



## Mill Test Certificate

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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2008 Production Date: Sep 11, 2014  
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 001336  
Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A/SA106-2013 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

### Product Markings



<API & L/C No.> API SPEC 5L NPS 24 SCH 60 0.969 INCHWT GR B PSL1 SMLS 2014/09 NDE 1900PSI  
HEAT BSM-2008 (PIPE # LENGTH MASS) 238.1lb/ft ASTM/ASME A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

| Product: Details |           |                           |        |        | Non-Destructive Testing |              |                 |              |      |       |              |         |                        |               |
|------------------|-----------|---------------------------|--------|--------|-------------------------|--------------|-----------------|--------------|------|-------|--------------|---------|------------------------|---------------|
| Heat             | Test Type | Product Size              | Pieces | Length | Mass lb/ft              | Gelger HR/hr | Res. Mag. Gauss | Visual Insp. | OD   | UT WT | UT ASTM E213 | ET ASTM | HydroTest 1900PSI/ 5 s | End Condition |
| BSM-2008         | Heat      | NPS 24 SCH 60 0.969in. WT | 4      | DRL    | 238.1                   | <5           | <10             | Pass         | Pass | Pass  | Pass         | Pass    | Pass                   | Plain End     |

| Chemical Analysis (wt%) |   |           |         |      |      |       |       |      |      |      |      |      |       |       |
|-------------------------|---|-----------|---------|------|------|-------|-------|------|------|------|------|------|-------|-------|
| Heat                    | Steelmaking Method  | Test Type | C       | Mn   | P    | S     | Si    | Cr   | Cu   | Mo   | Ni   | V    | Ti    | Nb    |
|                         |   |           | Heat    | 0.20 | 0.88 | 0.011 | 0.005 | 0.23 | 0.04 | 0.01 | 0.03 |      |       |       |
|                         |   |           | Product | 0.20 | 0.86 | 0.011 | 0.008 | 0.23 | 0.04 | 0.07 | 0.01 | 0.03 | 0.003 | 0.001 |
| BSM-2008                | Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed |           |         |      |      |       |       |      |      |      |      |      |       |       |

| Mechanical Properties |           |                    |          |                 |                             |                   |                  |                |                  |
|-----------------------|-----------|--------------------|----------|-----------------|-----------------------------|-------------------|------------------|----------------|------------------|
| Heat                  | Test Type | Microstructure     | Hardness | Flattening Test | Tension Test 50mm GL        | Yield (Rt0.5) psi | Tensile (Rm) psi | V/T (Rt0.5/Rm) | Elongation (A) % |
| BSM-2008              | Heat      | Ferrite & Pearlite | 75 HRBW  | Pass            | Longitudinal; 19.05 mm x WT | 41,200            | 70,000           | 0.59           | 46               |

| Heat     | Test Standard | Impact Test Sample Details | Temp °C | Impact Energy |   |   |     |   |   | % Shear |   |     |    |    |    | Lateral Expansion |    |    |    |
|----------|---------------|----------------------------|---------|---------------|---|---|-----|---|---|---------|---|-----|----|----|----|-------------------|----|----|----|
|          |               |                            |         | J             | J | J | AVG | % | % | %       | % | AVG | mm | mm | mm | mm                | mm | mm | mm |
| BSM-2008 | -             | -                          | -       | -             | - | - | -   | - | - | -       | - | -   | -  | -  | -  | -                 | -  | -  | -  |

### 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-45th Ed., ASTM/ASME A/SA106-2013 Grade B/C A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.

Mill Test Certificate approved by:

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 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.

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