

GHS Classification

ID631

2-hydroxypropyl acrylate

CAS 999-61-1

Date Classified: Apr. 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	Classification not possible	-	-	-	Classification not possible due to lack of data, though the substance contains unsaturated C-C bonds as chemical groups associated with explosive properties present.
2 Flammable gases	Not applicable	-	-	-	Liquid (GHS definition)
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Liquid (GHS definition)
5 Gases under pressure	Not applicable	-	-	-	Liquid (GHS definition)
6 Flammable liquids	Not classified	-	-	-	Not classified because of its flash point: 97degC (ACGIH, 2001, used value; HSDB peer review value)
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Classification not possible	-	-	-	No data available
9 Pyrophoric liquids	Not classified	-	-	-	The ignition points It was carried out the outside of Category based on the ignition points is 210 degC (> 70 degC).
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Test methods applicable to liquid substances are not available
12 Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	-	-	-	The chemical structure of the substance does not contain metals or metalloids(B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At).
13 Oxidizing liquids	Not applicable	-	-	-	Organic compounds containing oxygen (but not chlorine and fluorine) chemically bonded only to carbon (but not to other elements).
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Containing no -O-O- structure
16 Corrosive to metals	Classification not possible	-	-	-	No data available

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 4	Exclamation mark	Warning	Harmful if swallowed	It was set as Category 4 based on average LD50= 443.7 mg/kg. This average was calculated using the upper/lower limits of rat oral LD50 values = 250-500, 590, and 1300 mg/kg (Patty (5th, 2001) , and 950-1130 mg/kg (DFGOT (2001)). In addition, although compound is considered to be a mixture of isomers, ACGIH and DFG were estimated for isomer. From the description that "All toxicity studies are conducted by all hydroxypropylacrylate isomers, mainly 75% 2-hydroxy-1-propyl acrylate and 25% 1-hydroxy-2-propyl acrylate or 66% 2-hydroxy-1-propyl acrylate, 33% 1-hydroxy-2-propyl acrylate and 1% free acrylic acid" (DFGOT (2001)), it was assumed that each component indicated equal toxicity.
1 Acute toxicity (dermal)	Category 2	Skull and crossbones	Danger	Fatal in contact with skin	It was set as Category 2 based on rabbits dermal LD50= 112 ul/kg (DFGOT (2001)) = 112 x specific gravity 1.06 = 119mg/kg. In addition, although test compound is considered to be a mixture of isomers, both ACGIH and DFG were evaluated as a mixture. And the description that "toxicity studies have been performed by all hydroxypropylacrylate isomers, mainly 75% 2-hydroxy-1-propyl acrylate and 25% 1-hydroxy-2-propyl acrylate or 66% 2-hydroxy-1-propyl acrylate, 33% 1-hydroxy-2-propyl acrylate, and 1% free acrylic acid" (DFGOT (2001)), it was assumed that each component indicates equal toxicity.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	-	-	-	Classification not possible due to lack of data
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	Classification not possible due to lack of data
2 Skin corrosion / irritation	Category 1A-1C	Corrosion	Danger	Causes severe skin burns and eye damage	It was classified as skin corrosiveness Category 1A-1C based the statement of "the critical depths necrosis" (DFGOT (2001)).
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	It was considered as the eye lesional Category 1 by the statement of "an instant critical eye stimulus and cornea damage" (ACGIH (2001)).
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Category 1	(Respiratory sensitization)-; (Skin sensitization)Exclamation mark	(Respiratory sensitization)-; (Skin sensitization)Warning	(Respiratory sensitization)-; (Skin sensitization)May cause allergic skin reaction	EU-Annex1: It was referred to the skin sensitization Category 1 based on R43 and the statement that it causes sensitization to humans (DFGOT (2001)). Respiratory sensitization: No data

5	Germ cell mutagenicity	Classification not possible	-	-	-	Classification not possible due to lack of data
6	Carcinogenicity	Classification not possible	-	-	-	No data available
7	Toxic to reproduction	Classification not possible	-	-	-	No data available
8	Specific target organs/systemic toxicity following single exposure	Category 2 (respiratory)	Health hazard	Warning	May cause damage to organs (respiratory)	Based on the statements, "pulmonary edemas is caused, if its vapor is inhaled" (ICSC (1998)), and "Irritation in the upper airway and respiratory was observed by the single time inhalation test with rats" (ACGIH (2001), DFGOT (2001)), it was set as Category 2(respiratory systems).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs)	Health hazard	Danger	Causes damage to organs (respiratory organs) through prolonged or repeated exposure	Inflammation in the respiratory systems and localized pneumonia are seen by inhalation dosage of 0.053 mg/L for 30-day using a mouse, a dog, a rat and a rabbit. (DFGOT (2001)) Since the dose with effect was below the guidance value (0.2 mg/L) of Category 1, it was classified to Category 1.
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-hour LC50=3100microg/L of fishes (Fathead minnows) (AQUIRE, 2003).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since rapidly degrading (BOD: 61.3% (existing chemical safety inspections data)), and less bio-accumulative (log Kow=0.35 (PHYSROP Database, 2005)).