



Mill Test Certificate

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

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0390** Product Size: **NPS 20 TRUE80** Production Date: **July 3, 2012**
 Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled**

Product Standards: **ASTM/ASME A/SA106-2011 Grade B/C, A/SA53-2012 Grade B Type S, NACE MR0175-2009**

Product Markings: **.BRI-STEEL MFG NPS 20 TRUE80 ASTM/ASME A/SA106 GR B/C A/SA53 GR B HEAT BSM-0390 (PIPE # LENGTH MASS) 208.9lb/ft NDE 1000PSI NACE MR0175 2012/07 MADE IN CANADA.**

Product Details				Non-Destructive Testing											
Heat	Test Type	NPS	SCH	Pieces	Length	Mass	Geiger	Res.Mag.	Visual	OD	UT	UT	ET	HydroTest	End
BSM-0390	Heat	20	TRUE80	4	DRL	208.90	µR/hr	Gauss	Insp.	Pass	Pass	Pass	Pass	1000 psi/5s	Condition
							<5	<20	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

		Chemical Analysis (wt%)														
Heat	Test Type	Steelmaking Method														
		Blast Furnace; EAF; Ladle														
BSM-0390	Heat	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE	CE
		0.15	1.09	0.017	0.005	0.26	0.09	0.07	0.02	0.03	0.006	0.003	0.001	0.0001	0.36	0.35
		Refining: Vacuum Degas														

Mechanical Properties											
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test		Yield (Rt0.5)	Yield (Rp0.2)	Tensile (Rm)	V/T	Elongation (A)
					HRBW	Pass					
BSM-0390	Heat	Ferrite & Pearlite	73	Pass	Transverse	Longitudinal	43,100	45,300	72,000	0.60	57
							49,400	49,500	70,000	0.71	60

- Additional Details:
- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with ASTM/ASME A/SA106-2011, A/SA53-2012 and the purchase order requirements, and that the results meet the corresponding requirements.
 - ✓ This pipe product meet the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2010 Section 2.1.
 - ✓ No weld repairs have been performed on this product. This product has no mercury contamination.
 - ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

Kenton Dechant
 2012 July 11
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D