HybSi® membranes for dehydration of organic solvents by pervaporation

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Background
Hybrid silica HybSi® membranes for dehydration pervaporation available on m² scale. It has high performance and an unprecedented stability in dehydration pervaporation.

HybSi® membrane advantages
- High temperature operation
- Resistance to aprotic solvents
- Acid compatibility
- Suitability for vapour permeation
- High flux isothermal modules
- Low investment costs
- Selectivity MeOH vs. organics
- Resistance to aprotic solvents

Applications
- Azeotropes of water with e.g. ethanol, acetonitrile, methylmethylethylketone, methylacetate, tetrahydrofurane.
- Dehydration of solvents like dimethylfurane or n-methyl pyrolidone.
- Complex distillations in production processes like acrylates, carbonates, bisphenol A, terephthalic compounds.

Lab scale membrane and module

Pervaporation test results
(Feed = 5 wt.% H₂O in solvent at different temp.)

Conclusions about HybSi®
- Protected by ECN patents.
- Stable > 2.5 years in pervaporation at 150°C.
- Dehydration of aprotic solvents and acids.
- Energy savings up to 70% and return on investments < 3 years.
- Pilot scale demonstration started.
- First license signed with membrane producer.

References