ARBOCEL®
Natural Cellulose Fibers

Natural Fibers for
Industrial and Technical Applications

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EXPERIENCE, TECHNOLOGY, SERVICE

J. RETTENMAIER USA LP
Fibers designed by Nature
A Member of the JRS Group
## Application Overview

### Natural Cellulose Fibers

<table>
<thead>
<tr>
<th>ARBOCEL® Product</th>
<th>BULK DENSITY (g/L)</th>
<th>Length (um)</th>
<th>% Ash</th>
<th>% H2O</th>
<th>SIEVE ANALYSIS (% Retained)</th>
<th>PULP TYPE (raw material)</th>
<th>Common Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>500 Mesh</td>
<td>325 Mesh</td>
<td>270 Mesh</td>
</tr>
<tr>
<td>ARBOCEL® 185</td>
<td>59</td>
<td>1000</td>
<td>18%</td>
<td>&lt;5%</td>
<td>62%</td>
<td>73%</td>
<td>70%</td>
</tr>
<tr>
<td>ARBOCEL® 230</td>
<td>60</td>
<td>1000</td>
<td>18%</td>
<td>&lt;5%</td>
<td>78%</td>
<td>69%</td>
<td>66%</td>
</tr>
<tr>
<td>ARBOCEL® ETF</td>
<td>60</td>
<td>1000</td>
<td>18%</td>
<td>&lt;5%</td>
<td>71%</td>
<td>63%</td>
<td>58%</td>
</tr>
<tr>
<td>ARBOCEL® JMM</td>
<td>85</td>
<td>800</td>
<td>18%</td>
<td>&lt;5%</td>
<td>67%</td>
<td>52%</td>
<td>49%</td>
</tr>
<tr>
<td>ARBOCEL® FT</td>
<td>92</td>
<td>500</td>
<td>18%</td>
<td>&lt;5%</td>
<td>64%</td>
<td>48%</td>
<td>42%</td>
</tr>
<tr>
<td>ARBOCEL® FTP</td>
<td>92</td>
<td>500</td>
<td>18%</td>
<td>&lt;5%</td>
<td>65%</td>
<td>48%</td>
<td>42%</td>
</tr>
<tr>
<td>ARBOCEL® GC66</td>
<td>110</td>
<td>300</td>
<td>18%</td>
<td>&lt;5%</td>
<td>56%</td>
<td>39%</td>
<td>31%</td>
</tr>
<tr>
<td>ARBOCEL® GC10</td>
<td>120</td>
<td>250</td>
<td>18%</td>
<td>&lt;5%</td>
<td>52%</td>
<td>33%</td>
<td>26%</td>
</tr>
<tr>
<td>ARBOCEL® 5FT</td>
<td>92</td>
<td>500</td>
<td>25%</td>
<td>&lt;5%</td>
<td>64%</td>
<td>48%</td>
<td>42%</td>
</tr>
<tr>
<td>ARBOCEL® GCW10</td>
<td>120</td>
<td>250</td>
<td>25%</td>
<td>&lt;5%</td>
<td>48%</td>
<td>31%</td>
<td>26%</td>
</tr>
</tbody>
</table>

### ARBOCEL® Product

<table>
<thead>
<tr>
<th>ARBOCEL® Product</th>
<th>BULK DENSITY (g/L)</th>
<th>Length (um)</th>
<th>% Ash</th>
<th>% H2O</th>
<th>SIEVE ANALYSIS (% Retained)</th>
<th>PULP TYPE (raw material)</th>
<th>Common Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>435 Mesh</td>
<td>140 Mesh</td>
<td>70 Mesh</td>
</tr>
<tr>
<td>ARBOCEL® BWW40</td>
<td>130</td>
<td>200</td>
<td>&lt;1%</td>
<td>&lt;4%</td>
<td>65%</td>
<td>20% max</td>
<td>0.5% max</td>
</tr>
<tr>
<td>ARBOCEL® B800</td>
<td>170</td>
<td>100</td>
<td>&lt;1%</td>
<td>&lt;8%</td>
<td>60%</td>
<td>max</td>
<td>7% max</td>
</tr>
<tr>
<td>ARBOCEL® B600</td>
<td>200</td>
<td>60</td>
<td>&lt;1%</td>
<td>&lt;8%</td>
<td>30%</td>
<td>3% max</td>
<td>0.5% max</td>
</tr>
</tbody>
</table>
What is ARBOCEL®?

