Material Safety Data Sheet
The Dow Chemical Company

Product Name: METHOCEL* E15 Premium LV Hydroxypropyl Methylcellulose
Issue Date: 08/21/2007
Print Date: 28 Nov 2008

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
METHOCEL* E15 Premium LV Hydroxypropyl Methylcellulose

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: White to off-white
Physical State: Powder
Odor: Odorless

Hazard of product:
CAUTION! May form explosive dust-air mixture. Slipping hazard. Avoid temperatures above 130°C (266°F)

OSHA Hazard Communication Standard
This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects
Eye Contact: Solid or dust may cause irritation or corneal injury due to mechanical action.
Skin Contact: Essentially nonirritating to skin.
Skin Absorption: No adverse effects anticipated by skin absorption.
Inhalation: No adverse effects are anticipated from single exposure to dust.

* Indicates a Trademark
Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

3. Composition Information

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroxypropyl methyl cellulose</td>
<td>9004-65-3</td>
<td>&gt;= 85.0 - &lt;= 99.0 %</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>7647-14-5</td>
<td>&gt;= 0.5 - &lt;= 5.0 %</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt;= 1.0 - &lt;= 10.0 %</td>
</tr>
</tbody>
</table>

4. First-aid measures

Eye Contact: Flush eyes with plenty of water; remove contact lenses after the first 1-2 minutes then continue flushing for several minutes. Only mechanical effects expected. If effects occur, consult a physician, preferably an ophthalmologist.

Skin Contact: Wash skin with plenty of water.

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

Ingestion: No emergency medical treatment necessary.

Notes to Physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire Fighting Measures


Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. Cool surroundings with water to localize fire zone. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Dust explosion hazard may result from forceful application of fire extinguishing agents.

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: Do not permit dust to accumulate. When suspended in air dust can pose an explosion hazard. Minimize ignition sources. If dust layers are exposed to elevated temperatures, spontaneous combustion may occur. Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, electrically bond and ground equipment and do not permit dust to accumulate. Dust can be ignited by static discharge.

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: Sweep up. Use care to minimize generation of airborne dust. Do not use water for cleanup. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Material becomes slippery when wet. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

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: Keep away from heat, sparks and flame. No smoking, open flames or sources of ignition in handling and storage area. Electrically ground and bond all equipment. Good housekeeping and controlling of dusts are necessary for safe handling of product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage
Store in a dry place. See Section 10 for more specific information.
Storage temperature: 5 - 35 °C

8. Exposure Controls / Personal Protection

<table>
<thead>
<tr>
<th>Exposure Limits</th>
<th>Component</th>
<th>List</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hydroxypropyl methylcellulose</td>
<td>Dow IHG</td>
<td>TWA Total dust</td>
<td>10 mg/m3</td>
</tr>
</tbody>
</table>

Personal Protection
Eye/Face Protection: Use safety glasses. If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.
Skin Protection: No precautions other than clean body-covering clothing should be needed.
Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.
Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In dusty or misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Particulate filter.
Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands 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

<table>
<thead>
<tr>
<th>Physical Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Powder</td>
</tr>
<tr>
<td>Color</td>
<td>White to off-white</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Flash Point - Closed Cup</td>
<td>No test data available</td>
</tr>
<tr>
<td>Flammable Limits In Air</td>
<td>Lower: No test data available</td>
</tr>
<tr>
<td></td>
<td>Upper: No test data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No test data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling Point (760 mmHg)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapor Density (air = 1)</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
Specific Gravity (H2O = 1) No test data available
Freezing Point Not applicable
Melting Point No test data available
Solvability in Water (by weight) completely soluble in water
pH Not applicable
Kinematic Viscosity Not applicable

10. Stability and Reactivity

Stability/Instability
Stable under recommended storage conditions. See Storage, Section 7.
Conditions to Avoid: Avoid temperatures above 130°C (266°F). Exposure to elevated temperatures can cause product to decompose. Avoid static discharge.

Incompatible Materials: Avoid contact with oxidizing materials. Avoid contact with: Strong acids, Strong bases.

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
For similar material(s): LD50, Rat > 10,000 mg/kg
Skin Absorption
The dermal LD50 has not been determined.

Repeated Dose Toxicity
Repeated ingestion of similar cellulosics by humans has not resulted in known significant adverse effects.

Chronic Toxicity and Carcinogenicity
Similar cellulosics did not cause cancer in long-term animal studies.

Developmental Toxicity
Similar cellulosics did not cause birth defects or other toxic effects to the fetus in laboratory animal studies.

Reproductive Toxicity
In animal studies, a similar cellulosic has been shown not to interfere with reproduction.

Genetic Toxicology
Similar cellulosics were negative in both in vitro and animal genetic toxicity studies.

12. Ecological Information

CHEMICAL FATE

Movement & Partitioning
No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).
Persistence and Degradability
No appreciable biodegradation is expected.

ECOTOXICITY
Not expected to be acutely toxic to aquatic organisms.

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. DOW HAS 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: Recycler. Reclaimer. Incinerator or other thermal destruction device. Landfill. As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Group at 1-800-258-2436 or 1-989-832-1556 (U.S.), or 1-800-331-6451 (Canada) for further details.

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 not 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 No
Delayed (Chronic) Health Hazard No
Fire Hazard No
Reactive Hazard  
Sudden Release of Pressure Hazard  

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.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)  
This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

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.

Recommended Uses and Restrictions  
Thickener. Binder. Film former. Processing aid. Dow recommends that you use this product in a manner consistent with the listed use. If your intended use is not consistent with Dow's stated use, please contact Dow's Customer Information Group.

Revision  
Identification Number: 79487 / 1001 / Issue Date 08/21/2007 / Version: 3.0  
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

<table>
<thead>
<tr>
<th>N/A</th>
<th>Not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>WW</td>
<td>Weight/Weight</td>
</tr>
<tr>
<td>OEL</td>
<td>Occupational Exposure Limit</td>
</tr>
<tr>
<td>STEL</td>
<td>Short Term Exposure Limit</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists, Inc.</td>
</tr>
<tr>
<td>DOW IHG</td>
<td>Dow Industrial Hygiene Guideline</td>
</tr>
<tr>
<td>WEEL</td>
<td>Workplace Environmental Exposure Level</td>
</tr>
<tr>
<td>HAZ DES</td>
<td>Hazard Designation</td>
</tr>
<tr>
<td>Action Level</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.