



Dow U.S.A.

The Dow Chemical Company
Midland, Michigan 48674

Material Safety Data Sheet

Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product code: 53937

Page: 1

Product Name: METHOCEL (R) E50 PREMIUM HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

1. INGREDIENTS: (% w/w, unless otherwise noted)

Hydroxypropyl methylcellulose	CAS# 009004-65-3	85-99%
Water	CAS# 007732-18-5	1-10%
Sodium chloride	CAS# 007647-14-5	0.5-5%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: Not applicable.
VAP PRESS: Not applicable.
VAP DENSITY: Not applicable.
SOL. IN WATER: See section 9.
SP. GRAVITY: Not applicable.
APPEARANCE: White to slightly off-white free-flowing powder.
ODOR: Not available.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: N/A
METHOD USED: N/A

FLAMMABLE LIMITS
LFL: Not deter.
UFL: Not deter.

EXTINGUISHING MEDIA: Water fog.

FIRE & EXPLOSION HAZARDS: Minimum explosive dust concentration 0.03 oz/cu ft. Similar to flour or grain dusts; keep clouds of such dust away from possible ignition sources.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus.

4. REACTIVITY DATA:

(Continued on page 2 , over)

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Product code: 53937

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Product Name: METHOCEL (R) E50 PREMIUM HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

4. REACTIVITY DATA: (CONTINUED)

STABILITY: (CONDITIONS TO AVOID) Avoid dust clouds or layers.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material.

HAZARDOUS DECOMPOSITION PRODUCTS: Same as for wood or paper.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Sweep up and use if possible, or discard using disposal method listed below.

DISPOSAL METHOD: Preferable method is to dispose in landfill. Disposal can also be accomplished by incineration under controlled conditions to eliminate dust explosions. In both methods, disposal techniques should be in compliance with applicable federal, state, and local laws and regulations regarding management, use, handling, treatment, storage, disposal, and transportation of used chemicals.

6. HEALTH HAZARD DATA:

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

SKIN CONTACT: Essentially nonirritating to skin.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INGESTION: Single dose oral toxicity is low. No hazards anticipated from ingestion incidental to industrial exposure. The oral LD50 for rats is >10,000 mg/kg.

INHALATION: Single exposure to dust is not likely to be hazardous.

SYSTEMIC & OTHER EFFECTS: Based on available data, repeated exposures are not anticipated to cause any significant adverse effects. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.

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Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product code: 53937

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Product Name: METHOCEL (R) E50 PREMIUM HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

7. FIRST AID:

EYES: Irrigate immediately with water for at least five minutes.
Mechanical effects only.

SKIN: No adverse effects anticipated by this route of exposure.

INGESTION: No adverse effects anticipated by this route of exposure.

INHALATION: No adverse effects anticipated by this route of exposure.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): Dow Industrial Hygiene Guide is 10 mg/m3.

VENTILATION: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RESPIRATORY PROTECTION: In dusty atmospheres, use an approved dust respirator.

SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.

EYE PROTECTION: Use safety glasses. If there is a potential for exposure to particles which could cause mechanical injury to the eye, wear chemical goggles.

9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Use reasonable caution and personal cleanliness. Cellulose ethers are water-soluble polymers which form aqueous dispersions by swelling and by successive hydration of their structural layers. There is no sharp solubility limit. CAUTION:
(1) Under certain conditions a fine dust of this material in air may cause a dust explosion when exposed to heat, sparks, and open flame. (2) If material spills and gets wet, could cause slipping hazard.

MSDS STATUS: Revised sections 1 and 5.

For information regarding state/provincial and federal regulations see The Regulatory Information Section.

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Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

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Product Name: METHOCEL (R) E50 PREMIUM HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

REGULATORY INFORMATION: (Not meant to be all-inclusive--selected regulations represented.)

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U.S. REGULATIONS

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

A fire hazard

Hazard categories are listed solely to assist with federal reporting under Title III. They are not intended and are not appropriate for evaluating safe product handling and use. To review health and safety information, refer to the body of this material safety data sheet.

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The Dow Chemical Company
Midland, Michigan 48674

Material Safety Data Sheet

Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product code: 53938

Page: 1

Product Name: METHOCEL (R) F4M HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

1. INGREDIENTS: (% w/w, unless otherwise noted)

Hydroxypropyl methylcellulose	CAS# 009004-65-3	85-99%
Water	CAS# 007732-18-5	1-10%
Sodium chloride	CAS# 007647-14-5	0.5-5%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: Not applicable.
VAP PRESS: Not applicable.
VAP DENSITY: Not applicable.
SOL. IN WATER: See section 9.
SP. GRAVITY: Not applicable.
APPEARANCE: White to slightly off-white free-flowing powder.
ODOR: Not available.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: N/A
METHOD USED: N/A

FLAMMABLE LIMITS
LFL: Not deter.
UFL: Not deter.

