

GHS Classification

ID1

Acrylamide

CAS 79-06-1

Date Classified: Mar. 23, 2006 (Environmental Hazards: Feb. 10, 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 atom 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	—	—	—	Classified into Division 6.1 (UN Recommendations on the Transport of Dangerous Goods, UN#2074)
8 Self-reactive substances and mixtures	Not classified	—	—	—	Based on the classification by UN Recommendations on the Transport of Dangerous Goods (Category 6.1, UN#2074)
9 Pyrophoric liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
10 Pyrophoric solids	Not classified	—	—	—	Not pyrophoric when in contact with air at ordinary temperatures: the flashing point is 424degC (ICSC,2004)
11 Self-heating substances and mixtures	Classification not possible	—	—	—	Test methods applicable to liquid substances are not available - melting point: 84.5degC (ICSC, 2004), test temperature: 140degC
12 Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	—	—	—	Containing no metals or metalloids (B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At)
13 Oxidizing liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
14 Oxidizing solids	Not applicable	—	—	—	Organic compounds containing oxygen (but not fluorine and chlorine), with the oxygen bound to carbon and hydrogen (but not to other elements)
15 Organic peroxides	Not applicable	—	—	—	Organic compounds containing no "O-O-" structure
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)	Category 3	Skull and crossbones	Danger	Toxic if swallowed	Based on the LD50 value of 129mg/kg calculated from the testing data of rat LD50 (oral route) of 124mg/kg (EHC 49, 1985), 175mg/kg (EU-RAR No.24, 2002) and 203mg/kg (EU-RAR No.24, 2002).
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	Based on the rat LD50 (dermal route) value of 400mg/kg representing the lower of the two testing data, 400mg/kg (EHC 49,1985) and 1,148mg/kg (EU-RAR No.24, 2002).
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: dust, mist)	Classification not possible	—	—	—	No data available
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
2 Skin corrosion / irritation	Category 3	—	Warning	Causes mild skin irritation	Based on the testing data of rabbit skin irritation tests (EU-RAR No.24, 2002) and the data on human health effects (EU-RAR No.24, 2002 and ACGIH 7th, 2005), suggesting that the substance "causes mild skin irritation".
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes severe eye irritation	Based on the description found in the report on rabbit eye irritation tests (EU-RAR No.24, 2002): "eye irritation was observed but disappeared during the observation period of 21 days".
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	Respiratory sensitization: No data available Skin sensitization: Based on positive results in guinea pig skin sensitization tests (EU-RAR No.24, 2002), suggesting that the substance "causes skin sensitization".
5 Germ cell mutagenicity	Category 1B	Health hazard	Danger	May cause genetic defects	Based on positive data on in vivo germ cell heritable mutagenicity tests (dominant lethal tests, specific locus tests), described in CERI-NITE Hazard Assessment No.35 (2004).
6 Carcinogenicity	Category 1B	Health hazard	Danger	May cause cancer	Based on the fact that the substance is classified as Group 2A by IARC (1994) and Category R by U.S. NTP (2005).
7 Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the unborn child	Based on the evidence of decreased number of foetuses per brood, decline in the ability of males to impregnate females, increased incidence of preimplantation embryo death, etc. at dosing levels causing no general toxicity (CERI-NITE Hazard Assessment No. 35, 2004).

8	Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system, testes)	Health hazard	Danger	Causes damage to organs (nervous systems, testis)	Based on the human evidence including "hallucination, hypotension, epileptic convulsion and peripheral neuropathy, of which peripheral neuropathy being observed also after two months" (EU-RAR No.24 (2002) and the evidence from animal studies including "tremor, hyperreflexia, repetitive tonic-clonic convulsion, asynergia of the hind limb, asynergia of posture and movement, dysfunction of hind limb muscles, vacuolation of sperm cell nuclei" (EU-RAR No.24 (2002), suggesting poor recoverability from neuropathy. 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 (nervous system, testes)	Health hazard	Danger	Causes damage to organs (nervous systems, testis) through prolonged or repeated exposure	Based on the human evidence including "disturbance in gait, dysmnnesia, hallucination, speech disorder, numbness of the limbs, abnormal sweating of hands and feet, taste disorder" (CERI-NITE Hazard Assessment No. 35, 2004) and "muscular weakness, asynergia of arms, tremor of hands, sensory disorder (vibration, pain, tactile and position sensations), decreased tendon and plantar reflexes, nystagmus, diffuse fibrosing of nerve fibers and swelling of axons associated with disappearance and demyelination (EU-RAR No.24, 2002)" and the evidence from animal studies including "loss of balance, decreased vision, weakness of hind limbs, tremor of forelimbs, axon degeneration in peripheral nerves and optic tract fibers, spinal cord damage, testicular atrophy, decreased numbers of sperm cells and spermatocytes, decreased sperm count" (CERI-NITE Hazard Assessment No. 35, 2004). The effects on experimental animals were observed at dosing levels within the guidance value ranges for 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 3	-	-	Harmful to aquatic life	It was classified into Category 3 from 72 hours EC50=16.9mg/L of (EU-RAR, 2002).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since there was rapidly degrading (the decomposition by BOD: 70% (Existing Chemical Safety Inspections Data)) and the bio-accumulation was low (log Kow=-0.67 (PHYSPROP Database, 2005)), it was classified into Not classified.