


|  <p>DDP SPECIALTY ELECTRONIC MATERIALS US INC.</p> | <p>Ship From: BAY CITY Whse BAY CITY Michigan, United States</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-------------|-------------|-------------|-------------------|-------|--------|---|-------|------|------|------|-------------------|----------------|---|--|-----|-----|-------------------|---------------------|---|--|-----|-----|----------------|---------------|---|--|-----|-----|-------------------|-----------------|--|-----|-----|-----|-------------------|-----------------|---|------|------|------|-------------------|------------------------|---|-----|------|------|-------------------|---------------------------|---|---|---|------|------------|------------------------------|---|---|---|------|------------|
| <p>Certificate of Analysis</p> | <p>Customer Information</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Product Number 00000034693 Product Name METHOCEL™ K4M Premium Hydroxypropyl Methylcellulose Delivery No. Order Number Shipping Units 37.000 DR Date Shipped 2020-07-24 (YYYY-MM-DD) Shipment No.</p> | <p>Customer Name Customer PO number Customer Product Code Container ID</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Batch Number Retest Date 2025-05-12 (YYYY-MM-DD) Manufacturing Date 2020-05-13 (YYYY-MM-DD) Quantity 37.000 DR Net Weight 2039.278 LB / 925.000 KG Manufacturing Plant Methocel Cellulose Ethers Production Facility, 1131 Building, Midland, MI 48667 Country of Origin US Country of Origin Name United States Premium grade products have been manufactured using Excipient Good Manufacturing Practices and the FSSC 22000 Food Safety System, and meet the requirements of the current USP, EP and JP monographs for Hypromellose as well as the current E464 in EU 231/2012 and any amendments, JECFA and FCC monographs for Hydroxypropyl Methylcellulose</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Test</th> <th style="text-align: left;">Unit</th> <th style="text-align: left;">Lower Limit</th> <th style="text-align: left;">Upper Limit</th> <th style="text-align: left;">Value</th> <th style="text-align: left;">Method</th> </tr> </thead> <tbody> <tr> <td>Apparent Viscosity BROOKFIELD 2% IN WATER, @ 20DEGC</td> <td>mPa.s</td> <td>2663</td> <td>4970</td> <td>3226</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Loss on Drying</td> <td>%</td> <td></td> <td>5.0</td> <td>1.6</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Residue on Ignition</td> <td>%</td> <td></td> <td>1.5</td> <td>0.8</td> <td>Current USP/JP</td> </tr> <tr> <td>Ash, Sulfated</td> <td>%</td> <td></td> <td>1.5</td> <td>0.8</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>pH, 2% in Water</td> <td></td> <td>5.0</td> <td>8.0</td> <td>6.4</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Assay, Methoxyl</td> <td>%</td> <td>19.0</td> <td>24.0</td> <td>22.8</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Assay, Hydroxypropoxyl</td> <td>%</td> <td>7.0</td> <td>12.0</td> <td>10.9</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Appearance Opalescence</td> <td>-</td> <td>-</td> <td>-</td> <td>Pass</td> <td>Current EP</td> </tr> <tr> <td>Appearance Solution Color</td> <td>-</td> <td>-</td> <td>-</td> <td>Pass</td> <td>Current EP</td> </tr> </tbody> </table> | | Test | Unit | Lower Limit | Upper Limit | Value | Method | Apparent Viscosity BROOKFIELD 2% IN WATER, @ 20DEGC | mPa.s | 2663 | 4970 | 3226 | Current USP/EP/JP | Loss on Drying | % | | 5.0 | 1.6 | Current USP/EP/JP | Residue on Ignition | % | | 1.5 | 0.8 | Current USP/JP | Ash, Sulfated | % | | 1.5 | 0.8 | Current USP/EP/JP | pH, 2% in Water | | 5.0 | 8.0 | 6.4 | Current USP/EP/JP | Assay, Methoxyl | % | 19.0 | 24.0 | 22.8 | Current USP/EP/JP | Assay, Hydroxypropoxyl | % | 7.0 | 12.0 | 10.9 | Current USP/EP/JP | Appearance Opalescence | - | - | - | Pass | Current EP | Appearance Solution Color | - | - | - | Pass | Current EP |
| Test | Unit | Lower Limit | Upper Limit | Value | Method | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Apparent Viscosity BROOKFIELD 2% IN WATER, @ 20DEGC | mPa.s | 2663 | 4970 | 3226 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Loss on Drying | % | | 5.0 | 1.6 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residue on Ignition | % | | 1.5 | 0.8 | Current USP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ash, Sulfated | % | | 1.5 | 0.8 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pH, 2% in Water | | 5.0 | 8.0 | 6.4 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assay, Methoxyl | % | 19.0 | 24.0 | 22.8 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assay, Hydroxypropoxyl | % | 7.0 | 12.0 | 10.9 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Appearance Opalescence | - | - | - | Pass | Current EP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Appearance Solution Color | - | - | - | Pass | Current EP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>This batch, based on audit testing and process control, is certified to be NMT 20 ppm heavy metals (as Pb) and also meets all specification requirements for harmonized identification tests, residual solvents and microbiological limits.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Date

