

Inco Type 110 D

Inco Type 110 D nickel powder is Inco Type 110 PM powder treated to improve dispersion during blending with iron based powders.

T110 D offers improved physical properties in PM steels.

Applications

Inco Type 110 D is used in high performance PM steels such as automotive gears and sprockets that require highly compressible powders to achieve high density PM parts. Increased Ni diffusion during sintering improves steel hardenability.

Inco Type 110 D added to iron-copper steels improves dimensional control of finished parts. Increased shrinkage during sintering offsets the volume expansion caused by copper.

Inco Type 110 D enables compressible admixed nickel steel powders to be used in Sinter Hardening applications. Finer and harder nickel-rich phases compared to standard nickel powder results in a more homogeneous microstructure with improved hardenability and dimensional precision.

Advantages

- *Density - Provides greater shrinkage in P/M steels leading to significant increases in part density.*
- *Diffusion - T110 D diffuses more uniformly, faster and at lower temperature than standard nickel powder.*
- *Dimensional Change - T110 D reduces the amount of dimensional swelling in nickel-copper steels. Less of this extra fine nickel is needed to obtain the same dimensional control as with standard size nickel.*
- *Deviation - The improved dispersion of nickel obtained with T110 D results in significantly lower part to part dimensional variation.*
- *Hardenability - T110 D increases hardenability without residual soft Ni-rich phases.*



Features

Benefits

Shape

Extra fine smooth particles

Optimum Mixing and Sintering:

Allows very uniform dispersion of nickel in PM structures

Size Uniformity

Very fine particle size, particles typically 1-2 microns in diameter

Consistent Performance:

Predictable mechanical property and dimensional change response in PM steels

Experience

Decades as a reliable supplier to the automotive industry

Continued Commitment:

To meeting exacting and frequently shifting automotive specifications

Traceability

Each batch is tested and recorded from refinery to customer delivery

Confidence in Sourcing:

Complete tracking 'paper trail', from refinery to finished product

ISO-9001

All powders are produced in ISO 9001 qualified refineries

Conformance:

To stringent requirements that demand ISO 9001 standards

Steel drum internally coated with protective, inert resin

Approximate Dimensions

Diameter: 410 mm
 Height: 640 mm
 Net Weight: 50 kg
 Gross Weight: 59 kg

Multiples can be palletised and shrink-wrapped



UN Approved Packaging

Typical Chemical Composition

	Typical Wt %	Maximum Wt %
Carbon	0.6	1
Sulphur	0.0003	0.001
Oxygen	0.11	1
Nitrogen	0.001	n.d.
Iron	0.006	0.03
Cobalt	0.0001	n.d.
Nickel	balance	--
Total Other Elements	<0.001	

Scott Volumeter Method

Typical Physical Characteristics

Fisher Sub-Sieve Size: 0.8 - 1.5 microns
 (Air Permeability Method)

Bulk Density: 0.6 - 2.3 g/cm³

Typical Specific Surface Area: 0.9 - 2 m²/g (BET)



This product is part of a complete range of Inco Special Nickel Products. The range includes: fine and extra fine nickel powders of many different morphologies, nickel coated graphite particles, INCOFOAM™ high porosity nickel foam, nickel oxides and nickel flakes.