



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1218 Product Size: 14 STD Production Date: Sep 09, 2013
 Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR- 000044

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A/SA106-2011 Grade B/C NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings  <API> 5L-0898 API SPEC 5L NPS 14 STD 0.375 INCHWT GR B PSL1 SMLS 2013/09 NDE 1140PSI
 HEAT BSM-1218 (PIPE # LENGTH MASS) 54.57lb/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 | Geiger µR/hr | Res. Mag. Gauss | Visual Insp. | OD | UT WT | UT Pass | UT ASTM E213 | ET Pass | ET ASTM | HydroTest 1140 PSI/ 5 s | End Condition |
| BSM-1218 | Heat | NPS 14 STD 0.375in. WT | 2 | DRL | 54.57 | <5 | <5 | Pass | Pass | Pass | Pass | Pass | Pass | Pass | Pass | 32.5° Bevel |

| Chemical Analysis (wt%) | | | | | | | | | | | | | | | | |
|-------------------------|---|-----------|------|------|-------|-------|------|------|------|------|------|-------|-------|-------|---------|---------|
| Heat | Steelmaking Method | Test Type | C | Mn | P | S | Si | Cr | Cu | Mo | Ni | V | Ti | Nb | CE(IIW) | CE(CSA) |
| BSM-1218 | Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed | Heat | 0.18 | 0.96 | 0.012 | 0.003 | 0.24 | 0.03 | 0.08 | 0.01 | 0.04 | | | | | |
| | | Product | 0.21 | 0.95 | 0.013 | 0.005 | 0.24 | 0.04 | 0.08 | 0.01 | 0.04 | 0.003 | 0.001 | 0.001 | 0.0002 | 0.39 |

| Mechanical Properties | | | | | | |
|-----------------------|-----------|--------------------|----------|-----------------|----------------------------|------------------|
| Heat | Test Type | Microstructure | Hardness | Flattening Test | Tension Test 50mm GL | Elongation (A) % |
| BSM-1218 | Heat | Ferrite & Pearlite | 76 HRBW | Pass | Longitudinal; 38.1 mm x WT | 43 |
| | | | | | Yield (Rt0.5) psi | Y/T (Rt0.5/Rm) % |
| | | | | | 40,300 | 0.58 |
| | | | | | Tensile (Rm) psi | |
| | | | | | 70,000 | |

| Heat | Test Standard | Impact Test Sample Details | Temp °C | Impact Energy | | | Lateral Expansion | | | |
|----------|---------------|----------------------------|---------|---------------|-----|---|-------------------|----|----|-----|
| | | | | J | J | % | mm | mm | mm | |
| BSM-1218 | - | - | - | - | - | - | - | - | - | - |
| | | | | AVG | AVG | % | mm | mm | mm | AVG |

Additional Details:

Mill Test Certificate approved by:

✓ 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/SA106-2011 Grade B/C A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.



Tonya Lam, C.E.T.

✓ 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.