

# Membrane filtration of high viscosity solutions



**Project:** CS-10-21  
**Project Leader:** Dr Ir F.P. Cuperus  
**E-mail:** cuperus@solsep.com  
**Partners:** SolSep, Dishman, DSM, Sabic, Shell, AKZO Nobel, NL GUTS  
**Budget:** 50k€

## Objective:

Membrane separation is increasingly used for the processing of organic solvents systems. However, the recovery of solvents from viscous media (e.g. polymers) is a very new area. The project focuses on the removal of solvents from (very) viscous streams to be recycled in the process.

## Motivation:

Currently used distillation/evaporation is expensive (energy) and sometimes introduces degradation of products (lowering quality). Less heat input by membranes should improve continuous quality at lower costs. Hence, better products for lower cost price.

## Project scope:

Two industrial cases are evaluated on small scale. Technical possibilities for (very) high viscosities are explored.



## Applicability:

Application is tested in systems that have or get a high viscosity during processing. E.g. in processing of:

- Polymers
- Coatings and paints
- Oils (vegetable oils, petrochemicals)
- Cosmetics
- Pharmaceuticals

## Results:

- NF can be used up to high viscosity and concentration factors
- NF is clearly an alternative for production and reduces energy consumption
- Flux is acceptable
- Spacer design and crossflow have considerable effects
- Limited osmotic pressure increase