MaizeCare™ Style Polymer
How can corn enable a hairstyle that lasts all day?

Features and benefits:
- Ability to achieve a range of hold levels with excellent aesthetics
- Imparts styling durability
- Ideal solution for formulators seeking environmentally-friendly ingredients
- Starch-based film-forming biopolymer
- Easy-to-use powder in water-based formulations
- Aqueous dispersion forms a natural film on the hair
- Excellent humidity resistance and curl retention over 8 hours
- Compatible with gelling agents such as carbomer, xanthan gum and acrylates-based rheology modifiers
- Cost-effective styling polymer
- Can be used in a variety of formulations such as cream gels, waxy pomades, and fluid sprays.

The use and interest in “natural” products have been on the rise in the beauty care industry. Consumers desire natural products, with a similar or better performance than their synthetic alternatives. Dow is excited to introduce MaizeCare™ Style Polymer, a bio-based polymer, derived from corn, that offers styling benefits across hair care applications. In formulation, MaizeCare™ Style Polymer acts as a transparent film-former and styling aid that can range from exceptional stiffness to soft-touch styling. MaizeCare™ Style Polymer can be easily formulated into various product formats, including gels, waxes, creams and sprays which allow for creative textures and a customized consumer experience. Dow has several technologies across our portfolio that showcase exceptional results in hairstyling, making MaizeCare™ Style Polymer an exceptional alternative for “natural” styling that does not compromise performance. We offer two different variants of this hair fixative: MaizeCare™ Style Polymer, MaizeCare™ Style 100 Polymer.

MaizeCare™ Style Polymer is certified COSMOS by EcoCert and both variants meet ISO 16128, Vegan and Halal Food Standards.

Typical properties

<table>
<thead>
<tr>
<th>INCI name</th>
<th>Hydrolized corn starch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Off-white powder</td>
</tr>
<tr>
<td>Use level, %</td>
<td>0.5-5%</td>
</tr>
<tr>
<td>Shelf life</td>
<td>24 months</td>
</tr>
<tr>
<td>China compliant</td>
<td>Yes</td>
</tr>
<tr>
<td>Percent moisture</td>
<td>5.0-10.0</td>
</tr>
<tr>
<td>Brookfield viscosity (25% solids at RT)</td>
<td>1150-1650 cps</td>
</tr>
</tbody>
</table>

*These are typical properties, not to be construed as specifications.
### Product name & GMO status

<table>
<thead>
<tr>
<th>Product name</th>
<th>GMO status</th>
<th>Key benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MaizeCare™ Style Polymer</td>
<td>Non-GMO</td>
<td>Bio-based, corn derived from a certified non-GMO source, readily biodegradable, Certified COSMOS by EcoCert</td>
</tr>
<tr>
<td>MaizeCare™ Style 100 Polymer</td>
<td>GMO</td>
<td>Bio-based, corn derived polymer, 100% Natural Origin (ISO 16128), readily biodegradable</td>
</tr>
</tbody>
</table>

### Key benefits

#### Styling gel: Subtle to stiff styling definition

- **Hair stiffness analysis by Dia-Stron**
  - Commercial benchmark contains 2.8% PVP
  - 1% PVP K90: Commercial benchmark, 5% PVP: MaizeCare™ Style Polymer, 3% MaizeCare™ Style Polymer, 5% MaizeCare™ Style Polymer

#### Styling gel: Long lasting curls

- **% Curl retention after 8h at 90% RH**
  - Commercial benchmark contains 2.8% PVP
  - 1% PVP K90: Commercial benchmark, 5% PVP: MaizeCare™ Style Polymer, 3% MaizeCare™ Style Polymer, 5% MaizeCare™ Style Polymer

- **Comparable stiffness between MaizeCare™ Style Polymer and PVP**
- **Increased stiffness as a function of polymer loading**
- **MaizeCare™ Style Polymer exhibits superior humidity resistance to PVP**
- **MaizeCare™ Style Polymer increases curl retention as a function of polymer**
Tame Me Turmeric – Spray (CPF 4163)

![Graph showing average dry combing force](image)

- **Average dry combing force**
  - Untreated***
  - Control***
  - Tame Me Turmeric
  - Benchmark**

Statistically different from Tame Me Turmeric: "**">99%, "***">99.9%

**Treatment**: 0.15 g / g on dark bleached hair

**Control**: Formulation without DOWSIL™ CE-8411 Smooth Plus Emulsion or MaizeCare™ Style Polymer

**Commercial benchmark**: Volumizing spray containing Maltodextrin/VP copolymer

Measured using an Instron tensile instrument

**Half-head test**

Tame Me Turmeric exhibited sebum absorption, less flyaway and comparable volume to the commercial benchmark containing Maltodextrin/VP copolymer

**Before**: Panelist after 3 days without washing hair.

**Treatment for Sebum absorption**: applied 0.75 g of each spray to oily, damp hair.

**Panelist washed hair with shampoo and conditioner.**

**Treatment**: Applied 1.75 g of each spray to clean, damp hair.

Panelist reported easier combing and detangling with Tame Me Turmeric vs. commercial benchmark.
My Go to Green – Gel (CPF 4165)

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Supplier</th>
<th>INCI Name</th>
<th>Wt%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td>Water</td>
<td>91.09</td>
</tr>
<tr>
<td>MaizeCare™ Style Polymer</td>
<td>Dow</td>
<td>Hydrolyzed Corn Starch</td>
<td>1.00</td>
</tr>
<tr>
<td>ACULYN™ 88 Rheology Modifier</td>
<td>Dow</td>
<td>Acrylates/Steareth-20 Methacrylate Crosspolymer</td>
<td>5.75</td>
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<tr>
<td>Tween20</td>
<td>Croda</td>
<td>Polysorbate 20</td>
<td>0.50</td>
</tr>
<tr>
<td>Euxyl PE 9010</td>
<td>Schülke Inc.</td>
<td>Phenoxethanol (and) Ethylhexyglycerin</td>
<td>0.99</td>
</tr>
<tr>
<td>0.1% Green Dye Solution</td>
<td></td>
<td>FD&amp;C Blue #1, FD&amp;C Yellow #5</td>
<td>0.07</td>
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<tr>
<td>Green tea &amp; cucumber</td>
<td>Givaudan</td>
<td>Fragrance</td>
<td>0.05</td>
</tr>
<tr>
<td>AMP Ultra PC 2000</td>
<td>Angus</td>
<td>Aminoethyl Propanol</td>
<td>0.55</td>
</tr>
</tbody>
</table>

High humidity curl retention

- Control gel
- My Go to Green
- Benchmark #1
- Benchmark #2
- 1% PVP
- Gel with 1% competitive HCS

**Treatments:** Humidity resistance (25°C; 90% RH), 0.35 grams of hair gel on 3.5 grams of virgin dark brown hair, test conducted in for each treatment.

My Go to Green exhibited better humidity resistance compared to PVP, a competitive hydrolyzed corn starch and commercial benchmark #2.

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