



Bri-Steel Manufacturing Inc.
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Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0442** Product Size: **NPS 16 STD** Production Date: **August 13, 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 STD HEAT BSM-0442 (PIPE # LENGTH MASS) 62.58lb/ft NDE 1000PSI 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 WT	UT ASTM E213	ET ASTM E309	HydroTest 1000 psi/5s	End Condition
BSM-0442	Heat	16	STD	11	DRL	62.58	<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-0442	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.93	0.007	0.006	0.22	0.05	0.08	0.01	0.04	-	-	-	0.0005	-	-
		Product	0.21	0.87	0.007	0.007	0.21	0.05	0.09	0.01	0.03	0.002	0.001	0.001	0.0001	0.38	0.38

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test					Y/T	Elongation (A) %
					50mm GL	Yield (Rt0.5) psi	Yield (Rp0.2) psi	Tensile (Rm) psi	(Rt0.5/Rm)		
BSM-0442	Heat	Ferrite & Pearlite	76	Pass	Transverse: 38.1mm x WT	47,300	45,900	76,500	0.62	35	
					Longitudinal: 38.1mm x WT	46,500	46,100	76,000	0.61	39	

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