

GHS Classification

ID204

Methyl methacrylate

CAS 80-62-6

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	Category 2	Flame	Danger	Highly flammable liquid and vapour	The flash point is 10degC (open cup flash test) (ICSC, 2003) and the boiling point is 100.5degC, which is classified into Category 2. Those containing stabilizers are classified into Class 3 and Packing Group II (UN#1247) (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 (UN Recommendations on the Transport of Dangerous Goods, UN#1247)
9 Pyrophoric liquids	Not classified	-	-	-	Not pyrophoric when in contact with air at ordinary temperatures: the auto-ignition temperature is 421degC (ICSC, 2003)
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 oxygen (but not fluorine and chlorine), with the oxygen bound to carbon and hydrogen (but not to other elements)
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 (UN Recommendations on the Transport of Dangerous Goods, UN#1247)

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	-	-	-	Based on the rat LD50 (oral route) value of 7,900mg/kg representing the lower of the two testing data, 7,900mg/kg (ECETOC JACC30 (1995)) and 8,500mg/kg (ECETOC JACC30 (1995)).
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on the testing data of rabbit LD50 (dermal route) of 5,000mg/kg or more (RTEOS (2004)).
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 5	-	Warning	May be harmful if inhaled	Based on the rat LC50 (inhalation of vapour) value of 7,093ppm (ECETOC JACC30 (1995)) was lower than 90% of the saturated vapour concentration (52,000 ppm) under a saturated vapour pressure of 5.3 kPa (26degC) (Verschueren (2001)), the substance was considered as "vapour containing substantially no mist" and was classified based on standard values expressed in ppm. Also based on the description in ECETOC JACC30 (1995). Human volunteers exposed to low concentrations of methyl methacrylate (vapour inhalation) suffered respiratory irritation, developed hyposthenia and became feverish and dizzy.
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 description in the report on rabbit skin irritation tests (ECETOC JACC30 (1995)), with EU Risk Phrase Xi (R37/38) as a reference: Severe erythem, and moderate to severe edema with a dent in the center are observed after 24 hours of exposure; irritation caused by an application of 0.2 /kg disappears after 3 days of exposure; irritation caused by an application of 2 and 5g/kg does not disappear after 14 days of
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	Based on the description in the report on rabbit eye irritation tests (EU-RAR No.22 (2002), CERH Hazard Data 96-35 (1997), ACGIH (7th, 2001)): No effects are observed in the iris and cornea; reddening (Grade 2) is observed in the cornea after 24 hours of exposure; the substance is mildly to moderately irritating to rabbit eyes. The substance is thus considered "mildly to moderately irritating" to the eyes. Classified into 2A-2B because of the absence of data verifying the classification into 2A or 2B, although the substance should be placed in Category 2A from the viewpoint of safety.
4 Respiratory/skin sensitization	Respiratory sensitization: Category 1 Skin sensitization: Category 1	(Respiratory sensitization) Health hazard (Skin sensitization) Exclamation mark	(Respiratory sensitization) Danger (Skin sensitization) Warning	(Respiratory sensitization) May cause allergic or asthmatic symptoms or breathing difficulties if inhaled (Skin sensitization) May cause allergic skin reaction	Respiratory sensitization: based on the classification by the Japan Society for Occupational Health (2004). Skin sensitization: based on the description in EU-RAR No.22 (2002) (The substance causes allergic dermatitis) and in the Japan Society for Occupational Health (The substance is a skin sensitization), with reference to EU Risk Phrase R43 (The substance may cause sensitization in contact with skin).
5 Germ cell mutagenicity	Not classified	-	-	-	Based on the negative data on multi-generation mutagenicity tests in vivo (dominant lethal tests) and the absence of data on germ cell mutagenicity tests in vivo, described in EU-RAR No.22 (2002), ECETOC JACC30 (1995). Somatic cell mutagenicity tests in vivo (chromosome aberration tests, micronucleus tests) suggest an increase in the incidence of gap-type aberrations. Each of these results, however, is considered "unreliable" or "insufficient to provide evidence of positive results," according to EU, ECETOC and CICAD. The results of somatic cell mutagenicity tests in vivo are thus considered "negative."

6	Carcinogenicity	Not classified	-	-	-	Due to the fact that the substance is classified as Group 3 by IARC (1994), Category A4 by ACGIH (2001) and Group E by EPA (1998).
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	In the teratogenicity studies in rats, the increase in early fetal deaths, reduced crown-rump length and hematomas were observed at the concentrations where maternal toxicity such as death and loss of body weight was observed. Therefore, the substance was classified as Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 3 (respiratory tract irritation, narcotic effects)	Exclamation mark	Warning	(Respiratory tract irritation) May cause respiratory irritation (Narcotic effects) May cause drowsiness or dizziness	Based on the human evidence including "respiratory irritation, hyposthenia, fever, dizziness, nausea, headache, sleepiness" (EU-RAR No.22 (2002)).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs, central nervous system)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (respiratory organs, central nervous system)	Based on the human evidence including "atrophic rhinitis, laryngitis, autonomic disorder, headache, dizziness, oversensitiveness, concentration lapses, memory lapses" (MOE Risk Assessment vol. 2 (2003)).
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 hours EC50=69mg/L of the crustacea (Daphnia magna) (EU-RAR (2002) and others.).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since there was rapidly degrading (the decomposition by BOD: 94.3% (Existing Chemical Safety Inspections Data)) and the bio-accumulation was low (log Kow=1.38 (PHYSROP Database, 2005)), it was classified into Not classified.