

## MATERIAL SAFETY DATA SHEET

## HAZARDOUS INGREDIENTS

Hazardous Ingredients	Calculated Composition	C.A.S. No.	PEL <sup>1</sup> -mg/m <sup>3</sup>	TLV <sup>2</sup> -mg/m <sup>3</sup>
Nickel Oxide (NiO)	90 - 95	1313-99-1	1 as Ni	0.2* as Ni
Basic Nickel Carbonate (xNi(OH) <sub>2</sub> ·yNiCO <sub>3</sub> ·zH <sub>2</sub> O)	5 - 10	n.av.	(a)	1 as Ni

(a) The oral rat LD<sub>50</sub> for NiCO<sub>3</sub>·3Ni(OH)<sub>2</sub> is 1044 mg/kg

\*As inhalable fraction

## PHYSICAL AND CHEMICAL DATA

Black, odorless powder 99% of which passes through a 325 mesh sieve

Ingredient	Mol. Wt.	Specific Gravity	m.p. °C	Sol. In H <sub>2</sub> O g/100 ml
NiO	74.71	6.67	~1990	0
Basic Nickel Carbonate	n.av.	n.av.	Decomposes	n.av.

## PHYSICAL AND CHEMICAL DATA

None

HEALTH HAZARDS<sup>3</sup>

## Nickel Oxide

LD<sub>50</sub> ORAL RAT: 5000 mg/kg

Inhalation: The National Toxicology Program has listed nickel oxide as reasonably anticipated to be a carcinogen based on the production of injection-site tumors. The International Agency for Research on Cancer (IARC) concluded there was sufficient evidence that nickel compounds are carcinogenic to humans and that nickel oxide is carcinogenic to animals. The Report of the International Committee on Nickel Carcinogenesis in Man (Scandinavian Journal of Work, Environment & Health; Vol. 16, No.1; February 1990) reported that workers who have been primarily exposed to nickel oxide showed some evidence of increased lung cancer. Epidemiological evidence exists that nickel oxide is a nasal/sinus cancer hazard. Epidemiological studies of workers exposed to nickel powder and to dust and fume generated in the production of nickel alloys and stainless steel have not indicated the presence of a significant respiratory cancer hazard.

There is some evidence that the inhalation of nickel oxide has resulted in an increased incidence of malignant lung tumors in rats.

Inhalation of nickel oxide at concentrations 50 times the PEL, produced pneumoconiosis in hamsters.

Repeated intratracheal instillation of nickel oxide produced an increased incidence of malignant lung tumors in rats.

Wounds: Nickel oxide has caused tumors at the site of injection in rodents.

Ingestion: The U.S. National Institute for Occupational Safety and Health (NIOSH) concluded there is no evidence that nickel and its inorganic compounds are carcinogenic when ingested.

## BASIC NICKEL CARBONATE

LD<sub>50</sub> ORAL RAT: 1044 mg/kg

Inhalation: The National Toxicology Program has listed nickel carbonate as reasonably anticipated to be a carcinogen based on the production of injection site tumors. However, there is reason to believe that the compound actually tested was a basic nickel carbonate. The International Agency for Research on Cancer (IARC) concluded there was sufficient evidence that nickel compounds are carcinogenic to humans.

Sinonasal cancer has been reported in a worker employed in an operation where a nickel-copper carbonate (formula unspecified) was decomposed to nickel-copper oxide.

Inhalation of dust may be irritating to the respiratory tract.

Skin Contact: Prolonged contact may irritate the skin and mucous membranes.

- Eye Contact: May cause eye irritation.
- Wounds: A chemical alleged to be nickel carbonate but which was probably a basic nickel carbonate and dried crystalline nickel hydroxide caused tumors at the site of injection in rodents.
- Ingestion: The U.S. National Institute for Occupational Safety and Health (NIOSH) concluded there is no evidence that nickel and its inorganic compounds are carcinogenic when ingested.

#### PRECAUTIONS FOR SAFE STORAGE, HANDLING AND USE

Do not inhale. Keep container closed when not in use. Ventilation is normally required when handling or using this product to keep exposure to airborne nickel below the exposure limit. If ventilation alone cannot so control exposure, use NIOSH-approved respirators selected according to OSHA 29 CFR 19.0.134. Maintain the airborne concentration of nickel oxide as low as possible.

#### SPILL, LEAK AND DISPOSAL PROCEDURE

Collect spills by wet sweeping or by vacuuming with the vacuum exhaust passing through a high efficiency particulate arresting (HEPA) filter if the exhaust is discharged into the workplace.

Wear appropriate NIOSH-approved respirators if collection and disposal of spills is likely to cause the concentration of airborne contaminants to exceed the exposure limits.

Nickel-containing waste is normally collected to recover nickel values. Should waste disposal be deemed necessary, follow EPA and local regulations.

#### EMERGENCY AND FIRST AID PROCEDURES

Cleanse wounds thoroughly to remove any particles.

#### SARA SECTION 313 SUPPLIER NOTIFICATION

This product contains the following chemical(s) subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 49 CFR 312.

**Nickel Oxide**  
**Basic Nickel Carbonate**

Refer to the Hazardous Ingredients section of this MSDS for the appropriate CAS numbers and the percent by weight.

**CERAMIC COLOR & CHEMICAL MFG. CO.**

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CCC believes that the information in this Material Safety Data Sheet is accurate. However, CCC makes no express or implied warranty as to the accuracy of such information and expressly disclaims any liability resulting from reliance on such information.