



North American Stainless Canada Inc.  
740 Imperial Road North  
Guelph, ON N1K1Z3  
Canada

# METALLURGICAL TEST REPORT

C21613A

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

|                       |   |   |                                     |
|-----------------------|---|---|-------------------------------------|
| Certificate: 429932 1 | Mail To:<br>ASA ALLOYS<br>20 CHALLENGER CRES.<br>SHERWOOD PARK, AB T8H2R1 | Ship To:<br>ASA ALLOYS<br>20 CHALLENGER CRES.<br>SHERWOOD PARK, AB T8H2R1 | Date: 7/19/2018 Page: 1             |
| Customer: 007226 001  |   |   | Steel: 316/316L                     |
|                       |   |   | Finish: ST                          |
| Your Order: P044003   | NAS Order: PN 0096245 02  | Heat Treat Code: 47,780   | Corrosion: ASTM A262/15 Prac A/E OK |
|                       |   |   | Red Ratio: 16.1 :1                  |

**PRODUCT DESCRIPTION :**

NACE MR0175/15(MID RADIUS ONLY)  
Round Bar, Annealed, Smooth Turned, Cold Finished  
UNS S31600/S31603, EN 10204 3.1, ASTM A484/18  
ASTM A276/17, ASTM A479/18, ASTM A182/17 CHEM ONLY,  
ASME SA479/18, ASME SA182/13 CHEM ONLY, ASTM F899/12B  
AMS 5648/M, AMS 5653/H, AMS-QQS-763/D, QQS:763/F  
NACE MR0175/15(MID RADIUS ONLY), MR0103/15(MID RADIUS ONLY)  
  
SOLUTION ANNEAL TEMP 1900F MIN, ASTM A320/17a CL 1 GR B8M  
ASTM A193/17, ASME SA193/13 CL 1 GR B8M(EXC PAR 6.2)

**REMARKS :**

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE  
2011/65/EU.ROHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG  
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

| Product Id | Skid # | Diameter | Size | Weight | -----Length----- | Mark | Pieces | Commodity Code |
|------------|--------|----------|------|--------|------------------|------|--------|----------------|
| BJ6718 1   |        | 2.1250   |      | 1,051  | 144.00           | 1    | 1      |                |

ANAB, ISO/IEC 17025, Certificate# L2323

**CHEMICAL ANALYSIS** CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Chemical Analysis per ASTM A751/14a

| NAS Heat | CM | C %   | CO % | CR %  | CU % | MN % | MO %  | N %  | NI %  | P %  |
|----------|----|-------|------|-------|------|------|-------|------|-------|------|
| 863L     | US | .017  | .27  | 16.66 | .36  | 1.38 | 2.107 | .039 | 10.56 | .027 |
|          |    | S %   | SI % |       |      |      |       |      |       |      |
|          |    | .0270 | .26  |       |      |      |       |      |       |      |

**MECHANICAL PROPERTIES**

| Product Id | l<br>o<br>c | d<br>i<br>c | HB<br>No. | .2YS<br>KSI | UTS<br>KSI | RA<br>% | Eln<br>g<br>% 4D |
|------------|-------------|-------------|-----------|-------------|------------|---------|------------------|
| BJ6718 1   | R           | L           | 183.0     | 47.00       | 93.00      | 66.00   | 46.00            |

*ANS*

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.

KRIS LARK

7/19/2018