GHS Classification

ID704 Xylidine

CAS 1300-73-8 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	–	–	–	There are no chemical groups associated with explosive properties present in the molecules.
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	–	–	–	Flash point: >93degC
7	Flammable solids	Not applicable	–	–	–	Liquid (GHS definition)
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	Classification not possible	–	–	–	No data available
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 metaloids(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	–	–	–	Liquid (GHS definition)
15	Organic peroxides	Not applicable	–	–	–	Organic compounds containing no –0–0– 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	There was no report as an isomer mixture. But rats of each isomer and LD50 value were within the limits of 470mg/kg to 1270 kg/kg, it was classified into Category 4.
1	Acute toxicity (dermal)	Category 4	Exclamation mark	Warning	Harmful in contact with skin	It was classified into Category 4 since there were description of rat LD50: 2000mg/kg and rabbit LD50: 1500mg/kg (DFGOTvol.19 (2003)).
1	Acute toxicity (inhalation: gas)	Not applicable	–	–	–	Liquid (GHS definition)
1	Acute toxicity (inhalation: vapour)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	There is no report of an isomer mixture. There is a data of mouse LC50: 149ppm/7h for 2, 4-Xylidine (ACGIH (2002)). The saturated vapor concentration at 25degC is 180ppm (0.89mg/L), and it is thought that LC50 value in this test is steam. Since it was converted to 197ppm for 4h, it was classified as Category 2.
1	Acute toxicity (inhalation: dust, mist)	Classification not possible	–	–	–	There is no report of an isomer mixture. There is data of rat LC50: 1.53mg/L (DFGOTvol.19 (2003)) about 2, 4-Xylidine. The concentration of the saturated vapor at 25degC is 180 ppm (0.89mg/L), and 1.53mg/L is considered to be mist. And if it is exposure for 4 hours, it is equivalent to category 2. However, there is no publication of exposure time, it cannot be classified by this data.
2	Skin corrosion / irritation	Not classified	–	–	–	There was no report of a mixture. It was classified as out of Category from the statement of having no stimulativeness in the rabbit test with 2,4 isomer (DFGOTvol.19 (2003)).
3	Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	There is no report with a mixture, and although there is a stimulative (DFGOTvol.19 (2003)) statement by the examination of the rabbit of 2,4 isomer, its recovery is unstated, so it cannot to set as Category 2A or 2B. It is more desirable to set to 2A from a viewpoint of safety if subdivision is required in a display etc.
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)–	No data available

5	Germ cell mutagenicity	Classification not possible	–	–	–	For in vivo tests, we found the findings that 2,6 isomer gave negative by mouse micronucleus assay (ACGIH (2002)), and for in vitro examination we found the statement that all the isomers gave the positive by the Ames test (they had metabolic activity), and with the eucaryotic cells, 2,4 isomer and 2,5 isomer induced DNA repair, 2,4 isomer (without the metabolic activity) and 2,6 isomer (with metabolic activity) induced the chromosomal abnormalities, 2,4 isomer gave positive in comet assay (DFGOTvol.19 (2003)), and 2,6 isomer showed positive in the chromosomal aberration test with the CHO cell (ACGIH (2002)). However, there was no report of the in vivo examination with the mixture of this product, therefore we could not classify it.
6	Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	Classified in "A3" (ACGIH)
7	Toxic to reproduction	Classification not possible	–	–	–	Insufficient data available
8	Specific target organs/systemic toxicity following single exposure	Category 2 (respiratory); Category 3 (narcotic effects)	Health hazard; Exclamation mark	Warning	May cause damage to organs (respiratory); May cause respiratory irritation or may cause drowsiness and dizziness (narcotic effects)	There is the description that pulmonary congestion occurs of the below 2.2mg/L of inhalation exposure (mist) in the guidance value of the category 2 in the test of rat about 2,4 isomer (DFGOTvol.19 (2003)). And there is the anesthetic action in the 1.06mg/L/4h of inhalation exposure in the guidance value of the Category 2 in the mouse test of isomer mixture (DFGOTvol.19 (2003)). And there is the irritation to nose in the above 0.5mg/L inhalation exposure in the rat test of 2,4 isomer (DFGOTvol.19 (2003)). So it is classified into Category 3 (anesthetic action). And about respiratory irritation, include disorder of lung above, it is classified into Category 2 (respiratory tract system).
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (blood, liver, kidneys, gallbladder, spleen)	Health hazard	Warning	May cause damage to organs (blood, liver, kidneys, gallbladder, spleen) through prolonged or repeated exposure	It was classified as to Category 2 (blood) according to the statement which causes methemoglobinemia to humans (HSDB (2005))(priority 2). About methemoglobinemia, there is also a report of the inhalation atmospheric exposure test of a rat, a mouse, a dog and a rabbit (ACGIH (2002)), and the oral study of a rat 7(DFGOTvol.19 (2003)). Furthermore, although there is no isomer mixtures' test reports, there are some statements; by oral administration to a rat of 2.4, 2.6 isomers of 157mg/kg each for 20 days (90-day conversion : 35mg/kg), 2.4 isomer had a disorder in the liver, the kidney, and the gallbladder and 2.6 isomer had a disorder in the spleen(ACGIH (2002)); by oral administration of 2.6, 2.4, and 2.5 isomer by 50mg/kg/4W (90-day conversion : 17mg/kg) to a dog had a liver damage (ACGIH (2001)); in inhalation exposure of 0.1-0.3 mg/L for 28 days (90 day conversion: 0.03-0.1 mg/L) to the rat of 2.4 isomer, it had a disorder in the liver and the spleen(DFGOTvol.19 (2003)). Since these dose and exposure concentrations were within the guidance value of 2, it was categoried into Category 2(liver,kidney,gallbladder, spleen).
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)	Classification not possible	–	–	–	No data available
11	Hazardous to the aquatic environment (chronic)	Classification not possible	–	–	–	No data available.