

최신 미국특허 등록 목록

■ Hybrid membrane system for gas streams with condensable hydrocarbons

- 등록번호: US20140243572 A1
- 발명자: Marc Straub, John A. Jensvold
- 출원인: Generon Igs, Inc.
- 초록: A gaseous component is extracted non-cryogenically from a feed gas containing condensable hydrocarbons. The feed gas is passed first through a module containing polymeric fibers useful for removing water vapor from the gas. The gas is then passed through a module containing polymeric fibers selected such that they remove some, but not all, of the carbon dioxide in the stream. The gas is then passed through a module containing polymeric fibers selected to remove at least some of the remaining carbon dioxide as well as heavy hydrocarbons, defined as C5 and heavier, from the stream. The invention is especially useful in processing raw methane taken from a well, and in producing methane which is relatively free of water vapor, carbon dioxide, and heavy hydrocarbons.

■ High-flow hollow-fiber membranes containing polymer blends

- 등록번호: US20140187683 A1
- 발명자: John A. Jensvold, Frederick L. Coan, Arthur J. Barajas
- 출원인: Generon Igs, Inc.
- 초록: A composition for making polymeric

fiber membranes, for use in non-cryogenic separation of gases, substantially improves product flow, with only a small decrease in the recovery ratio. The composition is a spin dope including tetrabromo bis-phenol A polycarbonate (TBBA-PC) and tetrabromo bis-hydroxyphenylfluorene polycarbonate (TBBH-PF-PC), in proportions, by weight, ranging (in percent) from about 60/40 to 40/60, and n-methyl pyrrolidinone (NMP) and triethylene glycol (TEG), wherein the ratio of the amounts of NMP to TEG, by weight, is in the range of about 1.6-2.5. The spin dope is used to make hollow fibers for use in gas-separation membrane modules.

■ Sour gas and acid natural gas separation membrane process by pre removal of dissolved elemental sulfur for plugging prevention

- 등록번호: US20140187838 A1
- 발명자: Milind M. Vaidya, Jean-Pierre R. Ballaguet, Sebastien A. Duval, Anwar H. Khawajah
- 출원인: Saudi Arabian Oil Company
- 초록: Methods for removing sulfur from a gas stream prior to sending the gas stream to a gas separation membrane system are provided. Two schemes are available. When the sulfur content is high or flow is relatively high, a scheme including two columns where one tower is regenerated if the sulfur concentration exceeds a preset value can be used. When the sulfur content is low or flow is rel-

atively low, a scheme including one column and an absorption bed.

■ Magnetically responsive membranes

- 등록번호: US20140231351 A1
- 발명자: Sumith Ranil Wickramasinghe, Xianghong Qian, Heath H. HIMSTEDT, Mathias Ulbricht, Michael J. Semmens
- 출원인: Colorado State University Research Foundation, The Board Of Trustees Of The University Of Arkansas, Lehrstuhl fur Technische Chemie II, Universitat Duisburg-Essen
- 초록: The invention provides permeable magnetically responsive filtration membranes that include a filtration membrane polymer base suitable for fluid filtration; hydrophilic polymers conjugated to the surface of the filtration membrane polymer; and magnetic nanoparticles affixed to the ends of a plurality of the hydrophilic polymers, wherein the hydrophilic polymers are movable with respect to the surface of the filtration membrane polymer surface in the presence of an oscillating magnetic field.

■ Evaporative cooling system with liquid-to-air membrane energy exchanger

- 등록번호: US20140260369 A1
- 발명자: Philip Paul LePoudre
- 출원인: Venmar Ces, Inc
- 초록: An evaporative cooling system includes an evaporative cooler liquid-to-air membrane energy exchanger (LAMEE), a first liquid-to-air heat exchanger (LAHE), and a cooling fluid circuit. The evaporative cooler LAMEE is disposed within a scavenger air plenum that is configured to channel a scavenger air stream. The first LAHE is disposed within a process air

plenum that is configured to channel a process air stream. The cooling fluid circuit is configured to circulate an evaporative cooling fluid between the evaporative cooler LAMEE and the first LAHE. The evaporative cooler LAMEE is configured to utilize the scavenger air stream to evaporatively cool the cooling fluid. The first LAHE is configured to receive the cooling fluid from the evaporative cooler LAMEE and to allow the cooling fluid to absorb heat from the process air stream to cool the process air stream.

■ Biaxially oriented microporous membrane

- 등록번호: US8795565 B2
- 발명자: Xiangyun Wei, Charles Haire
- 출원인: Celgard Llc
- 초록: A microporous membrane is made by a dry-stretch process and has substantially round shaped pores and a ratio of machine direction tensile strength to transverse direction tensile strength in the range of 0.5 to 5.0. The method of making the foregoing microporous membrane includes the steps of: extruding a polymer into a nonporous precursor, and biaxially stretching the nonporous precursor, the biaxial stretching including a machine direction stretching and a transverse direction stretching, the transverse direction including a simultaneous controlled machine direction relax.

■ Membrane lift assembly

- 등록번호: US 2014/0328651 A1
- 발명자: Jeremy Huet, James Marr
- 출원인: Banner Environmental Engineering Consultants Ltd., Black Diamond (CA)
- 초록: The present application provides a lift assembly for a portable, modular wastewater treatment facility, the lift assembly capable of

inserting and/or removing a membrane from a membrane bioreactor. The lift assembly is self contained reducing the user to exposure to environmental elements.

■ Novel in-situ membrane cleaning using periodic electrolysis

- 등록번호: US 2014/0217022 A1
- 발명자: Raed HASHAIKEH, Boor Lalia, Nidal Hilal
- 출원인: Masdar Institute Of Science And Technology
- 초록: A membrane is provided herein having the ability to remove/prevent membrane fouling. This novel membrane consists of a thin electrically conductive layer deposited on the membrane surface. This unique membrane can be used as an electrode in an electrochemical system that consists of the membrane, the salty water as an electrolyte and a counter electrode that can be inserted in the saline feed solution. A periodic electrolysis can be performed. Electrolysis will generate gases (e.g., Cl₂ and O₂) and the periodic gases evolution at the membrane surface acts to clean and prevent both fouling and scaling of the membrane surface. The new system enables on-line self-cleaning mechanism of the membrane, which is useful for, inter alia, use of such a membrane in a system for the desalination of saline water or wastewater.

■ Membrane modules

- 등록번호: US20140263025 A1
- 발명자: Eric Maxwell, Inga B. Elkina, Nathan Hancock, Gary McGurgan
- 출원인: Oasys Water, Inc.
- 초록: The invention relates to membranes, membrane modules, and applications therefor. In particular, the invention relates to the construction of membranes and membrane modules for use in osmotically driven membrane processes.

■ Self adhering membrane for roofing applications

- 등록번호: US8852701 B2
- 발명자: Michael J. Hubbard
- 출원인: Firestone Building Products Company, Llc
- 초록: A preformed, self adhering single ply roofing membrane including a water impermeable membrane; a pressure sensitive, hot melt adhesive adhered to one side of the water impermeable membrane, and a release liner on the side of the pressure sensitive, hot melt adhesive opposite of the water impermeable membrane.