



Mill Test Certificate

Bri-Steel Manufacturing
 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4
 Tel: 001 (780) 469-6603
 Fax: 001 (780) 469-6986
 www.bri-steel.com

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2574 Product Size: NPS 20 XS
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002072 Production Date: Nov 09, 2015

Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade B/X42 PSL1, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012

Product Markings: <API & L/C No.> API SPEC 5L NPS 20 XS 0.500 INCHWT GRB/X42 PSL1 SMLS 2015/11 NDE 1890PS1
 HEAT BSM-2574 (PIPE # LENGTH MASS) 104.1lb/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 ASTM E213	ET ASTM E309	HydroTest 1890 PSI/ 5 s	End Condition
BSM-2574	Heat	NPS 20 XS 0.500in. WT	6	DRL	104.1	<5	<10	Pass	Pass	Pass	Pass	-	Pass	33° Bevel

Heat	Test Type	Steelmaking Method	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	Chemical Analysis (wt%)	
																Heat	Product
BSM-2574	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	0.15	1.16	0.010	0.002	0.25	0.01	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.36	0.34
			0.17	1.13	0.011	0.003	0.28	0.03	0.01	0.01	0.02	0.055	0.002	0.001	0.0003	0.38	0.38

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 In. Gt.		Yield (R0.5) psi	Tensile (Rm) psi	V/T (R0.5/Rm)	Elongation (A) %
					Longitudinal, 1.5 In. x WT	54,500				
BSM-2574	Heat	Ferrite & Pearlite	81 HRBW	Pass	Pass	54,500	76,500	0.71	46	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion		
				J	J	J	%	%	%	mm	mm	mm
BSM-2574	-	-	-	-	-	-	-	-	-	-	-	-

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with GRX42 ASTM/ASME A106-2014/SA106-2013, A53-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008, API Q1, and PED 97/23/EC.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2012 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.

Mill Test Certificate approved by:

Tony Lam Feb 109/2016

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



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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2574 Product Size: NPS 20 XS
 Production Method: Hot Expansion Product Heat Treatment: Thermomechanical Formed Certificate No.: MTR- 002002
 Production Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2013 Grade B/C NDE, AS3-2012/SA33-2013 Grade B Type S, NACE MR0175-2009
 Product Markings: NPS 20 XS 0.500 INCHWT SMLS 2015/11 NDE 1890PSI
 HEAT BSM-2574 (PIPE # LENGTH MASS) 104.1lb/ft ASTM/ASME A/SA106 GR B/C A/SA33 GR B NACE MR0175 MADE IN CANADA



Product: Details				Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger	Res. Mag.	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest	End Condition
BSM-2574	Heat	NPS 20 XS 0.500in. WT	6	DRL	104.1	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	33° Bevel

Heat	Test Type	Steelmaking Method	Chemical Analysis (wt%)															
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)	
BSM-2574	Heat	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	0.15	1.16	0.010	0.002	0.25	0.01	0.01	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.36	0.34
			Product	0.17	1.13	0.011	0.003	0.28	0.03	0.01	0.01	0.02	0.055	0.002	0.001	0.0003	0.38	0.38

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (R _{0.5}) psi	Tensile (R _m) psi	V/T (R _{0.5} /R _m)	Elongation (A) %
					2 in. GI	1.5 in. x WT				
BSM-2574	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal, 1.5 in. x WT	54,500	76,500	0.71	46	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy			% Shear			Lateral Expansion			
				J	J	J	%	%	%	mm	mm	mm	AVG
BSM-2574	-	-	-	-	-	-	-	-	-	-	-	-	-

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T. Lam Nov 11 / 2015

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