



Certificate of Test E121161

HEAT E121161 ORDER 632802/ 03 BOL 0218936 * CERTIFICATION * 09/07/12

SHIP TO:
COPPER & BRASS SALES
TMX DIVISION
13338 ORDEN DRIVE
SANTA FE SPRINGS 906700000

----- YOUR ORDER & DATE -----
5400151336 9/07/12 CUST# 0316001 CUST TAG#SSRD00191

----- ITEM DESCRIPTION -----
GRADE 316L/316 Ship Condition CONDA
Size 316L RND CFA CONDA 2.0000 x 144.000 RL
Country of Melt: UNITED KINGDOM Country of Mfg.: UNITED STATES
NAFTA Country of Origin is Country of Melt

No weld repair
Free of mercury contamination, Free of radiation contamination
No WEEE relevant substances; Meets EU electrical ROHS

Total Bundles 2 Total Weight 3906

WO 2035316 Bundles: 1N, 1O

----- SPECIFICATIONS -----
MFG TO FINISHED BAR IN THE USA FROM BILLETS IMPORTED UNITED KINGDOM
AMS 5648L, 5653G SAE AMS-QQ-S-763B
ASME SA479 E07-E10 A11 ASTM A182 12
ASTM A262 10 Practice A/E ASTM A276 10
ASTM A479/A479M 11 ASTM A484 11
ASTM E112 96 DIN 50049/EN 10204 Type 3.1
DFARS 252.225.7009 10/4/11 Federal Spec QQ-S-763F
Copper & Brass 316L MAXX NACE MR0175-09, mid-rad hard

----- MECHANICAL & OTHER TESTS -----
Hardness as shipped 163 HB
Hardness as shipped (83 HRB)
Grain size 7.0 Tensile strength, KSI (MPa) 88.4 (610)
Micro OK 0.2% Yield Strngth, KSI (MPa) 38.4 (265)
Intergranular corrosion OK
Elongation % in 4D 52.5
Reduction of area 73.9

----- CHEMICAL COMPOSITION -----
Carbon (C) .021 Manganese (Mn) 1.690
Phosphorus (P) .033 Sulphur (S) .023
Silicon (Si) .420 Chromium (Cr) 16.830
Nickel (Ni) 10.120 Cobalt (Co) .223
Copper (Cu) .560 Moly (Mo) 2.060
Nitrogen (N) .086 Columbium (Cb) .023
Titanium (Ti) .001 Aluminum (Al) .005
Tin (Sn) .008 Boron (B) .001
Tantalum (Ta) .003 Vanadium (V) .060
Tungstem (W) .065 .000
Columbium/
Tantalum (Cb+Ta) .026
Iron (Fe) Balance
Melt Practice EAF
Refining Practice AOD
De-long Ferrite

Knowingly & willfully falsifying or concealing a material act on this form, or making false, fictitious or fraudulent statements or representations herein could constitute a felony punishable under federal statutes. We hereby certify that the test results shown in this report are correct and accurate as contained in the records of the company and are in compliance with the specifications, codes, and standards listed above.

M.F. Marcanio, Quality Manager

Outokumpu Stainless Bar, Inc.
3043 Crenshaw Pkwy.
Richburg, SC 29729

From: Copper and Brass Sales CA

Cust. ATLANTIS INDUSTRIES

Del.: 2402412047

CstAr

CstOr Bozo

Wgt.: 261.000 LB

Date 04/09/2013