

# SEPARATIONS SAVVY

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## Solvent Recovery Systems Pay for Themselves

The pharmaceutical industry has largely overlooked the benefits of recovering and recycling solvents on-site, preferring instead to rely on the repurchase of virgin solvents or recovery of used solvent off-site by third parties.

Currently, many manufacturers rely on toll processors to perform recovery of solvents. In addition to the transportation hazards, because the toll processor can be dealing with a number of different materials for different customers, the residue that remains in the equipment could cause cross-contamination, which could impact pharmaceutical product purity.

Other solutions for disposal such as incineration may be less attractive from an environmental standpoint.

There is also an economic downside. Resorting to disposal of used solvents and repurchase of virgin solvents is also an expensive process, and many pharmaceutical companies are leaving significant amounts of money on the table.

### Case History

According to Tom Schafer, VP at Koch Modular Systems, the payback period for installing a solvent recovery system can be less than two years.

“We built a THF (Tetrahydrofuran) Recovery System for a well known pharmaceutical company. This system was fed a waste solvent stream that contained water, THF, Dichloromethane, toluene and some salts. There were several azeotropes present, and we needed four small distillation columns to recover the dry THF product.”

Schafer went on to explain that the recovered product purity was greater than 99.9 wt% THF. The system recovered 94.1% of the THF that was in the feed.

“The cost of the system installed was \$3.8 MM”, said Schafer. “The annual savings from the recovered solvent was \$2.2 MM. The operating cost for the system was \$200,000 per year in utilities and manpower. The system paid for itself in less than two years.”

Koch solvent recovery units are available as modules, which are usually installed outdoors and the typical module footprint is 12 feet by 12 feet.” These can be manufactured indoors, off-site and are ready for install along a more expedited timeline than traditional stick-built projects.



### UPCOMING EVENTS

June 11 -15

ACHEMA – World Forum and  
Leading Show for the Process Industries  
(Frankfurt am Main, Germany)

#### KOCH MODULAR PRESENTATIONS AT ACHEMA

1

Modular Construction:  
An Economic Solution to  
Regionalized Small Scale  
Chemical Production  
By: Brian Loftus and Tom Schafer

2

Designing Liquid-Liquid  
Extraction Columns Through  
Optimized Pilot Plant Testing  
By: Don Glatz

