

# Type 123 Nickel Powder

Ni

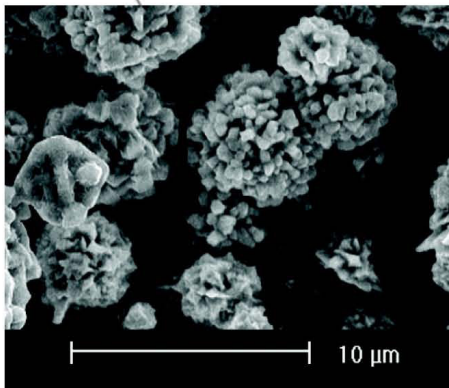
## Type 123 Nickel Powder

A fine, high purity, discrete powder made by Vale Inco carbonyl technology.

- Tight size distribution (typically < 1  $\mu\text{m}$  FSSS)
- Sinters readily to form a conductive, open porosity network
- Spiky, needle-like texture ideal for PM applications
- Particle size is an optimum balance between ease of mixing of metal powders and mechanical properties of sintered parts

### T123 PM is the worldwide standard Ni powder used in low alloy steels powder metallurgy:

- Uniform dispersion provides repeatable dimensional change of sintered parts



- Strengthens and toughens to improve fatigue strength
- Hardens heat-treated steels

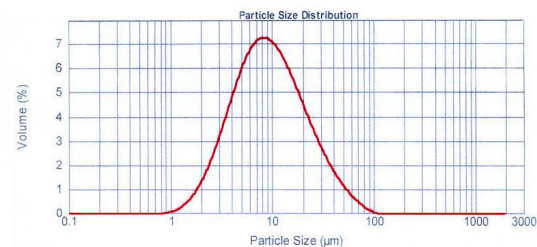
## T123 is widely used as a metal binder:

- Enhances corrosion resistance and toughness of hard metals
- Toughens and strengthens diamond tool segments
- Wets and aids in densification of tungsten heavy alloys

Vale Inco has safely supplied the PM industry with Ni powder for decades. All of our powders are produced in ISO 9001 qualified refineries. Each batch can be tracked from refinery to finished product.

For more information please visit our website ([www.valeinco.com](http://www.valeinco.com)) or contact a regional sales representative.

Typical Particle Size Distribution



## Specifications

|                      | Typical (Wt %) | Maximum (Wt %) |
|----------------------|----------------|----------------|
| Carbon               | <0.08          | 0.1            |
| Sulphur              | <0.0002        | 0.001          |
| Oxygen               | <0.1           | 0.15           |
| Nitrogen             | <0.02          | —              |
| Iron                 | <0.005         | 0.01           |
| Cobalt               | <0.0002        | —              |
| Total Other Elements | <0.001         | —              |
| Nickel               | balance        | —              |

### Typical Physical Characteristics:

Fisher Sub-Sieve Size: 3.5 - 4.5  $\mu\text{m}$   
 Bulk Density: 1.6 - 2.6  $\text{g}/\text{cm}^3$   
 Typical Specific Surface Area: ~ 0.4  $\text{m}^2/\text{g}$

### Packaging:

- 136 kg or 200 kg steel drum; one drum per pallet; strapped
- 1 tonne or 2 tonne bag