



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0838** Product Size: **NPS 20 TRUE80** Production Date: **April 16, 2013**

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

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 20 TRUE80 1.031 inchWT HEAT BSM-0838 (PIPE # LENGTH MASS) 208.9lb/ft NDE SMILS NACE MR0175 2013/04 MADE IN CANADA.**

Product Details				Non-Destructive Testing												
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	WT	UT	UT	ET	HydroTest	End Condition	
BSM-0838	Heat	NPS 20 TRUE80 1.031 in.WT	5	DRL	208.90	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass		*	Plain End

Chemical Analysis (wt%)																			
Heat	BSM-0838	Steelmaking Method Blast Furnace: EAF; Ladle Refining; Vacuum Degas, Fully Killed	Analysis		C	Min	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
			Heat	0.19	0.88	0.010	0.005	0.25	0.05	0.04	0.01	0.04	-	-	0.0004	-	-	-	-
			Product	0.19	0.85	0.009	0.009	0.24	0.05	0.04	0.01	0.04	0.002	0.001	0.001	0.0001	0.35	0.35	

Mechanical Properties																
Heat	BSM-0838	Test Type Heat	Microstructure Ferrite & Pearlite	Hardness HRBW	Flattening Test Pass	Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %	Impact Energy		AVG	Lateral Expansion	
						50mm GL	Longitudinal: 38.1mm x WT					%	%		mm	mm
Heat	BSM-0838	Standard		74				39,400	69,000	0.57	55					

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/SA53-2012, 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.
- *Note that this product was hydrotested to 1000 psi for 5 seconds.

Mill Test Certificate approved by:

[Signature]
 2013 Apr 24

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