



# Mill Test Certificate

**Bri-Steel Manufacturing**  
2125-64 Avenue NW, Edmonton, AB Canada T6P 1Z4

Product: **Seamless Carbon Steel Pipe**

Product Heat Number:

BSM-2357

Product Size:

**NPS 24 TRUE80**

Production Date:

**April 15, 2015**

**Production Method:** Hot Expansion

**Product Heat Treatment: Quenched & Thermomechanical Formed**

Certificate Number: 1743

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade X65M PSL2, NACE MR0175-2009, MR0103-2012

**Product Markings:**

BRI-STEEL MFG API SPEC 5L NPS 24 TRUE 80 1.218 INCHWT GR X65M PS12 SMLS 2015/04 NDE 2970PSI  
HEAT BSM-2357 (PIPE # LENGTH MASS) 296.4 LB/FT 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.	UT	UT	ET	HydroTest	End Condition
BSM-2357	Heat	NPS 24 TRUE80 1.219 in. WT	2	DRL	296.40	<5	<20	Pass	Pass	Pass	Pass	Pass	Plain End

Chemical Analysis (wt%)																	
Heat	Steelmaking Method	Analysis	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE (IIW)	CE (CSA)
BSM-2357	Blast Furnace; EAF; ladle Refining;	Heat	0.26	1.34	0.012	0.004	0.52	0.06	0.05	0.01	0.02	0.125	0.008	0.001	0.0001	0.53	0.55
	Vacuum Degass; Fully Killed	Product	0.25	1.32	0.012	0.004	0.53	0.07	0.07	0.01	0.02	0.118	0.014	0.001	0.0003	0.52	0.54

Mechanical Properties									
			Hardness	Flattening Test	Tension Test	Yield (RT0.5) psi	Tensile (Rm) psi	Y/T (RT0.5/Rm)	Elongation (A) %
					50mm GL				
Heat	Test Type	Microstructure	HRBW						
BSM-2357	Heat	Ferrite & Pearlite	89	Pass	Longitudinal, 12.7mm Round Bar	66,700	91,400	0.73	35

Test	Impact Test	Temp	Impact Energy				% Shear			Lateral Expansion				
			J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
Heat	Standard	9C	J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-2357	A33-6	-45°C	64	75	105	81	30	35	40	35	0.95	1.02	1.38	1.12
BSM-2357	API 5L	0°C	144	182	150	159	60	70	60	63	unbroken	1.89	unbroken	1.89

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. 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, 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:

2015 APR 22

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