

CASE HISTORY

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Toveko Filters

Leba AB, Sweden - Recirculation of Industrial Rinse Water



Background

Leba AB is the largest contract powder coating finisher in Sweden. All kinds of components are painted, from 2 x 4 metre gates to extremely small pieces, such as clips. All parts to be painted arrive at Leba with machined surfaces contaminated by oil, metal particles and other foreign materials. Occasionally, the goods are even corroded. To achieve a high quality and long-lasting powder-coated finish, a good quality pre-treatment is necessary. Pre-treatment consists of degreasing, phosphating and passivation with associated carefully controlled rinsing stages to ensure that the components are perfectly clean. Since the parts processed have a very wide range of sizes and shapes and nine different qualities of paint are used, the composition of the resulting wastewater varies enormously and can change rapidly from minute to minute. In the past, the wastewater was disposed directly into the municipal sewer system. However, since this was no longer acceptable, Leba was required to install a treatment plant that would recycle treated rinse water. This plant has now been in operation since 1994.



The treatment plant

Plant design

The pH of the rinse water is adjusted automatically and the suspended solids produced are then flocculated with a polymer. The treated wastewater is then filtered to remove the solids prior to return and re-use in the rinse stages. To prevent bacterial growth the recycled water is disinfected using ultraviolet light. Suspended solids removed from the Toveko filter are pumped to a filter press in order to produce a semi-dry cake for subsequent disposal. The

temperature of the rinse water is normally between 45 & 50°C, and evaporation losses are therefore substantial. Approximately 20% of the total water volume has to be added each hour to replace these losses. This make-up water is deionised before adding it to the system to prevent an increase of the total salt content of the recirculated water, which would otherwise occur because the chemicals used for pH-adjustment and flocculation in the treatment process constantly add dissolved salts to the water.

Results

To ensure that the plant continues to treat the rinsing water to a quality that will permit recycling of the treated effluent, specifications for SS, Oil, Grease and Phosphorus have been set. The discharge from the filter is officially sampled on a regular basis and this has shown that the filter produces a discharge quality well within the consented quality.



Example of effluent and reject water from washer

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