2020-07-24

(YYYY-MM-DD)

Time

19:32:59

(Greenwich Mean Time)

Page 2 of 2



DDP SPECIALTY ELECTRONIC MATERIALS US,
INC.

Ship From: BAY CITY Whse
BAY CITY
Michigan, United States

Shari Workentine

Shari Workentine
Quality System Specialist

For inquiries please contact Customer Service or local sales

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DDP SPECIALTY ELECTRONIC MATERIALS US, INC.

Ship From: BAY CITY Whse
BAY CITY
Michigan, United States

Certificate of Analysis

Customer Information

Product Number 00000034693
Product Name
METHOCEL™ K4M Premium Hydroxypropyl Methylcellulose
Delivery No.
Order Number
Shipping Units 27.000 DR
Date Shipped 2020-07-24 (YYYY-MM-DD)
Shipment No.

Customer Name
Customer PO number
Customer Product Code
Container ID

Batch Number
Retest Date 2025-05-11 (YYYY-MM-DD)
Manufacturing Date 2020-05-12 (YYYY-MM-DD)
Quantity 27.000 DR
Net Weight 1488.121 LB / 675.000 KG
Manufacturing Plant METHOCEL Cellulose Ethers Production Facility, 1131 Building, Midland, MI 48667
Country of Origin US
Country of Origin Name United States

Premium grade products have been manufactured using Excipient Good Manufacturing Practices and the FSSC 22000 Food Safety System, and meet the requirements of the current USP, EP and JP monographs for Hypromellose as well as the current E464 in EU 231/2012 and any amendments, JECFA and FCC monographs for Hydroxypropyl Methylcellulose

| Test | Unit | Lower Limit | Upper Limit | Value | Method |
|---|-------|-------------|-------------|-------|-------------------|
| Apparent Viscosity BROOKFIELD 2% IN WATER, @ 20DEGC | mPa.s | 2663 | 4970 | 3266 | Current USP/EP/JP |
| Loss on Drying | % | | 5.0 | 1.6 | Current USP/EP/JP |
| Residue on Ignition | % | | 1.5 | 1.0 | Current USP/JP |
| Ash, Sulfated | % | | 1.5 | 1.0 | Current USP/EP/JP |
| pH, 2% in Water | | 5.0 | 8.0 | 5.8 | Current USP/EP/JP |
| Assay, Methoxyl | % | 19.0 | 24.0 | 22.8 | Current USP/EP/JP |
| Assay, Hydroxypropoxyl | % | 7.0 | 12.0 | 11.0 | Current USP/EP/JP |
| Appearance Opalescence | - | - | - | Pass | Current EP |
| Appearance Solution Color | - | - | - | Pass | Current EP |

This batch, based on audit testing and process control, is certified to be NMT 20 ppm heavy metals (as Pb) and also meets all specification requirements for harmonized identification tests, residual solvents and microbiological limits.



DDP SPECIALTY ELECTRONIC MATERIALS US,
INC.

Ship From: BAY CITY Whse
BAY CITY
Michigan, United States

Shari Workentine

Shari Workentine
Quality System Specialist

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Ship From: BAY CITY Whse
 BAY CITY
 Michigan, United States

Certificate of Analysis

Customer Information

Product Number 00000034693
 Product Name
 METHOCEL™ K4M Premium Hydroxypropyl
 Methylcellulose
 Delivery No.
 Order Number
 Shipping Units 300.000 KG
 Date Shipped 2018-08-14 (YYYY-MM-DD)
 Shipment No.

