Product Safety Assessment

**DOW™ Methane E**


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**Names**

- CAS No. 74-82-8
- DOW™ methane E
- Methyl hydride

**Product Overview**

- DOW™ methane E is produced as a by-product during ethylene manufacture. Methane is an odorless, colorless gas.¹ For further details, see Product Description.
- DOW methane E is consumed on site as a fuel. For further details, see Product Uses.
- Occupational exposure to DOW methane E is possible during the manufacture of ethylene. Ethylene is manufactured in closed systems with engineering controls to prevent fugitive emissions. Consumer exposure to DOW methane E is unlikely.² For further details, see Exposure Potential.
- Eye or skin contact with methane gas is not hazardous. Vapor can easily accumulate in confined or poorly ventilated areas and cause unconsciousness and death due to displacement of oxygen (suffocation).³ For further details, see Health Information.
- Methane released to the surface environment will partition into the atmosphere, where it will degrade very slowly. Methane has a low bioconcentration potential (tendency to accumulate in the food chain) and is practically nontoxic to aquatic organisms on an acute basis.⁴ For further details, see Environmental Information.
- Methane is extremely flammable. Vapor release may result a flash fire. Methane is stable under normal storage and use conditions. Exposure to elevated temperatures can cause this material to decompose. Avoid contact with oxidizing materials.⁵ For further details, see Physical Hazard Information.

**Manufacture of Product**

- **Production** – DOW™ methane E is produced at Dow ethylene production sites throughout the world. Locations include Freeport, Texas; Plaquemine and St. Charles, Louisiana, USA; Fort Saskatchewan, Alberta, Canada; Bahia Blanca, Argentina; Boehlen, Germany;
Terneuzen, The Netherlands; and Tarragona, Spain. Dow also has ethylene joint venture facilities in Joffre, Alberta, Canada; Shuaiba, Kuwait; and Map Ta Phut, Thailand.

- **Process** – DOW methane E is produced as a by-product during ethylene manufacture.

**Product Description**

DOW™ methane E is a colorless, odorless gas. Another name for this material is methane off-gas.

**Product Uses**

DOW™ methane E is used on site as a fuel source.

**Exposure Potential**

DOW™ methane E is used as a fuel. Based on this, the public could be exposed through:

- **Workplace exposure** – Occupational exposure to DOW methane E is possible during ethylene manufacture. Ethylene is manufactured and consumed in closed systems with engineering controls to prevent fugitive emissions. Those working with methane in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each facility has a thorough training program for employees and appropriate work processes, ventilation, and safety equipment in place to limit exposure. See Health Information.

- **Consumer exposure to DOW methane E** – Because it is consumed on site, the general public is not likely to come into contact with DOW methane E. See Health Information.

- **Environmental releases** – DOW methane E is produced and consumed in closed systems with a low potential for environmental release. The major sources of methane emissions in the U.S. are commercial livestock farming (enteric fermentation), landfills, and natural-gas systems. If released to the environment, methane will partition to the atmosphere, where very slow degradation due to reaction with hydroxyl radicals will occur. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Evacuate personnel upwind of the release. Ground and bond all containers and handling equipment. Stop the flow of gas if possible. Extinguish all ignition sources. Knock down gas vapors with a fine water spray. Only trained and properly protected personnel must be involved in clean-up operations. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Do not attempt to extinguish the fire. If flames are accidentally extinguished, explosive re-ignition may occur. Stop the flow of gas if possible and allow the fire to burn out. Isolate the fire and deny any unnecessary entry. Eliminate all ignition sources. Once product flow has stopped, small fires may be extinguished with water fog or fine spray, dry-chemical or carbon-dioxide extinguishers, or foam. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, request the Safety Data Sheet from the Dow Customer Information Group.
Health Information

Eye or skin contact – Methane gas is essentially nonirritating to the eyes and skin.

Inhalation – Although not toxic, vapor can easily accumulate in confined or poorly ventilated areas and cause unconsciousness and death due to displacement of oxygen (suffocation).

Ingestion – Swallowing methane gas is unlikely.

For more information, request the Safety Data Sheet from the Dow Customer Information Group.

Environmental Information

Methane is a volatile gas that is insoluble in water. When introduced, the compound will have a tendency to evaporate from water.

Because of its volatility, biodegradation is not a significant degradation pathway for methane in surface environments. However, biodegradation will occur in subsurface environments. In the atmosphere, the compound will degrade very slowly by reaction with photochemically produced hydroxyl radicals.

Methane has a low potential to accumulate in the food chain and is considered practically nontoxic to fish and other aquatic organisms on an acute basis.

For more information, request the Safety Data Sheet from the Dow Customer Information Group.

Physical Hazard Information

DOW™ methane E is highly flammable. It is stable under normal storage and use conditions. Exposure to elevated temperatures can cause this material to decompose. Avoid contact with oxidizing materials.

Electrically bond and ground all containers and equipment before transferring or using DOW methane E. This product is a poor conductor of electricity and can become electrostatically charged even in bonded and grounded equipment. If sufficient charge is accumulated, ignition of flammable mixtures could occur.

High concentrations of methane can reduce the amount of oxygen available for breathing.

For more information, request the Safety Data Sheet from the Dow Customer Information Group.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of DOW™ methane E. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet or Contact Us.

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Additional Information

- Safety Data Sheet ([www.dow.com/assistance/dowcig.htm](http://www.dow.com/assistance/dowcig.htm))
- Contact Us ([www.dow.com/assistance/thoughts.htm](http://www.dow.com/assistance/thoughts.htm))
- InChem ([www.inchem.org/documents/icsc/icsc/eics0291.htm](http://www.inchem.org/documents/icsc/icsc/eics0291.htm))
- U.S. Environmental Protection Agency website – Methane: Sources and Emissions ([www.epa.gov/methane/sources.html](http://www.epa.gov/methane/sources.html))

For more business information about DOW™ methane E, contact the Dow Customer Information Group at [www.dow.com/assistance/dowcig.htm](http://www.dow.com/assistance/dowcig.htm).

References

10. U.S. Environmental Protection Agency website – Methane: Sources and Emissions ([www.epa.gov/methane/sources.html#anthropogenic](http://www.epa.gov/methane/sources.html#anthropogenic))
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