

**OUTO  
KUMPU****Certificate of Test**
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 \* CERTIFICATION \*  
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HEAT G9613 ORDER 0471771/001 SON 14964F BOL 0131382 TAG 1722082 05/03/05

SHIP TO:  
A. M. CASTLE METALS  
3400 NORTH WOLF ROAD

FRANKLIN PARK IL 60131

 ----- YOUR ORDER & DATE -----  
 01-39735 5/03/05 CUST# CASTLE01 CUST TAG#IAC 31023

 ----- ITEM DESCRIPTION -----  
 GRADE 316L/316  
 Size 316L HRART RND BAR 13 STD Country of Melt: USA  
 Ship Condition A Country of Mfg.: USA  
 NAFTA Country of Origin is Country of Melt

Total Bundles 1 SON Weight 4730

 ----- SPECIFICATIONS -----  
 THE PRODUCTS LISTED ON THIS MILL TEST REPORT SATISFY PREFERENCE CRITERION B AS DEFINED IN ARTICLE 401 OF THE NORTH AMERICAN FREE TRADE AGREEMENT.  
 AMS 5648K, 5653F SAE-AMS QQ-S-763  
 AMS-S-7720 ASME SA182 E04 CHEMISTRY ONLY  
 ASME SA193 E01 A02 (MCR) ASME SA479 E04  
 ASTM A182-04A CHEMISTRY ASTM A262 02A PRACTICE A/E  
 ASTM A276 04 ASTM A479 04  
 ASTM E112 96 ASTM A 193 04B B8M (MCR)  
 DIN 50049/EN 10204 3.1B FED STD QQ-S-763F  
 UNS S31600, AISI 316 UNS S31603, AISI 316L  
 AM CASTLE 3316-98 REV 22 SOLUTION ANNEALED CONDITION  
 FREE OF CONT. CARBIDE NETWORK NO WELD REPAIR  
 FREE OF MERCURY CONTAMINATION

 ----- MECHANICAL & OTHER TESTS -----  
 Test Condition A  
 Hardness as shipped (140 HBW )  
 Hardness as shipped 76 HRBS  
 Grain size 3.0 Tensile strength, KSI (MPa) 78.6 ( 542)  
 Micro OK 0.2% Yield Strngth, KSI(MPa) 38.5 ( 265)  
 Intergranular corrosion OK  
 Macro OK Elongation % in 4D 61.4  
 Reduction of area % 79.5

 ----- CHEMICAL COMPOSITION -----  

Carbon (C)	.022	Manganese (Mn)	1.540
Phosphorus (P)	.020	Sulphur (S)	.022
Silicon (Si)	.390	Chromium (Cr)	16.740
Nickel (Ni)	10.280	Cobalt (Co)	.160
Copper (Cu)	.400	Moly (Mo)	2.100
Nitrogen (N)	.063	Columbium (Cb)	.060
Tin (Sn)	.006	Boron (B)	.002
Vanadium (V)	.130		.000
Columbium/ Tantalum (Cb+Ta)	.060		
Iron (Fe)	Balance		
Melt Practice	EAF		
Refining Practice	AOD		
De-long Ferrite	.0		

 DATE REC'D 5/5 IAC 31023  
 APPROVED BY gf

Knowingly &amp; 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.