EXTINGUISHING MEDIA: Water fog.

FIRE & EXPLOSION HAZARDS: Minimum explosive dust concentration 0.03 oz/cu ft. Similar to flour or grain dusts; keep clouds of such dust away from possible ignition sources.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus.

4. REACTIVITY DATA:

(Continued on page 2 , over)

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Product Name: METHOCEL (R) F4M HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

4. REACTIVITY DATA: (CONTINUED)

STABILITY: (CONDITIONS TO AVOID) Avoid dust clouds or layers.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material.

HAZARDOUS DECOMPOSITION PRODUCTS: Same as for wood or paper.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Sweep up and use if possible, or discard using disposal method listed below.

DISPOSAL METHOD: Preferable method is to dispose in landfill. Disposal can also be accomplished by incineration under controlled conditions to eliminate dust explosions. In both methods, disposal techniques should be in compliance with applicable federal, state, and local laws and regulations regarding management, use, handling, treatment, storage, disposal, and transportation of used chemicals.

6. HEALTH HAZARD DATA:

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

SKIN CONTACT: Essentially nonirritating to skin.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INGESTION: Single dose oral toxicity is low. No hazards anticipated from ingestion incidental to industrial exposure. The oral LD50 for rats is >10,000 mg/kg.

INHALATION: Single exposure to dust is not likely to be hazardous.

SYSTEMIC & OTHER EFFECTS: Based on available data, repeated exposures are not anticipated to cause any significant adverse effects. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.

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Product code: 53938

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Product Name: METHOCEL (R) F4M HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

7. FIRST AID:

EYES: Irrigate immediately with water for at least five minutes.
Mechanical effects only.

SKIN: No adverse effects anticipated by this route of exposure.

INGESTION: No adverse effects anticipated by this route of exposure.

INHALATION: No adverse effects anticipated by this route of exposure.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): Dow Industrial Hygiene Guide is 10 mg/m3.

VENTILATION: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RESPIRATORY PROTECTION: In dusty atmospheres, use an approved dust respirator.

SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.

EYE PROTECTION: Use safety glasses. If there is a potential for exposure to particles which could cause mechanical injury to the eye, wear chemical goggles.

9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Use reasonable caution and personal cleanliness. Cellulose ethers are water-soluble polymers which form aqueous dispersions by swelling and by successive hydration of their structural layers. There is no sharp solubility limit. CAUTION:

(1) Under certain conditions a fine dust of this material in air may cause a dust explosion when exposed to heat, sparks, and open flame. (2) If material spills and gets wet, could cause slipping hazard.

MSDS STATUS: Revised sections 1 and 5.

For information regarding state/provincial and federal regulations see The Regulatory Information Section.

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Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product code: 53938

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Product Name: METHOCEL (R) F4M HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

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U.S. REGULATIONS

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SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

A fire hazard

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The Dow Chemical Company
Midland, Michigan 48674

Material Safety Data Sheet

Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product code: 53982

Page: 1

Product Name: METHOCEL (R) K15M HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

1. INGREDIENTS: (% w/w, unless otherwise noted)

Hydroxypropyl methylcellulose	CAS# 009004-65-3	85-99%
Water	CAS# 007732-18-5	1-10%
Sodium chloride	CAS# 007647-14-5	0.5-5%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: Not applicable.
VAP PRESS: Not applicable.
VAP DENSITY: Not applicable.
SOL. IN WATER: See section 9.
SP. GRAVITY: Not applicable.
APPEARANCE: White to slightly off-white free-flowing powder.
ODOR: Not available.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: N/A
METHOD USED: N/A

FLAMMABLE LIMITS
LFL: Not deter.
UFL: Not deter.

EXTINGUISHING MEDIA: Water fog.

FIRE & EXPLOSION HAZARDS: Minimum explosive dust concentration 0.03 oz/cu ft. Similar to flour or grain dusts; keep clouds of such dust away from possible ignition sources.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus.

4. REACTIVITY DATA:

(Continued on page 2 , over)

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Product code: 53982

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Product Name: METHOCEL (R) K15M HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

4. REACTIVITY DATA: (CONTINUED)

STABILITY: (CONDITIONS TO AVOID) Avoid dust clouds or layers.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material.

HAZARDOUS DECOMPOSITION PRODUCTS: Same as for wood or paper.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Sweep up and use if possible, or discard using disposal method listed below.

DISPOSAL METHOD: Preferable method is to dispose in landfill. Disposal can also be accomplished by incineration under controlled conditions to eliminate dust explosions. In both methods, disposal techniques should be in compliance with applicable federal, state, and local laws and regulations regarding management, use, handling, treatment, storage, disposal, and transportation of used chemicals.

6. HEALTH HAZARD DATA:

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

SKIN CONTACT: Essentially nonirritating to skin.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INGESTION: Single dose oral toxicity is low. No hazards anticipated from ingestion incidental to industrial exposure. The oral LD50 for rats is >10,000 mg/kg.

