

2 TBR 80  
PO# 2085

**ESH8**



**METALLURGICAL TEST REPORT**

6870 Highway 42 East  
Ghent, KY 41045-9615  
(502) 347-6000

*John L. Zumbach*

Certificate: 794602 04    Mail To: COPPER AND BRASS SALES, INC.    Ship To: COPPER AND BRASS SALES, INC.    Date: 12/13/2012    Page: 1 Of 1  
 ATTN: ACCOUNTS PAYABLE    SOUTHFIELD MI 48086-    GHEENT KY 41045    Steel: 316/316L  
 Customer: 0925 022    Finish: Cold Finish  
 NAS Order: LN 91138 3    Dia/Thk: 2.0000 in  
 Your Order: 5400161117    Leg Length:    Length: 144.00 in  
 Item Code:    Corrosion: ASTM A262 Prac E OK

**PRODUCT DESCRIPTION:**  
 Round Bar, Annealed, Smooth Turned, Cold Finished  
 UNS 31600/31603, EN 10204 3.1, ASTM A484/11  
 ASTM A276/10, ASTM A479/11, ASTM A182/10 CHEM ONLY,  
 ASME SA479/10a, ASME SA182/10 CHEM ONLY  
 AMS 5648L/AMS 5653G, AMS QQS-763B, QQS 763P  
 NACE MR0175/MR0103 (MID RADIUS ONLY),  
 SOLUTION ANNEAL TEMP 1900F MIN

**REMARKS:**  
 COMPLIES W/REQUIREMENTS OF DPAR 252.225-7014A-1 EU DIRECTIVE  
 2002.95.EC.RoHS. EAP+AOD+CC. NO WELD REPAIR. MELTED AND MFG  
 IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

| Bundle Weight | Bundle Weight | Bundle Weight | Bundle Weight | Bundle Weight | Bundle Weight | Bundle Weight | Bundle Weight | Bundle Weight | Bundle Weight |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| BP04034       | 1107          |               |               |               |               |               |               |               |               |

**CHEMICAL ANALYSIS**    CM(Country of Melt)    ES(Spain)    US(United States)    ZA(South Africa)    JP(Japan)    Chemical Analysis per ASTM A751/08

| Heat | Supplier # | CM | C %  | CO % | CR %  | CU % | MN % | MO % | N %  | NI %  | P %  | S %   |
|------|------------|----|------|------|-------|------|------|------|------|-------|------|-------|
| ESH8 |            | US | .027 | .19  | 16.59 | .43  | 1.34 | 2.02 | .042 | 10.65 | .033 | .0298 |
|      |            |    | SI % |      |       |      |      |      |      |       |      |       |
|      |            |    | .18  |      |       |      |      |      |      |       |      |       |

**MECHANICAL PROPERTIES**

| 1 d<br>o i<br>C I | HB<br>No. | .2YS<br>KSI | UTS<br>KSI | RA<br>% | Elong<br>% 4D |
|-------------------|-----------|-------------|------------|---------|---------------|
| BP04034           | R L 159.0 | 41.00       | 85.00      | 67.00   | 54.00         |

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS

Technical Dept. Mgr. ERIC HESS

From: Copper and Brass Sales CA  
 Cust: ATLANTIS INDUSTRIES  
 Part:  
 WGT: 415.125 LB  
 Del: 2402236212  
 PO: Bozo  
 Date 01/07/2013