



# 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-0445** Product Size: **NPS 18 XS** Production Date: **August 16, 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, 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 18 XS HEAT BSM-0445 (PIPE # LENGTH MASS) 93.45lb/ft NDE 1180PSI SMIS NACE MR0175 2012/08 MADE IN CANADA.**

Product Details				Non-Destructive Testing												
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass lb/ft	Gelger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	WT	UT	UT	ET	HydroTest	End Condition
BSM-0445	Heat	18	XS	5	DRL	93.45	<5	<20	Pass	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 (IIW)	CE (CSA)
BSM-0445	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.19	0.94	0.012	0.008	0.25	0.06	0.08	0.01	0.07	-	-	-	0.0005	-	-
		Product	0.19	0.94	0.012	0.008	0.24	0.06	0.09	0.01	0.06	0.002	0.001	0.001	0.0001	0.37	0.37

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	Pass					
BSM-0445	Heat	Ferrite & Pearlite	78	Pass	Transverse; 38.1mm x WT	Longitudinal; 38.1mm x WT	50,000	54,500	75,500	0.72	36
							50,000	49,900	73,500	0.68	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 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 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:

  
 2012 Aug 31  
 Kenton Dechant, P.Eng.  
 Manager of Quality and R&D