GHS Classification

ID485 Beryllium oxide

CAS 1304-56-9 Date Classified: Aug. 22, 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	—	—	—	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 (insoluble (20degC), ICSC (2004))
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 oxygen
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)	Classification not possible	—	—	—	No data available
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:	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	Based on the description in the report on epidemiological studies of human exposure (HSDB (2006)): "The substance burns the skin and eye." Also based on the evidence of "redness" (ICSC (2000)). The substance is thus considered irritating to the skin.
3	Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Based on the description in the report on epidemiological studies of human exposure (HSDB (2006)): "The substance burns the skin and eye." Also based on the evidence of "redness and pain" (ICSC (2000)). The substance is thus considered irritating to the eye.
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	—	—	—	Classification not possible due to the insufficiency of data (no data available on in vivo mutagenicity/genotoxicity tests) As for the reproductive mutagenicity of beryllium compounds, refer to "ID487, Beryllium Sulfate, CAS: 7787-56-6."
6	Carcinogenicity	Category 1A	Health hazard	Danger	May cause cancer	Due to the fact that the substance is classified as Category K (Beryllium (CAS 7440-41-7) and Beryllium Compounds) by NTP (2005) and Category 1 (BERYLLIUM AND BERYLLIUM COMPOUNDS) by IARC (1993).
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the evidence of fetal malformation or death, described in ATSDR (2002) and CICAD 32 (2001) (though no data are available on parental toxicity).
8	Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory organs)	Health hazard	Danger	Causes damage to organs (respiratory organs)	Based on the evidence from animal studies: "examinations revealed inflammation characterized by increased interstitial mononuclear cells and a thickening of the alveolar septa....indicates cellular damage to the type II cells or the alveolar epithelium." (ATSDR (2002)), "some granulomatous lesions were seen in the rat lung" (EHC 106 (1990)).The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs, blood system)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (respiratory organs, blood system)	Based on the human evidence: "The five workers had abnormal chest x-rays, noncaseating granulomas, pulmonary fibrosis," "Five of these workers had consistently abnormal BeLPT results and were diagnosed with chronic beryllium disease based on the observation of granulomas." (ATSDR (2002)), "it became evident that the acute respiratory effects could be caused by inhalation of beryllium fluoride, sulfate, chloride, oxide, or hydroxide, and metallic dust" (EHC 106 (1990)), "diagnosed with chronic beryllium disease based on observation of granulomas in lung biopsy samples," "The CBD cases had the classic signs of CBD, including radiologically visible hilar adenopathy, noncaseating granuloma and pulmonary fibrosis in biopsy samples, and decreased carbon monoxide diffusing capacity (DLCO)" (IRIS (1998)). Also based on the evidence from animal studies: "vascular congestion, emphysema, and pneumonitis were observed (slight clinical symptoms included...macrocytic anemia," "inflammation and fibrosis of the lung" (ATSDR (2002)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.
10	Aspiration hazard	Category 2	Health hazard	Warning	May be fatal if swallowed and enters airway	"Inhalation of dust or fume may cause chemical pneumonia" (ICSC (J) (2000)). According to the technical guideline, "metal dust of beryllium fluoride may produce chemical pneumonia following inhalation exposure etc. In the ICSC card, under the heading of 'important data,' it says 'inhalation of dust/fume may cause chemical pneumonia.

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