

50297



MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE	Customer Address COPPER & BRASS SALES ACCOUNTS PAYABLE 22355 WEST 11 MILE ROAD SOUTHFIELD, MI 48034-4735	Shipping Address COPPER & BRASS SALES 10648 WEST LITTLE YORK SUITE 400 HOUSTON, TX 77041	Print Date Time 05-Apr-2012 14:02 Certification ID 110975-2 Customer Order 5400096901-R05	Ship Note 110677 Sales Order 109340
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Grade: 316L ✓
Specification: Type 316/316L (UNS S31600/S31603) - ASTM A262 practice E, ASTM A182/A182M-11a, AMS 5648J, AMS 5653G, ASTM A193/A193M-11a, (316), ASTM A320/A320M-11a (316), ASTM A479/A479M-11, ASTM A314-08, ASTM A473-01(2009), ASTM A 276-10, NACE Std-MR0175-03, QQ-S-763F, ASTM A336/A336M-10a, ASME SA-182/SA-182M, ASME SA-336/SA-336M, ASME SA - 320/SA-320M, (316)ASME SA-479/SA-479M, ASTM A4 84/A484M-11, SA-193/A193M 2010 Edition and any additional specifications which may be listed below.
Condition: HOT ROLLED / HOT FORGED, ANNEALED
Finish: ROUGH TURNED

Sales Order	Quantity	Heat	Lot ID	Weight	Size	Customer Mark
109340-5	1	50297	50297-3A	3,760 LB	Diam: 11.1690 in; Length: 133.0600 in	

Lot	Test	Result	Low Limit	High Limit					
SPECIFICATION RESULTS					BRINELL				
FINAL LADLE CHEMISTRY FOR AIRMELT					50297-3A	(BHN)	137	0	255
50297	C	0.017	0.000	0.030	GRAIN SIZE				
50297	Mn	1.80	1.25	2.00	50297-3A	Grain Size TT (GRS)	3	0	9999
50297	P	0.028	0.000	0.040	ASTM PRACTICES - ASTM A262				
50297	S	0.023	0.020	0.025	50297-3A	Prac E LT	PASS		
50297	Si	0.51	0.00	1.00	<i>OK</i> <i>WTH</i> <i>4/17/12</i>				
50297	Cr	16.40	16.00	18.00					
50297	Ni	10.36	10.00	14.00					
50297	Mo	2.10	2.00	3.00					
50297	Cu	0.50	0.00	0.75					
50297	N	0.067	0.000	0.100					
50297	Co	0.16	0.00	0.20					
PASS / FAIL TESTS									
50297-3A	Carb Net	PASS							
50297-3A	Macro Etch	PASS							
REDUCTION AREA									
50297-3A	LT (%)	77	50	999					
TENSILE									
50297-3A	LT (PSI)	83600	75000	400000					
.2% YIELD									
50297-3A	LT (PSI)	41600	30000	400000					
ELONGATION 4D									
50297-3A	LT (%)	59	45	999					


MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE		Customer Address	Shipping Address	Print Date Time	Ship Note
 ELECTRALLOY G. O. CARLSON PLATE	 175 Main Street Oil City PA 16301 1 (800) 458-7273	COPPER & BRASS SALES	COPPER & BRASS SALES	05-Apr-2012 14:02	110677
		ACCOUNTS PAYABLE	10648 WEST LITTLE YORK	Certification ID	
		22355 WEST 11 MILE ROAD	SUITE 400	110975-2	
		SOUTHFIELD, MI 48034-4735	HOUSTON, TX 77041	Customer Order	Sales Order
				5400096901-R05	109340

Quality Statements:
 ASTM E1019-08, ASTM E572-02a (2006)e2 and ASTM E1086-08 are methods used to determine the chemical analysis for Fe Base (High Alloy) alloys utilizing XRF, OES and Combustion and Fusion Methods.
 All items are in full compliance with all purchase order and specification requirements.
 At time of shipment, items and/or material produced under this order have not come in contact with Mercury or its compounds.
 Material Certification conforms to Certificate 3.1 as in EN 10204:2004 ✓
 Material complies to NACE-Std-MR0175-03.
 The mechanical tests have been performed at Modern Industries, Materials Research Division located at 613 West 11th Street Erie, PA 16512-0399
 Material represented was not weld repaired.
 Material represented was produced in accordance with the Electralloy Quality Control Program dated 08/23/2010, which meets the requirements of ISO9001(2008), MIL-I-45208A and ASME Code Section 3, Subsection NCA 3800.
 Material represented was solution annealed at 1900 degrees Fahrenheit minimum, held one half hour per inch of thickness and water quenched.
 Method of manufacture - Electric arc furnace melted, A.O.D. refined.
 Material represented was melted and manufactured in the USA ✓

Meets EU Electrical "RoHS". Contains NO "WEEE" relevant substances. Complies with DFARS-225.1-Buy American Act-Supplies. HWRR = Minimum Hot Working Reduction Ratio.
 Electralloy only accepts residual and trace elements to the limits invoked by the specification and or customer. This document shall not be reproduced, except in full, without the written approval of Electralloy / GOC Plate. We hereby affirm that the reported results on this certification are correct and accurate. All tests and results and operations performed by (Electralloy/G.O. Carlson Plate) or its subcontractors are in compliance with the applicable material/customer specification(s).
 The parties agree that when title transfers for the products subject to this agreement, or when the products are delivered to purchaser, whichever occurs first, responsibility for the submission of any required export or re-export licenses or related export control approvals for these products also transfers to purchaser. Any export license requirement under any applicable export control statute, regulation, or practice, from any U.S. government agency, including but not limited to the Department of Commerce's Bureau of Industry and Security, the Department of Treasury, Office of Foreign Assets Control, the U.S. Department of State, Directorate of Defense Trade Controls, and the Nuclear Regulatory Commission, are solely the responsibility of the purchaser. Further, purchaser warrants that it will comply with all applicable export and re-export controls related to these products.

Name: David A. Fulkerson

Title: QC Technician/Works Inspector

By: 

The recording of false, fictitious, or fraudulent statements or entries on this document may be punishable as a felony under Federal Statute.
 The above are true and correct results of tests on samples of the material. Results conform to the specification(s) listed above and are on record.
 At time of shipment, items and/or material produced under this order have not come into contact with Mercury or its compounds.