



Bri-Steel Manufacturing Inc.  
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## Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0818** Product Size: **NPS 20 SCH 100** Production Date: **April 9, 2013**

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

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SAA106-2011 Grade B/C NDE, A/SAS3-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG ASTM/ASME A/SAA106 GR B/C A/SAS3 GR B NPS 20 SCH 100 1.281 inchWT HEAT BSM-0818 (PIPE # LENGTH MASS) 256.1lb/ft NDE SMLS NACE MR0175 2013/04 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	WT	UT	UT	ET	HydroTest	End Condition	
BSM-0818	Heat	NPS 20 SCH 100 1.281 in.WT	8	DRL	256.10	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass		*	Plain End

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
BSM-0818	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.21	0.95	0.012	0.009	0.25	0.05	0.06	0.01	0.03	-	-	-	-	0.0003	-
		Product	0.21	0.93	0.016	0.011	0.25	0.05	0.06	0.01	0.03	0.003	0.001	0.001	0.0001	0.38	0.39

Mechanical Properties												
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test 2 in. GL		Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Lateral Expansion		Elongation (A) %
BSM-0818	Heat	Ferrite & Pearlite	75	Pass	Longitudinal; 0.5in. Round Bar	43,100	71,900	0.60	38			
Heat	Test Standard	Impact Test Sample Details	Temp $^{\circ}$ C	Impact Energy		% Shear	AVG		mm	mm		AVG
BSM-0818	-	-	-	J	J	J	AVG	%	mm	mm	mm	AVG

**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/SAA106-2011, A/SAS3-2012, 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, and 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: \_\_\_\_\_  
  
 Kenton Dechant, P. Eng.  
 Manager of Quality and R&D

\*Note that this product was hydrotested to 1000 psi for 5 seconds.