INHALATION: Single exposure to dust is not likely to be hazardous.

SYSTEMIC & OTHER EFFECTS: Based on available data, repeated exposures are not anticipated to cause any significant adverse effects. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.

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Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product code: 53982

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Product Name: METHOCEL (R) K15M HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

7. FIRST AID:

EYES: Irrigate immediately with water for at least five minutes.
Mechanical effects only.

SKIN: No adverse effects anticipated by this route of exposure.

INGESTION: No adverse effects anticipated by this route of exposure.

INHALATION: No adverse effects anticipated by this route of exposure.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): Dow Industrial Hygiene Guide is 10 mg/m3.

VENTILATION: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RESPIRATORY PROTECTION: In dusty atmospheres, use an approved dust respirator.

SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.

EYE PROTECTION: Use safety glasses. If there is a potential for exposure to particles which could cause mechanical injury to the eye, wear chemical goggles.

9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Use reasonable caution and personal cleanliness. Cellulose ethers are water-soluble polymers which form aqueous dispersions by swelling and by successive hydration of their structural layers. There is no sharp solubility limit. CAUTION:
(1) Under certain conditions a fine dust of this material in air may cause a dust explosion when exposed to heat, sparks, and open flame. (2) If material spills and gets wet, could cause slipping hazard.

MSDS STATUS: Revised sections 1 and 5.

For information regarding state/provincial and federal regulations see The Regulatory Information Section.

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Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product code: 53982

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Product Name: METHOCEL (R) K15M HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

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U.S. REGULATIONS

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SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

A fire hazard

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The Dow Chemical Company
Midland, Michigan 48674

Material Safety Data Sheet

Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product code: 53645

Page: 1

Product Name: METHOCEL (R) 856 HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

1. INGREDIENTS: (% w/w, unless otherwise noted)

Hydroxypropyl methylcellulose	CAS# 009004-65-3	85-99%
Water	CAS# 007732-18-5	1-10%
Sodium chloride	CAS# 007647-14-5	0.5-5%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: Not applicable.
VAP PRESS: Not applicable.
VAP DENSITY: Not applicable.
SOL. IN WATER: See section 9.
SP. GRAVITY: Not applicable.
APPEARANCE: White to slightly off-white free-flowing powder.
ODOR: Not available.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: N/A
METHOD USED: N/A

FLAMMABLE LIMITS
LFL: Not deter.
UFL: Not deter.

EXTINGUISHING MEDIA: Water fog.

FIRE & EXPLOSION HAZARDS: Minimum explosive dust concentration 0.03 oz/cu ft. Similar to flour or grain dusts; keep clouds of such dust away from possible ignition sources.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus.

4. REACTIVITY DATA:

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Product Name: METHOCEL (R) 856 HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

4. REACTIVITY DATA: (CONTINUED)

STABILITY: (CONDITIONS TO AVOID) Avoid dust clouds or layers.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material.

HAZARDOUS DECOMPOSITION PRODUCTS: Same as for wood or paper.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Sweep up and use if possible, or discard using disposal method listed below.

DISPOSAL METHOD: Preferable method is to dispose in landfill. Disposal can also be accomplished by incineration under controlled conditions to eliminate dust explosions. In both methods, disposal techniques should be in compliance with applicable federal, state, and local laws and regulations regarding management, use, handling, treatment, storage, disposal, and transportation of used chemicals.

6. HEALTH HAZARD DATA:

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

SKIN CONTACT: Essentially nonirritating to skin.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INGESTION: Single dose oral toxicity is low. No hazards anticipated from ingestion incidental to industrial exposure. The oral LD50 for rats is >10,000 mg/kg.

INHALATION: Single exposure to dust is not likely to be hazardous.

SYSTEMIC & OTHER EFFECTS: Based on available data, repeated exposures are not anticipated to cause any significant adverse effects. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.

(Continued on page 3)

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Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

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Product Name: METHOCEL (R) 856 HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

7. FIRST AID:

EYES: Irrigate immediately with water for at least five minutes.
Mechanical effects only.

SKIN: No adverse effects anticipated by this route of exposure.

INGESTION: No adverse effects anticipated by this route of exposure.

INHALATION: No adverse effects anticipated by this route of exposure.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): Dow Industrial Hygiene Guide is 10 mg/m³.

VENTILATION: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RESPIRATORY PROTECTION: In dusty atmospheres, use an approved dust respirator.

SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.

EYE PROTECTION: Use safety glasses. If there is a potential for exposure to particles which could cause mechanical injury to the eye, wear chemical goggles.

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MSDS STATUS: Revised sections 1 and 5.

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DO 086532
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Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product code: 53645

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Product Name: METHOCEL (R) 856 HYDROXYPROPYL METHYLCELLULOSE

Effective Date: 07/26/91 Date Printed: 11/26/91

MSDS:000055

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