



# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
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Product: Seamless Carbon Steel Pipe    Product Heat Number: BSM-1466    Product Size: 24 STD    Production Date: Dec 11, 2013  
 Production Method: Hot Expansion    Product Heat Treatment: As-rolled    Certificate No.: MTR- 000671  
 Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings: <API> 5L-0898 API SPEC 5L NPS 24 STD 0.375 INCHWT GR B PSL1 SMLS 2013/12 NDE 750PSI  
 HEAT BSM-1466 (PIPE # LENGTH MASS) 94.62lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

Product: Details				Non-Destructive Testing										
Heat	Test Type	Product Size *	Pieces	Length	Mass lb/ft	Geiger $\mu$ R/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 750PSI/ 5s	End Condition
BSM-1466	Heat	NPS 24 STD 0.375in. WT	19	DRL	94.62	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	32.5" Bevel

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)
BSM-1466	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.19	0.89	0.012	0.005	0.24	0.03	0.08	0.01	0.04				0.0004		-
		Product	0.20	0.89	0.013	0.004	0.24	0.03	0.08	0.01	0.04	0.003	0.001	0.001	0.0002	0.37	0.37

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-1466	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 38.1 mm x WT	59,500	71,000	0.84	39

Heat	Test Standard	Impact Test Sample Details	Temp $^{\circ}$ C	Impact Energy			% Shear			Lateral Expansion												
				J	J	J	%	%	%	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
BSM-1466	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**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-45th Ed., ASTM/ASME A/SA106-2011 Grade B/C 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-2009 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.
- \*API Minimum WT increased to 0.357inch by customer request

Mill Test Certificate approved by:  
  
 2013 Dec 17

Paul Sowden, T.T.  
 Assistant QA Manager