

CASE HISTORY

SEMICONDUCTOR
SOLAR
PHARMA
POWER GENERATION
FOOD & BEVERAGE
PULP AND PAPER
CHEMICAL
OIL AND GAS
MINING
AEROSPACE AND TRANSPORT
METAL FINISHING
MUNICIPAL



Toveko Filters

Drum Trading AB, Sweden



Industrial Wastewater Treatment

Background

Drum Trading AB is a metal finishing company. The finishes they supply vary from nickel / chrome plating to galvanising and, like most metal finishers, they handle a very wide range of product types. Consequently the composition of the wastewater varies correspondingly. Prior to H+E Toveko's involvement, the plant consisted of chemical treatment and sedimentation only. This meant that it was very susceptible to changes in incoming flow and concentration, causing frequent problems with floating sludge and occasional very poor discharge quality to sewer.



New Plant design

In order to improve settlement generally, a coagulation and flocculation stage was added. This gave significantly improved performance in the lamella clarifier. Following this, a TOVEKO filter was added. This not only removes residual trace suspended solids (metal hydroxides) in normal operation, but also acts as a "policeman" in the event of occasional operational problems.

The effluent overflows the lamella clarifier directly into the TOVEKO filter, with no transfer pumps being required. Not only does this reduce capital and operating costs, but also ensures that the carefully flocculated flocks are not destroyed by pumps, and consequently removed far more efficiently in the filter.

Due to water-saving measures within the plant, the effluent flow at Drum Trading is normally approximately 3m³/h, peaking at 5m³/h. For this application, the smallest TOVEKO filter, an S-75 is perfectly adequate, thereby minimizing capital costs.

Results

- 1) Before installation of the H+E Toveko filter. (All values in mg/l.)

PERIOD	pH	Cr ^{tot}	Cr ⁶⁺	Ni	Zn	Cd	Al	COD
Sept-88	6,8	0,35	0,06	1,9	2,9	≤0,01	20	74
Oct-88	7,3	5,0	3,8	2,0	3,1	≤0,01	1,9	51
Nov-88	7,8	0,38	0,16	2,9	2,4	≤0,01	20	12

- 2) After installation of the H+E Toveko filter. (All values in mg/l.)

PERIOD	pH	Cr ^{tot}	Cr ⁶⁺	Ni	Zn	Cd	Al	COD
Jan-89	8,6	0,66	0,36	0,88	0,91	-	10	27
Feb-89	8,4	0,39	0,31	1,2	1,1	-	3,1	44
March-89	10,4	0,18	0,10	0,44	0,4	-	17	62
April-89	8,7	0,25	0,15	0,25	0,12	-	4,0	29
May-89	8,4	0,15	0,11	0,90	0,72	-	3,8	29
June-89	8,4	0,16	0,12	0,44	0,63	-	2,7	36

- 3) Monthly average results after the H+E Toveko filter. (All values in mg/l.)

PERIOD	Cr ⁶⁺	Cr ^{tot}	Cu	Ni	Zn
Jan-94	0,23	0,35	0,24	0,30	0,48
Feb-94	0,46	0,74	0,28	0,13	0,55
March-94	0,14	0,27	0,23	0,10	0,39
April-94	0,09	0,28	0,57	0,09	0,42
May-94	0,14	0,25	0,91	0,05	0,16
June-94	0,11	0,17	0,25	0,08	0,26
Aug-94	0,13	0,31	0,48	0,17	1,1
Sep-94	0,15	0,27	0,22	0,08	0,27
Oct-94	0,12	0,19	0,21	≤0,05	0,33
Nov-94	0,07	0,36	0,89	0,23	1,0
Dec-94	0,08	0,21	0,34	0,11	0,62

Discharge Consent Values for this plant are:

Total toxic metals less than 1,0 mg/l
 Cr⁶⁺ less than 0,2 mg/l
 Zn less than 2 mg/l

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