

GHS Classification

ID310

CAS 10361-37-2

Physical Hazards

Barium chloride

Date Classified: Aug. 22, 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	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-flammable (ICSC, 2004)
11 Self-heating substances and mixtures	Not classified	—	—	—	Non-flammable (ICSC, 2004)
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	—	—	—	Stable to water (water solubility: 37.0g/100g (25degC), Lide (84th, 2003))
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 being inorganic compounds containing chlorine
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)	Category 3	Skull and crossbones	Danger	Toxic if swallowed	Based on the LD50 value of 118mg/kg calculated from the testing data of rat LD50 (oral route) of 118mg/kg (EHC 107 (1990)), 132mg/kg and 220mg/kg (CERl Hazard Data 2001-56 (2002)).
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
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Based on the description in the report on guinea pig skin irritation tests (IUCLID (2000)): "moderately irritating" (though exposure duration not presented).
3 Serious eye damage / eye irritation	Classification not possible	—	—	—	The substance is considered to possess a potential for irritation based on the available data on rabbit eye irritation tests. However, classification is not possible in the absence of study detail.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Classification not possible	(Respiratory sensitization) — (Skin sensitization) —	(Respiratory sensitization) — (Skin sensitization) —	(Respiratory sensitization) — (Skin sensitization) —	Respiratory sensitization: No data available Skin sensitization: No data available
5 Germ cell mutagenicity	Classification not possible	—	—	—	Based on the absence of data on multi-generation mutagenicity tests, germ/somatic cell mutagenicity tests in vivo and germ/somatic cell genotoxicity tests in vivo, no positive data on mutagenicity tests in vitro (several indices), described in CIGAD 32 (2001) and CERl Hazard Data 2001-
6 Carcinogenicity	Classification not possible	—	—	—	No data available
7 Toxic to reproduction	Classification not possible	—	—	—	Insufficient data available
8 Specific target organs/systemic toxicity following single exposure	Category 1 (cardiovascular system, muscle) Category 2 (nervous system) Category 3 (respiratory tract irritation, narcotic effects)	Health hazard	Danger	Causes damage to organs (cardiovascular system, muscle) May cause damage to organs (nervous system) (Respiratory tract irritation) May cause respiratory irritation (Narcotic effects) May cause drowsiness or dizziness	Based on the human evidence: "the patient suffered vomiting and manifested bigeminal tracings on the ECG," "these symptoms were followed immediately by hypokalemia, progressive paralysis and hypertension," "ventricular contraction abnormalities, prolongation of the QRS interval and marked elevation of the ST segment were detected following 12 hours of administration. An infusion of potassium chloride did not reverse these effects and cardiac arrest eventually occurred 2 hours later," "in both two instances cardiac dysfunction was reported and one patient died due to sudden cardiac arrest" (EHC 107 (1990)). "irritates the eye, skin, respiratory tract; may adversely affect nervous system; may cause hypokalemia; may cause heart/muscle disorder; may lead to death" (ICSC (J) (1999)). "intentional or accidental ingestion of barium compounds causes gastroenteritis (vomiting, diarrhoea, abdominal pain), hypokalemia, cardiac arrhythmias and skeletal muscle paralysis" (CIGAD 33 (2001)). Also based on the evidence from animal studies including "somnolency, tetany" (RTECS (2006)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 2. The priority rating of some studies used for the survey of "epidemiological findings/occupational exposure (human health effects)" is 2, and the effects are classified into Category 1 (cardiovascular system, muscle), Category 2 (nervous system) and Category 3 (respiratory tract irritation, narcotic effects).

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (heart) Category 2 (kidneys, adrenal)	Health hazard	DangerWarning	Causes damage to organs through prolonged or repeated exposure (heart) May cause damage to organs through prolonged or repeated exposure (kidneys).	Based on the evidence from animal studies: "affected animals exhibited ultrastructural changes in the kidney glomeruli, including basement membrane thickening, epithelial foot process fusion, and the presence of myelin figures," "disturbances in myocardial contractility" (EHC 107 (1990)), "focal hemorrhage in the adrenal" (IUCILID (2000)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Categories 1 and 2. However, the priority rating of some studies used for assessment is 2, and therefore the effects on the kidneys and adrenal are classified into 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 3	—	—	Harmful to aquatic life	It was classified into Category 3 from 48 hours EC50=14.5mg/L(Barium Chloride Equivalent: 22.0mg/L) of the crustacea (Daphnia magna) (CERl Hazard Data, 2002).
11 Hazardous to the aquatic environment (chronic)	Category 3	—	—	Harmful to aquatic life with long lasting effects	Although acute toxicity was Category 5 and bio-accumulation was low (BCF<60 (Existing Chemical Safety Inspections Data)), since it was a metallic compound and the underwater action was unknown, it was classified into Category 3.