GHS Classification

ID3 Acrylonitrile

CAS 107-13-1 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 "liquid" according to GHS definition
3	Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4	Oxidizing gases	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
5	Gases under pressure	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
6	Flammable liquids	Category 2	Flame	Danger	Highly flammable liquid and vapour	The flashing point is -1degC (ICSC, 2004) (closed cup flash test) and the boiling point is 77degC; those containing stabilizers are classified into Class 3 and Category 6.1 (UN#1093) (UN Recommendations on the Transport of Dangerous Goods)
7	Flammable solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
8	Self-reactive substances and mixtures	Classification not possible	—	—	—	Classification not possible due to lack of data, though containing unsaturated bonds. Those containing stabilizers are classified into Class 3 and Category 6.1 (UN#1093) (UN Recommendations on the Transport of Dangerous Goods)
9	Pyrophoric liquids	Not classified	—	—	—	Not pyrophoric when in contact with air at ordinary temperatures: the flashing point is 481degC (ICSC,2004)
10	Pyrophoric solids	Not applicable	—	—	—	Classified as "liquid" according to 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	—	—	—	Containing no metals or metalloids (B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At)
13	Oxidizing liquids	Not applicable	—	—	—	Organic compounds containing no oxygen. fluorine and chlorine
14	Oxidizing solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
15	Organic peroxides	Not applicable	—	—	—	Organic compounds containing no "-O-O-" structure
16	Corrosive to metals	Classification not possible	—	—	—	No data available; those containing stabilizers are classified into Class 3 and Category 6.1 (UN#1093) (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 3	Skull and crossbones	Danger	Toxic if swallowed	Based on the LD50 value of 87mg/kg calculated from the testing data of rat LD50 (oral route) of 93mg/kg, 101mg/kg, 128mg/kg, 82mg/kg, 86mg/kg, 84mg/kg, 72mg/kg, 78mg/kg and 186mg/kg" (EHC 28, 1983).
1	Acute toxicity (dermal)	Category 2	Skull and crossbones	Danger	Fatal in contact with skin	Based on the rat LD50 (dermal route) value of 148mg/kg representing the lower of the two testing data, 148mg/kg and 282 mg/kg (EHC 28, 1983).
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: vapour)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	Based on the rat LC50 value of 0.54 mg/L (243ppm), calculated from the testing data of rat LC50 (inhalation of vapour) of 0.47mg/L (4 hours), 1.03mg/L (4 hours) and 1.21mg/L (4 hours) (EU-PAR No.32, 2004), was lower than 90% of the saturated vapor concentration (110,000ppm) under a saturated vapour pressure of 11 kPa (20degC) (IPCS, 2001), the substance was considered as "vapour containing substantially no mist" and was classified based on standard values expressed in ppm.
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 evidence of erythema and edema and an average Draize score of 3.6 obtained in rabbit skin primary irritation tests (EU-RAR No.32, 2004), although no data are available for applications of less than 4 hours.
3	Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes severe eye irritation	Based on the following description by DuPont (1975) on serious eye damage/eye irritation among several testing data in EU-RAR No.32, 2004: "In unwashed eyes, moderate corneal opacity, moderate iritis, severe conjunctival irritation and corneal opacity associated with vascularization observed even after 21 days from exposure. In washed eyes, mild temporary corneal opacity, moderate iris congestion, moderate conjunctival irritation, recovery observed within 3 days from exposure."
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 maximization tests (CICAD, 39 2002).
5	Germ cell mutagenicity	Category 2	Health hazard	Warning	May cause genetic defects	Based on negative data on heritable mutagenicity tests (dominant lethal tests) and germ cell genotoxicity tests in vivo (UDS tests on rat spermatocytes), the absence of data on germ cell mutagenicity tests in vivo and positive data on somatic cell mutagenicity tests in vivo (gene mutation tests on rat spleen T cells), described in CERI-NITE Hazard Assessment No.64 (2003), CICADS 39 (2002) and EU-RAR

6	Carcinogenicity	Category 2	Health hazard	Warning	May cause cancer	Due to the fact that the substance is classified as Category R by NTP (2005) and Group 2B by IARC (1999).
7	Toxic to reproduction	Category 2	Health hazard	Warning	May damage fertility or the unborn child	Based on the evidence of organ and skeletal malformations in offspring at dosing levels toxic to dams in rat teratogenicity tests, described in CERI-NITE Hazard Assessment No. 64 (2003).
8	Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system, liver) Category 3 (respiratory tract irritation, narcotic effects)	Health hazard and Exclamation mark	Danger Warning	Causes damage to organs (nervous systems, liver); (Respiratory irritation) may cause respiratory irritation; (Narcotic influence) may cause sleepiness and dizziness	Based on the human evidence including "mild jaundice and spasm" (CERI-NITE Hazard Assessment No. 64, 2003), "effects on the central nervous system and the liver" (CICAD 39, 2002) and "eye, nasal and respiratory irritation, spasm, loss of consciousness and asphyxia" (NICNAS, 2000), with some of the effects on the nervous systems being temporal and reversible (CERI-NITE Hazard Assessment No. 64, 2003).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (nervous system, respiratory organs, blood system, testes, kidneys, liver)	Health hazard	Danger	Causes damage to organs (nervous systems, respiratory organs, blood systems, testis, kidneys, liver) through prolonged or repeated exposure	Based on the human evidence including "central nervous system symptoms including anxiety, headache and nervous breakdown" (CERI Hazard Data 96-3, 1997), "pain in the eyes, nose, throat and respiratory tract" (CERI-NITE Hazard Assessment No. 64, 2003) and "decreases in hemoglobin levels and red and white blood cell counts, immunosuppression" (EU-RAR No.32, 2004) and the evidence from animal studies including "a decrease in sperm count, a decrease in physical capabilities, hyaline cast formation in renal collecting tubules, subacute bronchial pneumonia, focal necrosis in the liver, focal gliosis in the brain and cellular infiltration around the blood vessels" (CERI-NITE Hazard Assessment No. 64, 2003). 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 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 96 hours LC50=5.81mg/L of the crustacea (Mysid Shrimp)) (CERI/NITE Hazard Assessment Report, 2005).
11	Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since there was rapidly degrading (the decomposition by BOD: 96% (Existing Chemical Safety Inspections Data)) and the bio-accumulation was low (log Kow=0.25 (PHYSPROP Database, 2005)), it was claasified into Not classified.