

## Mill Test Certificate

Bri-Steel Manufacturing Inc. 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4

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www.brichemsteel.com

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1352 Product Size: 24 TRUE 80 Production Date: Oct 24, 2013

Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000563

Product Standards: ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings

NPS 24 TRUE 80 1.219 INCHWT SMLS 2013/10 NDE

MASSURGERUMS BERN BSM-1352 (PIPE # LENGTH MASS) 296.4lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

Plain End		Pass	Pass	Pass	SSEd	Pass	<10	S	296.4	DRL	4	NPS 24 TRUE 80 1.219in. WT	Heat	BSM-1352
Condition		1 E213 ASIM E309	ASIM E213	WI		Insp.	Gauss	μR/hr	Ib/ft					
End	HydroTest	甲	ST.	5	OD:	Visual	Res. Mag.		Mass	Length	Pieces Length	Product Size	Test Type	Heat
			ive Testing	า-Destruct	Non-							Product: Details		

Degrat, runy nome		Heat Steelmaking Method	
	Refining: Vaccum.	-	
Product	Heat	Test Type	
0.21	0.20	С	
0.94	0.96	Mn	
0.012	0.001	P	C
0.003	0.003	S	Chemical Analysis (wt%)
0.32	0.31	Si	Analysis
0.05	0.04	Cr	(wt%)
0.05	0.05	Сп	
0.01	0.08	Mo	
0.02	0.02	Ni	
0.003	0.001	٧	
0.001	0.002	Ti	
0.001	0.001	Nb	
0.0003	0.0004	В	
0.38	•	CE(IIW)	
0.38	•	CE(CSA)	

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200	BSM-1352		Heat	
	Heat		Test Type	
	Ferrite & Pearlite		Microstructure	
	76 HRBW		Hardness	
	Pass		Flattening Test	М
	Longitudinal; 19.05 mm x WT	50mm GL	Tension Test	Mechanical Properties
	45,300	psi	Yield (Rt0.5)	
	70,500	psi	Tensile (Rm)	
	0.64	(Rt0.5/Rm)	1/4	
	49	%	Elongation (A)	

Heat	Test	Impact Test	Temp		Impact B	Energy	N 1/1		% St	hear			Lateral E	xpans	ō
	Standard	Sample Details	°C	ſ	١	_	DAY	%	%	%	AVG	mm	mm		mm
BSM-1352	•		•	-			-	•	•	-	,		,		1

## Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTN/ASME A/SA106-2011 Grade B/C A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.

√ 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.

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

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

Note that this product was hydrotested to 1000 psi for 5 seconds.

\*\*OD Tolerances as per API

Mill Test Certificate approved by:

2013 OCT 0

Assistant QA Manager Paul Sowden, T.T.