



Revamp of LAB Plant

Petrochemical manufacturer, India



A leading manufacturer of petrochemicals in India reduced their LAB slippage to less than 5% and improved its Acid Color Index, which measures the quality of the LAB, to desired levels using Munters' mass transfer equipment and service.

Process overview

LAB (Linear Alkyl Benzene) is the reaction product of n-paraffin and benzene. The LAB plant consists of a PACOL unit (reactor) and recovery unit (paraffin column, re-run column and recovery column).

The output from the reactor consists of un-reacted paraffin, LAB and HAB (Heavy Alkyl Benzene), which forms the feed to the paraffin column. The paraffin column separates the un-reacted paraffin from the product and by-product: LAB and HAB.

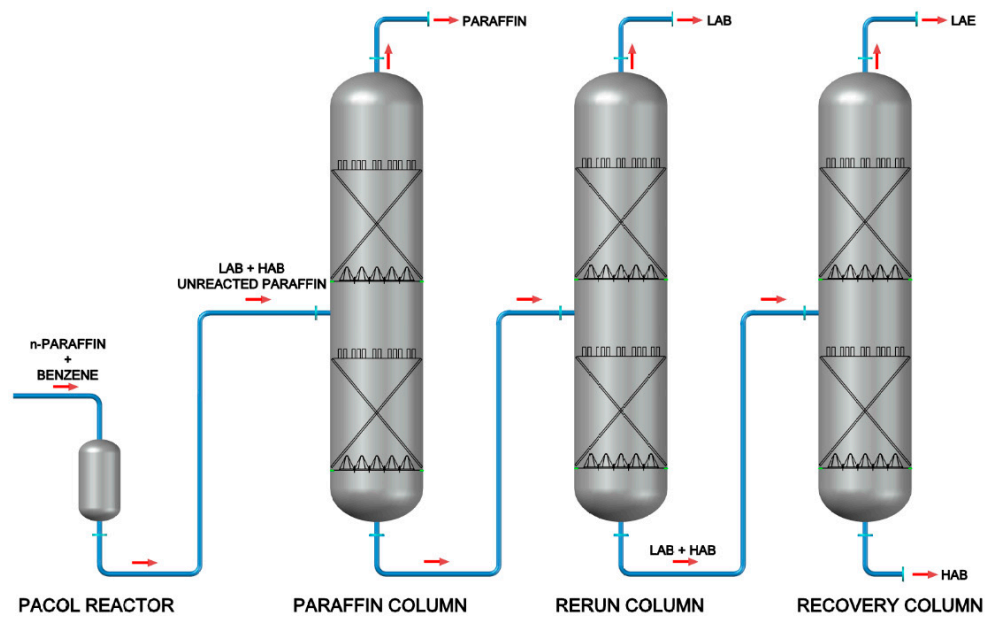
The re-run column in the loop then separates LAB and HAB. Further in the recovery column LAB, which has slipped along with bottoms of re-run column, is separated out. The LAB extracted from the re-run and recovery column need to be of high purity and have the desired Acid Color Index (ACI).

Case study

India petrochemical manufacturer LAB plant revamp.

Quick facts:

- Customer: Petrochemical industry
- Location: Western India
- Tower Name: Paraffin recovery unit
- Tower Diameter: 1200 mm to 4500 mm
- Mass Transfer Equipment: Random packing (Medal-Pak®) and tower internals



Customer requirements

- Maximize recovery of LAB thereby limiting the slippage to < 5%
- Improve Acid Color Index to a range of 20-25

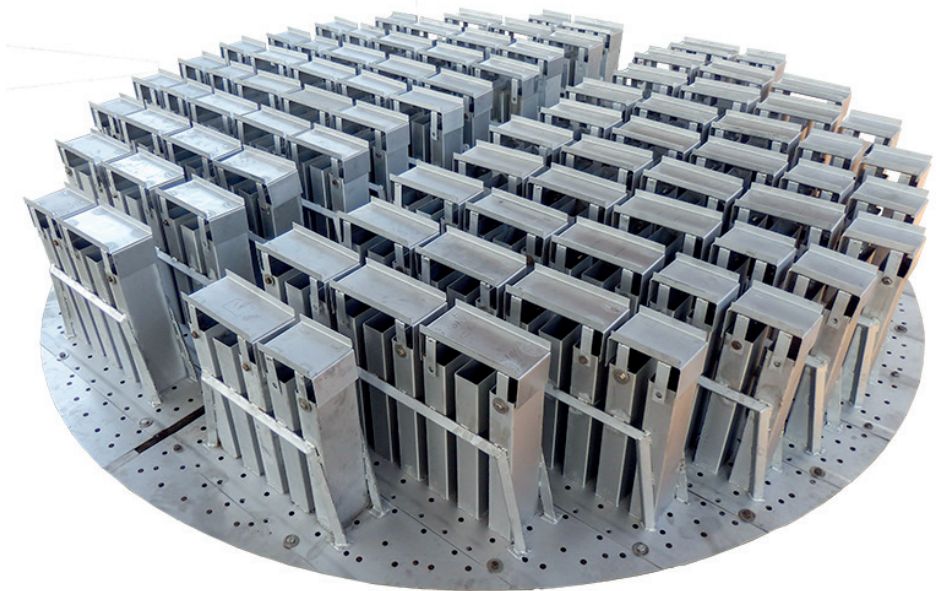
Acid Color Index is the measurement of LAB purity. LAB is mixed with 98% sulphuric acid (H_2SO_4) and the color index of the LAB sulfonate is measured. Good quality sulfonate (water like color) must have a color index of 20-25.

Problem analysis

Munters studied the existing system; the slippage of LAB in the recovery column was found to be more than 15% and the Acid Color Index was 30-35, sometimes even reaching 60.

It was concluded that:

- The existing pall rings had performance limitations
- The existing distributor and redistributors were found to be inadequate for proper distribution quality



Medal Pak & Riser deck distributor

Solution provided:

The LAB plant was hydraulically rated using Medal-Pak® and high-performance distributors. The LAB slippage was found to be within 5-7%.

Recommendations to the customer:

- Replacement of existing Pall Ring with high-performance Medal-Pak® tower packings
- Replacement to high-performance distributors and re-distributors to improve distribution quality

The tower internals and tower packings were manufactured, supplied and installed accordingly.

Results achieved

Plant capacity was increased by 20%. LAB slippage was reduced to less than 5% and the ACI also improved to the desired level.

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

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