

5560105110

9302484925

**MATERIAL CERTIFICATION REPORT and CERTIFICATION OF QUALITY CONFORMANCE**

**Customer Address:** COPPER & BRASS SALES, ACCOUNTS PAYABLE, P.O. BOX 3116, SOUTHERFIELD, MT 48066-311

**Shipping Address:** COPPER & BRASS SALES, WESTERN REGION MATERIALS, 1338 ORCHARD, BUILDING H, SANTA FE SPRINGS, CA 90670

**Report Date:** 07-Mar-2014 11:39  
**Ship Note:** 126662

**Grade:** 316L  
**Part:** 54035-3A1  
**Customer Order:** 5400215978-R05  
**Sales Order:** 119848

Grade: 316L  
 Specifications: Type 316/316L (UNS S31600/S31603) - ASTM A182/A182M-11, AMS 2648L, AMS 2653H, ASTM A193/A193M-12B/C16, ASTM A320/A320M-11A/C16, ASTM A479/A479M-13a, ASTM A314-13, ASTM A473/A473M-02(2009), ASTM A276-13/FINANCE SHEET/STAINLESS, Q-C-S-769P, 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 A484/A484M-12, SA-1031/A1031M, ASME 2013 Edition, and any additional specifications which may be listed below.  
 Condition: HOT ROLLED / HOT FORGED, ANNEALED  
 Finish: ROUGH TURNED

Sales Order	Quantity	Part	Lot#ID	Weight	Diameter	Length	Size	Customer Mark
119848-1	1	54035	54035-3A1	4.02013	15.150-in	77.5000-in	3.5	

Test	Result	Low Limit	High Limit
<b>SPECTROSCOPIC ANALYSIS</b>			
54035 C	0.016	0.000	0.030
54035 Mn	1.76	1.25	2.00
54035 P	0.032	0.000	0.040
54035 S	0.023	0.020	0.025
54035 Si	0.4	0.00	1.00
54035 Cr	16.36	16.00	18.00
54035 Ni	10.42	10.00	14.00
54035 Mo	2.10	2.00	3.00
54035 Cu	0.58	0.00	0.75
54035 N	0.066	0.000	0.100
54035 Co	0.22	0.00	0.30
<b>PLASMA / EMISSION TESTS</b>			
54035-3A1 CAD Net	PASS		
54035-3A1 Macro Etch	PASS		
<b>REDUCTION AREA</b>			
54035-3A1 LT (%)	78.36	50	999
<b>TENSILE</b>			
54035-3A1 LT (PST)	86690	75000	400000
54035-3A1 LT (EST)	42730	30000	400000
<b>ELONGATION 4D</b>			
54035-3A1 LT (%)	56.4	45	999

The accuracy of these test results is dependent on the quality of the material and the accuracy of the test equipment used. The above analysis was performed on a representative sample of the material. Results conform to the specifications listed above and are valid for the entire lot. This document is the property of TK Materials CA, Ltd. and is not to be distributed outside the company without the written consent of TK Materials CA, Ltd.

From: ThyssenKrupp Materials NA  
 Cust. COPPER AND BRASS VANCOUVER  
 CstAr  
 Wgt.: 4,020 LB  
 Del.: 2403043962  
 CSTOR 5400215979  
 Date 03/21/2014

*John P. Smith*

From: TK Materials CA, Ltd.  
 Cust. TECHNORX INC  
 CstAr  
 Wgt.: 233.100 LB  
 Del.: 2404086317  
 CstOr 600  
 Date 09/09/2015

*Tomás Sanchez*

