

GPS Safety Summary

This Product Safety Summary is intended to provide a brief overview of the information on the risk assessment results of the chemical product that we manufacture based on the chemical industry's Global Product Strategy (GPS) to the general public as a social responsibility of a company that manufacture chemical substances.

This summary is not intended to provide technical information including effects on human health and the environment and details of risk assessment. In addition, it is not intended to be prepared as a document to replace a Safety Data Sheet (SDS) or a risk assessment report like a Chemical Safety Report under the REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) (REACH CSR). Although the summary is prepared based on the laws, materials, information and data that are available at the present moment, it does not provide any assurances.

SUBSTANCE NAME

Methyl isobutyl ketone (4-methyl-2-pentanone, CAS No. 108-10-1)

GENERAL STATEMENT

Methyl isobutyl ketone is a colorless liquid with characteristic odor. Methyl isobutyl ketone is used to make paint, adhesive and extract agent.

Methyl isobutyl ketone is a highly flammable liquid, therefore it is important to keep away from heat, sparks, open flames or hot sources. Methyl isobutyl ketone causes toxic if inhaled, causes eye irritation, suspected of causing cancer, may cause respiratory irritation, may cause drowsiness or dizziness and causes damage to organs (Systemic toxicity) through prolonged or repeated exposure.

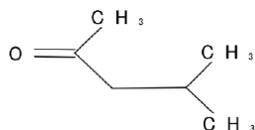
Methyl isobutyl ketone is biodegradable and low bioaccumulative.

It is recommended to wear appropriate protective masks, gloves when sampling for manufacturing. To minimize the adverse effects of sulfuric acid on environmental organisms and control its release into the environment, the sewage equipment should be monitored regularly and the sewage treatment facility should be maintained and inspected in the factory.

CHEMICAL IDENTITY

Item	Contents
Generic name	Methyl isobutyl ketone
Trade name	Methyl isobutyl ketone
Chemical name	Methyl isobutyl ketone (IUPAC name: 4-methyl-2-pentanone)
108-10-1	108-10-1
Other numbers	Reference No. listed in the official gazettes (Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., Industrial Safety and Health Act) (2)-542 EC No. 203-550-1
Molecular formula	C ₆ H ₁₂ O

Structural formula



Other information

None in particular

USES AND APPLICATIONS

Intended uses of our product Paint, adhesive and extract agent

PHYSICAL/CHEMICAL PROPERTIES

Appearance (physical state)	Liquid
Color	Colorless
Odor	Characteristic odor
Specific gravity (relative density)	No information
Melting point/boiling point	-84.7 /116.2 °C
Combustibility/flammability	Highly flammable liquid (Category 2)
Flash point	14 °C (closed cup)
Limit of combustion or explosion	1.4 - 7.5 vol %
Auto ignition temperature	460 °C
Vapor pressure	1990 Pa (20°C)
Molecular weight	100.16
Water solubility	2.0 g/ 100 g
Octanol-water partition coefficient	LogKow : 1.31

HEALTH EFFECTS

Effect assessment	Results (GHS ^{*1} hazard classification)
Acute toxicity (oral ingestion)	Not classified ^{*2}
Acute toxicity (inhalation)	Not applicable ^{*3} (gas) Toxic if inhaled (Category 3) (vapor) Classification not possible ^{*4} (dust/mist)
Acute toxicity (dermal)	Not classified
Skin corrosion/irritation	Not classified
Serious eye damage/eye irritation	Causes eye irritation (Category 2B)
Respiratory sensitization	Classification not possible
Skin sensitization	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Suspected of causing cancer (Category 2)
Reproductive toxicity	Not classified
Specific target organ toxicity (Single exposure)	May cause respiratory irritation and may cause drowsiness or dizziness (Category 3, Respiratory tract irritation, narcotic effects)
Specific target organ toxicity (Repeated exposure)	Causes damage to organs (Systemic toxicity) through prolonged or repeated exposure
Aspiration hazard	Classification not possible
Source/remarks	^{*1} GHS: Globally Harmonized System of Classification and Labelling of Chemicals. This system enables us to classify chemicals by hazard type and degree according

to globally harmonized rules.

*² Not classified: Hazardousness much lower than the lowest hazard class specified by GHS

*³ Not applicable: Because the physical properties defined by GHS are not met, the chemical is not included in the target chemicals of the classification.

*⁴ Classification not possible: The data needed for judging classification are not available at all or sufficient data are not collected for classification.

