



# 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.brichemsteel.com

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0444** Product Size: **NPS 16 STD** Production Date: **August 15, 2012**

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

Product Standards: **ASTM/ASME A/SA106-2011 Grade B, A/SA53-2012 Grade B Type S, NACE MR0175-2009**

Product Markings: **.BRI-STEEL.MFG.<API> SL-0898 API SL GR B PSL1 ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 16 STD HEAT BSM-0444 (PIPE # LENGTH MASS) 62.58lb/ft NDE 1000PSI SMILS NACE MR0175 2012/08 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 ASTM E213	ET ASTM E309	HydroTest 1000 psi/5s	End Condition
BSM-0444	Heat	16	STD	64	DRL	62.58	<5	<20	Pass	Pass	Pass	---	Pass	Pass	37.5° Bevel


		Chemical Analysis (wt%)														
Heat	Steelmaking Method	Analysis														
BSM-0444	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
		Heat	0.19	0.93	0.007	0.006	0.22	0.05	0.08	0.01	0.04	-	-	-	0.0005	-
	Product	0.22	0.88	0.007	0.007	0.21	0.05	0.08	0.01	0.03	0.002	0.001	0.001	0.0001	0.39	0.39

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-0444	Heat	Ferrite & Pearlite	77	Pass	Longitudinal; 38.1mm x WT	45,000	45,000	74,500	0.63	34	

**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 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 28  
 Kenton Dechant, P. Eng.  
 Manager of Quality and R&D