

Brammer Standard Company, Inc.

Certificate of Analysis

Reference Material for Pure Nickel Powder

B.S. HPN-1

| | Certified Value | Standard Deviation |
|-------------------|------------------------|---------------------------|
| Aluminum | 70 | 6 |
| Carbon | 268 | 11 |
| Chromium | 22 | 3 |
| Copper | 2 | 1 |
| Iron | 202 | 8 |
| Lead | 0.2 | 0.1 |
| Manganese | 2 | 0.4 |
| Molybdenum | 3 | 1 |
| Phosphorus | 5 | 1 |
| Silicon | 6 | 2 |
| Sulfur | 4 | 2 |

Certified Values expressed as micrograms per gram ($\mu\text{g/g}$)

The certified values are the mean averages from the participating laboratories.

See reverse side for more information.

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Some of the participating laboratories were:

Allegheny Ludlum Steel, Brackenridge, Pennsylvania, USA
Brammer Standard Co., Inc., Houston, Texas, USA
J. Dirats & Co., Westfield, Massachusetts, USA
INCO Ltd., Copper Cliff, Ontario, Canada
INCO, Copper Cliff Nickel Refinery, Copper Cliff, Ontario, Canada
INCO, J. Roy Gordon Research Lab, Mississauga, Ontario, Canada
INCO ALLOYS LTD., Hereford, England

INCO Alloys International, Huntington, West Virginia, USA
INCO Europe Ltd., Clydach Refinery, Clydach, Wales
Lakefield Research, Lakefield, Ontario, Canada
Sandvik Steel, Sanviken, Sweden
Sumitomo Metal Mining Co., Ltd., Niihama, Ehime, Japan
TCR Engineering Services, Bombay, India
TSL Environmental Labs, Mississauga, Ontario, Canada
VHG Labs, Inc., Manchester, New Hampshire, USA

Additional testing is planned for hydrogen, nitrogen, and oxygen. The provisional analyses in $\mu\text{g/g}$ are:

H 70 N 17 O 1400

The following data are not certified. They are given as a best estimate of the analysis based on the data reported during the inter-laboratory testing program.

| | | | | | |
|----|------|----|------|----|------|
| Ag | <0.1 | Cd | <0.1 | Se | <0.5 |
| As | <0.5 | Co | <2 | Sn | <1 |
| B | <2 | Ga | <0.5 | Te | <0.2 |
| Ba | <1 | In | <0.2 | Ti | <1 |
| Be | <1 | Mg | 1 | Tl | <0.1 |
| Bi | <0.2 | Na | 4 | V | <1 |
| Ca | 3 | Sb | <0.1 | Zn | <1 |

This material was produced by the Canadian Alloy Division of INCO Limited.

The material is supplied in powder form. The powder available as a Reference Material is sieve mesh size -100 and +325. The particle size is approximately 45 μm to 150 μm .

Inquiries concerning this Reference Material should be directed to:

| | |
|----------------------------|-----------------------|
| Brammer Standard Co., Inc. | Phone: (281) 440-9396 |
| 14603 Benfer Road | Fax: (281) 440-4432 |
| Houston, Texas 77069 USA | |

Certified by _____ on April 13, 1992.
G. R. Brammer

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