

## TEST RESULTS INTENDED FOR INFORMATION ONLY

(Applies only to U.S. products)

This is to state that **0.045" SuperArc® L-59®** electrode was tested under the following GMAW welding conditions.

| Operating Settings                    | Results                                     |
|---------------------------------------|---|
| Electrode Size (inches)               | 0.045                                       |
| Polarity                              | DC+   |
| Shielding Gas (per AWS A5.32)         | 85% Ar/15% CO <sub>2</sub> (M20-ArC- 85/15) |
| Voltage V                             | 30  |
| Wire Feed Speed cm/min (in/min)       | 1092 (430)                                  |
| Current amps                          | 305   |
| Contact Tip to Work Distance mm (in.) | 19 (3/4)                                    |
| Passes/Layers                         | 17/7  |
| Preheat Temp °C (°F)                  | 20 (70)                                     |
| Interpass Temp °C (°F)                | 150 (300)                                   |

**Mechanical properties** of the weld deposit (in the as-welded condition) were as follows:

|  |                       |
|--|-----------------------|
| Tensile Strength MPa (ksi)                   | 550 (80)              |
| Yield Strength, 0.2% offset MPa (ksi)        | 440 (64)              |
| Elongation (%)                               | 28                    |
| Average Hardness Rockwell B                  | 87                    |
| <b>Charpy V-notch Impact Properties Avg.</b> | <b>93 (68)</b>        |
| Joules @ -40 °C (ft-lbf @ -40 °F)            | 74,97,107 (55,72,79)  |
| <b>Charpy V-notch Impact Properties Avg.</b> | <b>104 (76)</b>       |
| Joules @ -29 °C (ft-lbf @ -20 °F)            | 72,116,123 (53,86,91) |

**Chemical composition**

| (weight %) | Electrode | Deposit |
|------------|-----------|---------|
| C          | 0.07      | 0.08    |
| Mn         | 1.49      | 1.20    |
| Si         | 0.85      | 0.64    |
| S          | 0.019     | 0.020   |
| P          | 0.005     | 0.006   |
| Cr         | 0.03      | 0.02    |
| Ni         | 0.02      | 0.01    |
| Mo         | 0.00      | 0.00    |
| V          | 0.00      | 0.00    |
| Cu (Total) | 0.16      | 0.15    |

Test assembly constructed of ASTM A36 steel. Joint design per AWS A5.18-2005.

Charpy Impact averages calculated per AWS A5.18.

Results below the detection limits of the instrument or lower than the precision required by specification are reported as zero. Strength values in SI units are reported to the nearest 10 MPa converted from actual data. Preheat and interpass temperature values in SI units are reported to the nearest 5 degrees.

Marie A. Quintana, Director, Consumable Compliance,  
 Consumable R&D Department, Date **18 FEB 2016**

Toronto Cunningham,  
 Certification Supervisor, Date **2/11/16**