

Hitz Dehydration System (HDS)

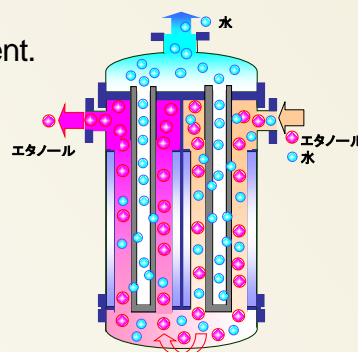
- HDS is a dehydration system utilizing zeolite membrane for bioethanol, methanol and various organic solvents dehydration.

Features

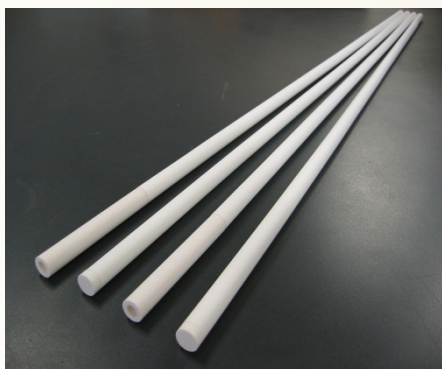
- Drastic energy saving can be expected compared to conventional dehydration system such as molecular sieve system.
- Capacity increase through debottlenecking also can be expected.
- Commercial unit in Japan has been continuously operated for 4 years since March 2009 without any deterioration and replacement of the membrane initially installed.

Overview (Technical principles, actions, etc.)

- HDS consists of membrane module vessels, condensers, vaporizer, chiller and some auxiliary equipment.
- Hydrous ethanol vapor is fed to the membrane module vessels and gradually concentrated in the flow along the membrane surface up to the required concentration.
- Hitz has developed the zeolite membrane and been fabricating them in our factory in Japan.



Membrane module vessel



Zeolite membrane



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Introductory Track Record

	Country	Capacity	Purified Products	Water Concentration	Installation
1	Hokkaido, Japan	30L/d	Bioethanol	10→0.5wt%	Aug. 2008
2	Fukushima, Japan	2.3kL/d	Fluoro Alcohol	6→0.5wt%	Sep. 2008
3	Fukushima, Japan	2.3kL/d	MEK(Methy Ethyl Ketone)		Sep. 2008
4	India	3kL/d	THF(Tetra Hydro Furan)	20→0.5wt%	Mar. 2009
5	Hokkaido, Japan	50kL/d	Bioethanol	8→0.5wt%	Apr. 2009
6	Taiwan	130L/d	IPA(Iso Propyl Alcohol)		Apr. 2009
7	China	7L/d	Bioethanol	14→0.5wt%	Oct. 2009
8	Fukushima, Japan	2.3kL/d	MEK(Methy Ethyl Ketone)		Jul. 2010
9	Korea	130L/d	IPA(Iso Propyl Alcohol)		Jul. 2010
10	Korea	130L/d	IPA(Iso Propyl Alcohol)		Feb. 2011
11	Korea	130L/d	IPA(Iso Propyl Alcohol)		Jun. 2011
12	Korea	130L/d	IPA(Iso Propyl Alcohol)		Oct. 2011
13	Kumamoto, Japan	7L/d	Bioethanol	10→0.4wt%	Nov. 2011
14	Korea	130L/d	IPA(Iso Propyl Alcohol)		Mar. 2012
15	Fukushima, Japan	2.3kL/d	MEK(Methy Ethyl Ketone)		Feb. 2013
16	Korea	130L/d	IPA(Iso Propyl Alcohol)		Mar. 2013
17	Yamanashi, Japan	4.7kL/d	Ethanol + Toluene		Apr. 2013

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