

GHS Classification

ID452

Nickel monoxide

CAS 1313-99-1

Date Classified: Jul. 24, 2006 (Environmental Hazards: Mar. 31, 2006)

Physical Hazards

Reference Manual: GHS Classification Manual (Feb. 10, 2006)

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Explosives	Not applicable	—	—	—	Containing no chemical groups with explosive properties
2 Flammable gases	Not applicable	—	—	—	Classified as "solid" according to GHS definition
3 Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable	—	—	—	Classified as "solid" according to GHS definition
5 Gases under pressure	Not applicable	—	—	—	Classified as "solid" according to GHS definition
6 Flammable liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
7 Flammable solids	Not classified	—	—	—	Non-flammable (ICSC, 2004)
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
10 Pyrophoric solids	Not classified	—	—	—	Non-combustible (ICSC, 2004)
11 Self-heating substances and mixtures	Not classified	—	—	—	Non-combustible (ICSC, 2004)
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	—	—	—	Stable to water (insoluble, ICSC (2004))
13 Oxidizing liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
14 Oxidizing solids	Classification not possible	—	—	—	Classification not possible due to lack of data, though inorganic compounds containing oxygen
15 Organic peroxides	Not applicable	—	—	—	Not organic compounds
16 Corrosive to metals	Classification not possible	—	—	—	Test methods applicable to solid substances are not available

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	—	—	—	Based on the rat LD50 (oral route) value of >=5,000mg/kg ((ECETOC TR33 (1989)).
1 Acute toxicity (dermal)	Classification not possible	—	—	—	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "solid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
2 Skin corrosion / irritation	Classification not possible	—	—	—	No data available
3 Serious eye damage / eye irritation	Classification not possible	—	—	—	No data available
4 Respiratory/skin sensitization	Respiratory sensitization: Category 1 Skin sensitization: Category 1	(Respiratory sensitization) Health hazard (Skin sensitization) Exclamation mark	(Respiratory sensitization) Danger (Skin sensitization) Warning	(Respiratory sensitization) May cause allergy or asthma symptoms or breathing difficulties if inhaled (Skin sensitization) May cause an allergic skin reaction	Respiratory sensitization: Due to the fact that the substance is classified as a Respiratory Sensitizing Substance by DFG and "Respiratory Sensitizing Substance: Group 2" (as nickel compounds) according to the Recommendation on Occupational Exposure Limits for Chemical Substances (Japan Society for Occupational Health (2005)). Skin sensitization: Due to the fact that the substance is classified as a Skin Sensitizing Substance by DFG and "Skin Sensitizing Substance: Group 1" (as nickel compounds) according to the Recommendation on Occupational Exposure Limits for Chemical Substances (Japan Society for Occupational Health (2005)).
5 Germ cell mutagenicity	Classification not possible	—	—	—	There is no available data on heritable mutagenicity and in vivo germ cell mutagenicity / genotoxicity, whereas two data are available on in vivo somatic cell mutagenicity: one showed positive result (chromosome aberration/study on lymphocytes from exposed workers; however, this data is considered insufficient. (ECETOC TR33, 1989)), the other showed negative result (peripheral blood micronucleus tests on mice /90 days inhalation exposure)(NTP CB (Access on Mar., 2006), IARC 49 (1990), ATSDR (2005), ECETOC TR33 (1989)). Although nickel has been known to possess a genotoxic potential (ATSDR, 2005), available data are considered insufficient to serve as a basis for classification as "Category 2" or "Not classified" with respect to mutagenicity defined in the GHS, since epidemiological data is not conclusive and animal data is negative. Therefore the substance has been classified as "classification is not possible".
6 Carcinogenicity	Category 1A	Health hazard	Danger	May cause cancer	Due to the fact that the substance is classified as Category K by NTP (2005), Category A1 by ACGIH (2001) and Group 1 by IARC (1990).
7 Toxic to reproduction	Classification not possible	—	—	—	Insufficient data available
8 Specific target organs/systemic toxicity following single exposure	Classification not possible	—	—	—	No data available The acute toxicity of nickel compounds manifests in humans as "nausea, diarrhea, dizziness, headache" (ECETOC TR33 (1989)).

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (respiratory organs)	Based on the human evidence including "pulmonary impairment, typical pneumoconiosis" (EHC 108 (1991)) and the evidence from animal studies including "granulomatous inflammation, hyperplasia of the bronchi/mediastinal lymph node," "alveolar wall thickening" (ATSDR (2005)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1. Chronic exposure to nickel and its compounds may produce respiratory irritation and degeneration in humans even at doses close to occupational exposure limits. Prolonged exposure to high concentrations is likely to result in the fibroid lung (ECETOC TR33 (1989)).
10	Aspiration hazard	Classification not possible	—	—	—	No data available

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11	Hazardous to the aquatic environment (acute)	Not classified	—	—	Since it was suggested that relevant toxicity is not indicated within the water solubility (insolubility (CERI/NITE Hazard Assessment Report (preliminary version) (2006)) of this substance in spite of 48 hours EC50>100mg/L of the crustacea (Daphnia magna) (IUCLED (2000) and others), it was classified into Not classified.
11	Hazardous to the aquatic environment (chronic)	Category 4	—	—	May cause long lasting harmful effects to aquatic life Since although acute toxicity is not reported within the aqueous solubility concentrations, it was a metallic compound, and the underwater action was unknown, it was classified into Category 4.