METHOCEL™
CELLULOSE ETHERS
A PRODUCT THAT CAN DO IT ALL
Pharmaceutical companies are continuously looking for ways to innovate - through new technologies such as controlled release systems and oral films, or through faster and more efficient manufacturing processes. Did you know that just one product can help do all of this?

METHOCEL™ Premium family of products offers exceptional flexibility and a broad range of polymers with a valuable combination of properties typically not found in other water-soluble polymers. In many applications, two, three or even more ingredients may be needed to do the same job performed by one METHOCEL™ product. That means one ingredient can do the job of many, saving money and time.

**TYPICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>METHOCEL™ Properties</th>
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<tbody>
<tr>
<td>Water-soluble</td>
<td>Film forming</td>
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<tr>
<td>Film forming</td>
<td>Viscosifying</td>
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<tr>
<td>Viscosifying</td>
<td>Non-caloric</td>
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<tr>
<td>Organo-soluble</td>
<td>Mucoadhesive</td>
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<tr>
<td>Mucoadhesive</td>
<td>Hydrophilic</td>
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<tr>
<td>Hydrophilic</td>
<td>Low taste and odor</td>
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<tr>
<td>Low taste and odor</td>
<td>Drug solubilize</td>
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<tr>
<td>Drug solubilize</td>
<td>Gel forming</td>
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<tr>
<td>Gel forming</td>
<td>High swelling</td>
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THE POSSIBILITIES ARE ENDLESS
EFFICIENCY AND VERSATILITY
WE CAN GIVE YOU THE BEST OF BOTH WORLDS

METHOCEL™ cellulose ethers offer a perfect combination of versatile properties and flexibility in formulations. The broad range of METHOCEL™ products available is one reason why they’ve been used successfully for more than 50 years in so many different applications. There are two polymer types – methylcellulose and hydroxypropyl methylcellulose - and each is available in different grades, physical forms, and a wide range of viscosities. With so many options, it is easy to obtain the optimum degree of thickening, binding, moisture retention, and other properties needed in formulations.

**CONTROLLED RELEASE**

With their varying molecular weights and chemical substitutions, METHOCEL™ excipients bring huge benefits to extended and controlled release applications.

- METHOCEL™ Premium Controlled Release (CR) cellulose ethers are specially designed for pharmaceutical controlled release applications to deliver consistent drug-release performance.
- Proprietary techniques mean development of robust formulations quickly and trusted performance.

**IMMEDIATE RELEASE**

METHOCEL™ provides important binding and adhesive properties during the granulation step of the manufacturing process for immediate release tablet and capsule products.

- Produces good tablet hardness at low excipient concentrations
- Offers flexibility with both wet and dry granulation technologies
- Compatible with virtually all active ingredients and other excipients
- Quickly hydrates to minimize mixing and preparation time

**DIRECT COMPRESSION**

Whether durability, presentation, faster processing speed or a consistent drug release profile is required, depend on METHOCEL™ Direct Compression (DC) Premium grade polymers to get there.

- Saves time and money by eliminating the wet granulation process, which can save as much as 30% of manufacturing costs, reduce overall waste, and shorten development time.
- Shows exceptional performance on the tablet press with consistent and reliable flow, low tablet-to-tablet weight variability, uniform tablet content, and minimal tendency to separate.
- Provides ideal benefits for controlled-release drugs. METHOCEL™ DC grade has an excellent processing and dissolution profile without the need for wet granulation, improved flow and compression capacity, greater tablet consistency and uniformity, enhanced profile for heat and moisture sensitive active pharmaceutical ingredients, and multifunctional performance.

**WET GRANULATION**

With their extreme versatility, METHOCEL™ products can be used in aqueous, hydroalcoholic or non-aqueous solvent systems.

- Reduces the required compression force, an important factor in reducing wear and extending the life of tooling and compression equipment
- Achieves faster, simpler, more reproducible and less costly processing with foam granulation, compared with conventional spray processing technology

**METHOCEL™ 04**

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TABLET COATING
METHOCEL™ polymers offer an excellent combination of properties for water-soluble hard shell capsules, delivering exceptional and uniform performance. METHOCEL™ Premium VLV is a high-quality coating solution that outperforms other polymers like METHOCEL™ E-LV:

- Improves tablet coating by offering faster coating time and improved equipment efficiency, both of which can lower manufacturing costs
- Increases solids loading by up to 110%\(^1\) while maintaining sprayable viscosity
- Reduces coating time by 25-54%
- Uses less energy through faster coating time and lower heat
- Achieves immediate release with high-productivity coating
- Increases manufacturing capability, resulting in a significantly higher production

\(^{1}\) compared to METHOCEL™ Premium E-LV

METHOCEL™ products are available in three different forms:
- Powder
- Surface-treated powder
- Granular

The three different forms influence the techniques used in making solutions. Untreated powders are soluble in cold water, but must be thoroughly dispersed before they begin to dissolve. Surface-treated powders and granular products can be added directly to aqueous systems. The dissolution of these products can be controlled by a shift in pH.
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TO LEARN MORE

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