



# Mill Test Certificate

Bri-Steel Manufacturing  
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Product: Seamless Carbon Steel Pipe    Product Heat Number: BSM-3138    Product Size: NPS 20 TRUE 40    Production Date: May 15, 2017  
 Production Method: Hot Expansion    Product Heat Treatment: Normalizing Forming    Certificate No.: MTR- 003340  
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A106-2014/SA106-2015 Grade B NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009  
 MR0103/ISO 17495:2015

Product Markings: **bristeel** MANUFACTURING  
 <API & L/C No.> API SPEC 5L NPS 20 TRUE 40 0.594 INCHWT GRB PSL1 SMLS 2017/05 NDE 2250PSI  
 HEAT BSM-3138 (PIPE # LENGTH MASS) 123.24lb/ft ASTM/ASME A/SA106 GR B 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 µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT) ASTM E114	UT ASTM E213	ET ASTM E309	HydroTest 2250PSI/ 5 s	End Condition
BSM-3138	Heat	NPS 20 TRUE 40 0.594in. WT	5	DRL	123.24	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End

### Chemical Analysis (wt%)

Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-3138	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed (at TPCO China)	Heat	0.20	0.92	0.010	0.003	0.23	0.04	0.03	0.01	0.01	0.003	0.001	0.001	0.0001	0.37	-	0.37
		Product	0.20	0.90	0.010	0.003	0.26	0.05	0.02	0.01	0.01	0.003	0.001	0.001	0.0002	0.36	-	0.37
			0.20	0.91	0.011	0.004	0.25	0.04	0.03	0.00	0.01	0.003	0.001	0.001	0.0002	0.36	-	0.37

### Mechanical Properties

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-3138	Heat	Ferrite & Pearlite	77 HRBW	Pass	Longitudinal; 1.5 in. x WT	41 400	72 500	0.57	51

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy Results (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-3138	-	-	-	-	-	-	-	-

### 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 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 NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and 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:

*T. Lam* May 23/2017

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