



**Bri-Steel Manufacturing Inc.**  
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## Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0486** Product Size: **NPS 24 SCH 60** Production Date: **October 1, 2012**

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

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 24 SCH 60 HEAT BSM-0486 (PIPE # LENGTH MASS) 238.1lb/ft NDE SMIS NACE MR0175 2012/10 MADE IN CANADA.**

Product Details				Non-Destructive Testing												
Heat	Test Type	NPS	Wall Thickness	Pieces	Length	Mass	Geiger	Res. Mag.	Visual	OD	UT	UT	ET	HydroTest	End Condition	
BSM-0486	Heat	24	SCH 60	21	DRL	238.10	µR/hr	Gauss	Insp.	Pass	Pass	---	ASTM E213	ASTM E309	*	Plain End

Chemical Analysis (wt%)																		
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE	
			Heat	0.19	0.89	0.016	0.006	0.22	0.07	0.09	0.01	0.06	-	-	-	0.0003	-	-
			Product	0.20	0.88	0.018	0.009	0.22	0.06	0.09	0.01	0.06	0.002	0.001	0.000	0.0001	0.37	0.38
BSM-0486	Blast Furnace: EAF; Ladle Refining:	Vacuum Degas: Fully Killed																

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness HRBW	Flattening Test	Tension Test		Yield (Rp0.5)	Yield (Rp0.2)	Tensile (Rm)	Y/T	Elongation (A)
					50mm GL	Transverse: 38.1mm x WT					
BSM-0486	Heat	Ferrite & Pearlite	73	Pass	Longitudinal: 38.1mm x WT	47,200	43,900	73,000	72,000	0.65	48

**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.

\* Note that a Hydrotest was performed at 1000psi for 5s.

Mill Test Certificate approved by:

  
 2012oct5

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