

Product Stewardship Summary

Methyl Vinyl Ether

General Statement

Methyl vinyl ether is a colorless compressed gas or liquid. It is used to make copolymers in coatings and lacquers, as a modifier for resins, and as a plasticizer for nitrocellulose and adhesives.

Methyl vinyl ether can irritate and burn the skin and eyes. Direct skin contact to methyl vinyl ether can cause frostbite. Breathing methyl vinyl ether can irritate the nose and throat causing coughing and wheezing. High exposure to methyl vinyl ether can cause headache, blurred vision, dizziness, agitation and even loss of consciousness.

Methyl vinyl ether is a highly flammable and reactive chemical and a dangerous fire and explosion hazard.

Chemical Identity

Name: Methyl vinyl ether

Brand Names: Not applicable

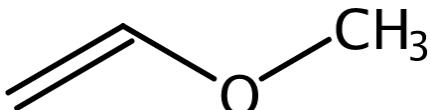
Chemical name (IUPAC): methoxyethene

CAS number: 107-25-5

EC number: 203-475-4

Molecular formula: C₃H₆O

Structure:



Uses and Applications

Methyl vinyl ether is used to make copolymers in coatings and lacquers, as a modifier for resins, and as a plasticizer for nitrocellulose and adhesives.

Ashland primarily uses methyl vinyl ether in manufacturing processes of polymers used in cosmetics and personal care products.



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Physical/Chemical Properties

Phys/Chem Safety Assessment

Property	Value
Form	Compressed gas or liquid
Physical state	Gas at room temperature
Color	Colorless
Odor	Ether-like
Density	0.7725 g/cm ³ at 0 °C
Melting / Boiling point	Melting point/ melting range: - 122 °C Boiling point/ boiling range: 12 °C
Flammability	Highly Flammable
Autoflammability / Self-ignition temperature	210 °C at 1013 hPa
Vapor pressure	1175 mmHg at 20 °C
Molecular weight	58.08 g/mol
Water solubility	15,000 mg/L at 20 °C
Flash point	-21 °C
Octanol-water partition coefficient (LogKow)	0.42 at 25 °C (estimated by calculation)

Health Effects

Human Health Safety Assessment

Consumer: Consumer usage of methyl vinyl ether is unlikely as the substance is manufactured and handled in industrial settings in closed systems.

Worker: Workers will not come into contact with methyl vinyl ether, as the substance is manufactured and handled in industrial settings in closed systems. In case of accidental or unintended exposure during maintenance, sampling, testing, or other procedures where workers could be exposed to methyl vinyl ether, the workers should follow the recommended safety measures in the Safety Data Sheet (SDS).

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	High exposure to methyl vinyl ether can cause headache, blurred vision, dizziness, agitation and even loss of consciousness.
Irritation / corrosion Skin / eye / respiratory test	Can irritate and burn the skin and eyes. Direct skin contact to methyl vinyl ether can cause frostbite. Breathing methyl vinyl ether can irritate the nose and throat causing coughing and wheezing.
Sensitization	Not classified
Toxicity after repeated exposure Oral / inhalation / dermal	Not classified
Genotoxicity / Mutagenicity	Not classified
Carcinogenicity	Not classified
Toxicity for reproduction	Not classified

Environmental Effects

Environmental Safety Assessment

Methyl vinyl ether may be harmful to aquatic life with long lasting effects, but the potential for bioconcentration in aquatic organisms is low.

Effect Assessment	Result
Aquatic Toxicity	Methyl vinyl ether may be harmful to aquatic life with long lasting effects.
Fate and behavior	
Biodegradation	Methyl vinyl ether may be susceptible to appreciable hydrolysis in certain environmental waters based upon experimental hydrolysis data for the structurally related butyl vinyl ether.
Bioaccumulation potential	An estimated Biocentration Factor (BCF) of 3 is calculated for methyl vinyl ether. This BCF suggests the potential for bioaccumulation in aquatic organisms is low.
PBT / vPvB conclusion	Not PBT or vPvB.

