



# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
2125-64 Avenue, Edmonton, AB Canada T6P 1Z4  
Tel: 001 (780) 469-6603  
Fax: 001 (780) 469-6986  
www.brichemsteel.com

Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-1591      Production Date: Jan 30, 2014  
Production Method: Hot Expansion      Product Heat Treatment: As-rolled      Certificate No.: MTR- 000817  
Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B/X42 PSL1, ASTM/ASME A/SA106-2013 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings  <API> 5L-0898 API SPEC 5L NPS 20 XS 0.500 INCHWT GR B/X42 PSL1 SMIS 2014/01 NDE 1890PS1  
HEAT BSM-1591 (PIPE # LENGTH MASS) 104.1lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

Product: Details					Non-Destructive Testing									
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger $\mu R/hr$	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest 1890PSI/ 5 s	End Condition
BSM-1591	Heat	NPS 20 XS 0.500in. WT	2	DRL	104.1	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	34° Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)
			Heat	0.21	0.91	0.014	0.012	0.26	0.05	0.10	0.01	0.07			0.0004	-	
		BSM-1591	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Product	0.20	0.88	0.013	0.011	0.27	0.06	0.10	0.01	0.06	0.003	0.001	0.001	0.0003

Mechanical Properties													
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %				
BSM-1591	Heat	Ferrite & Pearlite	74 HRBW	Pass	Longitudinal; 38.1 mm x WT	44,800	73,000	0.61	43				

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy						% Shear				Lateral Expansion			
				J	J	J	AVG	%	%	%	%	AVG	mm	mm	mm	mm	AVG
				-	-	-	-	-	-	-	-	-	-	-	-	-	-
BSM-1591																	

## Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-45th Ed., ASTM/ASME A/SA106-2013 Grade B/C A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2010 Section 2.1

✓ No weld repairs have been performed on this product.

✓ This product has not come into contact with mercury during the Bri-Steel Manufacturing processes.

✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

  
2014 FEB 04

Paul Sowden, T.I.  
Assistant QA Manager