GHS Classification

ID233 **thallium**

CAS 7440-28-0 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	Classification not possible	–	–	–	Although it is thought that an aggregated metal does not burn, metal powder burns easily. The object should be classified after defined test was carried out.
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	–	–	–	There is no information that it ignites spontaneously in the reliable data collection of physicochemical nature.
11	Self-heating substances and mixtures	Classification not possible	–	–	–	In the case of powdered, the test data on self-heating cannot be found out, and cannot be classified.
12	Substances and mixtures, which in contact with water, emit flammable gases	Not classified	–	–	–	There is a statement of not dissolving into water and it is thought that severe reaction does not start.
13	Oxidizing liquids	Not applicable	–	–	–	Solid (GHS definition)
14	Oxidizing solids	Not applicable	–	–	–	Containing no oxygen , chlorine and fluorine.
15	Organic peroxides	Not applicable	–	–	–	Inorganic substance
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)	Classification not possible	–	–	–	Since there is no LD50 data about metals thallium, it cannot be classified. If this metal touches with air, the surface will oxidize. There is data of 32mg/kg (EHC 39 (1984)) in LD50 of an oxide, and it is thought that Category 2 level is appropriate for powder.
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	–	–	–	There is no acute inhalation-toxicity-test result about steam, and it cannot be classified. It is the metal of nonvolatility and it is thought that the inhalation test in steam cannot be done.
1	Acute toxicity (inhalation: dust, mist)	Classification not possible	–	–	–	No data available
2	Skin corrosion / irritation	Classification not possible	–	–	–	There is no Draize test data on animals, and it cannot be classified. As for the compounds, intense influence on the skin at the time of the human addiction has been found.
3	Serious eye damage / eye irritation	Classification not possible	–	–	–	There is no eye dose response data, and it cannot classify.
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)–	Uncategorizable because of no information related to sensitization.
5	Germ cell mutagenicity	Category 1B	Health hazard	Danger	May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	The substance was classified as "Category 1B" because the dominant lethal test in rats using thallous carbonate was positive (EHC 39 (1984)). Metal thallium can be turned into thallous carbonate by oxygen and carbon dioxide in the air.

6	Carcinogenicity	Classification not possible	–	–	–	There is no information about metal thallium. EPA has been classified into D about the compound. Moreover, there is also information (EHC 39 (1984)) that a tumor-suppressing effects occurs. On the other hand, Lide (2004) has the statement which suggests carcinogenicity.
7	Toxic to reproduction	Category 1A (Influence through nursing)	Health hazard	Danger	May damage fertility or the undorn child	Since there is the example of human transplacental alopecia by the intake of thallium compound (ACGIH (2001)), it is classified into the "Category 1A." The effect to sperm, neonatal chondrodysplasia and infant alopecia via lactation are also reported in the animal experiments (ACGIH (2001), EHC 39 (1984)).
8	Specific target organs/systemic toxicity following single exposure	Category 1 (digestive system, nervous system, skin(appendage))	Health hazard	Danger	Cause damage to organs (digestive system, nervous system, skin(appendage))	Due to the gastroenteritis, polyneuropathy, and acomia are major symptoms of thallium poisoning (EHC 39 (1984)), it was classified into "Category 1 (digestive systems, nervous systems, skin (appendage))".
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (circulatory system, brain, nervous system, skin(appendage))	Health hazard	Danger	Causes damage to organs (circulatory system, brain, nervous system, skin(appendage)) through prolonged or repeated	Although circulatory systems,nervous systems and alopecia were taken based on the statement of ICSC (2002), since the effect to brain in the animal experiments was described, it was classified in "Category 1 (circulatory system, a brain and a nervous system, attached vessel)."
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	–	–	–	Insufficient data available.
11	Hazardous to the aquatic environment (chronic)	Category 4	–	–	May cause long lasting harmful effects to aquatic life	Classified into Category 4, since it is metal and the behavior in the water is unknown, though L(E) C50 <=100 mg/L .