



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-0790** Product Size: **NPS 14 STD** Production Date: **March 26, 2013**

Production Method: **Hot Expansion** Product Heat Treatment: **As-rolled**

Product Standards: **ASME B36.10-2004, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SAS3-2012 Grade B Type S, NACE MR0175-2009, MR0103-2010**

Product Markings: **.BRI-STEEL MFG ASTM/ASME A/SA106 GR B/C A/SAS3 GR B NPS 14 STD 0.375 inchWT HEAT BSM-0790 (PIPE # LENGTH MASS) 54.57lb/ft NDE SMILS NACE MR0175 2013/03 MADE IN CANADA.**

| Product Details | | | | Non-Destructive Testing | | | | | | | | | | |
|-----------------|-----------|-------------------------|--------|-------------------------|-------|--------|-----------|--------|------|------|------|------|-----------|---------------|
| Heat | Test Type | Product Size | Pieces | Length | Mass | Geiger | Res. Mag. | Visual | OD | UT | UT | ET | HydroTest | End Condition |
| BSM-0790 | Heat | NPS 14 STD 0.375 in. WT | 3 | DRL | 54.57 | <5 | <20 | Pass | Pass | Pass | Pass | Pass | -- | 37.5° Bevel |

| 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-0790 | Blast Furnace; EAF; ladle Refining; Vacuum Degass; Fully Killed | Heat | 0.18 | 0.96 | 0.002 | 0.003 | 0.24 | 0.03 | 0.08 | 0.01 | 0.04 | - | - | - | 0.0003 | - | - |
| | | Product | 0.21 | 0.93 | 0.014 | 0.006 | 0.24 | 0.03 | 0.08 | 0.01 | 0.04 | 0.003 | 0.001 | 0.001 | 0.0001 | 0.38 | 0.39 |

| Mechanical Properties | | | | | | | | | | | |
|-----------------------|-----------|--------------------|---------------|-----------------|---------------------------|-------------------------|-------------------|-------------------|------------------|----------------|------------------|
| Heat | Test Type | Microstructure | Hardness HRBW | Flattening Test | Tension Test | | Yield (Rp0.5) psi | Yield (Rp0.2) psi | Tensile (Rm) psi | Y/T (Rt0.5/Rm) | Elongation (A) % |
| | | | | | 50mm GL | Transverse: 38.1mm x WT | | | | | |
| BSM-0790 | Heat | Ferrite & Pearlite | 77 | Pass | Longitudinal: 38.1mm x WT | | 43,900 | 43,500 | 73,000 | 0.63 | 41 |

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/SAS3-2012 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, and NACE MR0103-2010 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:

Kenton Dechant
 2013 April
 Kenton Dechant, P.Eng.
 Manager of Quality and R&D