

SW

Ref 73040  
177

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MATERIAL CERTIFICATION REPORT and  
CERTIFICATION OF QUALITY CONFORMANCE



ELECTRALLOY  
G. O. CARLSON PLATE



175 Main Street  
Oil City PA 16301  
1 (800) 458-7273

Customer Address

Shipping Address

Print Date Time

Ship Note

12-Oct-2010 13:35

107779

Certification ID

107709-1

Customer Order

Sales Order

P00923

107456

49699-1B  
49699-1C  
49699

Grade: 316L

Specification: Type 316/316L(UNS S31600/S31603) - ASTM A182/A182M-08a (F316.F316L) AMS 5648K, AMS 5653F ASTM A193/A193M-08b.(316). ASTM A479/A479M-06a. ASTM A276-08a, NACE Std-MR0175/ISO 15156-3 QO-S-763F, ASME SA-182/SA-182M, SA-479/SA-479M, ASTM A484/A484M-08, ASME SA-193/SA-193M, ASTM A262 practice E (A allowed). Energy Steel SS1 rev 4 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
107456-7	1	49699	49699-1B	5,370 LB	Length: 192.5000 in; Diam: 11.1210 in	
107456-7	1	49699	49699-1C	5,020 LB	Length: 180.0000 in; Diam: 11.1170 in	


Measured 11.122

Lot	Test	Result	Low Limit	High Limit
<b>SPECIFICATION RESULTS</b>				
<b>FINAL LADLE CHEMISTRY FOR AIRMELT</b>				
49699	C	0.022	0.000	0.030
49699	Mn	1.78	1.25	2.00
49699	P	0.029	0.000	0.040
49699	S	0.023	0.020	0.025
49699	Si	0.50	0.00	1.00
49699	Cr	16.34	16.00	18.00
49699	Ni	10.24	10.00	14.00
49699	Mo	2.10	2.00	3.00
49699	Cu	0.40	0.00	0.50
49699	N	0.079	0.000	0.100
49699	Co	0.18	0.00	0.20
<b>PASS / FAIL TESTS</b>				
49699-1B	Carb Net	PASS		
49699-1B	Macro Etch	PASS		
<b>REDUCTION AREA</b>				
49699-1B	LT (2)	77	50	999
<b>TENSILE</b>				
49699-1B	LT (PSI)	88000	75000	400000
<b>.2% YIELD</b>				
49699-1B	LT (PSI)	48100	30000	400000
<b>ELONGATION 4D</b>				
49699-1B	LT (2)	53	45	999
<b>BRINELL</b>				
49699-1B	(BHN)	149	140	200

<b>GRAIN SIZE</b>			
49699-1B	Grain Size TT (GRS)	6	0 9999
<b>ASTM PRACTICES - ASTM A262</b>			
49699-1B	Prac E LT	PASS	

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

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	175 Main Street Ohi City PA 16301 1 (800) 458-7273			12-Oct-2010 13:35 Certification ID 107709-1 Customer Order P00923	107779 Sales Order 107456

**Quality Statements:**

ASTM E1019-03, ASTM E572-02a, and ASTM E1086-94 are the methods used to determine the chemical analysis for Fe base (High Alloy), Ni base and Cu base alloys. 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.

Heat #49699-1B also qualifies Heat #49699-1C both from the same heat, same size, same ingot, same heat treat lot.

Material Certification conforms to Certificate 3.1 as in EN 10204:2004

Material is heat treated, store the material inside. Do NOT DELAY Processing!

The reported results represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.

Material represented was not weld repaired.

Material represented was produced in accordance with the Electroalloy Quality Control Program dated 08/23/2010, which meets the requirements of ISO9001(2008), MIL-1-45208A and ASME Code Section 3, Subsection NCA 3800.

Material represented was solution annealed at 1925 degrees F +/-25 degrees F, held 30 minutes per inch of thickness and water quenched.

Method of manufacture - Electric arc furnace melted, A.O.D. refined.

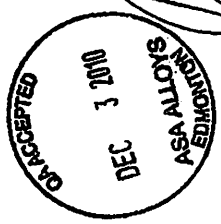
The mechanical tests have been performed at Modern Industries, Materials Research Division located at 613 West 11th Street Erie, PA 16512-0399

Material represented was 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. Electroalloy only accepts residual and trace elements to the limits invoked by the specification and customer. This document shall not be reproduced, except in full, without the written approval of Electroalloy / GOC Plate.

We hereby affirm that the reported results on this certification are correct and accurate. All tests and results and operations performed by (Electroalloy/G.O. Carlson Plate) or its subcontractors are in compliance with the applicable material/customer specification(s).

Name: David A. Fulkerson  
Title: QC Technician/Works Inspector  
By: *David A. Fulkerson*



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