



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0439** Product Size: **NPS 16 XS** Production Date: **August 8, 2012**

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

Product Standards: **ASME B36.10-2004, API 5L-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG <API> 5L-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 16 XS HEAT BSM-0439 (PIPE # LENGTH MASS) 82.27lb/ft NDE 1330PS1 SMLS NACE MR0175 2012/08 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-0439	Heat	16	XS	1	DRL	82.77	<5	<20	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 (IIW)	CE (CSA)
BSM-0439	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.18	0.94	0.009	0.003	0.26	0.04	0.05	0.02	0.03	-	-	-	-	-	-
		Product	0.19	0.93	0.009	0.003	0.25	0.03	0.05	0.02	0.02	0.003	0.002	0.001	0.0002	0.36	0.37

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-0439	Heat	Ferrite & Pearlite	76	Pass	Transverse; 38.1mm x WT Longitudinal; 38.1mm x WT	45,000	45,000	70,500	0.64	46
						45,600	46,000	71,000	0.64	44

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-44th Ed., ASTM/ASME A/SA106-2011, A/SA53-2012 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:


 2012 Aug 21
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D