

# HITACHI ZOSEN U.S.A. LTD.

## TECHNOLOGY

Defined as a unique dehydration system employing the zeolite membrane developed by Hitachi Zosen Corporation (Hitz), Hitz Dehydration System (HDS) can be applied to extensive chemical processes such as dehydration and/or high purification of organic solvents: alcohols; ethers; ketones; aromatic hydrocarbons; aliphatic hydrocarbons etc. Besides, it can also be utilized for refinement and recycle processes as well as for new chemical processes such as advanced esterifications with dehydration operations.



## COMPETITIVE ADVANTAGE

1. Higher Ethanol Dehydration Performance — High Purity Ethanol Concentration of 99.995wt%
2. Higher Ethanol Dehydration Throughput — 50kg/m<sup>2</sup>·hr for Raw Material of E/W=90/10 wt/wt
3. Low Initial Investment — Much Simpler Processing than Conventional Processes
4. Easy Operation and Maintenance — Less Frequent Pressure Swing Process during Operation
5. Low Operation and Maintenance Cost — Higher Water Selectivity due to Zeolite Molecular Sieve Membrane, Durable Zeolite Membrane, High Energy Saving and Continuous Operation

## RECORD OF SUCCESS

### APPLICATION & PRODUCT / PROCESSING CAPACITY / CONTRACT YEAR

1. Dehydration Membrane for IPA / 400kL/year / 2008
2. Dehydration Membrane for THF / 4,500kL/year / 2008
3. Dehydration Membrane for MEK / 1,500kL/year / 2008
4. Dehydration Membrane for Special Alcohol / 1,500kL/year / 2008
5. Dehydration System for Bioethanol/ 15,000kL/year / 2007

## OPPORTUNITIES FOR PARTNERS

Hitz is looking for such partners as plant engineering firms dealing with the processing of organic solvents as well as manufacturers of those solvents. In fact, we are prepared to provide on-demand-based services ranging from planning to system manufacturing, provided that all the necessary agreements are guaranteed. Meanwhile, the zeolite membrane alone can be supplied likewise. Besides, we look for partners to realize value-added innovation based on more advanced dehydration technologies.

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