



Material Safety Data Sheet

The Dow Chemical Company

Product Name: ECOSURF(TM) EH-9 Surfactant

Issue Date: 11/23/2009
Print Date: 03 Dec 2009

The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name
ECOSURF(TM) EH-9 Surfactant

COMPANY IDENTIFICATION

The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
USA

Customer Information Number: 800-258-2436

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 989-636-4400
Local Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview

Color: Colorless to yellow

Physical State: Liquid.

Odor: Mild

Hazards of product:

WARNING! Causes eye irritation. Aspiration hazard. Can enter lungs and cause damage. Isolate area.

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause moderate eye irritation. May cause moderate corneal injury.

Skin Contact: Brief contact may cause slight skin irritation with local redness. May cause drying and flaking of the skin.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous.

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Aspiration hazard: Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

3. Composition Information

| Component | CAS # | Amount |
|---|------------|----------|
| 2-Ethyl Hexanol EO-PO Nonionic Surfactant | 64366-70-7 | > 99.0 % |

4. First-aid measures

Eye Contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Eye wash fountain should be located in immediate work area.

Skin Contact: Wash skin with plenty of water.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Notes to Physician: The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Medical Conditions Aggravated by Exposure: Skin contact may aggravate preexisting dermatitis.

Emergency Personnel Protection: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

5. Fire Fighting Measures

Extinguishing Media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Contain spilled material if possible. Absorb with materials such as: Sand. Dirt. Collect in suitable and properly labeled containers. Do not use water for cleanup. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

7. Handling and Storage

Handling

General Handling: Avoid contact with eyes. Do not swallow. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage

No specific requirements. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. The shelf life given is for unopened containers stored under moderate temperature conditions.

Shelf life: Use within
24 Months

8. Exposure Controls / Personal Protection

Exposure Limits

None established

Personal Protection

Eye/Face Protection: Use chemical goggles. Eye wash fountain should be located in immediate work area.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Under intended handling conditions, no respiratory protection should be needed.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

| | |
|--|---|
| Physical State | Liquid. |
| Color | Colorless to yellow |
| Odor | Mild |
| Odor Threshold | No test data available |
| Flash Point - Closed Cup | 288 °C (550 °F) <i>ASTM D93</i> |
| Flash Point - Open Cup | 244 °C (471 °F) <i>ASTM D92</i> |
| Flammability (solid, gas) | Not applicable to liquids |
| Flammable Limits In Air | Lower: No test data available Upper: No test data available |
| Autoignition Temperature | No test data available |
| Vapor Pressure | < 0.01 mmHg <i>Estimated.</i> |
| Boiling Point (760 mmHg) | decomposes prior to boiling. |
| Vapor Density (air = 1) | >1 <i>Estimated.</i> |
| Specific Gravity (H2O = 1) | 1.026 20 °C/20 °C <i>Calculated</i> |
| Liquid Density | 1.0237 g/cm ³ @ 20 °C <i>ASTM D4052</i> |
| Freezing Point | See Pour Point |
| Melting Point | Not applicable to liquids |
| Solubility in water (by weight) | 100 % <i>Visual</i> |
| pH | 5.0 - 7.5 <i>ASTM E70</i> 1% aqueous solution. |
| Molecular Weight | No test data available |
| Decomposition Temperature | No test data available |
| Partition coefficient, n-octanol/water (log Pow) | No data available for this product. See Section 12 for individual component data. |
| Evaporation Rate (Butyl Acetate = 1) | No test data available |
| Kinematic Viscosity | 51 cSt @ 40 °C <i>ASTM D445</i> |
| Pour point | 16 °C (61 °F) <i>ASTM D97</i> |

10. Stability and Reactivity

Stability/Instability

Thermally stable at typical use temperatures.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous Polymerization

Will not occur.

Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials.

11. Toxicological Information

Acute Toxicity

Ingestion

Typical for this family of materials. LD50, Rat, female > 2,000 mg/kg

Skin Absorption

Typical for this family of materials. LD50, Rat > 2,000 mg/kg

Inhalation

As product. The LC50 has not been determined.

Repeated Dose Toxicity

No relevant information found.

Chronic Toxicity and Carcinogenicity

No relevant information found.

Developmental Toxicity

No relevant information found.

Reproductive Toxicity

No relevant information found.

Genetic Toxicology

No relevant information found.

12. Ecological Information

ENVIRONMENTAL FATE

Movement & Partitioning

No relevant information found.

Persistence and Degradability

For this family of materials: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests: For this family of materials:

| Biodegradation | Exposure Time | Method |
|----------------|---------------|----------------|
| > 60 % | 28 d | OECD 301F Test |

ECOTOXICITY

For this family of materials: Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Aquatic Invertebrate Acute Toxicity

For this family of materials: EC50, water flea Daphnia magna, static, 48 h, immobilization: 72.1 mg/l

Aquatic Plant Toxicity

For this family of materials: ErC50, green alga Desmodesmus subspicatus, Growth rate inhibition, 72 h: 31.9 - 97.7 mg/l

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. Waste water treatment system.

14. Transport Information

DOT Non-Bulk

NOT REGULATED

DOT Bulk

NOT REGULATED

IMDG

NOT REGULATED

ICAO/IATA

NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information**OSHA Hazard Communication Standard**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

| | |
|-----------------------------------|-----|
| Immediate (Acute) Health Hazard | Yes |
| Delayed (Chronic) Health Hazard | Yes |
| Fire Hazard | No |
| Reactive Hazard | No |
| Sudden Release of Pressure Hazard | No |

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

| Component | CAS # | Amount |
|-----------------|----------|-------------|
| 1,4-Dioxane | 123-91-1 | <= 10.0 PPM |
| Propylene oxide | 75-56-9 | <= 10.0 PPM |

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CEPA - Domestic Substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. Other Information**Product Literature**

Additional information on this and other Dow products may be obtained by visiting our web page at www.dow.com. Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

Hazard Rating System

| NFPA | Health | Fire | Reactivity |
|------|--------|------|------------|
| | 1 | 1 | 0 |

Recommended Uses and Restrictions

Multi-purpose surfactant. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

Revision

Identification Number: 1018919 / 1001 / Issue Date 11/23/2009 / Version: 2.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

| | |
|--------------|---|
| N/A | Not available |
| W/W | Weight/Weight |
| OEL | Occupational Exposure Limit |
| STEL | Short Term Exposure Limit |
| TWA | Time Weighted Average |
| ACGIH | American Conference of Governmental Industrial Hygienists, Inc. |
| DOW IHG | Dow Industrial Hygiene Guideline |
| WEEL | Workplace Environmental Exposure Level |
| HAZ DES | Hazard Designation |
| Action Level | A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded. |

The Dow Chemical Company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.