

Title (en)  
DUPLEX STAINLESS STEEL MATERIAL AND DUPLEX STAINLESS STEEL TUBE

Title (de)  
DUPLEXEDELSTAHL MATERIAL UND DUPLEXEDELSTAHLROHR

Title (fr)  
MATÉRIAU EN ACIER INOXYDABLE DUPLEX ET TUBE EN ACIER INOXYDABLE DUPLEX

Publication  
**EP 3354762 A4 20190424 (EN)**

Application  
**EP 16866171 A 20161102**

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Abstract (en)  
[origin: EP3354762A1] The present invention pertains to a duplex stainless steel material including a ferrite phase and an austenite phase. The present invention is characterized in that: the steel material contains, as metal component composition, at least one X-group element selected from 0.01 to 0.50 mass% of V, 0.0001 to 0.0500 mass% of Ti, 0.0005 to 0.0500 mass% of Nb, and 0.01 to 0.50 mass% of Ta, the steel material has composite inclusions or has composite inclusions and inclusions; each of the inclusions includes at least one of an oxide, a sulfide, and an oxysulfide; each of the composite inclusions includes one of the inclusions as a nucleus and includes an outer shell existing around the nucleus and having a carbide or a nitride containing Cr and the at least one X-group element, and the proportion of the number of the composite inclusions with respect to the total number of the inclusions is 30% or more.

IPC 8 full level  
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Citation (search report)

- [A] JP 2015110828 A 20150618 - KOBE STEEL LTD
- [A] JP 2008214713 A 20080918 - SUMITOMO METAL IND
- [A] EP 0818552 A2 19980114 - SCHMIDT & CLEMENS [DE]
- [A] WO 2014112445 A1 20140724 - KOBE STEEL LTD [JP]
- [A] JP 2015078429 A 20150423 - KOBE STEEL LTD
- [A] JP 2013234344 A 20131121 - KOBE STEEL LTD
- See references of WO 2017086169A1

Cited by  
WO2021021010A1

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