

Title (en)

Method of making a duplex stainless steel and a duplex stainless steel product with improved mechanical properties.

Title (de)

Verfahren zur Herstellung rostfreien Duplexstahls und Bauteile aus rostfreiem Duplexstahl mit verbesserten mechanischen Eigenschaften.

Title (fr)

Procédé de fabrication d'un acier inoxydable duplex et produit en acier inoxydable duplex, présentant des caractéristiques mécaniques améliorées.

Publication

EP 0320548 A1 19890621 (EN)

Application

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Priority

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Abstract (en)

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 $\text{Creq} = 1.5 (\% \text{Cr} + \% \text{Si} + \% \text{Mo})$ $\text{Nieq} = \% \text{Ni} + 0.3 (\% \text{Mn}) + \% \text{Cu} + 22 (\% \text{C}) + 5 \% \text{N}$ 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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CPC (source: EP)

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Citation (search report)

- [X] EP 0220141 A2 19870429 - SANTRADE LTD [CH]
- [X] US 4405389 A 19830920 - LARSON JOHN A [US]
- [A] GB 1307401 A 19730221 - NIPPON KOKAN KK
- [A] US 4500351 A 19850219 - BOND ARMAND P [US], et al

Cited by

CN114346142A; EP0455625A1; AT397515B; WO9524942A1

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