperature of 250 °C were found to be safe for scrap. TNT destruction rates of 99.99% have been accomplished.

Cost:

The cost of the decontamination will differ with the application, depending upon the size of the equipment or material to be decontaminated and the temperature and holding time needed for the decontamination process. No specific cost analysis has been completed to date.