ARBOCEL® is a powdery fibrous cellulose additive for use in a wide variety of construction chemical products.

ARBOCEL® additives are produced from cellulose. A whole range of renewable and recycled raw materials are available for producing cellulose.

ARBOCEL® is water-insoluble cellulose left in its natural state (not comparable to water-soluble cellulose ethers).

ARBOCEL® is produced in various qualities (fiber lengths, thickness, purities, etc.) for a very wide range of industrial chemical and technical applications.

Versatile Functions That Make An Impact

- Binders
- Spacers
- Abrasives
- Disintegration
- Strengthening
- Flow Aid
- Pigment Suspension
- Decomposition
- Tableting Material
- Thickeners
- Extrusion
- Swelling
- Draining
- Reinforcing
- Thixotropic
- Delustering
- Fillers
- Pressing Additives
- Drying
- Separator Material
- Dispersants
- Anticaking
- Granulating Material
- Absorbers
- Stability in the Green Stand
- Stabilizers

What is ARBOCEL® used for?

ARBOCEL® functionality in paints: provides texture, prevents mud cracking, reduces slump, matting agent, and improves dry time.

ARBOCEL® functionality in cements: improves open times, prevents cracking, is sag resistant, improves trowelability, and increases tensile strength.

ARBOCEL® functionality in asphalt coatings and sealers: replaces asbestos, helps control viscosity, improves gel structure, and provides a reinforcement matrix.

ARBOCEL® functionality for friction materials: provides pre-form reinforcement and green strength in non-asbestos formulas. Fiber matrix helps maintain a homogeneous mixture.

ARBOCEL® functionality in rubber: provides increased tensile strength and reinforcement.

ARBOCEL® functionality in adhesives and sealants: allows for thickening, reinforcement, and sag resistance.

And many more applications not listed....

J. Rottenmaier USA LP ARBOCEL® Cellulose Particle Size Analysis

ARBOCEL® 185
ARBOCEL® 230
ARBOCEL® GMC
ARBOCEL® FT
ARBOCEL® GC60
At JRS, J. RETTENMAIER & SÖHNE Group, we are committed to the development, processing, and optimization of high-grade natural fibers from cellulose, wood, grain and fruit plants for use in pharmaceuticals, foods, industry and technology.

Our core expertise lies in the processing of renewable, application-specific plant derived fibers. JRS Fiber products are made from natural renewable raw materials.

With our fibers we create solutions for many products and technical chemical processes. We are committed to meeting high ecological standards from the selection of raw materials to the use of environmentally friendly manufacturing processes. We aim for ecological, as well as economical sustainability.

**JRS - YOUR Qualified Partner - worldwide**

- Worldwide logistics and presence
- 21 manufacturing locations in Europe, USA, India, Mexico
- High availability and efficient, high-capacity production
- Over 1900 employees worldwide
- In-house research and development, application services
- Over 250 technical representatives around the world
- Decades of experience and comprehensive application know-how
- Quality manufacturing according to ISO 9001

**Other JRS Products and Services Include:**

- A Wide Range of Plant Fibers (Fruit, Grain, Vegetable, Wood)
- Microcrystalline Cellulose (MCC)
- Ultrafine Cellulose
- Cellulose Derivatives (HPMC, MC)

JRS - main plant and head office
Rosenberg, Germany

JRS plant
Schoolcraft, Michigan
USA

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[Map showing global presence]