

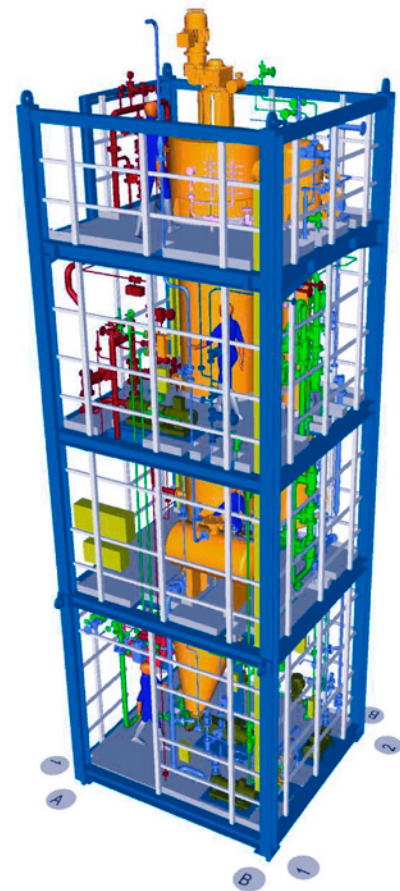
# Solvent recovery solutions for the chemical and pharmaceutical industry

Solvents are essential for a wide range of chemical reactions. The purity and recovery of these substances play an important role in the profitability of manufacturing processes.

In addition to commercial considerations, there is an increased focus on waste reduction and stringent regulations for waste disposal.

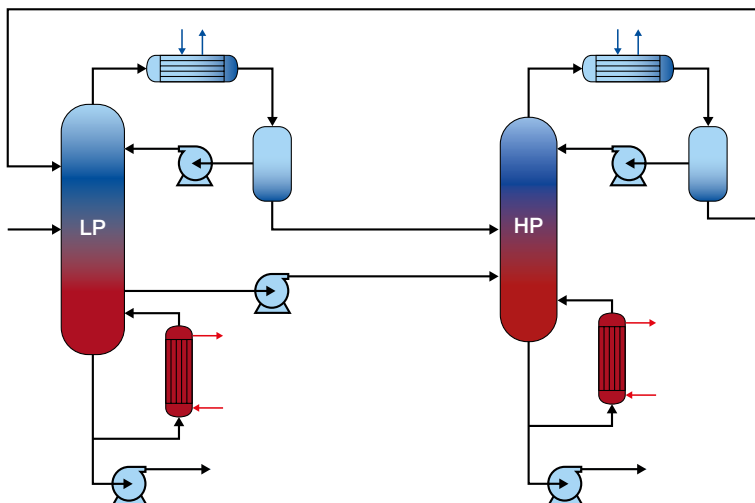
From azeotropic mixtures to thermosensitive chemicals, Sulzer Chemtech can provide solutions to handle the wide variety of mixtures and contaminants present in solvents after their use to optimize recovery. This ranges from recovering alcohols, such as ethanol, isopropanol or phenol to toluene or acetonitrile, and many more.

Our skid-mounted plants are typically individual solutions developed for the specific application and needs of the industry to ensure a highly efficient solvent recovery process.



Solvent recovery skid

## Pressure swing distillation



## What are the typical problems in solvent recovery and our solutions?

Overcome azeotropes by utilizing the optimal technology:

- Pressure swing distillation
- Membrane separation
- Extractive / entrainer distillation

Optimize the cost of your solvent recovery system using:

- Heat integration
- Processes to recover additional valuable products
- Skid mounted units to limit downtime

Remove low/high boiling chemicals from a solvent and further purify it cost-effectively via:

- Liquid-liquid extraction e.g. by utilizing the Kühni agitated column or packed columns
- Stripping with an optimized stripping gas

Treat sensitive chemicals, which can degrade at elevated temperatures, whether you utilize:

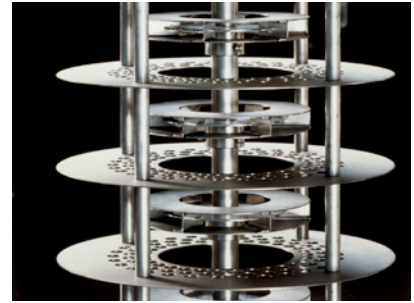
- Vacuum distillation
- Liquid-liquid extraction
- Fractional crystallization

Set up an optimized solution for hazardous but necessary chemicals, such as acetonitrile:

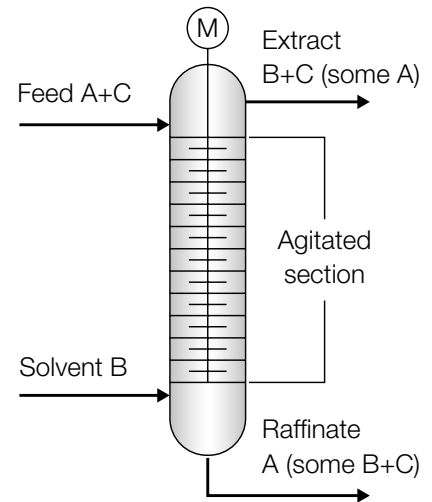
- Use processes proven under appropriate conditions in the Sulzer Chemtech test center

Fit a new recovery unit in an existing plant with limited space availability:

- Benefit from optimized equipment designs tailored to existing footprints
- Short installation time for modules resulting in minimized construction activities at site



ECR – Kühni™ column internals



Liquid-liquid extraction

Sulzer Chemtech, as the leader in separation technology, supplies mass transfer equipment such as structured packing and trays to the chemical, petrochemical and pharmaceutical industries. The company further develops advanced separation equipment including liquid-liquid extraction columns, evaporators and crystallization units. Based on our most advanced and developed portfolio, our applicational expertise and in particular our R&D and testing facilities, we develop and supply skid solutions for the chemical and pharma industry, including required process guarantees.