



SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY

Product name: METHOCEL™ J20M S Hydroxypropyl
Methylcellulose

Issue Date: 04/27/2015

Print Date: 04/28/2015

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. IDENTIFICATION

Product name: METHOCEL™ J20M S Hydroxypropyl Methylcellulose

Recommended use of the chemical and restrictions on use

Identified uses: Thickener. Binder. Film former. Processing aid. 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.

COMPANY IDENTIFICATION

THE DOW CHEMICAL COMPANY
2030 WILLARD H DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Customer Information Number:

800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 800-424-9300
Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Combustible dust

Skin sensitisation - Category 1

Label elements

Hazard pictograms

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Signal word: **WARNING!**

Hazards

May form combustible dust concentrations in air
May cause an allergic skin reaction.

Precautionary statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting/ equipment.
Take precautionary measures against static discharge.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves.

Response

IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/ attention.
Wash contaminated clothing before reuse.

Disposal

Dispose of contents/ container to an approved waste disposal plant.

Other hazards

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Concentration
Hydroxypropyl methyl cellulose	9004-65-3	>= 85.0 - <= 95.0
Water	7732-18-5	>= 1.0 - <= 10.0
Sodium chloride	7647-14-5	>= 0.5 - <= 5.0
Ethanedial	107-22-2	< 1.0
Polyglycol and carboxylic acid	Trade secret	<= 4.0

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4. FIRST AID MEASURES

Description of first aid measures

General advice: 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.

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

Skin contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

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.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

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. FIREFIGHTING MEASURES

Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers.

Unsuitable extinguishing media: no data available

Special hazards arising from the substance or mixture

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.

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.

Advice for firefighters

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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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Spilled material may cause a slipping hazard. 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.

Methods and materials for containment and cleaning up: Contain spilled material if possible. 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.

7. HANDLING AND STORAGE

Precautions for safe 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. 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. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. See Section 10 for more specific information.

Storage stability

Storage temperature: 5 - 35 °C (41 - 95 °F)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Hydroxypropyl methyl cellulose	Dow IHG	TWA Total dust	10 mg/m ³
Sodium chloride	Dow IHG	TWA	10 mg/m ³
Ethanedial	ACGIH	TWA Inhalable fraction and vapor	0.1 mg/m ³

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	US WEEL	TWA aerosol	0.1 mg/m3
	ACGIH	TWA	Skin Sensitizer
	US WEEL	TWA	Skin Sensitizer
Carboxylic acid	Dow IHG	C	3 ppm
	ACGIH	TWA	5 ppm
	ACGIH	STEL	10 ppm
	OSHA Z-1	TWA	9 mg/m3 5 ppm
	OSHA P0	TWA	9 mg/m3 5 ppm

Exposure controls

Engineering controls: 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.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). 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.

Other 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.

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. For most conditions, no respiratory protection should be needed; however, in dusty atmospheres, use an approved particulate respirator.

The following should be effective types of air-purifying respirators: Particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Powder
Color	White to off-white
Odor	Mild
Odor Threshold	No test data available
pH	Not applicable
Melting point/range	No test data available
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable

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Flash point	closed cup No test data available
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	May form combustible dust concentrations in air
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	Not applicable
Relative Density (water = 1)	No test data available
Water solubility	completely soluble in water
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	no data available
Molecular weight	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: no data available

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Avoid temperatures above 130 °C
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 decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

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Acute toxicity**Acute oral toxicity**

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Single dose oral LD50 has not been determined.

For the major component(s):

LD50, Rat, > 5,000 mg/kg

Acute dermal toxicity

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

The dermal LD50 has not been determined.

For the major component(s):

LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. For respiratory irritation and narcotic effects: No relevant data found.

The LC50 has not been determined.,

Skin corrosion/irritation

Essentially nonirritating to skin.

Serious eye damage/eye irritation

Solid or dust may cause irritation or corneal injury due to mechanical action.

Sensitization

For the minor component(s):

Skin contact may cause an allergic skin reaction.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Repeated ingestion of similar cellulose by humans has not resulted in known significant adverse effects.

Carcinogenicity

Similar cellulose did not cause cancer in long-term animal studies.

Teratogenicity

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

Reproductive toxicity

In animal studies, a similar cellulose has been shown not to interfere with reproduction.

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Mutagenicity

Similar cellulose derivatives were negative in both in vitro and animal genetic toxicity studies.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Persistence and degradability

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	0 %
10 d	0 %
20 d	0 %

Bioaccumulative potential

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

Mobility in soil

No data available.

13. DISPOSAL CONSIDERATIONS

Disposal methods: 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

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UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device. Landfill.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

	Not regulated for transport
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. 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

Acute Health Hazard

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

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Calculated RQ exceeds reasonably attainable upper limit.

Components	CASRN	RQ
Formic acid	64-18-6	5000 lbs RQ

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Pennsylvania Worker and Community Right-To-Know Act:

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.

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Product Literature

Additional information on this and other products we offer may be obtained by contacting us. Ask for a product information brochure or data on how to access our website.

Revision

Identification Number: 101198805 / A001 / Issue Date: 04/27/2015 / Version: 6.0

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

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
C	Ceiling limit
Dow IHG	Dow Industrial Hygiene Guideline
OSHA P0	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
STEL	Short-term exposure limit
TWA	8-hour, time-weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

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

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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.



THE DOW CHEMICAL COMPANY
SALES SPECIFICATION

Date Printed: 2015-03-03

Effective Date: 2012-07-26

Supersedes Date: 2002-09-26

Name: METHOCEL™ J20M S Hydroxypropyl Methylcellulose

Specification Number: 000000053977

Previous Specified Material: 00053977

Test and Test Condition	Final Testing Requirements			
	Limit	Unit	Method	Note
Methoxyl	16.5 — 20.0	%	DOWM 100755	1
Hydroxypropoxyl	23.0 — 32.0	%	DOWM 100755	2
Viscosity, 2% in Water, @ 20degC	17000 — 26000 20000 Aim	cP	DOWM 101662	
Sodium Chloride	5.0 Max	%	DOWM 100187	
Moisture, as packaged	7 Max	%	DOWM 100667	
Particle Size, thru 40 U.S. Std Sieve	99 Min	%	DOWM 100669	

Final Testing Requirements Notes:

- 1 Before treatment.
- 2 Before treatment.

External Notes

- 1 This product is not intended for use as a direct food additive or in pharmaceutical applications.

* TRADEMARK OF THE DOW CHEMICAL COMPANY

**THE DOW CHEMICAL COMPANY
SALES SPECIFICATION**

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Specification Number: 000000053977
Effective Date: 2012-07-26

READ PRECAUTIONARY INFORMATION AND MATERIAL SAFETY SHEETS. THIS PRODUCT IS SHIPPED IN COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS REGARDING CLASSIFICATION, PACKAGING, SHIPPING AND LABELING.