CASE STUDY

Munters

Recovery of nitrobenzene

A manufacturer of nitrobenzene and other petrochemicals, India

A manufacturer of nitrobenzene and other petrochemicals enhanced their column capacity and increased nitrobenzene recovery from the effluent with Munters' high capacity valves and expertise.

Leading manufacturer of aniline, nitrobenzene and toluene di-isocynate

One of the main finished products, nitrobenzene (NB), streams from the plant and is washed with water to remove dissolved acids. The resulting effluent water contains trace amounts of nitrobenzene, which need to be further stripped in the steam stripper to reduce the nitrobenzene concentration, thus reducing load on the effluent treatment plant (ETP).

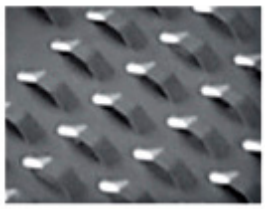
Customer requirements

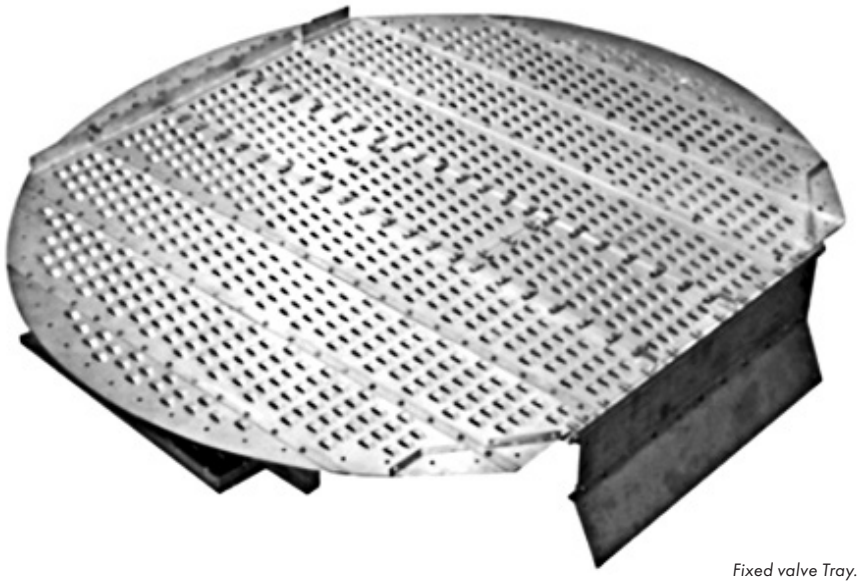
The customer was in the process of revamping the nitrobenzene plant in order to increase capacity. They wanted to check if the existing steam stripper with valve trays, which have a capacity of 12m^3/hr, could handle the effluent generated from revamped plant generating 16m^3/hr of effluent after revamping.

Quick facts

Nitrobenzene manufacturer increases recovery.

- Customer: Petrochemical industry
- Location: Western India
- Tower Name: Wastewater stripper
- Tower Diameter: 800 mm
- Mass Transfer Equipment: tower trays (valve trays)





Fixed valve Tray.

Problem analysis

Munters studied the existing stream stripper and concluded that existing trays could not sustain the increased load of 16m^3/hr. Final bottoms from the existing column contained 1600-2000 ppm of nitrobenzene, this effluent resulted in increased load on ETP plant since the COD value was high. The pressure drop of the column was high, which led to increased energy consumption.

Solutions provided

Munters suggested replacement of existing steam stripper valve trays with high-capacity valve trays to reduce the pressure drop across the column and increase the column capacity to 16m^3/hr.

The column hydraulic ratings using high capacity valves trays was carried out. Munters had anticipated reduction of nitrobenzene concentration of effluent to 500-800 ppm level. Trays were then manufactured, supplied and installed.

Results achieved

The steam stripper with high capacity valves:

- Enhanced capacity of 16m^3/hr.
- Reduction of nitrobenzene concentration to 600–1000 ppm level.
- Recovery of 300 kg/day additional nitrobenzene from the effluent.

Would you like to find out if Munters has a solution for your company too? If so, please visit our website, www.munters.com