

## GHS Classification

**ID466**

**Arsenic acid**

**CAS 7778-39-4**

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 applicable (aqueous solution)	—	—	—	Containing no chemical groups with explosive properties
2 Flammable gases	Not applicable (aqueous solution)	—	—	—	Classified as "liquid" according to GHS definition (aqueous solution)
3 Flammable aerosols	Not applicable (aqueous solution)	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable (aqueous solution)	—	—	—	Classified as "liquid" according to GHS definition (aqueous solution)
5 Gases under pressure	Not applicable (aqueous solution)	—	—	—	Classified as "liquid" according to GHS definition (aqueous solution)
6 Flammable liquids	Not classified (aqueous solution)	—	—	—	Arsenic acid 0.5 hydrate is classified as non-flammable (HSDB (2006))
7 Flammable solids	Not applicable (aqueous solution)	—	—	—	Classified as "liquid" according to GHS definition (aqueous solution)
8 Self-reactive substances and mixtures	Not applicable (aqueous solution)	—	—	—	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not classified (aqueous solution)	—	—	—	Arsenic acid 0.5 hydrate is classified as non-flammable (HSDB (2006))
10 Pyrophoric solids	Not applicable (aqueous solution)	—	—	—	Classified as "liquid" according to GHS definition (aqueous solution)
11 Self-heating substances and mixtures	Classification not possible (aqueous solution)	—	—	—	Arsenic acid is present only in aqueous solutions. Test methods applicable to liquid substances are not available.
12 Substances and mixtures, which in contact with water, emit flammable gases	Not classified (aqueous solution)	—	—	—	Stable to water (arsenic acid is present only in aqueous solutions (Lide, 84th, 2003)).
13 Oxidizing liquids	Not classified (aqueous solution)	—	—	—	Inorganic compounds containing oxygen and classified as powerful oxidants (80% aqueous solution) (ICSC (2004)). Classified into Division 6.1 (UN#1553 (solution)) (UN Recommendations on the Transport of Dangerous Goods).
14 Oxidizing solids	Not applicable (aqueous solution)	—	—	—	Classified as "liquid" according to GHS definition (aqueous solution)
15 Organic peroxides	Not applicable (aqueous solution)	—	—	—	Not organic compounds
16 Corrosive to metals	Not classified (aqueous solution)	—	—	—	Classified into Division 6.1 (UN#1553 (solution)) (UN Recommendations on the Transport of Dangerous Goods).

## 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	Based on the rat LD50 (oral route) value of 48mg/kg (RTECS (2006)).
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 "liquid" 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	Classification not possible	—	—	—	No data available
3 Serious eye damage / eye irritation	Classification not possible	—	—	—	No data available
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	—	—	—	No data available As for the health hazards, refer to "ID1075, Sodium Arsenate, CAS: 13464-38-5," "ID1088, Sodium Arsenite, CAS: 7784-46-5," "ID54, Arsenic, CAS: 7440-38-2" and "ID55, Diarsenic Trioxide (Arsenous Acid), CAS: 1327-53-3."
6 Carcinogenicity	Category 1A	Health hazard	Danger	May cause cancer	Due to the fact that the substance is classified as Category K (Arsenic Compounds, Inorganic) by NTP (2005), Group 1 (ARSENIC AND ARSENIC COMPOUNDS) by IARC (1987), Category A1 (Arsenic and inorganic compounds) by ACGIH (2001) and Category 1 (as arsenic and arsenic compounds (As)) by the Japan Society for Occupational Health.
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the evidence of an increased incidence of resorptions and a reduction in fetal body weight at doses producing maternal toxicity in oral studies, described in EHC 224 (2001). As for the health hazards, refer to "ID1075, Sodium Arsenate, CAS: 13464-38-5," "ID1088, Sodium Arsenite, CAS: 7784-46-5," "ID54, Arsenic, CAS: 7440-38-2," "ID55, Diarsenic Trioxide (Arsenous Acid), CAS: 1327-53-3."

8	Specific target organs/systemic toxicity following single exposure	Category 1 (gastrointestinal tract, cardiovascular organs, nerves, blood system, respiratory organs, skin, kidneys, bone marrow, liver)	Health hazard	Danger	Causes damage to organs (gastrointestinal tract, cardiovascular organs, nerves, blood system, respiratory organs, skin, kidneys, bone marrow, liver)	Based on the human evidence: "acute toxicity of arsenic compounds manifests in humans as symptoms in the gastrointestinal tract and cardiovascular/nervous/blood systems, conjunctivitis and dermatitis along with nasal mucosal/pharyngeal/respiratory irritation, pollakiuria or anuria due to renal tubular blockage by hemoglobin coagulation" (IARC 84 (2004)) and "bone-marrow failure and hepatic hypertrophy" (EHC 224 (2001)).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs, skin, liver, cardiovascular system)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (respiratory organs, skin, liver, cardiovascular system)	Based on the human evidence including "upper respiratory symptoms such as nasal catarrh, pharyngitis and nasal septum perforation," "respiratory disorder following exposure via drinking water," "pigmentation and keratosis," "cirrhosis," "cardiovascular abnormalities" and "peripheral vascular disorder" (IARC 84 (2004)).
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 96 hours LC50=2.0ppm of the crustacea (Mysis Shrimp) (AQUIRE, 2003).
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.