Title (en)

Low alloy construction steel having active particles

Title (de)

Niederlegierter Baustahl mit aktiven Teilchen

Title (fr)

Acier de construction faiblement allié à particules actives

Publication

EP 0849372 A1 19980624 (FR)

Application

EP 97402979 A 19971210

Priority

FR 9615592 A 19961219

Abstract (en)

Steel contains by weight 0.05-0.4% carbon, 0.2-2.5% manganese, 0.05-0.6% silicon, 0-6% nickel, 0-3% chromium, 0-1.5% molybdenum, 0-1% copper, 0-0.2% vanadium, 0-0.1% niobium, 0-0.005% boron, 0-0.02% sulphur, 0.001-0.004% aluminium, 0.01-0.03% titanium, 0-0.006% nitrogen and possibly up to 0.006% zirconium, 0.05% rare earths and 0.005% calcium. Its grain structure micrograph shows a fine dispersion of more than 25 active particles per square mm., the particles comprising mixed oxides of Ti with at least one of Al, Si and Zr. Also claimed is a method of preparing the steel from non-deoxidised steel containing less than 0.005% Al, to which is added the manganese before deoxidising under vacuum by means of the C, Mn and Si to obtain an oxygen activity below 30 ppm, then adding the Ti and finally the minor ingredients and casting.

Abstract (fr)

Acier dont la composition chimique comprend, en poids : 0,005% <= C <= 0,4%; 0,2% <= Mn <= 2,5%; 0,05% <= Si <= 0,6%; 0% <= Ni <= 6%; 0% <= Cr <= 3%; 0% <= Mo <= 1,5%; 0% <= Cu <= 1%; 0% <= V <= 0,2%; 0% <= Nb <= 0,1%; 0% <= B <= 0,005%; 0,% <= S <= 0,02%; 0,001% <= Al <= 0,004%; 0,01% <= Ti <= 0,03%; 0% <= N <= 0,006%; éventuellement du zirconium en des teneurs <= 0,006%; éventuellement des terres rares en des teneurs inférieures à 0,05%; éventuellement du calcium en des teneurs inférieures à 0,005%; le reste étant du fer et des impuretés résultant de l'élaboration. L'acier contient une fine dispersion de particules actives constituées au moins d'oxydes mixtes de titane et d'au moins un élément pris parmi l'aluminium, le silicium et le zirconium, le nombre de particules actives par mm<2>, comptées sur une coupe micrographique, étant supérieur à 25. Procédé pour l'élaboration de cet acier.

IPC 1-7

C22C 38/14; C22C 32/00

IPC 8 full level

C22C 38/06 (2006.01); **C22C 38/14** (2006.01)

CPC (source: EP)

C22C 38/06 (2013.01); **C22C 38/14** (2013.01)

Citation (search report)

- [X] EP 0589435 A2 19940330 - NIPPON STEEL CORP [JP]
- [X] EP 0589424 A2 19940330 - NIPPON STEEL CORP [JP]
- [A] PATENT ABSTRACTS OF JAPAN vol. 095, no. 001 28 February 1995 (1995-02-28)
- [A] PATENT ABSTRACTS OF JAPAN vol. 095, no. 001 28 February 1995 (1995-02-28)
- [A] PATENT ABSTRACTS OF JAPAN vol. 011, no. 322 (C - 453) 20 October 1987 (1987-10-20)
- [A] PATENT ABSTRACTS OF JAPAN vol. 014, no. 523 (M - 1049) 16 November 1990 (1990-11-16)
- [A] PATENT ABSTRACTS OF JAPAN vol. 014, no. 470 (C - 0769) 15 October 1990 (1990-10-15)
- [A] PATENT ABSTRACTS OF JAPAN vol. 014, no. 342 (C - 0743) 24 July 1990 (1990-07-24)

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