



CASE STUDY

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# Improving conversion using a continuous extractor for a Fine chemicals major



# Using continuous reactive extraction to improve conversion

## Case Study | Fine Chemicals Industry

During the first step of the well-established batch process, the product formed in the aqueous phase by batch reaction was extracted in toluene. The toluene with product was washed with water in the second step to selectively remove certain impurities.

The first step had potential for improvements. The reversible reaction would reach higher conversion if the product was removed from the reaction mass as soon as it was formed.

The two step process was tried in the **Asymmetric Rotating Disc Contactor (ARDC)** in the **pilot plant facility of Technoforce**. Toluene was counter currently passed over the aqueous phase while the reaction was proceeding at an elevated temperature. The product got transferred to toluene phase as soon as it was formed, facilitating better conversion.

*“Validation of our hunch that the counter current reactive extraction should improve the conversion is great news for us. Technoforce team is capable of understanding the basics and optimising the parameters, without which this breakthrough would not have been possible”,* opined the Technical Director.

Based on the trial results, a production scale reactive extraction column followed by another extraction column for toluene wash were designed for a capacity of about 50 tons/day of the reaction mass. The switchover to continuous system produced **dramatic results**.

Significantly improved economics and the faith in the capabilities of Technoforce prompted the customer to place **repeat order** for the continuous reactive extraction system within two years. The first installation is in continuous operation since 2008.

[www.technoforce.net](http://www.technoforce.net)

### Our Expertise

Evaporation

Drying

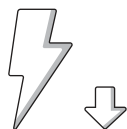
High Vacuum Distillation

Extraction

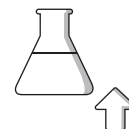
Crystallization

Zero Discharge Systems

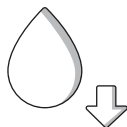
**TECHNOFORCE™**



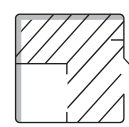
**90 %**  
Less power required



**90 %**  
Conversion



**70 %**  
Less water used



**75%**  
Less area required