

My activities is innovative engineering in the field of Environmental.

In other fields such as contaminated soil, drinking water and ground water we cooperate with other companies in order to deliver total environmental safe solutions. Geographical we are represented in EU-countries, Eastern Europe countries. ORTWED works closely with partners in Germany, Poland, Norway, Sweden.

ORTWED is dealing with environmental matters such as solidification of sludge and handling of by-products. Via an international network of tenders and buyers, we offer price friendly arrangements with regards to minimizing and depositing of hazardous wastes.

Through an extensive network of specialists in the field of treatment of industrial waste, the company has developed its own concept for treatment of various kinds of sludge, e.g. oil sludge, sewage sludge, etc. using quick lime for solidification. The end product is highly useable in a wide range of applications, e.g. the production of cement.

In close cooperation with public authorities and private companies ORTWED works as an innovative partner in solving environmental problems.

ORTWED is active in the fields of

- Purification systems for process water subsoil water, drinking water, etc.
- Decontamination of soil polluted with heavy metals and/or pesticides
- Drying and incineration of sewage sludge.
- Deposit of materials from waste incineration plants such as fly ash, reaction gypsum
- And sludge from the cleaning process of exhaust gas.

ORTWED is partner in EUREKA project no. 2695, which is going to determine use of oil sludge in other applications. The project is running in Poland with the biggest oil refinery in Poland.

ORTWED offers services both as consultants and as executive partners in projects relating to the environmental areas mentioned above.

The mobile lime solidification plant.

Introduction.

The plant is a mechanical/chemical process plant for treatment of oil polluted soil or sludge oil from oil storing tanks at refineries, tankers, oil storing facilities or from oil pollution catastrophes.

The development of the process as well as the technology was carried out a decade ago and is based on a German patent registered in 1974.

The technology and the result are tested during the first 6-8 years from the middle of the eighties.

The object of the development was to establish a new method to converting sludge oil and/or polluted soil, both harmful to the environment, into a new type of product, which could be reused in other environmental protection applications.

The sludge or polluted material is in the chemical process, converted into a dry powder, which is environmentally compatible and economically attractive.

The "powder" can easily be stored without any risk to the environment, or with great advantage, be reused as road construction material, membranes for oil or heavy metals dumps, and reduction of exhaust gasses harmful to environment or as raw material in the production of cement.

The plant is constructed as an electrical powered process plant, containerized as a standard 40 feet container, which means that the plant easily can be moved from place to place. The power supply can be from the public electricity distribution network or by a movable electric generator.

The capacity is 5-ton sludge pr. hour.

Process description.

The plant is fully automatically operated, and the very alkaline process is based on a controlled chemical reaction between added quicklime and water primary contained in the sludge oil or polluted soil. If there is no water in the polluted soil, water can be added before processing.

During the chemical process, heat is created, and depending on the content of soil and possible metals, crystals of hydrate lime, oxide or hydrate oxide are formed.

An electronic weighing system secures, those preset and controlled quantities of sludge oil/polluted soil continuously are led into the plant, and likewise quicklime are automatically added to the process.

During the chemical process, a part of the water content is evaporated, while oil and the crystals of hydrate lime will absorb possible metals.

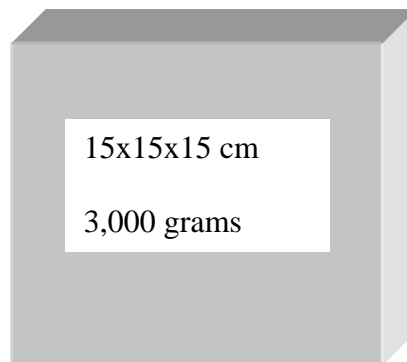
The final product of crystals, a fine dry yellow-brown powder with a pH value of about 12, is an acid resistant, water rejecting and oil absorbing product, and load resistant material.

Amount of quick-lime required for the process is between 15% and 50% of the amount of sludge oil or polluted soil to be treated depending on the composition, consistency of the pollutant and the wanted use of the finish powder.

Applications of the powder.

The powder is to be considered as an energy activated lime, which is harmless to the environment, and can be stored in open areas used as backfilling, or its physical/chemical advantages can either be utilized as road construction material, raw material in the production of cement clinker, exhaust gas cleaning material or as environmental protection material.

Schematic presentation of "Oil Stone".



Material: Solidificated oil sludge added 20% (w/w) cement powder, well mixed.

