

GHS Classification

ID5

Adiponitrile

CAS 111-69-3

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	Not applicable	-	-	-	Containing no chemical 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	Not classified	-	-	-	The flash point is 159degC (c.c.) (ICSC, 1999)
7 Flammable solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not applicable	-	-	-	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not classified	-	-	-	Not pyrophoric when in contact with air at ordinary temperatures; the auto-ignition temperature is 550degC (ICSC, 1999)
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	Not classified	-	-	-	Classified into Division 6.1 (UN Recommendations on the Transport of Dangerous Goods, UN#2205)

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 rat LD50 (oral route) value of 138mg/kg representing the lower of the two testing data, 138mg/kg (SIDS (1998)) and 300mg/kg (SIDS (1998)).
1 Acute toxicity (dermal)	Category 5	-	Warning	May be harmful in contact with skin	Based on the testing data of rabbit LD50 (dermal route) of 2,000mg/kg or more (SIDS (1998)).
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: dust, mist)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: dust, mist)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	Based on the testing data of rat LC50 (inhalation of dust/mist) of 1.71 mg/L (SIDS, 1998).
2 Skin corrosion / irritation	Not classified	-	-	-	Based on the testing data of rabbit skin irritation tests (CERI Hazard Data 2001-17, (2002) and ACGIH (7th, 2001)), suggesting that the substance "has no irritation" and "no irritation"
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Based on the description in the report on the rabbit skin irritation tests, "irritating" (SIDS (1998)), "slight irritation" (HSDB (2001)), "slightly irritating" (IUCLID (2000)): "Mild"
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: insufficient data available - very few test results have been reported with their details unknown, and no epidemiological data are available, though the results of guinea pig skin sensitization tests are all negative (CERI Hazard Data 2001-17 (2002), ACGIH (7th, 2001) and IUCLID (2000)).
5 Germ cell mutagenicity	Not classified	-	-	-	Based on the absence of data on multi-generation mutagenicity tests and germ cell mutagenicity tests in vivo and negative data on somatic cell mutagenicity tests in vivo (chromosome aberration tests), described in CERI Hazard Data 2001-17 (2002) and SIDS (1998).
6 Carcinogenicity	Not classified	-	-	-	Due to the fact that the substance is classified as Category D (not classifiable as to human carcinogenicity) by EPA (1991).
7 Toxic to reproduction	Not classified	-	-	-	Based on the description in CERI Hazard Data 2001-17 (2002) and ACGIH (7th, 2001), the results of rat reproductive toxicity and teratogenicity tests suggest no adverse effects on reproduction and development.
8 Specific target organs/systemic toxicity following single exposure	Category 1 (nervous system)	Health hazard	Danger	Causes damage to organs (nervous system)	Based on the human evidence including "tightness of the chest, headache, debility (being barely able to stand), cyanosis, tachycardia, tachypnea, hypotension, pupillary dilatation, intermittent tonic contraction of limb/ facial muscles" (MOE Risk Assessment Vol.3 (2004)), and the evidence from animal studies including "convulsions, lethargy, salivation, stridor" (CERI Hazard Data 2001-17 (2002)). The effects were observed at dosing levels within the guidance value ranges for Category 1.

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (adrenal, blood system)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (adrenal, blood system)	Based on the human evidence including "hemolytic anemia, a decrease in white blood cell count" (ACGIH (7th, 2001)), and the evidence from animal studies including "a decrease in mean corpuscular hemoglobin, hemoglobin concentrations, red blood cell count and hematocrit levels," and "adrenal degeneration" (MOE Risk Assessment Vol.3 (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)	Not classified	-	-	-	It was classified into Not classified from 24 hours EC50=445mg/L of the crustacea (Daphnia magna) (SIDS, 1998).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since it was not water-insolubility (the water-solubility =80000mg/L (PHYSPROP Database, 2005)), and acute toxicity was low, it was classified into Not classified.