

Case Study Beneficial Use of Sediments

Project	<i>Sealing material on disposal sites in Hamburg</i>
Classification	<i>R2A_1988_DE</i>
Major Function	<i>Remediation</i>
Other Functions	<i>Raw Material</i>
Location	<i>Hamburg, Germany</i>
Volume	<i>Up to 150,000 m³/a</i>
Technique	<i>Use of treated silty-clayey sediment as sealing material instead of clay or silt</i>
Contaminants	<i>Contains heavymetals and organic contaminants</i>
Granulometry	<i>Silty/clayey</i>
Scale	<i>full scale</i>
Client	<i>Hamburg Port Authority</i>
Executor	<i>Consultant N/A, Contractor: Hamburg Port Authority</i>
Research program	<i>N/A</i>
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Year start – end	<i>1988 – ongoing</i>

Description of the project

Right from the start of the Hamburg dredged material disposal sites in Francop and Feldhofe the mineral sealing layers consist of treated, clayey-silty sediment (METHA-Material produced in the METHA-plant). To encourage further beneficial use possibilities the Hamburg Port Authority (HPA) has also applied for a suitability assessment procedure for the use of METHA-Material as secondary raw material for a surface sealing system on disposal sites at the LAGA (Working Group of the Federal States on Waste). In 2008 the evaluation procedure was successfully completed and METHA material has been classified as a certified secondary material for the use as a surface sealing on disposal site nationwide.

In Germany, according to the Landfill Directive, disposal site construction materials must comply with the state of the art. LAGA has set up the Ad Hoc Working Group "Landfill Technology" for suitability assessments carried out by the Länder. For the use of secondary raw materials, the working group has set the required test criteria and the requirements for proper installation as well as the issues of the quality management as a national standard.

The suitability assessment was based on many individual assessments with detailed technical and organizational specifications. In particular, the focus was on the evaluation of the soil-mechanical and waste-chemical characteristics of the METHA Material. The technical suitability and the environmental harmlessness of the utilization has been demonstrated in the assessment procedure considering established legal German standards.

The requirements for the accredited sealing system are described in more detail in the documents "Suitability assessment of METHA-Material for the construction of mineral sealing" and "Quality management manual – Surface sealing system made of METHA material" (see below in the references).

The following objectives were achieved by using the METHA-Material as a sealing material:

- The consequent beneficial use of "waste" during the construction of the disposal sites
- Protection of natural resources like clay and loam
- Efficient and cost-effective while using a secondary raw material

Graphical information

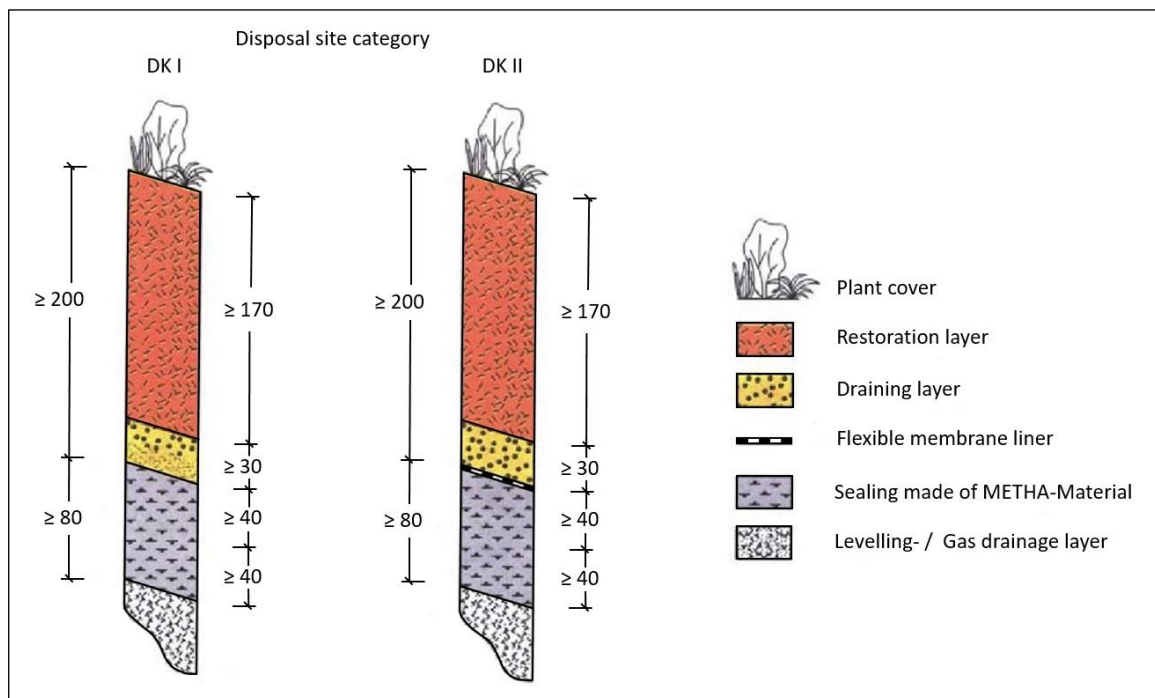


Figure 1: Schematic diagram of the accredited surface sealing system

References/web links

1. Detzner, H.-D. (1995). *The Hamburg project METHA, large-scale separation, dewatering and reuse of polluted sediments*. *European Water Pollution Control*, Vol. 5, No. 5, pp. 38-42
2. Detzner, H.-D., and Knies, R. (2004). *Treatment and beneficial use of dredged sediments from Port of Hamburg*. *World Dredging Congress XVII, Hamburg, Germany*. B2-1, pp. 1-14
3. LAGA Ad-hoc-AG „deponietechnische Vollzugsfragen“ (2008). *Eignungsbeurteilung von METHA-Material zur Herstellung von mineralischen Dichtungen (Suitability assessment of METHA-Material for the construction of mineral sealing)*.
http://www.gewerbeaufsicht.niedersachsen.de/download/30121/Eignungsbeurteilung_von_METHA-Material_zur_Herstellung_von_mineralischen_Dichtungen.pdf
4. LAGA Ad-hoc-AG „deponietechnische Vollzugsfragen“ (2008). *Qualitätsmanagement-Handbuch Oberflächenabdichtungen aus METHA-Material (Quality management manual – Surface sealing system made of METHA-Material)*.
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