

Title (en)  
MARTENSITIC STAINLESS STEEL FOR HYDROGEN GAS ENVIRONMENT AND MANUFACTURING METHOD THEREFOR

Title (de)  
MARTENSITISCHER EDELSTAHL FÜR WASSERSTOFFGASUMGEBUNG UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)  
ACIER INOXYDABLE MARTENSITIQUE POUR ENVIRONNEMENT HYDROGÈNE GAZEUX ET SON PROCÉDÉ DE FABRICATION

Publication  
**EP 4417728 A1 20240821 (EN)**

Application  
**EP 24157125 A 20240212**

Priority  
JP 2023023052 A 20230217

Abstract (en)  
Disclosed is a martensitic stainless steel for a hydrogen gas environment, having a composition consisting of: 0.02 mass% ≤ C ≤ 0.30 mass%, Si ≤ 1.50 mass%, Mn ≤ 1.50 mass%, P ≤ 0.150 mass%, S ≤ 0.150 mass%, 8.0 mass% ≤ Cr ≤ 22.0 mass%, 1.0 mass% ≤ Ni ≤ 6.0 mass%, 0.01 mass% ≤ Nb ≤ 1.0 mass%, and N ≤ 0.12 mass%, and optionally at least one selected from the group consisting of: Cu ≤ 6.00 mass%, Mo ≤ 3.00 mass%, V ≤ 1.50 mass%, and B ≤ 0.0500 mass%, with the balance being Fe and inevitable impurities; having: a crystal grain size number of prior austenite grains of 2.0 or more, an amount of retained austenite of 40 vol% or less, a tensile strength of 1,500 MPa or less, and satisfying  $D_{H2(0.7)} / D_{air} \geq 0.8$ .

IPC 8 full level  
**C22C 38/48** (2006.01); **C21D 1/18** (2006.01); **C21D 1/22** (2006.01); **C21D 6/00** (2006.01); **C21D 6/04** (2006.01); **C21D 8/00** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/42** (2006.01); **C22C 38/44** (2006.01); **C22C 38/46** (2006.01); **C22C 38/54** (2006.01)

CPC (source: EP KR US)  
**C21D 1/18** (2013.01 - EP US); **C21D 1/22** (2013.01 - EP); **C21D 6/004** (2013.01 - EP US); **C21D 6/005** (2013.01 - US); **C21D 6/008** (2013.01 - US); **C21D 6/04** (2013.01 - EP US); **C21D 8/005** (2013.01 - EP); **C21D 8/065** (2013.01 - US); **C21D 9/0062** (2013.01 - KR); **C21D 9/525** (2013.01 - US); **C22C 38/001** (2013.01 - EP US); **C22C 38/002** (2013.01 - US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/42** (2013.01 - EP KR US); **C22C 38/44** (2013.01 - EP KR US); **C22C 38/46** (2013.01 - EP KR US); **C22C 38/48** (2013.01 - EP KR US); **C22C 38/54** (2013.01 - EP KR US); **C21D 2211/001** (2013.01 - US); **C21D 2211/008** (2013.01 - EP KR US)

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