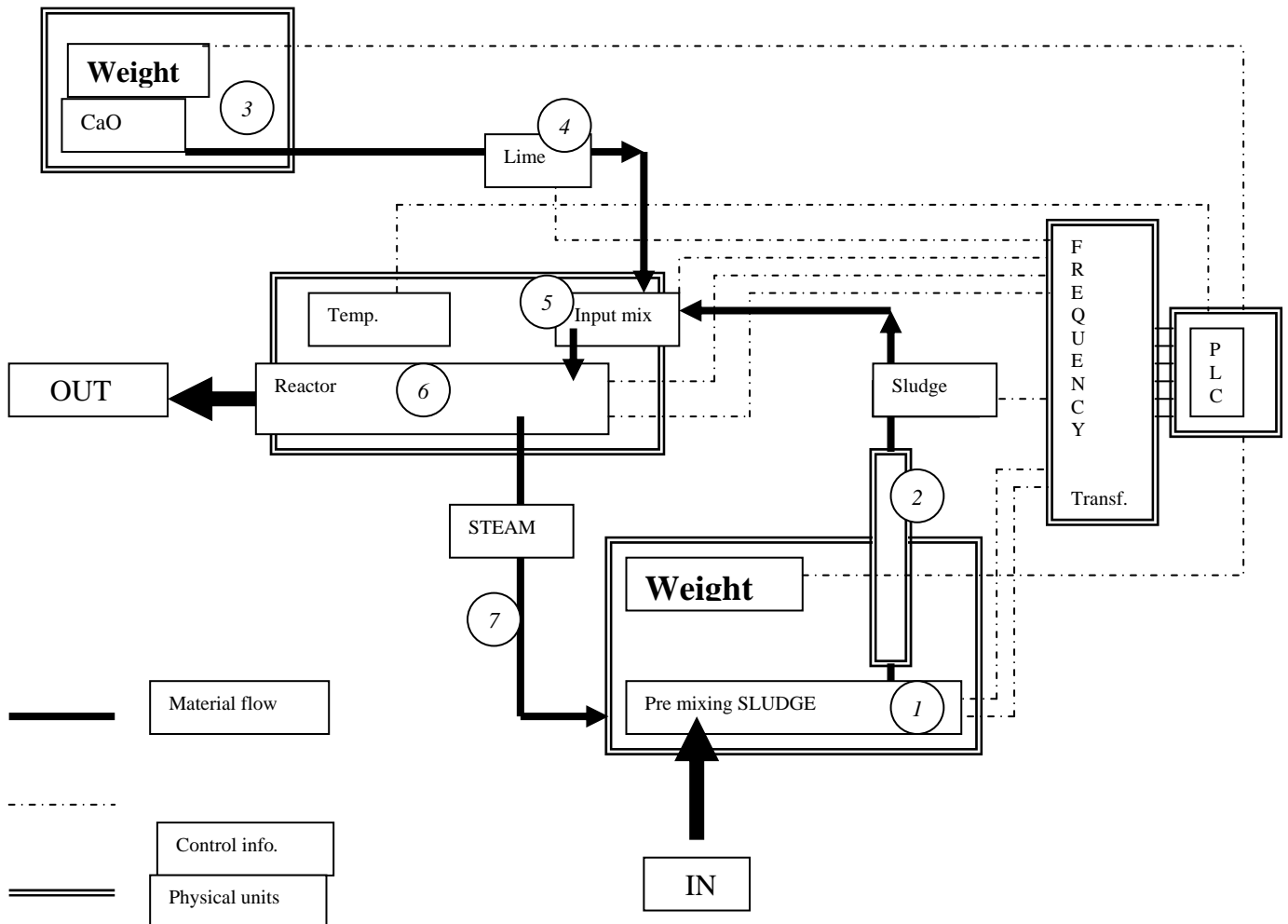
Process: Pressed in a mould under high pressure into a "pave".

Properties: Oil absorbing app 700 grams into 20 hours

Strength 11.3 MPa

After use: Pulverize the pave and recycle in the cement production (very high energy supply).

FLOW DIAGRAM LIME SOLIDIFICATION PLANT



Description to the flow diagram:

1. Pre-mixing sludge: Homogenize the sludge before processing.
2. Sludge conveyer, connected to the control system.
3. Storage silo for quick lime.
4. Lime conveyer, connected to the control system.
5. Input mixer, lime and sludge are mixed before the process.
6. Reaction and transport of the material to out-put.
7. Process heat return to pre-mix in order to pre-heat material.