

Title (en)
METHOD AND AN APPARATUS FOR LIQUEFYING HYDROGEN

Title (de)
VERFAHREN UND VORRICHTUNG ZUR VERFLÜSSIGUNG VON WASSERSTOFF

Title (fr)
PROCÉDÉ ET APPAREIL DE LIQUÉFACTION D'HYDROGÈNE

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Application
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Abstract (en)
The present invention relates to a method for liquefying hydrogen, wherein a gaseous hydrogen stream (A, A') is subjected to precooling in a hydrogen precooling heat exchanger arrangement (20) and thereafter to further cooling and liquefaction in a hydrogen liquefaction heat exchanger arrangement (20) operated with a hydrogen cooling cycle, wherein said precooling is performed using nitrogen streams (N1, N2, N3) heated in a hydrogen precooling heat exchanger (50) of the hydrogen precooling heat exchanger arrangement (20). Said nitrogen streams (N1, N2, N3) include a first nitrogen stream (N1) supplied to the hydrogen precooling heat exchanger (50) at the cold end with a proportion of liquid of at least 80% and at a first nitrogen pressure level of 1 to 1.5 bar absolute pressure, and a second nitrogen stream (N2) supplied to the hydrogen precooling heat exchanger (50) at an intermediate position in a subcooled and liquid state at a second nitrogen pressure level of 30 to 55 bar absolute pressure. A corresponding apparatus (100-500) is also part of the present invention.

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Citation (applicant)
U. CARDELLA ET AL.: "Economically viable large-scale hydrogen liquefaction", IOP CONF. SERIES: MATERIALS SCIENCE AND ENGINEERING, vol. 171, 2017, pages 012013

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