

## C2 Splitter Successfully Revamped with SUPERFRAC® Trays for Increased Capacity

**Customer:** Chemical Plant

**Location:** Canada

**Tower Name:** C2 Splitter

**Tower Diameter:** 16' (4,877 mm)

**Mass Transfer Equipment:** 86 SUPERFRAC® trays

**Objective:** The existing C2 splitter had been in service for 4 years and had a capacity of 1.8 billion lb./year ethylene. The plant wanted to increase the capacity by 33% while maintaining or improving the efficiency, minimizing the pressure drop and minimizing downtime. They also wanted maintain the operating safety margin by limit the expansion with no increase in the Tray % Flood rating.

**Solution:** Koch-Glitsch, Inc. recommended replacing the existing 4-pass conventional valve trays with 4-pass high capacity SUPERFRAC trays. The 17 trays below the feed were designed with fixed mini valves, and the 69 trays above the feed were design with movable mini valves.

**Results:** The column capacity was increased by over 33% over the original design, but the pressure drop is slightly lower. The reflux ratio is basically the same as the pre-revamp ratio, and the column efficiency is measurably better. In addition, the installation time was well within the estimate. SUPERFRAC has clearly succeeded in improving the operation and profitability of this facility.

**On-Line:** 1998.

**C2 Splitter Tower Conditions:  
Before and After SUPERFRAC Tray Revamp**

	Before	After
Column Diameter	16'	16'
Type of Trays	Conv. Valve	SUPERFRAC
Ovhd Ethane, ppm	<200	120
Btms Ethylene, %	<0.1%	0.5%
Reflux/Feed Ratio	1.73	1.77
Pressure Drop, psi	5.8	5.7
% of Original Design Feed Rate	72%	133%