

GHS Classification

ID632

Adipic acid

CAS 124-04-9

Date Classified: Jul. 24, 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	-	-	-	There are no chemical groups associated with explosive properties present in the molecules.
2 Flammable gases	Not applicable	-	-	-	Solid (GHS definition)
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Solid (GHS definition)
5 Gases under pressure	Not applicable	-	-	-	Solid (GHS definition)
6 Flammable liquids	Not applicable	-	-	-	Solid (GHS definition)
7 Flammable solids	Classification not possible	-	-	-	No data available
8 Self-reactive substances and mixtures	Not applicable	-	-	-	There are no chemical groups associated with explosive or self-reactive properties present in the molecule.
9 Pyrophoric liquids	Not applicable	-	-	-	Solid (GHS definition)
10 Pyrophoric solids	Not classified	-	-	-	Flash point: 420-422degC (Sax, 11th, 2004; ICSC(J), 1998; Chapman, 1982-2005)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	No data 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	-	-	-	Solid (GHS definition)
14 Oxidizing solids	Not applicable	-	-	-	Organic compounds containing oxygen (but not chlorine and fluorine) and the oxygen is chemically bonded only 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)	Not classified	-	-	-	SPECIES: Rat ENDPOINT: LD50 VALUE: > 11000 mg/kg REFERENCE SOURCE: PATTY (5th, 2001)
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Solid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: dust, mist)	Category 5	-	Warning	May be harmful if inhaled	Since Saturated vapor pressure pressures concentrations is = 9.9ppm, it is thought that the inhalation study was done in mist. It was set as Category 5 based on rat LC50 = 7.7mg/L (CERI Hazard Data (1998)).
2 Skin corrosion / irritation	Category 3	-	Warning	Causes mild skin irritation	Based on descriptions that the test on rabbits indicated mild irritation (CERI Hazard Data(1998), BUA 68 (1991)), and that it may dry skin and cause dermatitis on humans (ACGIH (2001)), it was classified as Category 3.
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Based on the statement which moderate to severe irritation was indicated by the test using a rabbit (CERI Hazard Data (1998), PATTY (5th, 2001)), it was set as Category 2A. There is the preexisting classification of EU-Annex1: Xi; R36.
4 Respiratory/skin sensitization	respiratory sensitization: Classification not possible; Skin sensitization: Not possible	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	Respiratory sensitization: Although there was a statement saying, "two workers handling adipic acid started bronchial asthmas" (CERI Hazard Data (1998), PATTY (5th, 2001), ACGIH (2001)), since none of the evaluation documents concluded that they were positivitie, it was decided that it could not be classified due to lack of sufficient data. ; Skin sensitization: Based on the statement of showing no skin sensitization in the test using the guinea pigs(CERI Hazard Data (1998), PATTY (5th, 2001)), it was put outside of the Category.
5 Germ cell mutagenicity	Not classified	-	-	-	We found the negative result for in vivo over generation mutagenicity test (dominant lethality test using the rat), and negative result for the in vivo mutagenicity test (chromosomal aberration test using rat myeloid cells) using the somatic cells (both in the CERI Hazard Data (1998) and BUA 68 (1991)). Therefore we classified it as Out Of Category according to the technical guideline.
6 Carcinogenicity	Classification not possible	-	-	-	Classification not possible due to lack of data

7	Toxic to reproduction	Classification not possible	-	-	-	Since although there were many reports of no observing teratogenicity (ACGIH (2001), PATTY (5th, 2001), BUA 68 (1991), IUCLID (2000)), there were no data of affecting reproduction function and potential to parent animals in pre-mating administration, it was presupposed that it cannot classify.
8	Specific target organs/systemic toxicity following single exposure	Category 3 (respiratory tract irritation)	Exclamation mark	Warning	may cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation)	Based on the statement indicating that dust etc., may cause mild irritation to the mucous membrane of upper airway in humans. (CERI Hazard Data (1998), ACGIH (2001)), it was set as Category 3 (respiratory irritation).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (dust inhalation: autonomic nervous system)	Health hazard	Danger	Causes damage to organs (dust inhalation: autonomic nervous system) through prolonged or repeated exposure	Based on description that ataxia of autonomic nervous systems and digestive organs was caused by occupational dust inhalation exposure in humans (CERI Hazard Data (1998), ACGIH (2001) and PATTY (5th, 2001)), it was classified to as Category 1 (autonomic nervous systems) (in the case of dust inhalation). In addition, there is a statement that harmful effect was not seen in the study of 1% feeding administration test (equivalent to 500 mg/kg/day) using the rat during 24 months (CERI Hazard Data (1998), ACGIH (2001) and PATTY (5th, 2001)), and this dose exceeds the upper limit of the Category 2 guidance value range. Moreover, there is the description of having no toxic influence, even if humans eat it 100mg/kg/day(PATTY (5th, 2001)). In the case of oral, according to these things, it corresponds out of Category.
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 48-hour EC50=46mg/L of Crustacea (Daphnia magna) (MOE eco-toxicity tests of chemicals, 1997).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since rapidly degrading (BOD: 81% (existing chemical safety inspections data)), and less bio-accumulative (log Kow=0.08 (PHYSPROP Database, 2005)).