

# Soil Contamination Removal Technology Using Iron Powder and Magnetism

Removing heavy metals from heavy metal contaminated soil using iron powder magnetism through water

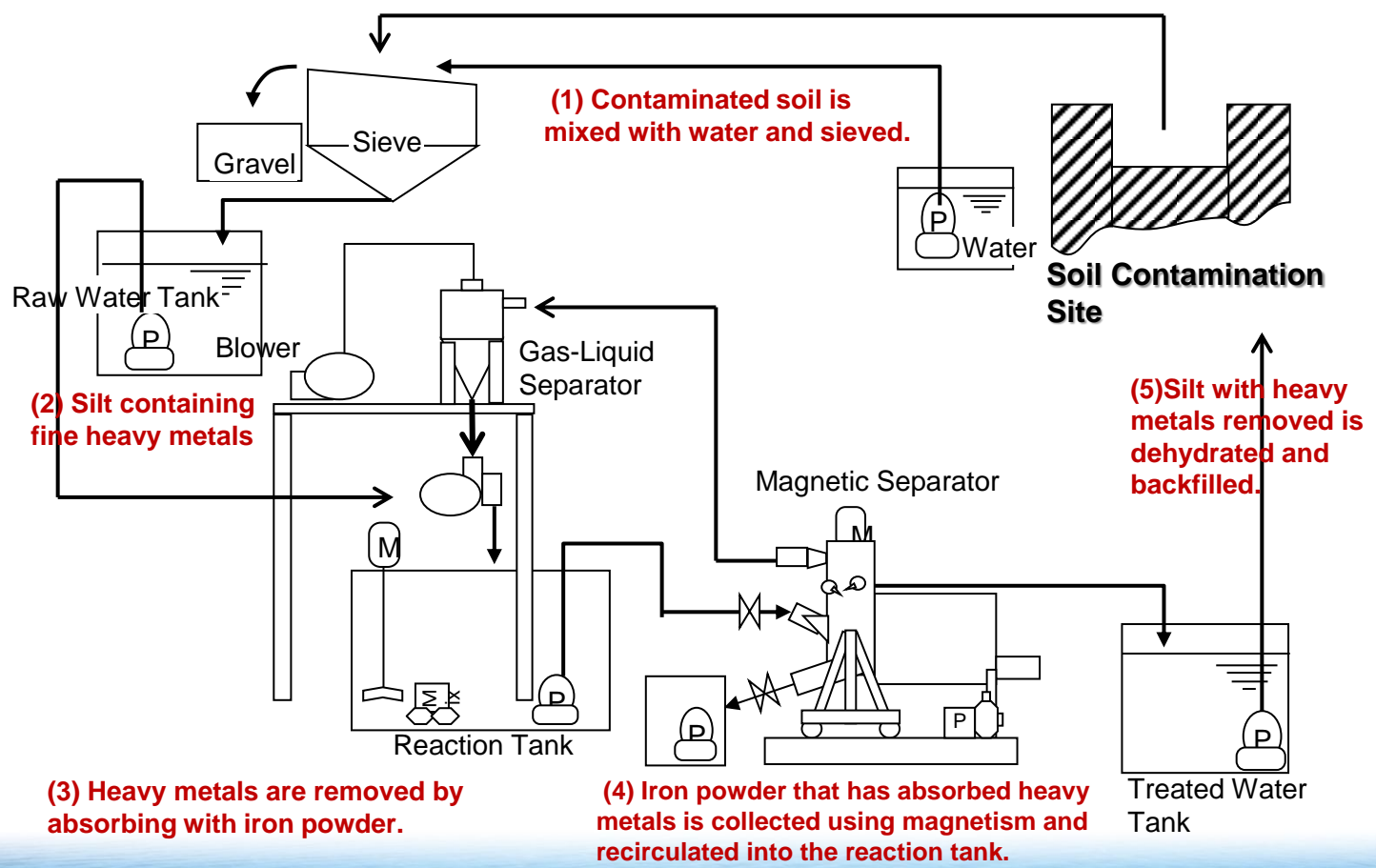
## Features

- This technology targets arsenic, selenium, chromium, cadmium, and copper.
- It is possible to operate the equipment and purify the soil at the site of contamination.
- The purified soil can be backfilled.
- The equipment treats several cubic meters of soil per hour.

## Outline (Technical Principle and Operation)

### Treatment Flow

Contaminated soil is mixed with water and sorted with a wet sieve into large particles and small particles. Small particles, called silt, contain a lot of contaminants. The silt is mixed with iron powder and water to absorb contaminants released into the water with iron powder. Then iron powder is collected by magnetism. Dehydrated silt can be backfilled. Iron powder is recirculated between the reaction tank and the magnetic separator until the maximum amount of absorption is reached.



## Real Site Photo



There are a magnetic separator and measuring instruments in the tent. The treatment setup is simple.



Collecting only iron powder from muddy water



This is a superconducting magnetic separator.



Simple measurement of arsenic and other substances can be performed on site.

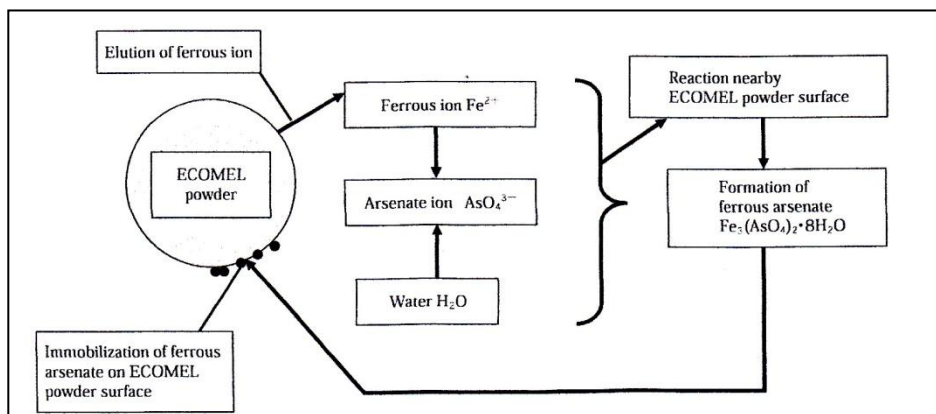
## Effects

Using the above experimental plant, a demonstration experiment for removing arsenic was conducted for more than six months at an industrial waste treatment site.

Pseudo muddy water was treated. Raw water with a contamination of 0.28 mg/L was reduced to 0.01 mg/L or less, and the amount of contaminants absorbed by iron powder was up to 315 mg/L.

The data from an iron powder manufacturer indicated high absorption rates of 71% to 99% for arsenic, as well as selenium, chromium, cadmium, and copper, for pseudo wastewater with a contamination level of 1.0 mg/L.

The manufacturer explains the mechanism of absorbing heavy metals with iron powder as shown in the following chart.



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