



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.briesteel.com

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0708** Product Size: **NPS 24 STD** Production Date: **February 13, 2013**

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

Product Standards: **ASME B36.10-2004, API SL-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SAS3-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BR-STEEL MFG <API> SL-0898 API SL GR B PSL1 ASTM/ASME A/SA106 GR B/C A/SAS3 GR B NPS 24 STD 0.375 inchWT HEAT BSM-0708 (PIPE # LENGTH MASS) 94.62lb/ft NDE 740 P91 SMIS NACE MR0175 2013/02 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT	UT	ET	HydroTest	End Condition
BSM-0708	Heat	24	STD	7	DRL	94.62	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
BSM-0708	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.86	0.008	0.005	0.24	0.03	0.08	0.02	0.05	-	-	-	0.0003	-	-
		Product	0.20	0.89	0.008	0.008	0.24	0.03	0.10	0.02	0.04	0.002	0.001	0.001	0.0002	0.37	0.38

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rt0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					50mm GL	Transverse; 38.1mm x WT					
BSM-0708	Heat	Ferrite & Pearlite	79	Pass	Longitudinal; 38.1mm x WT		46,600	46,700	71,000	0.66	43

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API SL-44th Ed., ASTM/ASME A/SA106-2011, 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:

[Signature]
 2013 Feb 20

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