



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-1377 Production Date: Nov 04, 2013
 Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000592
 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: NPS 18 SCH 120 1.375 INCHWT SMLS 2013/11 NDE
 HEAT BSM-1377 (PIPE # LENGTH MASS) 244.1lb/ft ASTM/ASME A/SA106 GR B 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 | Geiger μ R/hr | Res. Mag. Gauss | Visual Insp. | OD | UT WT | UT ASTM E213 | ET ASTM | HydroTest | End Condition | |
| BSM-1377 | Heat | NPS 18 SCH 120 1.375in. WT | 1 | DRL | 244.1 | <5 | <10 | 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 | B | CE(IIW) | CE(CSA) |
| BSM-1377 | Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed | Heat | 0.20 | 0.96 | 0.001 | 0.003 | 0.31 | 0.04 | 0.05 | 0.08 | 0.02 | 0.001 | 0.002 | 0.001 | 0.0004 | - | - |
| | | Product | 0.22 | 0.93 | 0.013 | 0.002 | 0.32 | 0.05 | 0.05 | 0.01 | 0.02 | 0.003 | 0.003 | 0.001 | 0.0002 | 0.40 | 0.40 |

| Mechanical Properties | | | | | | | | | |
|-----------------------|-----------|--------------------|----------|-----------------|-----------------------------|-------------------|------------------|----------------|------------------|
| Heat | Test Type | Microstructure | Hardness | Flattening Test | Tension Test 50mm GL | Yield (Rt0.5) psi | Tensile (Rm) psi | Y/T (Rt0.5/Rm) | Elongation (A) % |
| BSM-1377 | Heat | Ferrite & Pearlite | 68 HRBW | Pass | Longitudinal; 19.05 mm x WT | 38,700 | 67,500 | 0.57 | 43 |

| Heat | Test Standard | Impact Test Sample Details | Temp $^{\circ}$ C | Impact Energy | | | | Lateral Expansion | | | | | | |
|----------|---------------|----------------------------|-------------------|---------------|---|---|-----|-------------------|---|---|-----|----|----|-----|
| | | | | J | J | J | AVG | % | % | % | AVG | mm | mm | AVG |
| BSM-1377 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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 Grade B 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-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.

* Note that this product was hydrotested to 1000 psi for 5 seconds.

Mill Test Certificate approved by:

Paul Sowden
 2013 NOV 13

Paul Sowden, T.T.
 Assistant QA Manager