



# Certificate of Analysis and Tests

OUR ORDER 0255261 - 01

HEAT & PIECE 839129-1A 02/01/07

SOLD TO: A. M. CASTLE & COMPANY  
3400 NORTH WOLF ROAD  
FRANKLIN PARK IL 60131

SHIP TO: A. M. CASTLE METALS  
3400 NORTH WOLF ROAD  
847-455-7111  
FRANKLIN PARK IL 60131

----- YOUR ORDER & DATE -----

01-23150

9/01/06

TAG# IAC 20584

----- ITEM DESCRIPTION -----

HEAT & PIECE 839129 - 1A  
WEIGHT 10272  
FINISH 1  
GRADE 316L / 316  
DIMENSIONS 3.000 X 96.000 X 122.000 EXACT  
UNS-S31603 / UNS-S31600

----- SPECIFICATIONS -----

\*\*\* MFG IN NEW CASTLE, IN, USA  
AMS 5507F EXCEPT LINE MARK  
ASTM A240-06  
ASTM A479-05A CHEM ONLY  
ASTM A480/A480M-05  
ASTM A312-05A CHEMISTRY ONLY  
ASTM A262-02A PRACTICE E  
GL&V S1363-1 R F W/EXCEPTION  
97/23/RC ANNEX 1 PARA 4.3  
NO WELD REPAIRS  
ASTM A262-02A PRACTICE A

FROM SLABS IMPORTED FROM BRITAIN  
AMS 5524K EXCEPT LINE MARK  
ASMESA312 04ED05AD CHEM ONLY  
ASME A270-04 EDITION 05 ADD  
ASTM A276-05A CON A CHEM ONLY  
A.M. CASTLE S31603-65 REV 1  
7/23/00-REV 224/2004/MUC  
CASTLE S31603-62 R2 W/EXCEPT  
NO CRACKER MARKS

PLATES & TEST PCS SOLUTION ANNEALED @ 1950 DEGREES FAHRENHEIT MINIMUM.  
THEN WATER COOLED OR RAPIDLY COOLED BY AIR.  
FREE FROM MERCURY CONTAMINATION AT CURRENT DETECTION LIMITS  
HOT ROLLED, ANNEALED & PICKLED (HRAP) ISO 9001:2000

----- MECHANICAL & OTHER TESTS -----

HARDNESS RB 77  
GRAIN SIZE 4  
YIELD STRENGTH (PSI) 35194  
TENSILE STRENGTH (PSI) 75440  
INTERGRANULAR CORROSION OK  
ELONGATION % IN 2" 59.5  
REDUCTION OF AREA % 72.1

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

CARBON (C) .014  
MANGANESE (MN) 1.70  
PHOSPHORUS (P) .029  
SULFUR (S) .001  
SILICON (SI) .35  
CHROMIUM (CR) 16.14  
NICKEL (NI) 10.05  
COBALT (CO) .25  
COPPER (CU) .48  
MOLY (MO) 2.02  
NITROGEN (N) .04  
COLUMBIUM (CB) .016  
TITANIUM (TI) .003  
ALUMINUM (AL) .006  
TIN (SN) .010  
TANTALUM (TA) .003

CASTLE METALS FP  
DATE REC'D 2.8.07 IAC 20584  
APPROVED BY: *[Signature]*

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE LISTED SPECIFICATION(S) AND THAT THE RESULTS OF ALL TESTS ARE ACCEPTABLE.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER