

Title (en)

METHOD AND PLANT FOR HYDROGEN LIQUEFACTION

Title (de)

VERFAHREN UND ANLAGE ZUR WASSERSTOFFVERFLÜSSIGUNG

Title (fr)

PROCEDE ET INSTALLATION DE LIQUEFACTION DE L'HYDROGENE

Publication

**EP 4348138 A1 20240410 (FR)**

Application

**EP 22732602 A 20220527**

Priority

- FR 2105720 A 20210531
- FR 2022051005 W 20220527

Abstract (en)

[origin: WO2022254132A1] Method for hydrogen liquefaction comprising at least a pre-cooling step, wherein a hydrogen feed flow is cooled by a first refrigerant, a cooling step, wherein the hydrogen feed flow is cooled by a second refrigerant, and a step of expanding the hydrogen feed flow. Each of the first and second refrigerants is successively subjected to at least one compression and to at least one expansion in order to cool it, and a liquid phase of the first refrigerant cools the second refrigerant between at least three stages of said compression so that the second refrigerant does not exceed a temperature of 150 K, preferably 113 K, during said compression of the second refrigerant. A plant for the implementation of this method comprises a first refrigerant circuit (R1) containing a first refrigerant and a second refrigerant circuit (R2) containing a second refrigerant and comprising one or more compressors (C21, C22, C23) and a cooling device arranged together, and one or more expansion valves (JT2, E21, E22, E23). The cooling device is configured to cool the second refrigerant in the second refrigerant circuit (R2) with a liquid phase of the first refrigerant in the first refrigerant circuit (R1).

IPC 8 full level

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CPC (source: EP US)

**F25J 1/001** (2013.01 - EP US); **F25J 1/005** (2013.01 - EP US); **F25J 1/0052** (2013.01 - EP); **F25J 1/0055** (2013.01 - EP US); **F25J 1/0062** (2013.01 - US); **F25J 1/0065** (2013.01 - US); **F25J 1/0067** (2013.01 - EP US); **F25J 1/007** (2013.01 - EP); **F25J 1/0072** (2013.01 - EP US); **F25J 1/0077** (2013.01 - EP US); **F25J 1/0205** (2013.01 - EP US); **F25J 1/0218** (2013.01 - EP); **F25J 1/0265** (2013.01 - EP US); **F25J 1/0291** (2013.01 - EP); **F25J 1/0292** (2013.01 - EP US); **F25J 1/0218** (2013.01 - US); **F25J 1/0291** (2013.01 - US); **F25J 2230/04** (2013.01 - EP US); **F25J 2240/60** (2013.01 - EP US); **F25J 2250/02** (2013.01 - EP); **F25J 2270/16** (2013.01 - EP US)

Designated contracting state (EPC)

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