

GHS Classification

ID809

Zirconium dichloride oxide

CAS 7699-43-6

Date Classified: Jun. 20, 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	-	-	-	There are no chemical groups associated with explosive properties present in the molecules.
2 Flammable gases	Not applicable	-	-	-	Solid (GHS definition)
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Solid (GHS definition)
5 Gases under pressure	Not applicable	-	-	-	Solid (GHS definition)
6 Flammable liquids	Not applicable	-	-	-	Solid (GHS definition)
7 Flammable solids	Not classified	-	-	-	Non-flammable (Weiss (2nd, 1985))
8 Self-reactive substances and mixtures	Classification not possible	-	-	-	No data available
9 Pyrophoric liquids	Not applicable	-	-	-	Solid (GHS definition)
10 Pyrophoric solids	Not classified	-	-	-	Not classified because of "Non-flammable" (Weiss (2nd, 1985))
11 Self-heating substances and mixtures	Not classified	-	-	-	Not classified because of non-flammable (Weiss, 2nd, 1985)
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	-	-	-	Not react with water. (Weiss, 2nd, 1985)
13 Oxidizing liquids	Not applicable	-	-	-	Solid (GHS definition)
14 Oxidizing solids	Classification not possible	-	-	-	No data available
15 Organic peroxides	Not applicable	-	-	-	Containing no -O-O- structure
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)	Category 5	-	Warning	May be harmful if swallowed	SPECIES: Rat ENDPOINT: LD50 VALUE: 3500 mg/kg REFERENCE SOURCE: DFGOT vol.12 (1999)
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Solid (GHS definition)
1 Acute toxicity (inhalation: vapour)	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	-	-	-	Classification not possible due to lack of data
3 Serious eye damage / eye irritation	Classification not possible	-	-	-	No data available
4 Respiratory/skin sensitization	Classification not possible; Skin sensitization: Not classified	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	[Respiratory sensitization] No data. [Skin sensitization] Skin sensitization was negative (DFGOT vol.12 (1999)) in both examinations of modified Magnusson and Kligman test using guinea pigs and lymph node assay using the mouse, moreover, there was no onset of the symptoms which suggests skin sensitization by the test using human volunteers (ACGIH (2001)), therefore we classified it as Out Of Category.
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	In the chromosome aberration test (somatic cell in vivo mutagenicity test) using the marrow cells of the mouse, it was classified as Category 2 based on the reported significant increase in chromosome aberration (PATTY (5th, 2001), DFGOT vol.12 (1999)).

6	Carcinogenicity	Not classified	-	-	-	Since it was classified into A4 according to ACGIH (1996) as zirconium and zirconium compound, it was considered as the outside of Category.
7	Toxic to reproduction	Classification not possible	-	-	-	No data available
8	Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system, digestive system, liver, blood system, urinary organs, circulatory system); Category 3 (respiratory tract irritation)	Health hazard; Exclamation mark	Danger; Warning	Cause damage to organs (nervous system, digestive system, liver, blood system, urinary organs, circulatory system); May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation)	As acute intoxication by oral ingestions in humans, there are descriptions about symptoms relevant to a wide range of organs, including digestive organs, liver, blood, urinary system, nervous system and circulatory system (PATTY (5th, 2001)). Among these symptoms, development of convulsion and gastrointestinal hemorrhage is reported as a serious toxic effect in animals (RTECS (2004)). Therefore we classified it into Category 1 (nervous system, gastrointestinal system, liver, blood, urinary system, circulatory system). In addition, there is description that "an airway can be stimulated in the process of hydrolysis to hydrochloric acids" (PATTY (5th, 2001)). Therefore we classified it as Category 3 (respiratory irritant).
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Classification not possible due to lack of data
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 3	-	-	Harmful to aquatic life	It was classified into Category 3 from 96-hour LC50=15000microg/L of fishes (Bluegill) (AQUIRE, 2003).
11 Hazardous to the aquatic environment (chronic)	Category 3	-	-	Harmful to aquatic life with long lasting effects	Classified into Category 3, since acute toxicity was Category 3, and it is a metallic compound, behavior in water and bioaccumulative potential are unknown.