

Mill Test Certificate

Bri-Steel Manufacturing Inc.

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

Product: Seamless Carbon Steel Pipe

Product Heat Number:

BSM-0473

Production Date:

NPS 20 XS

September 17, 2012

Production Method: Hot Expansion

Product Standards:

Product Heat Treatment: As-rolled

Product Size:

ASME B36.10-2004, API 5L-44th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010

Product Markings: .BRI-STEEL MFG <API> 51-0898 API 51 GR 8 PSL1 ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 20 XS HEAT BSM-0473 (PIPE # LENGTH MASS) 104.11b/ft NDE 1100PSI SMLS NACE MR0175 2012/09 MADE IN CANADA.

BSM-04/3	Heat		
Heat	lest lype		
20	NPS		
XS	Thickness	Wall	roduct Detail
26	Pieces		S
DRL	Length		
104.10	lb/ft	Mass	
G	µR/hr	Geiger	
<20	Gauss	Res.Mag.	
Pass	Insp.	Visual	
Pass	00		Non-I
Pass	WT	TU	Destructive
Pass	ASTM E213	ᅜ	esting
Pass	ASTM E309	ET	
Pass	1100 psi/5s	HydroTest	
37.5° Bevel	Condition	End	

	A commence of the second commence of the seco					Chemical Analysis	Analysis	(wt%)									
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Heat	Steelmaking Method	Analysis	0	Μ'n	ď	s	Si	Cr	Cr	S _o	Z	<	∄	N N	œ	(E)	(CSA)
BSM-0473	Blast Furnace; EAF; Ladle Refining;	Heat	0.19	0.85	0.009	0.015	0.28	0.05	0.11	0.01	0.07		ı	a	0.0004		,
	Vacuum Degas; Fully Killed	Product	0.21	0.87	0.011	0.010	0.24	0.05	0.11	0.01	0.06	0.002	0.001	0.002	0.0002	0.38	0.39
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	BSM-0473 Heat	Heat Test Type		
	Ferrite & Pearlite	13		
	77	HRBW	Hardness	
	Pass	Flattening Test		Mechar
Longitudinal; 38.1mm x WT	Transverse; 38.1mm x WT	50mm GL	Tension Test	Mechanical Properties
46,200	44,500	psi	Yield (Rt0.5)	
46,200	44,100	psi	Yield (Rp0.2)	
72,000	72,000	psi	Tensile (Rm)	
0.64	0.62	(Rt0.5/Rm)	1/4	
47	42	%	Flongation (A)	

Additional Details:

and that the results meet the corresponding requirements. Inc. in accordance with API 5L-44th Ed., ASTM/ASME A/SA106-2011, A/SA53-2012 and the purchase order requirements, We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing

Service, and NACE MR0103-2010 Section 2.1 √ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour

✓ No weld repairs have been performed on this product.

✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

This product has not come into contact with mercury during the Bri-Steel Manufacturing processes

Mill Test Certificate approved by:

2012 Sept 25

Manager of Quality and R&D Kenton Dechant, P.Eng.



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BSM-0473	Heat		
Heat	Test Type		
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DRL	Length		
104.10	lb/ft	Mass	
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Pass	TW	TΠ	estructive -
Pass	ASTM E213	UT	resting
Pass	ASTM E309	ET	
Pass	1100 psi/5s	HydroTest	
37.5° Bevel	Condition	End	

Analysis C Mn P S SI Cr Cu Mo Ng; Heat 0.19 0.85 0.009 0.015 0.28 0.05 0.11 0.01 Product 0.21 0.87 0.011 0.010 0.24 0.05 0.11 0.01	0.0002		Ľ	0.004	TOO.0	0.002	0.00	10.0	17.0	0.00	0.47	0.010	0.011	0.07	47.0	COGGC	Account Capast , and miles	
Steelmaking Method Analysis C Mn P S Si Cr Cu Mo Blast Furnace; EAF; Ladle Refining; Heat 0.19 0.85 0.099 0.015 0.28 0.05 0.11 0.01	8E U CUUU U CUU U 100 U CUU U	0 0 001 0 002	0 001	_	ממח ח		20.0	0.01	011	0.05	0 24	010	0 011	0.87	0 21	Product	Vacuum Depas: Fully Killed	0.440.1410
Steelmaking Method Analysis C Mn P S Si Cr Cu Mo	0.0004 -	0.0004			•		0.07	0.01	0.11	0.05		0.015		0.85	0.19	Heat	Blast Furnace; EAF; Ladle Refining;	BSM_0473
	V Ti Nb B (IIW)	V Ti Nb B	V TI Nb	V П	<		Z	Mo	C	유	Si	S	ъ	Mn	С	Analysis	Steelmaking Method	Heat
	CE																	

47	0.64	72,000	46,200	46,200	Longitudinal; 38.1mm x	Pass	77	Ferrite & Pearlite	Heat	BSM-0473
%	(Rt0.5/Rm)	psi	psi	psi	50mm GL	Flattening Test	HRBW	Microstructure	Test Type	Heat
Elongation (A)	**	Tensile (Rm)	Yield (Rp0.2)	Yield (Rt0.5)	Tension Test		Hardness			
					nical Properties	Mechanical Pr				

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- 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.

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2014 fept 4