

Material Safety Data Sheet

Product Information

Electrolytic Nickel Cathode.

Hazardous Ingredients

H a z a r d o u s ingredients	Composition	CAS No	Oral LD 50 -Rat	Exposure limit (TLV) 1,2 -mg/m3
Nickel (Ni)	99.92	7440-02-0	9000 mg/kg	1.5

Physical Data

Silver-grey, odourless metal squares, strips, slabs of various sizes. Material may have sharp edges which can cause cuts or

Ingredient	Molar weight	S p e c i f i c Gravity	Melting Point (c)	Boiling point	Solubility in H2O (g/100ml)
Nickel	58.71	8.9	1453	2732	0

lacerations.

Fire or Explosion Hazard

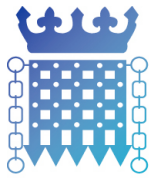
Finely-divided nickel particles heat treated in reducing atmospheres may become spontaneously combustible.

Reactivity Data

Like other metals, nickel can react with acids to liberate hydrogen gas which can form explosive mixtures in air.

Toxicological Properties

Nickel



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Acute Toxicity:

- a) Oral: Non0Toxic-LD₅₀ ORAL RAT – 9000mg/kg
- b) Inhalation: N/A
- c) Dermal: N/A

Corrosivity/Irritation:

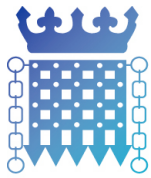
- a) Respiratory Tract: None
- b) Skin: See Sensitisation section.
- c) Eyes: Mechanical irritation may be expected.

Sensitisation:

- a) Respiratory Tract: Nickel metal induced asthma is very rare. Three case reports are available; the data is not sufficient to conclude that nickel metal is classified as a respiratory sensitizer.
- b) Skin: Nickel metal is a well-known skin sensitizer. Direct and prolonged skin contact with metallic nickel may induce a nickel allergy and elicit nickel allergic skin reactions in those people already sensitized to nickel, so called nickel allergic contact dermatitis.
- c) Pre-existing conditions: Individuals known to be allergic to nickel should avoid contact with nickel whenever possible to reduce the likelihood of nickel allergic contact dermatitis reactions. Repeated contact may result in persistent chronic palmer/hand dermatitis in a smaller number of individuals, despite efforts to reduce or avoid nickel exposure.

Chronic Toxicity:

- a) Oral: No information available.



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- b) Inhalation: Animal studies show (rats) that repeated dose inhalation of nickel damages the lung. Chronic inflammation, lung fibrosis and accumulation of nickel particles were observed.
- c) Dermal: Direct and prolonged skin contact with nickel metal may cause nickel sensitization resulting in nickel allergic contact dermatitis/skin rash.

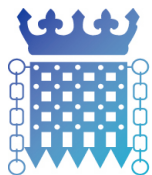
Reproductive toxicity:

No data.

Carcinogenicity:

- a) Ingestion: The U.S National Institute for Occupational Safety and Health (NIOSH) conducted that there is no evidence that nickel metal is carcinogenic when ingested.
- b) Inhalation: There is limited information available from inhalation and intratracheal studies in animals. The U.S National Toxicology Program has listed metallic nickel as reasonably anticipated to be a human carcinogen. To date, there is no evidence that nickel metal causes cancer in humans based on epidemiology data from workers in the nickel producing and nickel consuming industries.

(The International Agency for Research on Cancer (IARC Vol 49) found there was inadequate evidence that metallic nickel is carcinogenic to humans but since there was sufficient evidence that it is carcinogenic to animals, IARC concluded that nickel metal is possibly carcinogenic to humans. In 1997, the AGGIH categorised elemental nickel as: A5 “Not suspected human carcinogenic”. Epidemiological studies of workers exposed to nickel powder and to dust and fume generated in the production of nickel alloys and of stainless steel have not indicated the presence of a significant respiratory cancer hazard).



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Preventative Measures

If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne nickel below the exposure limit. If ventilation alone cannot so control exposure, use NIOSH-approved respirators selected according to the current edition of Selection, Care and Use of Respirators CSA Z94.4. Maintain airborne nickel levels as low as possible.

Avoid repeated skin contact. Wear suitable gloves. Wash skin thoroughly after handling. Launder clothing and gloves as needed. Do not store near acids. If spilled, pick up product and replace in original container.

Nickel-containing waste is normally collected to recover nickel values. Should waste disposal be deemed necessary, follow the relevant government regulations.

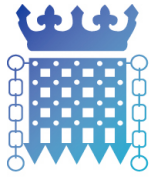
First aid measures:

If exposure to nickel carbonyl is suspected, seek medical attention immediately. For skin rashes, seek medical attention. Cleanse wound thoroughly to remove any nickel particles.

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Note: Total Global Steel Ltd believes that the information in this Material Safety Data Sheet is accurate. However, Total Global Steel Ltd makes no express or implied warranty as to the accuracy of



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