ENVIRONMENTAL EFFECTS

Effect assessment	Results (GHS hazard classification)
Hazardous to the aquatic environment (acute)	Not classified
Hazardous to the aquatic environment (chronic)	Not classified
Environmental fate/dynamics	Results
Transfer in the environment	Low volatility from water and low soil absorption
Biodegradability	Readily biodegradable
Bioaccumulation	Low bioaccumulative potential
Conclusion of PBT/vPvB	Not judged to be PBT* and vPvB**.
	*PBT: Persistent, bioaccumulative and toxic (Remaining in the environment and having high bioaccumulative and strong toxic properties)
	**vPvB: very Persistent and very Bioaccumulative (Readily remaining in the environment and having very high bioaccumulative property)

EXPOSURE

Details	No.	Potential exposure in the process of use of our products (exposure route)
Occupational Exposure	1-1	Used in closed process where little potential exists for exposure, with no likelihood of worker exposure. Or during operations in closed, continuous process with controlled exposure, workers may be exposed to substances by skin contact or inhalation, e.g. through maintenance, sampling and equipment breakages. During operations in closed continuous process with controlled exposure and in closed batch process, workers may be exposed to substances by skin contact or inhalation, e.g. through maintenance, sampling and equipment breakages. During transfer of substances or preparations from/to vessels or large containers in dedicated facilities, workers may be exposed to substances by skin contact or inhalation. Used in roller application or brushing, and workers may be exposed to substances by skin contact or inhalation through vapours, droplets, splashes, working with wipes and handling of treated surfaces. When using material as fuel sources, workers may be exposed to substances by skin contact or inhalation.
Consumer exposure	2-1	Used as spray-type coatings and paints, thinners, paint removers, and similar products, and consumers may be exposed to substances by skin contact or inhalation.
Environmental exposure	3-1	May be released primarily into the air and water environment from manufacturing processes of substances in industries.

Used in industry as processing aids not becoming part of articles (e.g. solvents used in chemical reactions or the 'use' of solvents during the application of paints, lubricants in metal working fluids, anti-set off agents in polymer moulding/casting), and directly released primarily to the air and water environment. May also be released into the soil environment.

Used indoors as processing aids for automotive and bicycle care products (polishes, lubricants, deicers), solvents in paints and adhesives by the public at large or professional use, and directly released widely into the air and water environment.

However Methyl isobutyl ketone is manufactured in a closed system process, the possibility of environment release is very low. It is liquid at normal temperature and normal pressure. In the case of environmental release, though it is considered to disperse into water, it is expected to be degraded in water rapidly.

Note If there is a potential for exposure in other uses, take appropriate measures in reference to the risk management recommends.

RISK MANAGEMENT RECOMMENDATIONS

Details	No.	Management recommendations based on our risk assessment results
Occupational Exposure	1-1	Wear appropriate protective masks, clothing and gloves made of materials that Sulfuric acid does not penetrate during sampling operation. The operation manager instructs workers how to select and use the appropriate protective equipment and how to manage the work place.
Consumer exposure	2-1	None
Environmental exposure	3-1	Methyl isobutyl ketone may affect environment if leaked. Take measures to prevent leakage, and take due care in daily management and handling.
Other warnings		None
Note		For the measures and actions to be taken for regular handling, emergency situations, disposal and transportation, see Section 4, 5, 6, 7, 8, 13 and 14, SDS issued by Mitsubishi Chemical Corporation.

STATE AGENCY REVIEW

Assessment document	Review condition
OECD HPV	http://www.inchem.org/documents/sids/sids/108112.pdf
National Institute of Evaluation and Technology (NITE) - Preliminary Risk Assessment of Chemical Substances	No information
Ministry of Environment - Preliminary Environment Risk Assessment of Chemical Substances	http://www.env.go.jp/chemi/report/h18-12/pdf/chpt2/2-2-2-47.pdf http://www.env.go.jp/chemi/report/h19-03/pe/02-20.pdf
REACH	http://apps.echa.europa.eu/registered/registered-sub.aspx

REGULATORY INFORMATION / LABELLING INFORMATION

Main regulatory information

Law	Regulatory condition
UN class	3
UN No.	1245
Fire Service Act	Hazardous Material Class 4, Class 1 Petroleum, water-insoluble, Hazard Class II
Ship Safety Act	Hazardous Substance List, Separate Table 1 Flammable Liquids
Poisonous and Deleterious Substances Control Act	None
Industrial Safety and Health Act	Enforcement Order, Appended Table 1, Dangerous Substances (4) Inflammable Substances Article 57 Labeled substance Article 57-2 Paragraph 2 Substance Requiring notification Ordinance on Prevention of Organic Solvent Poisoning: Second-class organic solvents
Pollutant Release Transfer Register	None
Civil Aeronautics Act	Substances Approved for Transportation, 3. Flammable Liquids
Others	Air Pollution Control Act: Volatile Organic Compound, Hazardous Air Pollutant Offensive Odor Control Law: Specific offensive odor substance Act for the Prevention of Marine Pollution and Maritime Disasters: Marine Pollutants in the Case of Bulk Transportation (Category Z) Act on Port Regulations: Dangerous substance, Flammable Liquids Road Act: Restriction on traffic of vehicles

Labelling information

Pictograms or symbols



Signal Word

Hazard statement

Danger

- Highly flammable liquid and vapour
- Toxic if inhaled
- Causes eye irritation
- Suspected of causing cancer
- May cause respiratory irritation
- May cause drowsiness or dizziness
- Causes damage to organs (Systemic toxicity) through prolonged or repeated exposure

CONTACT INFORMATION WITHIN COMPANY

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