



## TERRALAVAR®-TECHNOLOGY

### Chemical-physical purification of contaminated materials.

TERRALAVAR® is a soil cleansing technology for the chemical-physical remediation of soil and soil-like materials which are contaminated with organic and/or inorganic pollutants such as e.g. mineral oil and creosote, PAH, PCB, TNT and heavy metals. The technology is based on shifting the pollutants to the superfine soil fraction by means of kinetic energy and water. The contaminated superfine fraction is a high-grade road-building material. Together with the TERRAFERM®-technology and the thermic remediation of soil TERRALAVAR® covers the purification of the complete pollutant range. Emphasis is to be put on the short treatment period. Opposed to thermic technologies, price and approval advantages are of immediate importance.

#### **Delivery**

The soil is delivered, weighed and undergoes admission sampling in batches.

#### **Soil cleansing**

After separation of the coarse fraction (> 40-240 mm) the contaminated soil is subjected to a wetmechanical digestion. This takes place in digestion drums, mixers and/or sword washers. In order to separate the pollutants, the suspended soil material passes through various units of classical processing technology that have been adapted to the specific characteristics of the soil.



**Separation according to grain size:** size: The classification is necessary for the separation of the superfine grains and for further purification. Screens and hydrocyclones are used; the lowest screen cut is between 40 and 100 mm.

**Separation according to density:** This classification is absolutely essential when highly polluted-, absorbent pollutant-carriers, such as coke, coal slags, wood or humus have to be separated. Jiggers and coil cutters are used.

**Emission control:** The charging and breakdown procedure as potential sources of emissions are encapsulated. Highly volatile pollutants are carefully removed and treated. The water needed for the process is in circulation and continuously cleaned so that no industrial effluent is produced.

**Flexibility** TERRALAVAR® is very flexible thanks to its modular design. The system is optimised to the respective soils and pollutants.

**Control System:** Electronical safety equipment and the ability to program the process allow a largely automatic operation. The system is controlled from the central control room.

**Process Parameter:** Dwell time, energy input and as well the use of auxiliary materials are freely adjustable to a large extent.

**Residues:** Residues are those shares of the soil that cannot be purified as well as precipitation sludge from the water purification process. They are drained and utilized or subjected to after-treatment as dry sludge.

**After treatment:** Residue fractions with biodegradable pollutants can be after-treated with the TERRAFERM® technology, highly contaminated residues with thermal processes. If utilization in one's own plant is not practical, then the substances are deposited or utilized externally in cement plants.

**Reuse of soil:** Depending on the origin, structure and material composition, the purified soil, can be put to various types of use, e.g. In landscaping (as infill soil or noise protection dams), as drainage material on landfill sites and especially for road construction as sand, gravel (chippings) and crushed stones due to its high quality. Recycled crushed stones and high-grade chippings are made from decontaminated railwaytrack material.

**Experience:** ZECH UMWELT GmbH developed the TERRALAVAR®-soil cleansing system to extend the biological remediation technologies that had already been in successful use for over a decade. Together with its subsidiaries, the group has four stationary soil cleansing plants at its disposal throughout Germany. Mobile systems are used for on-site remediation at home and abroad. The in-house production plant enables quick access to very specific equipment. We can react to changes in the set tasks at short notice.

ZECH UMWELT GmbH has far-reaching experience in soil cleansing through the remediation of more than 2,500,000 tons of soil, building rubble and railway ballast in various and also international remediation projects.

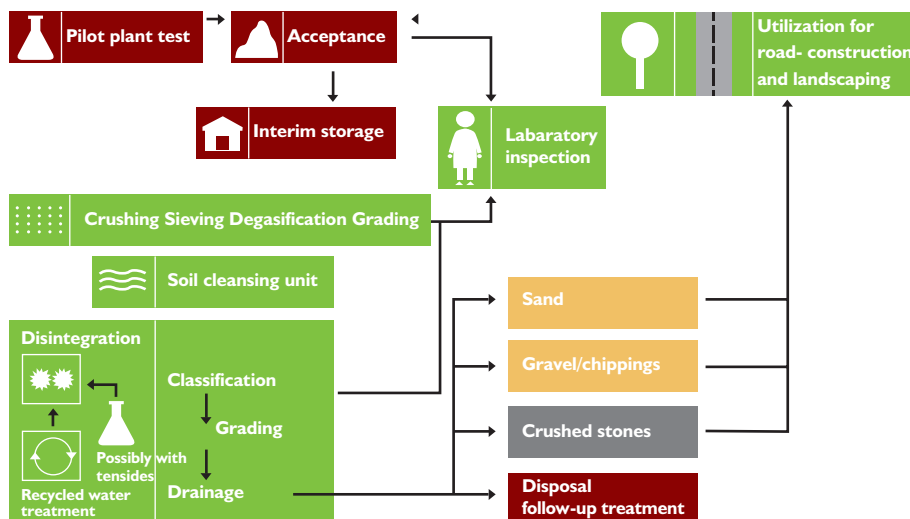


Diagram of the TERRALAVAR® technology

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