Cutting costs by combined system of washing and heat treatment

Contaminated soil remediation system of off-site plant

Certification based on the Soil Contamination Countermeasures Law
Obtained contaminated soil treatment business permit

Features

- Obtained contaminated soil treatment business permit (treatment system including purification facility <purification>, treatment system including sorting) in accordance with the Soil Contamination Countermeasures Law revised in April 2010
- The soil remediation system※, which is consecutively engaged in washing and heat treatment, achieves a 97% soil recycling rate with significant reduction in treatment expenses.
  ※Patented June 2006
- The system is highly capable of handling different contaminants and serious contamination.

Washing facility

Heat treatment facility

Purification system

- The system works to prevent the spread of soil contamination and also significantly contributes to the pursuit of a recycling society by reusing purified soil.

Overview (Technical principles, actions, etc.)

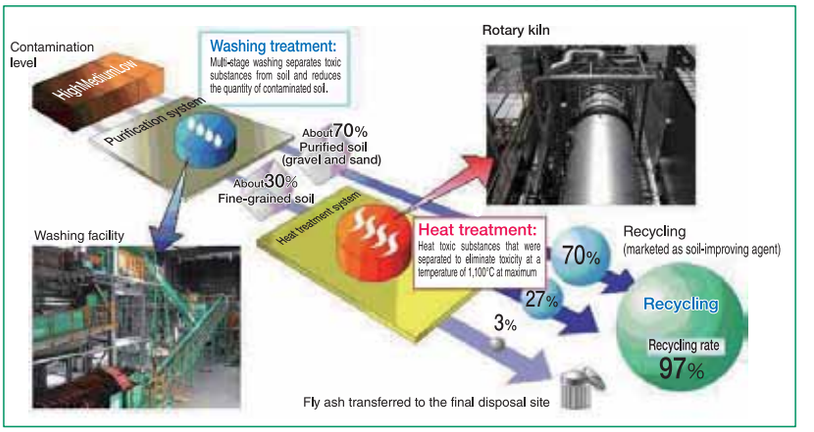
This is Japan' s first continuous purification treatment system combining "cleansing" and "thermal treatment," which used to be conducted separately.
Repeated washing processes surely separate fine-grained soil to reduce contaminated soil to about 30%. Heating the sorted fine-grained soil at a temperature of about 1,100°C decomposes chemical compounds and vaporizes metals, which are then captured by a dust collector with fly ash. Capable of handling different contaminants and serious contamination, the system reduces fly ash to 3% before transfer to a final disposal site, resulting in a significant reduction in disposal costs. Achieving a 97% soil reusing rate significantly contributes to the pursuit of a recycling society.

Washing system

Taking advantage of the fact that toxic substances exist more in fine-grained soil, the system performs multi-stage washing using a rotary washer and classifier. The processes have toxic substances separated, concentrated, and adhered to fine grains, resulting in a significant reduction in soil contamination. About 70% of gravel sandy soil can be puritied by washing.

Heat treatment system

After washing the soil, roughly 30% fine-grained soil (dehydrated cake) is placed in a rotary kiln to heat it up to a maximum temperature of 1,100 ° C. Heavy metals are shifted to the gas side to recover them as fly ash and chemical compounds such as VOCs are decomposed and purified. This enables the recycling of fine-grained soil and only the fly ash generated in the purification process is disposed of as waste material, achieving a high soil recycling rate of about 97%.



Whole system on the plant site

Purified soil

After the purification process, soil is classified into three classes, namely, gravel , sand and fine-grained soil. Classified soil has diverse applications.
Focusing on the characteristic that weed seeds are eliminated in high temperature thermal treatment, we are also using it as weed suppression soil (GEO-RE Soil).

Purified and classified soil

After the implementation of Geore-soil

Effects

◎Improved recycling rate for contaminated soil

Plants conducting washing only····Recycling rate remains 70% because fine-grained soil is disposed of as waste.
⇒ Plants combined washing and heat treatment····Achieving a 97% recycling rate

◎Significant treatment cost reduction is possible, compared to the plants conducting heat treatment only.

Assuming the treatment costs for the plants conducting heat treatment only to be 100, the cost for the plants combined washing and heat treatment is calculated as 30 to 50.

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