Customer Name
 Customer PO number
 Customer Product Code
 Container ID

Batch Number
 Retest Date 2023-07-29 (YYYY-MM-DD)
 Manufacturing Date 2018-07-30 (YYYY-MM-DD)
 Quantity 300.000 KG
 Net Weight 661.387 LB
 Manufacturing Plant MIDLAND Methocel
 Country of Origin US
 Country of Origin Name United States

It is hereby certified the material indicated above has been manufactured in accordance with the FDA cGMPs, Kosher guidelines, was inspected and tested in accordance with the conditions and the requirements of current USP, EP and JP for Hypromellose as well as the current specific purity criteria for the food additive Hydroxypropyl Methyl Cellulose (E464) and unless agreed otherwise conforms in all respects to the specification relevant thereto.

| Test | Unit | Lower Limit | Upper Limit | Value | Method |
|---|-------|-------------|-------------|-------|-------------------|
| Apparent Viscosity BROOKFIELD 2% IN WATER, @ 20DEGC | mPa.s | 2663 | 4970 | 4222 | Current USP/EP/JP |
| Loss on Drying | % | | 5.0 | 2.0 | Current USP/EP/JP |
| Residue on Ignition | % | | 1.5 | 0.6 | Current USP/JP |
| Ash, Sulfated | % | | 1.5 | 0.6 | Current EP |
| pH, 2% in Water | | 5.0 | 8.0 | 6.4 | Current USP/EP/JP |
| Assay, Methoxyl | % | 19.0 | 24.0 | 22.9 | Current USP/EP/JP |
| Assay, Hydroxypropoxyl | % | 7.0 | 12.0 | 8.7 | Current USP/EP/JP |
| Appearance Opalescence | - | - | - | Pass | Current EP |
| Appearance Solution Color | - | - | - | Pass | Current EP |

This batch, based on audit testing and process control, is certified to



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BAY CITY
Michigan, United States


be NMT 20 ppm heavy metals (as Pb) and also meets all specification requirements for harmonized identification tests, residual solvents and microbiological limits.

Shari Workentine

Shari Workentine
Dow Pharma & Food Solutions Quality System Specialist

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| | | | | | |
|---|-------------|---|--------------------|--------------|-------------------|
|  THE DOW CHEMICAL COMPANY | | Ship From: BAY CITY Whse BAY CITY Michigan, United States | | | |
| Certificate of Analysis Product Number 00000034693 Product Name METHOCEL™ K4M Premium Hydroxypropyl Methylcellulose Delivery No. Order Number Shipping Units 3000.000 KG Date Shipped 2017-12-05 (YYYY-MM-DD) Shipment No. | | Customer Information Customer Name Customer PO number Customer Product Code Container ID | | | |
| Batch Number Retest Date 2022-07-19 (YYYY-MM-DD) Manufacturing Date 2017-07-20 (YYYY-MM-DD) Quantity 3000.000 KG Net Weight 6613.873 LB Manufacturing Plant MIDLAND Methocel Country of Origin US Country of Origin Name United States It is hereby certified the material indicated above has been manufactured in accordance with the FDA cGMPs, Kosher guidelines, was inspected and tested in accordance with the conditions and the requirements of current USP EP and JP for Hypromellose as well as the current specific purity criteria for the food additive Hydroxypropyl Methyl Cellulose (E464) and unless agreed otherwise conforms in all respects to the specification relevant thereto. | | | | | |
| Test | Unit | Lower Limit | Upper Limit | Value | Method |
| Apparent Viscosity BROOKFIELD 2% IN WATER, @ 20DEGC | mPa.s | 2663 | 4970 | 4056 | Current USP/EP/JP |
| Loss on Drying | % | | 5.0 | 3.0 | Current USP/EP/JP |
| Residue on Ignition | % | | 1.5 | 0.6 | Current USP/JP |
| Ash, Sulfated | % | | 1.5 | 0.6 | Current EP |
| pH, 2% in Water | | 5.0 | 8.0 | 6.6 | Current USP/EP/JP |
| Assay, Methoxyl | % | 19.0 | 24.0 | 23.3 | Current USP/EP/JP |
| Assay, Hydroxypropoxyl | % | 7.0 | 12.0 | 8.7 | Current USP/EP/JP |
| Appearance Opalescence | - | - | - | Pass | Current EP |
| Appearance Solution Color | - | - | - | Pass | Current EP |
| This batch, based on audit testing and process control, is certified to | | | | | |



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Ship From: BAY CITY Whse
BAY CITY
Michigan, United States

be NMT 20 ppm heavy metals (as Pb) and also meets all specification requirements for harmonized identification tests residual solvents and microbiological limits.

