

Title (en)  
FACILITY AND METHOD FOR HYDROGEN REFRIGERATION

Title (de)  
ANLAGE UND VERFAHREN ZUR WASSERSTOFFKÜHLUNG

Title (fr)  
INSTALLATION ET PROCÉDÉ DE RÉFRIGÉRATION D'HYDROGÈNE

Publication  
**EP 4127582 A1 20230208 (FR)**

Application  
**EP 21708249 A 20210303**

Priority

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Abstract (en)  
[origin: CA3171542A1] Facility and method for hydrogen refrigeration, comprising a hydrogen circuit (2) to be cooled, comprising: - a first and a second set of heat exchanger(s) (5) arranged in series for exchanging heat with the hydrogen circuit (2) to be cooled; - a first cooling device (7) for exchanging heat with the first set of heat exchanger(s) (5) comprising a refrigerator that operates a refrigeration cycle of a first cycle gas; - a second cooling device (8) for exchanging heat with the second set of heat exchanger(s) (6) comprising a refrigerator that operates a refrigeration cycle of a second cycle gas having a molar mass of less than 3 g/mol, the refrigerator of the second cooling device (8) comprising, arranged in series in a cycle circuit: at least one centrifugal compressor (9, 10), a cooling member (5), an expansion member (11) and a member (6) for reheating the second expanded cycle gas; - a system (120) for mixing at least one additional component having a molar mass greater than 50 g/mol with the second cycle gas before it enters the at least one centrifugal compressor and a member (12) for purifying the mixture at the outlet of the at least one compressor (9, 10) configured to remove the at least one additional component up to a determined residual content and located upstream of the first set of heat exchanger(s) (5).

IPC 8 full level  
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