

多量の放射能汚染土壌（路面清掃土砂）の分級洗浄処理

磯松 教彦¹、高橋 英晴¹、南條 忠文^{2*}、鈴木 茂生²

¹ 福島県土木部道路管理課（〒960-8670 福島県福島市杉妻町 2-16）

² 佐藤工業株式会社（〒103-8639 東京都中央区日本橋本町 4-12-19）

Report on Classified-washing of a Large Amount of Radioactively Contaminated Soil Collected from Road Surface Cleaning

Norihiko ISOMATSU¹, Hideharu TAKAHASHI¹, Tadafumi NANJO^{2*}, and Shigeo SUZUKI²

¹Fukushima Prefectural Government (2-16 Sugitsuma-cho, Fukushima 960-8670, Japan)

²SATO KOGYO Co., Ltd. (4-12-19 Nihonbashi-honcho, Chuo-ku, Tokyo 103-8639, Japan)

Summary

From October to December in 2015, we dealt with 296 tons of radioactively contaminated soil which was collected from road surface cleaning in Fukushima prefecture.

Originally, the specific radioactivity of the total contaminated soil had been 7,508 Bq/kg dry on average, and 20,530 Bq/kg dry at maximum. Through the classified-wash process, it turned into gravel with 1,253 Bq/kg dry, sand with 3,120 Bq/kg dry, and dehydrated cake with 25,683 Bq/kg specific radioactivity on respective average. In other words, they became respectively 17%, 42%, 340% of the original average.

Also, it should be noted that 75.2% of the radioactive cesium were gathered in the dehydrated cake whose weight accounts for only 22.3% of the total dry weight. In fact, those which mainly consisted of dehydrated cake with over 8,000 Bq/kg wet specific radioactivity, were successfully certified to be "designated waste", which brought reduction in weight by 75.7% and volume by 64.1%.

In conclusion, depending on the properties of the original radioactively contaminated soil such as specific radioactivity or content rate of fine-grained fraction, we can expect significant reduction in volume and weight with this method.

In addition, we confirmed 10% reduction of specific radioactivity of sand with "abrasive wash" method.

Key Words: Radioactive contaminated soil, Soil wash, Classified-wash, Volume reduction system

和文要約

福島県内において2015年10月～12月にかけて放射能に汚染された路面清掃土砂296tを分級洗浄処理した。汚染土の放射能濃度は平均7,508 Bq/kg dry、最大で20,530 Bq/kg dryであり、処理後分級物の放射能濃度は平均で礫1,253 Bq/kg dry、砂3,120 Bq/kg dry、脱水ケーキ25,683 Bq/kg dryと、それぞれ元の汚染土の平均値に対して0.17倍、0.42倍、3.4倍となった。また放射性セシウムは乾燥重量比で22.3%の脱水ケーキに75.2%が集約された。8,000 Bq/kg wet超の脱水ケーキを主とする分級物は指定廃棄物に認定され、減容化の観点からは重量で75.7%、容量で64.1%の削減効果があった。元の汚染土の放射能濃度や細粒分含有率等性状にもよるが、土質性状によってはかなりの減容化が期待できる。また、砂の磨砕洗浄については約10%の放射能濃度低減効果が認められた。