

June 26, 2018

Malcolm MacDougall
Servometer
501 Little Falls Road
Cedar Grove, NJ 07009

cc: Joe Madonna

PO Number
SVP180622

Date Received
June 19, 2018

Description
Weldable Nickel

Reference Date
June 2018

TEST REPORT

IMR Report Number 201807005A

SUMMARY

Two samples were received for tensile testing and one sample was received for chemical and microhardness testing.

The results are on the following page(s).



Reviewed by

Andrew Ensign, Manager
Chemistry Department

Reviewed by

Ted Turanski for Shawn Levey
Metallurgical Lab Supervisor

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TENSILE PROPERTIES (AVERAGE OF TWO REPLICATES)

| | Tensile Strength (ksi) | Yield Strength (ksi) | Elongation (%) |
|--------|-----------------------------------|---------------------------------|---------------------------|
| Sample | 175 | 133 | 2.2 |

The width of the samples was 0.37 inches; gauge length was 2.00 inches. Yield strength was determined by the 0.2% offset method. Crosshead speed was 0.01 in./min. to yield and 0.1 in./min. to fracture. Method(s): ASTM E 8-16a

CHEMISTRY

| Element | Sample |
|-----------------|---------------|
| Ni Alloy | 99.98 |
| Ni ¹ | 96.35 |
| S ² | 0.011 |

¹Determined by difference

²Determined combustion-infrared absorbance

Results in weight percent unless otherwise indicated

Method(s): CAP-017P (ICP-AES) and ASTM E 1019-11 (Comb./IGF)

MICROHARDNESS

| | HV₁₀₀¹ |
|--------|-------------------------------------|
| Sample | 395 |

¹Average of three readings

Method(s): ASTM E 384-17 (modified for edge spacing recommendations). Per ASTM E 384, 2.5 indent diameters are recommended between the center of the indent and the edge of the specimen. These indents are closer to the edge of the specimen, but no bulging or other evidence of inadequate support of the indenter force were observed.