



# 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-1446      Production Date: Nov 27, 2013  
 Production Method: Hot Expansion      Product Heat Treatment: As-rolled      Certificate No.: MTR- 000648  
 Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings: NPS 20 STD 0.375 INCHWT SMLS 2013/11 NDE 1000PSI  
 HEAT BSM-1446 (PIPE # LENGTH MASS) 78.6lb/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 1000 PSI/ 5 s	End Condition	
BSM-1446	Heat	NPS 20 STD 0.375in. WT	14	DRL	78.6	<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)
BSM-1446	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.90	0.024	0.009	0.23	0.08	0.01		0.04						
		Product	0.23	0.92	0.019	0.021	0.25	0.08	0.01	0.01	0.04	0.003	0.005	0.001	0.0004	0.41	0.41

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GI	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-1446	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 38.1 mm x WT	44,700	72,500	0.62	40

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy						Lateral Expansion				
				J	J	J	AVG	%	%	AVG	mm	mm	AVG	
BSM-1446	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Details:  
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTM/ASME A/SA106-2011 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:

*Paul Sowden*  
 2013 DEC 04

Paul Sowden, T.T.  
 Assistant QA Manager



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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-1446      Production Date: Nov 27, 2013  
 Production Method: Hot Expansion      Product Heat Treatment: As-rolled      Certificate No.: MTR- 000650

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 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 STD 0.375 INCHWT GR B PSL1 SMLS 2013/11 NDE 1000PSI  
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