



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-3147      Production Date: May 25, 2017  
 Production Method: Hot Expansion      Product Heat Treatment: Normalizing Forming      Certificate No.: MTR- 003361  
 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 15156-2:2015 MR0103/ISO 17495:2015  
 Product Markings: <API & L/C No. > API SPEC 5L NPS 20 STD 0.375 INCHWT GR BN/X42N PSL2 SMLS 2017/05 NDE 1420PSI  
 HEAT BSM-3147 (PIPE # LENGTH MASS) 78.71lb/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	Gelger	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-3147	Heat	NPS 20 STD 0.375in. WT	8	DRL	78.71	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	35° Bevel

Heat	BSM-3147	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at Trico China)	Chemical Analysis (wt%)																
			Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
			Heat	0.20	0.92	0.007	0.004	0.23	0.04	0.03	0.01	0.01	0.003	0.001	0.001	0.0001	0.37	-	0.37
Product	0.21	0.92	0.009	0.006	0.24	0.05	0.03	0.00	0.01	0.004	0.001	0.001	0.0003	0.38	0.43	0.39			
			0.21	0.92	0.009	0.005	0.24	0.06	0.03	0.00	0.01	0.004	0.001	0.001	0.0003	0.38	0.43		

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-3147	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal; 1.5 in. x WT	psi 44 700	psi 74 000	0.60	41

Heat	Test	Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-3147	API 5L PSL2	Pass	CVN Trans 8STR 10X7.5mm	0	(3 Tests) AVG (15/15/15) 20	(3 Tests) AVG (36/38/40) 38	(3 Tests) AVG (5/5/5) 5	(3 Tests) AVG (1.04/1.02/1.06) 1.04	

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 9001:2015 (APIQR-1584), API Q1, and PED 2014/68/EU.  
 ✓ This pipe product meets the **SOUR SERVICE** requirements of ANSI/NACE MR0175/ISO 15156-2A:2015 (Annex A2 for Region 3 Sour Service), and ANSI/NACE MR0103/ISO 17495:2015 Section 13.1  
 ✓ 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, P. Eng.  
 Manager of Quality and R&D