



# Mill Test Certificate

Bri-Steel Manufacturing Inc.  
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Product: Seamless Carbon Steel Pipe      Product Heat Number: BSM-2052      Product Size: 24STD      Production Date: Sep 30, 2014  
Production Method: Hot Expansion      Product Heat Treatment: As-rolled      Certificate No.: MTR- 001380  
Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2014 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings  
NPS 24 STD 0.375 INCHWT SMLS 2014/09 NDE 1180PSI  
HEAT BSM-2052 (PIPE # LENGTH MASS) 94.62lb/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	Geiger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM	HydroTest 1180PSI/ 5 s	End Condition
BSM-2052	Heat	NPS 24 STD 0.375in. WT	1	DRL	94.62	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	32.5° Bevel

Chemical Analysis (wt%)		Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)
BSM-2052	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.17	0.87	0.010	0.005	0.23	0.04	0.07	0.01	0.05				0.0004	-	-
		Product	0.20	0.86	0.017	0.006	0.23	0.04	0.08	0.01	0.04	0.004	0.001	0.001	0.0004	0.36	0.36

Mechanical Properties										Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL								
BSM-2052	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal; 38.1 mm x WT								
										50,000	70,500	0.71	44

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion			
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-2052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Details: Mill Test Certificate approved by:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTM/ASME A/SA106-2014 Grade B/C A/SA53-2012, 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-2009 NACE MR0103-2010 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.

Tonya Lam, C.E.T.  
Assistant QA Manager

*T. Lam* Oct 10 / 2014