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|  THE DOW CHEMICAL COMPANY | Ship From: BAY CITY Whse BAY CITY Michigan, United States | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|-------------|-------------|-------------|-------------------|-------|--------|---|-------|------|------|------|-------------------|----------------|---|--|-----|-----|-------------------|---------------------|---|--|-----|-----|----------------|---------------|---|--|-----|-----|------------|-----------------|--|-----|-----|-----|-------------------|-----------------|---|------|------|------|-------------------|------------------------|---|-----|------|-----|-------------------|---------------------------|---|---|---|------|------------|------------------------------|---|---|---|------|------------|
| Certificate of Analysis | Customer Information | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Product Number 00000034693 Product Name METHOCEL™ K4M Premium Hydroxypropyl Methylcellulose Delivery No. Order Number Shipping Units 600.000 KG Date Shipped 2017-06-09 (YYYY-MM-DD) Shipment No. | Customer Name Customer PO number Customer Product Code Container ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Batch Number Retest Date 2022-05-07 (YYYY-MM-DD) Manufacturing Date 2017-05-08 (YYYY-MM-DD) Quantity 600.000 KG Net Weight 1322.775 LB Manufacturing Plant MIDLAND Methocel Country of Origin US Country of Origin Name United States It is hereby certified the material indicated above has been manufactured in accordance with the FDA cGMPs, Kosher guidelines, was inspected and tested in accordance with the conditions and the requirements of current USP, EP and JP for Hypromellose as well as the current specific purity criteria for the food additive Hydroxypropyl Methyl Cellulose (E464) and unless agreed otherwise conforms in all respects to the specification relevant thereto. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Test</th> <th style="text-align: left;">Unit</th> <th style="text-align: left;">Lower Limit</th> <th style="text-align: left;">Upper Limit</th> <th style="text-align: left;">Value</th> <th style="text-align: left;">Method</th> </tr> </thead> <tbody> <tr> <td>Apparent Viscosity BROOKFIELD 2% IN WATER, @ 20DEGC</td> <td>mPa.s</td> <td>2663</td> <td>4970</td> <td>4416</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Loss on Drying</td> <td>%</td> <td></td> <td>5.0</td> <td>1.7</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Residue on Ignition</td> <td>%</td> <td></td> <td>1.5</td> <td>0.7</td> <td>Current USP/JP</td> </tr> <tr> <td>Ash, Sulfated</td> <td>%</td> <td></td> <td>1.5</td> <td>0.7</td> <td>Current EP</td> </tr> <tr> <td>pH, 2% in Water</td> <td></td> <td>5.0</td> <td>8.0</td> <td>6.8</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Assay, Methoxyl</td> <td>%</td> <td>19.0</td> <td>24.0</td> <td>23.1</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Assay, Hydroxypropoxyl</td> <td>%</td> <td>7.0</td> <td>12.0</td> <td>8.6</td> <td>Current USP/EP/JP</td> </tr> <tr> <td>Appearance Opalescence</td> <td>-</td> <td>-</td> <td>-</td> <td>Pass</td> <td>Current EP</td> </tr> <tr> <td>Appearance Solution Color</td> <td>-</td> <td>-</td> <td>-</td> <td>Pass</td> <td>Current EP</td> </tr> </tbody> </table> | | Test | Unit | Lower Limit | Upper Limit | Value | Method | Apparent Viscosity BROOKFIELD 2% IN WATER, @ 20DEGC | mPa.s | 2663 | 4970 | 4416 | Current USP/EP/JP | Loss on Drying | % | | 5.0 | 1.7 | Current USP/EP/JP | Residue on Ignition | % | | 1.5 | 0.7 | Current USP/JP | Ash, Sulfated | % | | 1.5 | 0.7 | Current EP | pH, 2% in Water | | 5.0 | 8.0 | 6.8 | Current USP/EP/JP | Assay, Methoxyl | % | 19.0 | 24.0 | 23.1 | Current USP/EP/JP | Assay, Hydroxypropoxyl | % | 7.0 | 12.0 | 8.6 | Current USP/EP/JP | Appearance Opalescence | - | - | - | Pass | Current EP | Appearance Solution Color | - | - | - | Pass | Current EP |
| Test | Unit | Lower Limit | Upper Limit | Value | Method | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Apparent Viscosity BROOKFIELD 2% IN WATER, @ 20DEGC | mPa.s | 2663 | 4970 | 4416 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Loss on Drying | % | | 5.0 | 1.7 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residue on Ignition | % | | 1.5 | 0.7 | Current USP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ash, Sulfated | % | | 1.5 | 0.7 | Current EP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pH, 2% in Water | | 5.0 | 8.0 | 6.8 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assay, Methoxyl | % | 19.0 | 24.0 | 23.1 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assay, Hydroxypropoxyl | % | 7.0 | 12.0 | 8.6 | Current USP/EP/JP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Appearance Opalescence | - | - | - | Pass | Current EP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Appearance Solution Color | - | - | - | Pass | Current EP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| This batch, based on audit testing and process control, is certified to | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



THE DOW CHEMICAL COMPANY

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BAY CITY
Michigan, United States

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Shari Workentine

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Dow Pharma & Food Solutions Quality System Specialist

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