Product Safety Assessment

*DOW™ Oil and Gas Chelants*


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### Product Overview

- **DOW™ Oil and Gas chelants** are water-based solutions of complex amine compounds with either a slight ammonia-like odor or no odor.\(^1\)\(^2\) For further details, see [Product Description](#).
- **DOW oil and gas chelants** are used to remove metal ions during oil and gas recovery and processing. For further details, see [Product Uses](#).
- **Dow** does not sell these materials for direct consumer use, but the potential for exposure exists for those working in facilities that manufacture or use these products. Each manufacturing facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit unnecessary exposure. For further details, see [Exposure Potential](#).
- Health information for **DOW oil and gas chelants** is summarized on the relevant [Safety Data Sheets](#). The health risks associated with individual products may vary based on their formulation or intended use. The [Safety Data Sheet](#) is the preferred source for specific health information. These materials may also contain minor components or additives that have additional health risks. For further details, see [Health Information](#).
- **DOW oil and gas chelants** are degradable, unlikely to accumulate in the food chain, and range from practically non-toxic to moderately toxic to aquatic organisms.\(^1\) For further details, see [Environmental Information](#).
- **DOW oil and gas chelants** are stable at typical use temperatures, but some of the components can decompose at elevated temperatures. Flammable hydrogen may be generated if certain of these products come in contact with aluminum.\(^1\) For further details, see [Physical Hazard Information](#).

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### Manufacture of Product

- **Capacity** – **Dow** is a global leader in the supply of products to the Oil & Gas market.
  
  **DOW™ oil and gas chelants** are produced at sites in the United States.

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Product Description

DOW™ oil and gas chelants are water-based solutions of complex amine compounds with either a slight ammonia-like odor or no odor. They are colorless to yellow or reddish-brown in color.

Product Uses

DOW™ oil and gas chelants are used to remove H₂S (hydrogen sulfide) from sour gas streams using either SulFerox™ or RT-2 process technologies. DOW oil and gas chelants are used to deactivate metal ions during oil and gas recovery and processing operations, which helps to:

- Prevent plugging due to iron precipitation during acidizing and fracturing processes
- Minimize scale build-up on well casings and other equipment
- Treat water in enhanced recovery operations

Exposure Potential

DOW™ oil and gas chelants are used in industrial processes. Based on the uses for these products, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in a manufacturing facility or in the various industrial or manufacturing facilities that use these products. Those working with these products in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit exposure. See Health Information.

- **Consumer exposure to products containing DOW oil and gas chelants** – Dow does not sell these materials for direct consumer use, and they are not incorporated into any products sold directly to consumers. See Health Information.

- **Environmental releases** – DOW oil and gas chelants may be released into the environment during use. Biodegradation and photodegradation in the environment are expected. In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. Respiratory protection with a particulate filter is necessary for cleaning up spills and leaks. For small spills, DOW oil and gas chelants should be absorbed with materials such as sand or dirt. Do not use cellulose-based or organic absorbents. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, the material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of any spill. Ventilate the area. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – The solutions are not combustible, but dried residue may catch fire. Deny any unnecessary entry into the area and consider the use of unmanned hose holders. Use water fog, dry-chemical or carbon-dioxide extinguishers, or foam to fight fire. Use of a direct water stream may spread fire. Firefighters should wear positive-pressure, self-contained breathing apparatus and protective firefighting clothing. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, request the relevant Safety Data Sheet.
Health Information

Health information for DOW™ oil and gas chelants is summarized on the relevant Safety Data Sheets. It is important to note that health risks associated with individual products may vary based on their formulation or intended use. The Safety Data Sheet is the preferred source for specific health information. These materials may also contain minor components or additives that have additional health risks. An overview of health information for these products appears below.

Eye contact – Contact may cause pain, severe irritation, or chemical burns to the eye. Corneal injury is possible, which may result in permanent impairment of vision or even blindness.

Skin contact – Prolonged contact may cause moderate irritation with local redness. Symptoms may include pain, severe local redness, swelling, and/or tissue damage. If the skin is cut or abraded, the response may be more severe. Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation – The vapors from these materials are mostly water and not hazardous. A single exposure is not likely to be hazardous, but may cause irritation.

Ingestion – Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Repeated exposure – These products contain components that have been reported to cause effects on the kidney in animal testing. Some of these products may cause methemoglobinemia, a condition that impairs the ability of the blood to transport oxygen. Symptoms of this condition may include central nervous system depression, headache, drowsiness, dizziness, lack of coordination, and low blood pressure.

Other – Components in one of the products caused birth defects in laboratory animals, but only at doses toxic to the mother.

For more information, request the relevant Safety Data Sheet.

Environmental Information

Environmental information for DOW™ oil and gas chelants is summarized on the relevant Safety Data Sheets. An overview of environmental information for these products appears below.

DOW oil and gas chelants have very low volatility and high water solubility. Once introduced, they will have a tendency to remain in water. They have minimal tendency to bind to soil or sediment.

DOW oil and gas chelants are unlikely to persist in the environment. They are susceptible to biodegradation and photodegradation, which suggests the chemicals will be removed from water and soil environments, including biological wastewater treatment plants.

DOW oil and gas chelants are not likely to accumulate in the food chain (bioconcentration potential is low) and range from practically nontoxic to moderately toxic to aquatic organisms on an acute basis.

For more information, request the relevant Safety Data Sheet.
Physical Hazard Information

Physical hazard information for DOW™ oil and gas chelants is summarized on the relevant Safety Data Sheets. Hazards associated with individual products may vary based on their formulation or intended use. The Safety Data Sheet is the preferred source for specific hazard information. These materials may also contain minor components or additives that have additional risks. An overview of physical hazard information for these products appears below.

These materials are stable at typical use temperatures, but some of the components can decompose at elevated temperatures. Decomposition products depend upon temperature, air supply, and the presence of other materials. Flammable hydrogen may be generated if certain of these products come in contact with aluminum.

These materials will not burn until all the water in the formulation has evaporated. The residue is combustible.

For more information, request the relevant Safety Data Sheet.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of DOW™ oil and gas chelants. 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.

Additional Information

- Safety Data Sheets (request using Contact Us: http://oilandgas.dow.com/contact/)
- Contact Us (http://oilandgas.dow.com/oilandgas/contact/)

For more business information about DOW oil and gas chelants, visit the Dow Oil and Gas website at http://oilandgas.dow.com/

References

1 DOW™ IC 210 Gas Conditioning Chelant Material Safety Data Sheet, The Dow Chemical Company
2 DOW IC 110 Formulated Iron Chelate Material Safety Data Sheet, The Dow Chemical Company
3 DOW IC-130 Chelate Material Safety Data Sheet, The Dow Chemical Company

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As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment is intended to give general information about the chemical (or categories of chemicals) addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

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