MITSUBISHI CHEMICAL

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

Diacetone alcohol (4-hydroxy-4-methylpentan-2-one, CAS No. 123-42-2)

GENERAL STATEMENT

Diacetone alcohol is a colorless liquid with aromatic odur. Diacetone alcohol is used to make synthetic resin coating.

Diacetone alcohol is a Flammable liquid, therefore it is important to keep away from heat, sparks, open flames or hot sources. Diacetone alcohol causes skin irritation, causes serious eye irritation, suspected of damaging fertility or the unborn child, may cause respiratory irritation (respiratory tract irritation) and may cause damage to organs (kidney) through prolonged or repeated exposure.

Diacetone alcohol is biodegradable and low bioaccumulative.

It is recommended to wear appropriate protective masks, gloves when sampling for manufacturing. To minimize the adverse effects of Diacetone alcohol 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	Diacetone alcohol
Trade name	Diacetone alcohol
Chemical name	Diacetone alcohol (IUPAC name: 4-hydroxy-4-methylpentan-2-one)
CAS No.	123-42-2
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)-587 EC No. 204-626-7
Molecular formula	$C_6H_{12}O_2$

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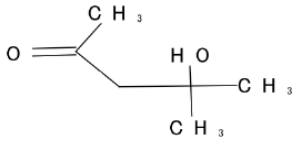
Structural formula



Other information None in particular

USES AND APPLICATIONS

Intended uses of our product Synthetic resin coating

PHYSICAL/CHEMICAL PROPERTIES

Appearance (physical state)	Liquid
Color	Colorless
Odor	Aromatic odor
Specific gravity (relative density)	0.931
Melting point/boiling point	-44 /167.9 ℃
Combustibility/flammability	Flammable liquid (Category 3)
Flash point	66 ℃ (open cup)
Limit of combustion or explosion	6.9 vol %／1.8 vol %
Auto ignition temperature	603 ℃
Vapor pressure	160 Pa (20℃)
Molecular weight	116.16
Water solubility	1000 mg/L (25℃)
Octanol-water partition coefficient	LogKow : -0.34

HEALTH EFFECTS

Effect assessment	Results (GHS[*1] hazard classification)
Acute toxicity (oral ingestion)	Not classified [*2]
Acute toxicity (inhalation)	Not applicable [*3] (gas) Classification not possible [*4] (vapor) Classification not possible (dust/mist)
Acute toxicity (dermal)	Not classified [*4]
Skin corrosion/irritation	Causes skin irritation (Category 2)
Serious eye damage/eye irritation	Causes serious eye damage (Category 2)
Respiratory sensitization	Classification not possible
Skin sensitization	Classification not possible
Germ cell mutagenicity	Classification not possible
Carcinogenicity	Classification not possible
Reproductive toxicity	Suspected of damaging fertility or the unborn child (Category 2)
Specific target organ toxicity (Single exposure)	May cause respiratory irritation (Category 3, respiratory tract irritation)
Specific target organ toxicity (Repeated exposure)	May cause damage to organs (kidney) through prolonged or repeated exposure (Category 2)
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 applicable: Because the physical properties defined by GHS are not met, the chemical is not included in the target chemicals of the classification.
[*3] Classification not possible: The data needed for judging classification are not available at all or sufficient data are not collected for classification.
[*4] Not classified: Hazardousness much lower than the lowest hazard class specified by GHS

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. During synthesis or formulation in closed batch process, workers may be exposed to substances by skin contact or inhalation, e.g. through maintenance, sampling and equipment breakages. During sampling 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.
Consumer exposure	2-1	This material is not used by consumers and therefore the potential for consumer exposure is extremely low.
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 reactive processing aids, and may be released primarily into the water environment. Used as intermediates for the manufacture of other substances, and may be released primarily into the air and water environment.
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	Diacetone alcohol 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.chem.unep.ch/irptc/sids/OECDSIDS/123422.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/h22-01/pdf/chpt2/2-2-2-43.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.	1148
Fire Service Act	Hazardous Materials Class 4, Class 2 Petroleum, Aqueous, Hazard Class III
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 57-2 Paragraph 2 Substance Requiring notification
Pollutant Release Transfer Register	None
Civil Aeronautics Act	Substances Approved for Transportation, 3. Flammable Liquids
Others	Air Pollution Control Act: Hazardous Air Pollutant

Act for the Prevention of Marine Pollution and Maritime Disasters:
Noxious liquid substances (Category Z)
Act on Port Regulations: Dangerous substance, Flammable Liquids
Road Act: Restriction on traffic of vehicles

Labelling information

Pictograms or symbols

Signal Word: Warning

Hazard statement:
- Flammable liquid and vapour
- Causes skin irritation
- Causes serious eye irritation
- Suspected of damaging fertility or the unborn child
- May cause respiratory irritation (respiratory tract irritation)
- May cause damage to organs (kidney) through prolonged or repeated exposure

CONTACT INFORMATION WITHIN COMPANY

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