GHS Classification

ID454 Nickel dinitrate

CAS 13138-45-9 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 classified	–	–	–	No data available though being nitrates, containing chemical groups with explosive properties. Classified into Division 5.1 (UN#2725) (UN Recommendations on the Transport of Dangerous Goods).
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	Classification not possible	–	–	–	No data available
8	Self-reactive substances and mixtures	Not classified	–	–	–	No data available, though being a nitrate, containing chemical groups with explosive properties. Classified as Division 5.1 (UN#2725) (UN Recommendations on the Transport of Dangerous Goods).
9	Pyrophoric liquids	Not applicable	–	–	–	Classified as "solid" according to GHS definition
10	Pyrophoric solids	Classification not possible	–	–	–	No data available
11	Self-heating substances and mixtures	Classification not possible	–	–	–	Test methods applicable to liquid substances are not available (melting point: 56.7degC (Gangolli, 2nd, 1999), test temperature: 140degC)
12	Substances and mixtures, which in contact with water, emit flammable gases	Not classified	–	–	–	Stable to water (water solubility: 99.2g/100g (25degC), Lide (84th, 2003))
13	Oxidizing liquids	Not applicable	–	–	–	Classified as "solid" according to GHS definition
14	Oxidizing solids	Category 3	Flame over circle	Warning	May intensify fire; oxidizer	Inorganic compounds containing oxygen, which may cause fire when in contact with wood or paper (HSDB (2006)). Classified into Division 5.1 (UN#2725) (UN Recommendations on the Transport of Dangerous Goods).
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)	Classification not possible	–	–	–	No data available
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:	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 nickel compounds are classified into "Respiratory Sensitizing Substances: Group 2" according to the Recommendation on Occupational Exposure Limits for Chemical Substances (Japan Society for Occupational Health (2005)) (though not specifying nickel sulfate). Skin sensitization: Due to the fact that nickel compounds are classified into "Skin Sensitizing Substances: Group 1" according to the Recommendation on Occupational Exposure Limits for Chemical Substances (Japan Society for Occupational Health (2005)) (though not specifying nickel sulfate).
5	Germ cell mutagenicity	Not classified	–	–	–	Based on negative data on multi-generation mutagenicity tests (dominant lethal tests) and somatic cell mutagenicity tests in vivo (micronucleus tests), and the absence of data on germ cell mutagenicity tests in vivo, described in IARC 49 (1990), EHC 108 (1991), ECETOC 33 (1989) and ATSDR (2005). As for the mutagenicity/genotoxicity of water-soluble inorganic nickel compounds, refer to "ID455, Nickel Chloride (II), CAS: 7718-54-9."
6	Carcinogenicity	Category 1A	Health hazard	Danger	May cause cancer	Due to the fact that the substance is classified as Category K (as nickel compounds) by NTP (2005) and Category 1 (as nickel compounds) by IARC (1990).
7	Toxic to reproduction	Classification not possible	–	–	–	Insufficient data available As for the reproductive/developmental toxicity of water-soluble inorganic nickel compounds, refer to "D455, Nickel Chloride, CAS: 7718-54-9" and "ID453, Nickel Sulfate, CAS: 7786-81-4."
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	Classification not possible	–	–	–	No data available 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)	Category 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 48 hours LC50=0.461mg/L(Nickel Nitrate Equivalent: 1.435mg/L) of the crustacea (Moina) (CERI/NITE Hazard Assessment Report (preliminary version), 2006).
11	Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Since acute toxicity was Category 2 and it was a metallic compound and an underwater action and bio-accumulation were unknown, it was classified into Category 2.