

GHS Classification

ID363

CAS 12427-38-2

Physical Hazards

Manganese N,N'-ethylenebis(dithiocarbamate)

Date Classified: Dec. 18, 2006 (Environmental Hazards: Mar. 31, 2006)

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	Classification not possible	—	—	—	Cannot be classified due to lack of data, though classified as flammable according to ICSC (2003). Assigned to Division 4.2 and Packing Group III (UN#2210 Maneb or Maneb Preparations with not less than 60% maneb, self-heating substance (ICSC (2003))) (UN Recommendations on the Transport of Dangerous Goods). The substance cannot be "Not classified" given the fact that it has subsidiary risks corresponding to Division 4.3 (substance which in contact with water emits flammable gases).
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	Classification not possible	—	—	—	Classification not possible due to lack of data. Assigned to Division 4.2 and Packing Group III (UN#2210 Maneb or Maneb Preparations with not less than 60% maneb, self-heating substance (ICSC (2003))) (UN Recommendations on the Transport of Dangerous Goods). The substance cannot be "Not classified" given the fact that it has subsidiary risks corresponding to Division 4.3 (substance which in contact with water emits flammable gases).
11 Self-heating substances and mixtures	Category 2	Flame	Warning	Self-heating in large quantities; may catch fire	Assigned to Division 4.2 and Packing Group III (UN#2210 Maneb or Maneb Preparations with not less than 60% maneb, self-heating substance (ICSC (2003))) (UN Recommendations on the Transport of Dangerous Goods).
12 Substances and mixtures, which in contact with water, emit flammable gases	Category 3	Flame	Warning	In contact with water releases flammable gases	The subsidiary risks of the substance fall into Division 4.3, Packing Group III (UN#2210 Maneb or Maneb Preparations with not less than 60% maneb, self-heating substance (ICSC (2003))) under the UN Recommendations on the Transport of Dangerous Goods, which corresponds to Category 3 of GHS classification. Those containing stabilizers are also classified into Division 4.3, Packing Group III (UN#2968 Maneb or Maneb Preparations (Maneb stabilized against self-heating; substance which in contact with water emits flammable gases)) under the UN Recommendations on the Transport of Dangerous Goods.
13 Oxidizing liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
14 Oxidizing solids	Not applicable	—	—	—	Organic compounds containing no chlorine, fluorine and oxygen
15 Organic peroxides	Not applicable	—	—	—	Organic compounds containing no "-O-O-" structure
16 Corrosive to metals	Classification not possible	—	—	—	Test methods applicable to solid substances with melting point of >55degC are not available (melting point: thermally decomposes at 185degC (Agricultural Chemical Registration Data)).

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 7,950mg/kg (Agricultural Chemical Registration Data (1974)).
1 Acute toxicity (dermal)	Not classified	—	—	—	Based on the rat LD50 (dermal route) value of >5,000mg/kg (Agricultural Chemical Registration Data (1977)).
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is a solid according to the GHS criteria and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: dust, mist)	Category 5	—	Warning	May be harmful if inhaled	Based on the rat LC50 (inhalation route) value of 7.38mg/L (Agricultural Chemical Registration Data (2005)).
2 Skin corrosion / irritation	Category 3	—	Warning	Causes mild skin irritation	Based on the evidence of mild skin irritation observed in rabbit skin irritation tests (Agricultural Chemical Registration Data (1970)).
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Based on the evidence of conjunctival effects with a Draize score of 2.8 observed in rabbit eye irritation tests, which were reversed on day 8 (Agricultural Chemical Registration Data (1985)).
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Category 1	(Respiratory sensitization) — (Skin sensitization) Exclamation mark	(Respiratory sensitization) — (Skin sensitization) Warning	(Respiratory sensitization) — (Skin sensitization) May cause an allergic skin reaction	Respiratory sensitization: No data available Skin sensitization: Based on positive results in guinea pig skin sensitization studies employing the Maximization method (Agricultural Chemical Registration Data (2005)).

5	Germ cell mutagenicity	Not classified	—	—	—	Based on negative data in in vitro studies (reverse mutation tests, chromosome aberration tests and DNA repair tests) (Agricultural Chemical Registration Data (1975, 1978, 1987)) and in vivo micronucleus tests on mouse bone marrow cells (Agricultural Chemical Registration Data (2005)).
6	Carcinogenicity	Not classified	—	—	—	There was no evidence of treatment-related incidence of tumor formation observed in 2-year (rats) and 18-month (mice) carcinogenicity studies (Agricultural Chemical Registration Data (1978)). Also due to the fact that the substance is classified as Category 3 by IARC (1987).
7	Toxic to reproduction	Not classified	—	—	—	Based on no evidence of adverse effects on reproduction or offspring development observed in rat 2-generation reproduction studies (Agricultural Chemical Registration Data (1976)) and rabbit teratogenicity studies (Agricultural Chemical Registration Data (1989)).
8	Specific target organs/systemic toxicity following single exposure	Classification not possible	—	—	—	In the available single dose toxicity studies in rats and mice, no clinical signs or symptoms referable to specific target organs were reported at dose levels below the guidance value ranges for Category 2 (Agricultural Chemical Registration Data (1974)), though some toxic effects were observed at higher doses.
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (thyroid gland, respiratory organs, blood system)	Health hazard	Warning	May cause damage to organs through prolonged or repeated exposure (thyroid gland, respiratory organs, blood system)	Based on the evidence from animal studies including increased thyroid weights, pathological changes in the thyroid gland, pulmonary hemorrhage, abnormal lung findings, decreases in RBC/Hb/hematocrit and increase in platelet count, red blood cell deformity, and hyperplasia of thyroid follicular cells (Agricultural Chemical Registration Data (1974, 2005)). These effects were observed at dosing levels within the guidance value ranges for Category 2.
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 1	Environment	Warning	Very toxic to aquatic life	It was classified into Category 1 from 48 hours EC50=0.189mg/L of the crustacea (Daphnia magna) (Agricultural Chemical Registration Data, 2004).
11 Hazardous to the aquatic environment (chronic)	Category 1	Environment	Warning	Very toxic to aquatic life with long lasting effects	Although acute toxicity is Category 1 and bio-accumulation is low (log Kow=0.62(PHYSROP Database, 2005)), since there was no rapidly degrading (the decomposition by BOD: 1%(Existing Chemical Safety Inspections Data)), it was classified into Category 1.