



**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

## Mill Test Certificate

Product: **Seamless Carbon Steel Pipe** Product Heat Number: **BSM-1026** Product Size: **NPS 24 STD** Production Date: **June 27, 2013**

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

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

Product Markings: **BRI-STEEL MFG <API> 5L-0898 API 5L GR B PSL1 ASTM/ASME A/SA106 GR B A/SA53 GR B NPS 24 STD 0.375 inchWT HEAT BSM-1026 (PIPE # LENGTH MASS) 94.62lb/ft NDE 750 PSI SMIS NACE MR0175 2013/06 MADE IN CANADA.**

| Product Details |           |                         |        | Non-Destructive Testing |            |                   |                 |              |      |      |      |      |      |           |               |
|-----------------|-----------|-------------------------|--------|-------------------------|------------|-------------------|-----------------|--------------|------|------|------|------|------|-----------|---------------|
| Heat            | Test Type | Product Size            | Pieces | Length                  | Mass lb/ft | Geiger $\mu$ R/hr | Res. Mag. Gauss | Visual Insp. | OD   | WT   | UT   | UT   | ET   | HydroTest | End Condition |
| BSM-1026        | Heat      | NPS 24 STD 0.375 in. WT | 7      | DRL                     | 94.62      | <5                | <20             | Pass         | Pass | Pass | Pass | Pass | Pass | Pass      | 32.5° Bevel   |

| Chemical Analysis (wt%) |  |          |      |      |       |       |      |      |      |      |      |       |       |       |        |          |          |
|-------------------------|--|----------|------|------|-------|-------|------|------|------|------|------|-------|-------|-------|--------|----------|----------|
| Heat                    | Steelmaking Method   | Analysis | C    | Mn   | P     | S     | Si   | Cr   | Cu   | Mo   | Ni   | V     | Ti    | Nb    | B      | CE (l/w) | CE (CSA) |
| BSM-1026                | Blast Furnace: EAF; Ladle Refining; Vacuum Degas: Fully Killed | Heat     | 0.18 | 0.84 | 0.011 | 0.009 | 0.24 | 0.04 | 0.07 | 0.01 | 0.04 | -     | -     | -     | 0.0004 | -        | -        |
|                         |  | Product  | 0.21 | 0.88 | 0.018 | 0.006 | 0.22 | 0.04 | 0.07 | 0.03 | 0.03 | 0.005 | 0.001 | 0.001 | 0.0003 | 0.38     | 0.38     |

| Mechanical Properties |           |                    |                   |                 |                           |                      |                  |                |                  |
|-----------------------|-----------|--------------------|-------------------|-----------------|---------------------------|----------------------|------------------|----------------|------------------|
| Heat                  | Test Type | Microstructure     | Hardness HRBW     | Flattening Test | Tension Test 50mm GL      | Yield (Rt0.5) psi    | Tensile (Rm) psi | Y/T (Rt0.5/Rm) | Elongation (A) % |
| BSM-1026              | Heat      | Ferrite & Pearlite | 73                | Pass            | Longitudinal: 38.1mm x WT | 44,000               | 67,000           | 0.66           | 42               |
| Heat                  | Test      | Impact Test        | Temp $^{\circ}$ C | Impact Energy J | % Shear                   | Lateral Expansion mm | mm               | mm             | AVG              |
| BSM-1026              | Standard  | Sample Details     | -                 | J               | %                         | mm                   | mm               | mm             | AVG              |

**Additional Details:**

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-44th Ed., ASTM/ASME A/SA106-2011, 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, 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:

*Paul Sowden*  
 2013 JUL 03

Paul Sowden, T.T.  
 Assistant QA Manager