

Title (en)

METHOD OF MAKING A DUPLEX STAINLESS STEEL AND A DUPLEX STAINLESS STEEL PRODUCT WITH IMPROVED MECHANICAL PROPERTIES

Publication

EP 0320548 B1 19920812 (EN)

Application

EP 87311114 A 19871217

Priority

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Abstract (en)

[origin: EP0320548A1] There is disclosed a method of making a duplex stainless steel for an alloy having the following composition: Carbon 0.001 to 0.08 Wt.% Manganese 0.001 to 2.00 Wt.% Silicon 0.001 to 1.50 Wt.% Chromium 20.00 to 27.50 Wt.% Nickel 8.00 to 11.00 Wt.% Molybdenum 3.00 to 4.50 Wt.% Sulfur 0.0001 to 0.050 Wt.% Phosphorus 0.0001 to 0.050 Wt.% Nitrogen 0.10 to 0.30 Wt.% Iron Balance by selecting a heat treating temperature in the range of about 2050 DEG F to about 2350 DEG F to provide a desired impact toughness and a desired yield strength. There is also disclosed a duplex stainless steel having austenite pools in a ferrite matrix resulting from heating to a temperature in the range of 2050 DEG F - 2350 DEG F and cooling rapidly thereafter, said steel having essentially the above-mentioned composition with the proviso that $C_{req} = 1.5 (\%Cr + \%Si + \%Mo)$ $N_{ieq} = \%Ni + 0,3 (\%Mn) + \%Cu + 22(\%C) + 5\%N$ and having greater impact toughness values in the cast form than Ferralium Alloy 225 and SAF 2205, the impact toughness in Charpy V-notch testing at -100 DEG F being above 75 ft.-lbs. when tested from keel blocks per ASTM E23-82, the HAZ impact toughness at -100 DEG F being above about 50 ft.-lbs. and having a yield strength of at least 65 KSI.

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IPC 8 full level

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