



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-0780** Product Size: **NPS 14 STD** Production Date: **March 20, 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/SA53 GR B NPS 14 STD 0.375 inchWT HEAT BSM-0780 (PIPE # LENGTH MASS) 54.57lb/ft NDE SM1S 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-0780 | Heat | NPS 14 STD 0.375 in. WT | 50 | DRL | 54.57 | <5 | Gauss | Insp. | Pass | Pass | Pass | Pass | Pass | 37.5° Bevel |

| Steelmaking Method | | Chemical Analysis (wt%) | | | | | | | | | | | | | | |
|--------------------|-------------------------------------|-------------------------|------|-------|-------|------|------|------|------|------|-------|-------|-------|--------|----------|----------|
| Heat | Analysis | C | Mn | P | S | Si | Cr | Cu | Mo | Ni | V | Ti | Nb | B | CE (I/W) | CE (CSA) |
| BSM-0780 | Blast Furnace; EAF; Ladle Refining; | 0.22 | 0.90 | 0.014 | 0.006 | 0.29 | 0.07 | 0.08 | 0.02 | 0.03 | 0.003 | 0.002 | 0.001 | 0.0001 | - | - |
| | Vacuum Degass; Fully Killed | 0.20 | 0.94 | 0.021 | 0.003 | 0.31 | 0.05 | 0.09 | 0.01 | 0.03 | 0.004 | 0.002 | 0.002 | 0.0002 | 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-0780 | Heat | Ferrite & Pearlite | 75 | Pass | Longitudinal; 38.1mm x WT | 47,100 | 46,400 | 73,500 | 73,500 | 0.64 | 42 |

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:

[Signature]
 2013 Mar 26

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