

Title (en)

REFRIGERATOR, AND METHOD FOR PRODUCING VERY LOW TEMPERATURE COLD

Title (de)

KÄLTEVORRICHTUNG UND VERFAHREN ZUR ERZEUGUNG VON KÄLTE MIT SEHR NIEDRIGEN TEMPERATUREN

Title (fr)

RÉFRIGÉRATEUR ET PROCÉDÉ DE PRODUCTION DE FROID À TRÈS BASSE TEMPÉRATURE

Publication

**EP 2307823 A1 20110413 (FR)**

Application

**EP 09740356 A 20090722**

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Abstract (en)

[origin: WO2010012939A1] The invention relates to a method for producing very low temperature cold through a dilution cycle wherein a two-phase mixture of the two isotopes  $^3\text{He}$  and  $^4\text{He}$  is created in a mixing chamber (2) from liquid  $^3\text{He}$  and  $^4\text{He}$  added separately, wherein said mixture of the  $^3\text{He}$  from a so-called concentrated phase is extracted so as to pass  $^3\text{He}$  into a so-called diluted phase, and due to which the frigories generated by passing the  $^3\text{He}$  into the diluted phase are recovered, the phase separation of the two-phase mixture being carried out by monitoring the flows of pure  $^3\text{He}$  and  $^4\text{He}$ , added separately into the mixing chamber (2), and by gravity-independent capillary forces, the dilution cycle operating in a closed loop, the method including a first step of recovering and separating the two isotopes  $^3\text{He}$  and  $^4\text{He}$  from the fraction of the mixture extracted through a discharge duct (8) and a second step of adding the two isotopes  $^3\text{He}$  and  $^4\text{He}$ , separated during the first step, back into the mixing chamber (2). The invention also relates to a refrigerator.

IPC 8 full level

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