



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-3199      Production Date: Jul 20, 2017  
 Production Method: Hot Expansion      Product Heat Treatment: Normalizing Forming      Certificate No.: MTR- 003415  
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade BN/X42N/X46N/X52N PSL2, ASTM/ASME A106-2014/SA106-2015 Grade B NDE, A53-2012/SA53-2015 Grade B Type S,



<API & L/C No.> API SPEC 5L NPS 16 SCH 100 1.031 INCHWT GR BN/X42N/X46N/X52N PSL2 SMLS 2017/07 NDE 2970PSI  
 HEAT BSM-3199 (PIPE # LENGTH MASS) 164.99lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B 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 Pass	UT (WT) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 2970PSI/ 5s	End Condition
BSM-3199	Heat	NPS 16 SCH 100 1.031in. WT	5	DRL	164.99	<5	<10	Pass	Pass	Pass	N12.5 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(IIW)	CE(IIW)Max	CE(CSA)
			0.15	1.40	0.012	0.002	0.31	0.05	0.07	0.02	0.04	0.003	0.032	0.038	0.0001	0.41	-	0.39
BSM-3199	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at HYST Valin China)	Heat	Product	0.16	1.42	0.014	0.002	0.36	0.06	0.07	0.02	0.04	0.005	0.034	0.044	0.0004	0.42	0.43
			0.14	1.40	0.013	0.002	0.36	0.05	0.07	0.02	0.04	0.005	0.035	0.041	0.0003	0.40	0.43	

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
BSM-3199	Heat	Ferrite & Pearlite	87 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	63 500	82 000	0.77	34

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)		Impact Energy Results (J)		Shear (%)	Lateral Expansion (mm)
					(3 Tests) AVG	(20/20/20) 27	(3 Tests) AVG	(220/256/192) 223		
BSM-3199	API 5L PSL2	Pass	CVN Trans 8STR 10X10mm	0						

**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

- ✓ 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:

*Tony Lam*  
 July 26/2017

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