



US 20060016215A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2006/0016215 A1**

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(43) **Pub. Date: Jan. 26, 2006**

(54) **DISTILLATION PROCESS USING MICROCHANNEL TECHNOLOGY**

(52) **U.S. Cl. .... 62/617; 62/902; 62/903**

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(57) **ABSTRACT**

The disclosed invention relates to a process for distilling a fluid mixture in a microchannel distillation unit, the microchannel distillation unit comprising a plurality of microchannel distillation sections, the fluid mixture comprising a more volatile component and a less volatile component, the process comprising: flowing a vapor phase of the fluid mixture in a first microchannel distillation section in contact with a liquid phase of the fluid mixture, part of the more volatile component transferring from the liquid phase to the vapor phase to form a more volatile component rich vapor phase, part of the less volatile component transferring from the vapor phase to the liquid phase to form a less volatile component rich liquid phase; separating the more volatile component rich vapor phase from the less volatile component rich liquid phase; flowing the less volatile component rich liquid phase to another microchannel distillation section upstream from the first microchannel distillation section; and flowing the more volatile rich vapor phase to another microchannel distillation section downstream from the first microchannel distillation section.

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(21) **Appl. No.: 10/898,687**

(22) **Filed: Jul. 23, 2004**

**Publication Classification**

(51) **Int. Cl.**  
**F25J 3/00 (2006.01)**  
**F25J 5/00 (2006.01)**

