



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0678** Product Size: **NPS 24 STD** Production Date: **January 31, 2013**

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 NDE, A/SAS3-2012 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/C A/SAS3 GR B NPS 24 STD HEAT BSM-0678 (PIPE # LENGTH MASS) 94.62lb/ft NDE 740 PSI SMLS NACE MR0175 2013/01 MADE IN CANADA.**

Product Details					Non-Destructive Testing														
Heat	Test Type	NPS	Wall Thickness	STD	Pieces	Length	DRL	Mass lb/ft	Geiger μ R/hr	Res. Mag. Gauss	Visual Insp.	OD	WT	UT	UT	ET	HydroTest	End Condition	
BSM-0678	Heat	24	STD		6			94.62	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	37.5° Bevel

Heat		Steelmaking Method	Chemical Analysis (wt%)														
BSM-0678	Test Type	Vacuum Degass; Fully Killed	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIV)	CE (CSA)
BSM-0678	Heat		0.20	0.94	0.010	0.004	0.23	0.04	0.07	0.01	0.03	-	-	-	0.0004	-	-
	Product		0.19	0.94	0.007	0.007	0.21	0.04	0.09	0.02	0.04	0.003	0.001	0.001	0.0003	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	Elongation (A) %
					50mm GL	Transverse: 38.1mm x WT					
BSM-0678	Heat	Ferrite & Pearlite	77	Pass	Longitudinal: 38.1mm x WT		45,500	45,600	72,000	0.63	43
							48,400	49,300	70,500	0.69	40

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/SAS3-2012 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:

Kenton Dechant
 2013 Feb 11
 Kenton Dechant, P Eng.
 Manager of Quality and R&D