



Hart Materials Limited

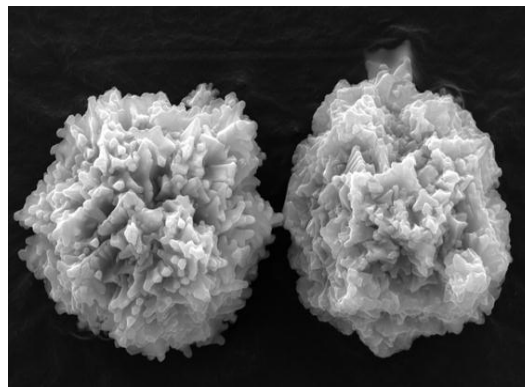
supplies two grades of VALE Nickel Powder - **Type 123** and **Type 255**

Type 123 Nickel Powder

This is an exceptionally pure nickel powder manufactured by the gaseous nickel-carbonyl refining process. It is composed of discrete nickel particles with a closely controlled and reproducible size distribution.

Typical Properties

Fisher sub-sieve size	3.8 – 7.0 μm
Bulk Density	1.8 – 2.6 g/cm ³
Sieve size	< 0.1 wt% + 200 mesh
Ni	> 99.8%
Co	< 0.00005%
C	< 0.075%
Fe	< 0.0030%
S	< 0.0002%
O	< 0.0400%
N	< 0.0050%



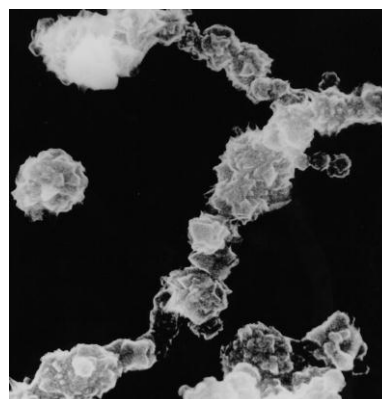
Type 123 nickel powder has been very widely used for over 65 years for a host of powder metallurgical applications, as a metal binder for cutting tools, and for the manufacture of nickel catalysts and high purity nickel salts.

Type 255 Nickel Powder

Type is also an exceptionally pure nickel powder also made by the nickel-carbonyl refining process. However, unlike Type 123 nickel powder, it has a fine, three dimensional filamentary structure.

Typical Properties

Fisher sub-sieve size	2.2 – 2.8 μm
Bulk Density	0.50 – 0.65 g/cm ³
Sieve size	< 2 wt% + 100 mesh
Ni	> 99.7%
Co	< 0.00005%
C	< 0.200%
Fe	< 0.0030%
S	< 0.0002%
O	< 0.0750%
N	< 0.0100%



The material is an industry standard for the manufacture of sintered electrodes used in nickel battery production due to its controlled porosity. It is also used as a pigment for the production of electrically conductive coatings and in a number of powder metallurgical products.

Hart Materials Limited

Carrier House, Carrier's Fold, Church Road, Wombourne, Staffordshire WV5 9DH

Tel: +44 (0)1902 895446 • Fax: +44 (0)1902 897469 • email: info@hartmaterials.com • Web: www.hartmaterials.com

VAT Registration Number 928 3368 96 • Company Registration Number 6504658