Exposure

Human Health

Consumers will not come into contact with methyl vinyl ether as it is manufacturered in closed systems and there are no known consumer uses for methyl vinyl ether. Both inhalation and dermal exposures are likely routes of exposure to the worders. Workers in the laboratory or in manufacturing settings may be unintentionally exposed to methyl vinyl ether.

Environment

With the exception of large scale spills, environmental concentrations of methyl vinyl ether are unlikely to be sufficient to cause ecotoxicity.

Risk Management Recommendations

Workers handling methyl vinyl ether should follow the recommended safety measures in the SDS. Transfer and handling of the product should be only done in closed systems or under minimal exposure conditions with appropriate protective equipments.

Respiratory protection must be worn whenever the WEL(Workplace Exposure Limit) levels may be exceeded. Hand protection suitable for handling methyl vinyl ether must be worn and observe glove manufacturer's instructions concerning penetrability and breakthrough time. At first sign of deterioration, gloves must be replaced. Tightly sealed safety glasses should be worn and in case of increased risk, face protective shield should be worn.

Do not eat or drink while handling methyl vinyl ether, and take off immediately all contaminated clothing. Wash hands before breaks and after work. Safety shower and eye wash station should be easily accessible to the work area.

Regulatory Agency Review

Methyl vinyl ether is on the AICS Australian Inventory of Chemical Substances
Methyl vinyl ether is on the NDSL Canada Gazette, Part I, 143 #51:3715
Methyl vinyl ether is on the Australia Inventory of Chemical Substances
Methyl vinyl ether is on the IECSC Inventory of Existing Chemical Substances in China
Methyl vinyl ether is on the EU REACH: List of Registered Substances
Methyl vinyl ether is on the Japan ENCS Unlisted chemical name. For ENCS chemical class, refer to ENCS No. 2-372
Methyl vinyl ether is on the ECL Korean Existing Chemicals List
Methyl vinyl ether is on the INSQ National Inventory of Chemical Substances in Mexico
Methyl vinyl ether is on the NZIoC New Zealand Inventory of Chemicals
Methyl vinyl ether is on the PICCS Philippines Inventory of Chemicals and Chemical Substances

Regulatory Information / Classification and Labeling

Under GHS, substances are classified according to their physical, health and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

Hazard Statements:

H220: Extremely flammable gas

H280: Contains gas under pressure; may explode if heated

H412: Harmful to aquatic life with long lasting effects

Signal word: Danger

Precautionary statements:

P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381: Eliminate all ignition sources if safe to do so.

P381, P410 + P403: Protect from sunlight. Store in a well-ventilated place.

Hazard pictograms:



Conclusion

Methyl vinyl ether is an extremely flammable gas. Methyl vinyl ether must be kept away from heat/sparks/open flames/hot surfaces and protected from sunlight and stored in a well-ventilated place.

Methyl vinyl ether can irritate and burn the skin and eyes. Direct skin contact to methyl vinyl ether can cause frostbite. Breathing methyl vinyl ether can irritate the nose and throat causing coughing and wheezing. High exposure to methyl vinyl ether can cause headache, blurred vision, dizziness, agitation and even loss of consciousness.

Contact Information with Company

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Additional Information

For more information on GHS, visit <http://www.osha.gov/dsg/hazcom/ghsguideoct05.pdf> or http://live.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html.
Ashland product stewardship summaries are located at <http://www.ashland.com/stewardship>

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REACH registration is specific to Importers/Manufacturers that place the chemical on the EU market, and specific to registered uses. Inclusion on the list of REACH Registered Substances does not automatically imply registration by Ashland.

Inclusion on the New Zealand Inventory of Chemicals applies only to the pure substance listed. The importer of record must determine whether or not their substances are in compliance.