



Agua Mansa-CA
12273 Brown Avenue
Riverside, CA 92509
USA

METALLURGICAL TEST REPORT

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

Certificate: 313841 1 Mail To: Ship To: Date: 7/19/2017 Page: 1
Customer: 004420 998 Steel: 316/316L
Finish: ST
Corrosion: ASTM A262 Prac E OK
Your Order: P817770-459 NAS Order: IN 0250342 01 Red Ratio: 8.3 :1

PRODUCT DESCRIPTION:
UNS 31600/31603, EN 10204 3.1B, NACE MR0175(MID RADIUS ONLY)
Round Bar, Annealed, Smooth Turned, Cold Finished
ASTM A276/16A, ASTM A479/16A, ASTM A182/16A CHEM ONLY,
ASME SA479/16A, ASME SA182/16A CHEM ONLY
AMS 5648M/AMS 5653H, AMS QQS-763D, QQS 763F
NACE MR0175-03/MR0103-05 (MID RADIUS ONLY),
SOLUTION ANNEAL TEMP 1900F MIN, ASTM A320/08 CL 1 GR B8M
ASTM A193/10A-ASME SA193/10 CL 1 GR B8M(EXC PAR 7.2)

REMARKS:
COMPLIES W/REQUIREMENTS OF DFEAR 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

R# 268979
Item Code 521655
Ht. # 436R

Product Id	Skid #	Diameter	Size	Weight	-----Length-----	Mark	Pieces	Commodity Code
BI8491 7		3.0000		1,159	144.00	1	1	521655

Lab Accreditation Bureau, 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 %
436R	US	.023	.30	16.62	.38	1.41	2.01	.047	10.58	.037
		S %	SI %							
		.0092	.31							

MECHANICAL PROPERTIES

Product Id	l o c	d i a m e t e r	HB	.2YS KSI	UTS KSI	RA %	Elong % 4D
BI8491 7	R	L	170.0	47.00	88.00	55.00	44.00

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.

[Signature]
KRIS LARK 7/19/2017