CASE HISTORY

SEMICONDUCTOR
SOLAR
PHARMA
POWER GENERATION
FOOD & BEVERAGE
PULP AND PAPER
CHEMICAL
OIL AND GAS
MINING
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HAGER+ELSÄSSER
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Toveko Filters

Gränges Aluminium, Purification of Oily Wastewater

Background

Gränges Aluminium at Skultuna employs about 700 people to process aluminium from ingots to finished products such as car bumpers, aluminium foil, profiles, construction products and so on. During manufacturing, process water is used as both lubricant and coolant and accidental oil leakages are common in the rolling mills. All process water plus surface water from the factory buildings plus surrounding storage areas and roads etc. is collected and passed to the treatment plant before final disposal into a small stream.

Prior to the installation of the present treatment plant, all wastewater was discharged directly into the stream. This caused enormous environmental problems downstream.

Collection Lagoon

Plant design

The wastewater is piped to an outside lagoon with a total volume of about 500 m^3. Within the lagoon a hose skimmer, skims off the heavy upper coarse layer of oil. From the lagoon the water is pumped directly into the TOVEKO filters. For this plant two T-1200 TOVEKO filters type are used. Normal flow is 100 - 150 m^3/h, although the filters are designed to handle up to 250 m^3/h between them.

Throughout the treatment process, there is no chemical addition whatsoever. TOVEKO filters are designed not only to remove sticky substances such as oil, but also to clean the sand efficiently for constant re-use. It is the efficiency of the sand washers that sets TOVEKO filters apart from other types of continuous washing sand filters, especially for difficult applications such as oil removal. The dirty, oil-containing, wash water from the filters passes back to the lagoon for re-processing.

The plant runs on a continuous basis with virtually no supervision or maintenance from one week to the next, and has done so now for some ten years.

There is inevitably a small concentration of suspended solids present (mostly general grit and dirt from the factory). This settles in the lagoon and the resultant sludge is tankered away three to four times a year. The oil recovered by the skimmer is used for incineration.

Filter Room

Results

Continuous and automatic sampling for analysis is performed and executed by an independent accredited laboratory. A summary of typical results is given below:

	940824	**940921**	**941031**
Inlet total oil (mg/l)	12	10	15
Outlet total Oil (mg/l)	0,6	0,5	0,5
Inlet Suspended Solids (mg/l)	52	36	42
Outlet Suspended solids (mg/l)	9,6	< 5	< 5
pH	7,8	7,8	7,2

Government discharge requirements for industrial plants of this type require a maximum oil concentration of 5 mg/l, which this 10-year old plant meets with room to spare.

Effluent to nearby stream.

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