




Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2949 Production Date: Nov 14, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003043
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB PSL1, ASTM/ASME A106-2014/SA106-2015 Grade B/C NDE, AS3-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015
 Product Markings:  <API & L/C No.> API SPEC 5L NPS 24 TRUE 40 0.688 INCHWT GRB PSL1 SMLS 2016/11 NDE 1220PSI
 HEAT BSM-2949 (PIPE # LENGTH MASS) 171.2lb/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 μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-2949	Heat	NPS 24 TRUE 40 0.688in. WT	2	DRL	171.2	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	30° Bevel

Heat	BSM-2949	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at PFCO 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	Product	0.18	1.12	0.013	0.002	0.30	0.04	0.01	0.01	0.01	0.01	0.055	0.002	0.001	0.0004	0.39	-
						0.16	1.11	0.011	0.004	0.32	0.04	0.01	0.01	0.01	0.057	0.001	0.0003	0.37	-	0.36
						0.17	1.12	0.012	0.004	0.33	0.04	0.01	0.01	0.01	0.058	0.001	0.0003	0.38	-	0.38

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-2949	Heat	Ferrite & Pearlite	81 HRBW	Pass	2 in. GL Longitudinal; 1.5 in. x WT	psi 48 700	psi 76 500	(Rt0.5/Rm) 0.64	% 47

Heat	Test	Standard	Result	Impact Test	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-2949	-	-	-	Sample Details	-	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG

- 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, AS3-2012/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, 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:

 Nov 12/2016

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