



Chemical Grade Nickel Powder (CDN)

CGNP™ is a high purity nickel powder developed specifically for dissolving applications. CGNP™ is produced by a unique carbonyl gas refining process at the Copper Cliff Nickel Refinery in Sudbury, Canada.

CGNP™ is recognized as an industry standard nickel feed for the production of high purity nickel solutions or salts for use in electroplating, Li-ion batteries, catalysts and other demanding applications:

- Carbonyl refining produces the purest form of nickel available
- Low iron and sulphur content reduces the need to purify nickel product solutions
- Fine, uniform size distribution results in faster dissolution than other nickel feed sources
- Non-explosive and non-flammable
- Preferred nickel feed for the production of nickel sulphamate

CGNP™ is also used in metallurgical applications (i.e. welding applications) that do not require tight particle size distribution.

CGNP™ is produced in compliance with the following ISO standards: ISO 9001:2008.

For further information about our products, please visit our website (www.vale.com) or contact a regional sales representative.



136 kg drum



1 tonne bag

Typical Specifications

Form

- Fisher sub-sieve size: no spec
- Bulk density: no spec
- Sieve test: ≤0.05 wt% +16#

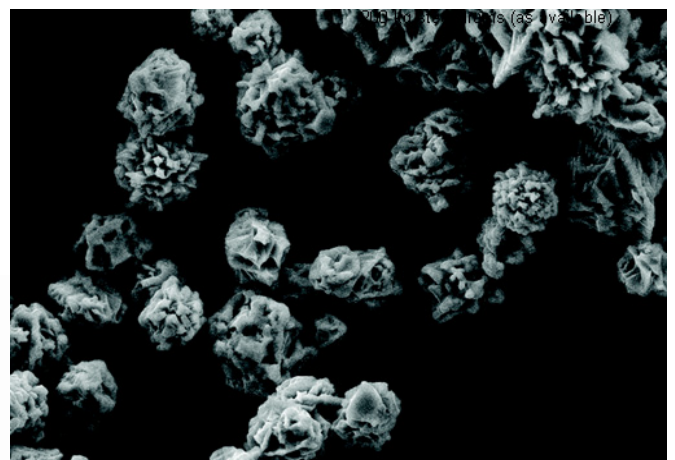
Packaging

- 136 kg steel drums, 8 drums per pallet
- 1 tonne bulk bags

Chemical Analysis (wt %)

| | Typical | Max |
|-----|----------|--------|
| Ni* | >99.8 | -- |
| Co | <0.00002 | -- |
| C | <0.0750 | 0.1 |
| Fe | <0.0010 | 0.0014 |
| S | <0.0001 | 0.0002 |
| O | <0.0800 | 0.14 |
| N | <0.0050 | -- |

*Nickel determined by difference.



High resolution SEM image of Chemical Grade Nickel Powder