



Use of industrial by-products in landfill cover in Finland

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Abstract

The use of industrial by-products in landfill cover saves the environment by reducing the need of natural soils as cover material and the need of disposal sites for by-products. However, by-product materials can be used in landfill cover only if they meet the technical and the environmental criteria. This paper presents results in a literature research about the use of industrial by-products in landfill cover in Finland. The objectives of the research are to investigate the use of industrial by-products in landfill cover in Finland and to compare the Finnish situation to the international situation.

In Finland landfill operators need an environmental permit to use any by-product material in landfill cover. According to Finnish environmental permits, by-product materials have been used in landfill cover in more than one hundred closed landfills. The most investigated and used by-product material is paper sludge, which is well available and has suitable characteristics. Other used by-product materials in Finland, according to this research, are shredded tires, fly and bottom ash, foundry sand, compost, crushed concrete and bricks, glass cullet, green liquor dregs, sewage sludge, dregs for water treatment, tailings and plastic.

Internationally the most investigated by-product material is paper sludge and the most amounts of studies have been carried out in the United States. In comparison between Finland and the international research results some by-product materials, as cement kiln dust and different sludges, were found that were not yet used in Finland.

Key words: industrial by-products, landfill cover, sludge, waste, landfill.