

Title (en)  
STEEL MATERIAL HAVING EXCELLENT HIGH-TEMPERATURE STRENGTH AND TOUGHNESS, AND METHOD FOR PRODUCTION THEREOF

Title (de)  
STAHLMATERIAL MIT HERVORRAGENDER HOCHTEMPERATURBESTÄNDIGKEIT UND FESTIGKEIT SOWIE VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)  
MATÉRIAU D'ACIER AYANT UNE EXCELLENTE RÉSISTANCE À UNE TEMPÉRATURE ÉLEVÉE ET UNE EXCELLENTE TÉNACITÉ, ET SON PROCÉDÉ DE PRODUCTION

Publication  
**EP 2143814 A1 20100113 (EN)**

Application  
**EP 08751876 A 20080411**

Priority

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- JP 2007309289 A 20071129

Abstract (en)  
A steel material superior in high temperature characteristics and toughness is provided, the fire resistant steel material containing by mass%, C: 0.001% to 0.030%, Si: 0.05% to 0.50%, Mn: 0.40% to 2.00%, Nb: 0.03% to 0.50%, Ti: 0.005% to less than 0.040%, and N: 0.0008% to less than 0.0050%, restricting P: 0.030% or less and S: 0.020% or less, and having a balance of Fe and unavoidable impurities, where the contents of C and Nb satisfy  $C-Nb/7.74 \leq 0.004$ , and Ti-based oxides of a grain size of 0.05 to 10  $\mu m$  are present in a density of 30 to 300/mm<sup>2</sup>.

IPC 8 full level  
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