

Black Nickel Oxide

Ni

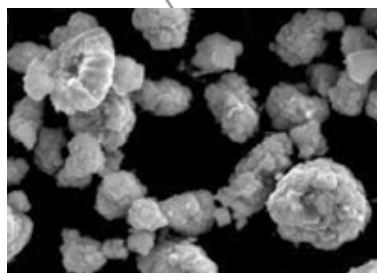
Black Nickel Oxide (BNO)

A fine oxide powder with exceptionally high purity and unique particle surface characteristics. Black Nickel Oxide (BNO) is made using a proprietary process developed by Vale Inco Limited, using very high purity carbonyl nickel powder as the feed material.

Two commercial grades are offered:

- A-Grade: $D_{50} = 6$ to $10 \mu\text{m}$
- F-Grade: $D_{50} = 1$ to $2 \mu\text{m}$

BNO is widely used in the production of high quality electronic materials such as mixed oxide ferrites, varistors and thermistors:



- Very low Co, Mn and Si content
- Fine particle size and high surface area (typically $60 - 100 \text{ m}^2/\text{g}$) provides high sintering activity

BNO is also used in the following applications

- High quality pigments for glass and ceramics
- Dissolving for high purity nickel solutions or salts and catalysts

Vale Inco has reliably supplied the electronics and catalyst industries with powder products 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) or contact a regional sales representative.



Clydach Nickel Refinery, Wales

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Specifications

Chemistry:

	Typical for A-Grade & F-Grade
Ni	76.6 - 77.9 wt %
Fe	< 150 ppm
Si, Al	< 50 ppm*
Co	< 15 ppm
Cu, K, Mg, Mn, Pb, S, Zn	< 10 ppm*
Bi, Cd, Hg, P, Se	< 1 ppm*

* for each independent element

Physical Characteristics:

	Typical	
	A-Grade	F-Grade
Mean Particle Size ($D_{50} \mu\text{m}$)	6 - 10	1 - 2
Tap Density (g/cm^3)	2.0 - 2.5	1.5 - 2.0