



# 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-0197** Product Size: **NPS 20 STD** Production Date: **February 8, 2012**

Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled**

Product Standards: **ASTM/ASME A/SA106-2011 Grade B/C, A/SA53-2010 Grade B Type S, NACE MR0175-2009**

Product Markings: **BRI-STEEL MFG NPS 20 STD ASTM/ASME A/SA106 GR B/C A/SA53 GR B HEAT BSM-0197 (PIPE # LENGTH MASS) NDE 910PSI NACE MR0175 2012/02 MADE IN CANADA.**

Product Details						Non-Destructive Testing									
Heat	Test Type	NPS	SCH	Pieces	Length	Mass	Gelger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End
BSM-0197	Heat	20	STD	2	DRL	78.60	µR/hr	Gauss	Insp.	Pass	Pass	ASTM E213	ASTM E309	910 psi/5s	Condition
							<5	<20	Pass	Pass	Pass	---	Pass	Pass	37.5° Bevel

		Steelmaking Method		Chemical Analysis (wt%)															
Heat	Test Type	Blast Furnace; EAF; Ladle		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE	
BSM-0197	Heat	Refining; Vacuum Degass		0.21	0.93	0.010	0.013	0.23	0.04	0.08	0.01	0.03	0.003	0.004	0.002	0.0002		(IIW)	(CSA)
																		0.38	0.39

		Mechanical Properties												
Heat	Test Type	Microstructure		Hardness		Flattening Test		Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
BSM-0197	Heat	Ferrite & Pearlite		HRBW		Pass		50mm GL, 38mm x WT	Transverse	psi	psi	psi		%
				75				Longitudinal	Longitudinal	42,100	41,300	72,000	0.58	42
										45,700	45,700	73,000	0.63	44

**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, A/SA53-2010 and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ This pipe product meet the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2010 Section 2.1.
- ✓ No weld repairs have been performed on this product. This product has no mercury contamination.
- ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

  
 Kenton Dechant, P. Eng.  
 Manager of Quality and R&D