

GHS Classification

ID1072

Arsenic acid, hemihydrate

CAS 7774-41-6

Date Classified: Nov. 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-combustible (GESTIS-database on hazardous substances, Accessed in Oct. 2006)
8 Self-reactive substances and mixtures	Not applicable	-	-	-	There are no chemical groups associated with explosive or self-reactive properties present in the molecule.
9 Pyrophoric liquids	Not applicable	-	-	-	Solid (GHS definition)
10 Pyrophoric solids	Not classified	-	-	-	Non-combustible (BGIA, GESTIS-database on hazardous substances, Accessed in Oct. 2006)
11 Self-heating substances and mixtures	Not classified	-	-	-	Non-combustible (GESTIS-database on hazardous substances, accessed in Oct. 2006)
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified	-	-	-	Stable to water (Freely soluble in water)
13 Oxidizing liquids	Not applicable	-	-	-	Solid (GHS definition)
14 Oxidizing solids	Not classified	-	-	-	UNRTDG No. 1554, Class: 6.1; PG II (Not 5.1).
15 Organic peroxides	Not applicable	-	-	-	Inorganic compound
16 Corrosive to metals	Classification not possible	-	-	-	There is no data. In addition, HSDB (2005) has description that the anhydride (solution) of the this product "corrode soft steel and brass, etc."

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 2	Skull and crossbones	Danger	Fatal if swallowed	It was classified as category 2 based on rat LD50 = 48mg/kg (HSDB, 2003; RTECS, 2005) in the oral study. [Notes] Since the toxicity data for health could not be obtained in CAS number 7778-39-4, the toxicity data for health of arsenate and 80% arsenate solution in CAS number 7778-39-4 was described.
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (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	Category 2	Exclamation mark	Warning	Causes skin irritation	This product was set to Category 2 from description with redness, the pain, and burning sensations which stimulated the skin (ICSC (J), 2005).
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	There is the descriptions that this product irritates to the eye, causes redness and pain (ICSC (J) 2005), and the dust of inorganic arsenic irritates to be to upper respiratory tracts and eyes (HSDB, 2003). So it was classified into Category 2B.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	Respiratory sensitization: no data available. Skin sensitization : although there is no data of this substance itself, skin sensitization may be indicated to humans as an inorganic arsenic, but it is not a deterministic conclusion (ATSDR, 2005; HSG, 1992), in addition, it was presupposed that it cannot classify from the description in the humans of EHC 224 (2001) "development of the skin sensitization of inorganic arsenic is rare" since data is insufficient.
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)	Since it was positive (RTECS, 2005) in the mouse micronucleus assay, it was set as Category 2. In addition, in the in vitro chromosomal aberration test, it is reported the positivity (RTECS, 2005).

6	Carcinogenicity	Category 1A	Health hazard	Danger	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Since arsenic and arsenic compound are categorized into the human carcinogens in IARC Suppl.7 (1987), ACGHI-TLV (2004), and MAK/BAT (2004), it was classified into Category 1A.
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	It was considered as Category 2 since fetus lethal etc. is seen in the teratogenicity study (oral administration) using a mouse (RTECS, 2005), and in ACGIH (7th, 2001), ATSDR (draft, 2005), EHC 224 (2001), and DFGOT Vol.21 (2005), although there was an opposite report, the reproductive and developmental toxicity knowledge by inorganic arsenic was indicated to laboratory animals, so it was set as Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (digestive system, cardiovascular system, nervous system, kidneys, liver, respiratory, blood system)	Health hazard	Danger	Cause damage to organs (digestive system, cardiovascular system, nervous system, kidneys, liver, respiratory, blood system)	The substance was classified as Category 1 (gastrointestinal system, cardio-vascular system, nervous system, kidneys, liver, respiratory system, blood system). Based on the following reports that it can affect blood, cardio-vascular system, gastrointestinal tracts, liver and peripheral nervous system, and causes irritation to the airways (ICSC (J), 2005), in the forms of the arsenic and inorganic arsenic compounds it causes "symptoms in the gastrointestinal organs, disorders in the functions of the cardio-vascular and nervous systems, myelosuppression, alteration in the blood system and nephropathy" in humans (EHC 224 (2001)) and it affects the liver, upper airways and lungs (ACGIH (7th, 2001)).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (digestive system, cardiovascular system, nervous system, kidneys, liver, blood system, skin, respiratory organs)	Health hazard	Danger	Causes damage to organs (digestive system, cardiovascular system, nervous system, kidneys, liver, blood system, skin, respiratory organs) through prolonged or repeated exposure	This product may affect the peripheral nervous system and the skin, and may occur frequent polyneuropathy and skin injury (ICSC (J), 2005), the description in human (EHC 224 (2001)) about arsenic and inorganic arsenic compounds say "the disorder of gastrointestinal tract, neuropathy, effect on blood systems, and abnormalities of a cardiovascular systems, the kidney, and liver were observed. Target organ are gastrointestinal, heart, brains and kidney. Skin, marrow and peripheral nerves were also affected", and in addition, based on the description of effect on the top respiratory tract and lungs (ACGIH (7th, 2001)), it was classified into Category 1 (digestive systems, cardiovascular systems, nervous systems, kidney, liver, blood systems, skin, respiratory system).
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)	Classification not possible	-	-	-	No data available
11 Hazardous to the aquatic environment (chronic)	Classification not possible	-	-	-	No data available.