



**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

## Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0573** Product Size: **NPS 16 STD** Production Date: **November 26, 2012**

Production Method: **Hot Expansion** Product Heat Treatment: **Normalized (935 $\pm$ 20min), Tempered (765 $\pm$ 2hr), Air Cooled, Hot Finished (800 $\pm$ 20min), Air Cooled**

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA335-2010a Grade P9 NDE 850 PSI, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG ASTM/ASME A/SA335 GR P9 NPS 16 STD HEAT BSM-0573 (PIPE 001 LENGTH MASS) 62.58lb/ft NDE 850 PSI SMIS NACE MR0175 2012/11 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Geiger $\mu$ R/hr	Res.Mag. Gauss	Visual Insp.	OD	UT WT	UT*	ET*	HydroTest	End Condition
BSM-0573	Heat	16	STD	1	DRL	62.58	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	32.5" Bevel

Chemical Analysis (wt%)															
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B
BSM-0573	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.10	0.38	0.010	0.002	0.32	8.34	0.12	0.94	0.12	-	-	-	-
		Product	0.12	0.39	0.011	0.002	0.31	8.00	0.12	0.90	0.11	0.004	0.002	0.005	-

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rp0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					50mm GL	38.1mm x WT					
BSM-0573	Heat	Tempered Martensite	87	Pass	Transverse; 38.1mm x WT	Longitudinal; 38.1mm x WT	55,000	54,000	88,000	0.65	38

**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/SA335-2010a 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.

\* NDT methods calibrated with drilled holes and longitudinal OD N12.5 notches.

Mill Test Certificate approved by:

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

*[Signature]*  
 2013 July 22