

Title (en)  
REFRIGERATION PROCESS AND APPARATUS USING A REFRIGERANT MIXTURE

Publication  
**EP 0422973 B1 19930113 (FR)**

Application  
**EP 90402595 A 19900920**

Priority  
FR 8913158 A 19891009

Abstract (en)  
[origin: JPH03134437A] PURPOSE: To improve cooling efficiency, by separating light components in a mixture from heavy components through permeation for the most part, and rendering only a remaining portion due to one permeation to a condensation stage by cooling and an expansion stage. CONSTITUTION: The present equipment includes a single circulation compressor 2, a permeation unit 3, a condenser 4, an indirect heat exchanger 5, and an expansion valve 6. There is used a mixture containing a heavy component of one kind and a light component of a least one kind, and the light component is mostly separated from the heavy component through the permeation unit 3 between a compression stage with the compressor 2 and a condensation stage with cooling of the condenser 4. The condensation stage with cooling and the expansion stage are applied only to a remaining fraction of the permeation, and a permeated material is added to an expanded remaining fraction, and further an evaporation stage is applied to the whole of the mixture. As a result, temperature is easily reduced down to a low temperature with a single compressor.

IPC 1-7  
**F25B 9/00**; **F25B 25/00**

IPC 8 full level  
**F25B 1/00** (2006.01); **F25B 9/00** (2006.01)

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