



# Mill Test Certificate

Bri-Steel Manufacturing  
 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4  
 Tel: 001 (780) 469-6603  
 Fax: 001 (780) 469-6986  
 www.bri-steel.com

Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-3112      Production Date: Apr 13, 2017  
 Production Method: Hot Expansion      Product Heat Treatment: Normalizing Forming      Certificate No.: MTR- 003297  
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade BN/X42N PSL2, ASTM/ASME A106-2014/SA106-2015 Grade B/C NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009  
 Product Markings: <API & L/C No.> API SPEC 5L NPS 20 STD 0.375 INCHWT GR BN/X42N PSL2 SMIS 2017/04 NDE 1420PSI  
 HEAT BSM-3112 (PIPE # LENGTH MASS) 78.71lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175 MADE IN CANADA

Product: Details				Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-3112	Heat	NPS 20 STD 0.375in. WT	2	DRL	78.71	<5	>12	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	1420PSI/ 5s	35° Bevel

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-3112	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed (at TRCO China)	Heat	0.20	0.87	0.016	0.006	0.26	0.06	0.01	0.01	0.04	0.001	0.001	0.001	0.0005	0.36	-	0.37
			Product	0.22	0.89	0.021	0.009	0.26	0.06	0.01	0.00	0.04	0.005	0.002	0.001	0.0003	0.39	-
			0.21	0.89	0.021	0.009	0.26	0.06	0.01	0.00	0.04	0.005	0.004	0.001	0.0003	0.38	-	0.38

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	V/T	Elongation (A)
BSM-3112	Heat	Ferrite & Pearlite	79 HRBW	Pass	2 in. GL Longitudinal; 1.5 in. x WT	psi 48 700	psi 76 500	(Rt0.5/Rm) 0.64	% 37

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-3112	API 5L PSL2	Pass	CVN Trans 10 x 7.5 mm	0	(3 Tests) AVG (15/15/15) 20	(3 Tests) AVG (43/46/41) 43	(3 Tests) AVG (20/30/25) 25	(3 Tests) AVG (0.40/0.68/0.57) 0.55

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., N ASTM/ASME A106-2014/SA106-2015, A53-2012/SA53-2015, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 (APIQR-1584), API Q1, and PED 2014/68/EU.  
 ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service  
 ✓ 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:

APR / 20 / 2017

Tonya Lam, P. Tech (Eng.)  
 Assistant QA Manager