

## CASE HISTORY

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



HAGER+ELSÄSSER

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# TOVEKO Filters

## Tertiary Filtration at Hickson and Welch



**Hickson & Welch started synthesising organic chemical intermediates in 1915 with two principal businesses involved in contract manufacture and the production of fine chemical intermediates for a very wide range of applications including pharmaceuticals manufacture and dye & pigment production.**

At their manufacturing site in Castleford, the treatment plant, owned and operated by BOC Gases, was designed to handle the wastewater arising from the various production processes within the factory. Producing organic chemicals meant that the heart of the wastewater treatment plant necessarily involved biological reduction of the relatively high oxygen demand contained in up to 150m<sup>3</sup> of wastewater of variable quality entering the plant every hour. As is often the case in such cases, the variable quality of the incoming effluent can affect the operational efficiency of the treatment plant.

Two TOVEKO continuous gravity sand filters were supplied to provide tertiary filtration of the treated wastewater prior to its final discharge to river. The filters (an S-600 and a T-1200) were supplied in SAF 2205 duplex alloy to provide long-term resistance against corrosion by the relatively high chloride concentration present.



**End view of the two filters showing the wash water supply system in the foreground**



**Top view of filters showing sand washers**

The filtration system was designed to handle flow rates varying from 75 – 150m<sup>3</sup> per hour with solids concentration varying from 75 – 250mg/l. The target design value for suspended solids was 20mg/l.

Prior to placing the contract for the filters, BOC Gases undertook an extended trial of the TOVEKO filter using a test unit. The results persuaded both BOC and Hickson & Welch that TOVEKO filters were the best solution for this application. One of the factors that influenced this decision is the ability of TOVEKO filters to react to changes in inlet solids load by automatically changing the rate at which the sand is removed from the filter bed and washed, thereby ensuring that the filter operates at peak efficiency at all times.

H+E has a test filter available for pilot trials. This can be very useful, not just to prove whether the filter is appropriate for unusual duties, but also to provide the customer with a greater feeling of security before committing to a substantial investment

**H+E** ranks among the world's leading suppliers in the fields of: water & wastewater treatment, and energy efficiency. Based on its global presence, the **H+E GROUP** has completed projects in over 50 countries.



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