

CASE HISTORY

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Toveko Filters

Sakab AB - Kumla



Removal of mercury from toxic wastewater

Since the company first formed in the early 1980s, Sakab's business has been to detoxify the ecocycle. Today, the mission is clearer than ever: Hazardous substances must be removed from the ecocycle. Sakab plays a key role in Sweden's target of creating and maintaining a non-toxic environment. Over the years, Sakab have developed a considerable "encyclopaedia" of know-how, experience and use the best technology available in all their operations and, consequently, have obtained permits to treat an extremely wide range of toxic wastes.



Mercury-containing wastewater in storage pond

Hazardous Waste

The handling and treatment of Hazardous waste is a complex business that affects all of us. On a daily basis, we all come into contact with materials that, when discarded, become hazardous waste and, historically most of us have never given a second thought to what happens to that waste after it is collected. However, in recent years, the increase in the importance of recycling and knowledge about environmental impact has increased awareness in most people. When waste is hazardous, it is essential to handle it correctly if we are to preserve our environment. As a result, the handling, treatment and disposal of hazardous waste are covered by numerous regulations.

Treatment of Hazardous Waste

At the Sakab facility in Kumla, some 200 kilometers from Stockholm, they receive and treat most types of hazardous waste. The reason for defining the waste as hazardous waste is that it contains or consists of substances that have hazardous properties. These properties may mean that the substances are acutely hazardous (corrosive, for example) or that they constitute a hazard in the long term by causing mutation or other health problems in humans and animals or growth problems in plant life. Hazardous substances are either organic, such as PCBs, or inorganic, like cadmium or other toxic metals.

Broadly speaking, the choice of treatment methods can be said to depend on exactly this distinction; whether the hazardous substances in the waste are organic or inorganic. Sakab eliminates organic hazards either by destroying them in incineration plants or with the aid of microorganisms in our biological soil-treatment systems. Sakab often convert hazardous inorganic materials into a stable form, such as metal hydroxides and complex sulfides. Inorganic waste from incineration, soil treatment and chemical precipitation is ultimately deposited in licenced hazardous-waste landfill facilities.

Sakab also incinerate household waste and various types of industrial waste at their incineration plants. Through the incineration process, Sakab "harvest" the energy available in the waste to produce both heat for the district heating network and also electricity.



Toveko filter to be installed

Land Remediation

There are a large number of places where, for a huge variety of reasons, industrial or other processes have caused contamination of the sub-soil. In severe cases, or in any case where industrial land is converted for domestic use (housing, parks etc), the contaminated soil has to be removed, and washed with water to remove the contaminants. In one recent development, contaminated soil from an old industrial site was washed to remove significant mercury contamination. The wastewater produced contained mercury in form of stable particles. The mercury-containing wastewater was collected into a pound which holds approximately 1000 m³. In order to remove the mercury from this water a TOVEKO continuous gravity sand filter was installed.

There are a number of significant advantages to the use of TOVEKO filters for this type of application:

- The filters are only 2.3m high, irrespective of the filter size. They can therefore be moved from site to site with ease, as can be seen from the photograph above.
- The unique sand washing system is effective in removing sticky substances such as polymer and oil, unlike its competitors which cannot clean the dirty sand so efficiently. This means that, when there are sticky solids present, their filter beds tend to block quite quickly, and the filter then has to be stopped. On the other hand, one of the target markets for TOVEKO filters is the removal of oil from wastewater, where they are highly successful.
- They use much less water than their competitors to transport and clean the dirty. Of course, the dirty wash water contains all the contaminants and therefore requires recycling for re-treatment, so this flow rate can be very important. The main reason for this difference is the big difference in height; TOVEKO filters are only 2.3m high.
- Filters are delivered complete with their own on-board control system, and are very quick and simple to install, with no requirement for permanent access platforms, and only the connection of pipework, power and compressed air being required once the filter has been placed on a flat concrete base.

Filters are manufactured in stainless steel, so do not require painting and last for many years, often in rather hostile environments.



Top view into the highly efficient sand washer

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