Concentration of Caprolactam for Polyamide Production

Challenge
- Caprolactam is the precursor to polyamide 6, a widely used synthetic polymer
- Non-reacted caprolactam monomers are found in evaporation condensate (0.1%) and in process waste streams (5 to 10%)
- Evaporation is used to recover the unreacted caprolactam in those streams
- Concentration of caprolactam requires elevated temperature to avoid crystallization below 60°C.

Solution
- Recover caprolactam at 30 to 50 bar and 60° to 80°C with high temperature RO (HTRO) from Dow.
- Achieve concentrations up to 20% if solvents are part of the process, compatibility with the HTRO has to be confirmed first.

Key Benefits
- Minimize CAPEX and OPEX of evaporation by reducing volume to evaporator by up to 80%
- Reuse of hot condensate water
- Reuse of caprolactam monomers

Dow Product
XUS1203 product line
DOW FILMTEC™ SW30 flat sheet, max 80°C at 30bar
DOW HYPERSHELL™, 48mil feed spacer
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