



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2539      Product Size: NPS 24 TRUE 80      Production Date: Sep 23, 2015  
 Production Method: Hot Expansion      Product Heat Treatment: ThermoMechanical Formed      Certificate No.: MTR- 001959  
 Product Standards: ASME B36.10-2004, API 5L-45th Ed. GradeB PSL1, ASTM/ASME A/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012  
 Product Markings: <API & L/C No.> API SPEC 5L NPS 24 TRUE 80 1.219 INCHWT GRB PSL1 SMLS 2015/09 NDE 2160PSI  
 HEAT BSM-2539 (PIPE # LENGTH MASS) 296.4lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) 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	Gelger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT W/T	UT	ET	HydroTest	End Condition
BSM-2539	Heat	NPS 24 TRUE 80 1.219in. WT	1	DRL	296.4	<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)																
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(I/W)	CE(CSA)		
BSM-2539	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.17	1.17	0.012	0.003	0.26	0.02	0.01	0.01	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.38	0.38
		Product	0.17	1.15	0.014	0.005	0.27	0.05	0.01	0.01	0.03	0.061	0.002	0.001	0.0003	0.39	0.39		

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					2 in. GI	0.5 in. Round Bar				
BSM-2539	Heat	Ferrite & Pearlite	74 HRBW	Pass	Longitudinal;	0.5 in. Round Bar	50,500	74,000	0.68	36

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion			
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	mm
BSM-2539	ASTM A333	CVN Long 10 x 10 mm	-45	88.0	48.0	50.0	62.0	15	5	5	8	1.30	0.70	0.62	0.87

Additional Details:  
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with API 5L-45th Ed., ASTM/ASME A/SA333-2013, A106-2014/SA106-2013, A53-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 and API Q1.  
 ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2012 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:  
 Tonya Lam, C.E.T.  
 Assistant QA Manager  
 Date: Sept / 30 / 2015