ARBOCEL®

Powdered Cellulose

Plant-Derived Functional Filler for Tablets and Capsules

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ARBOCEL®

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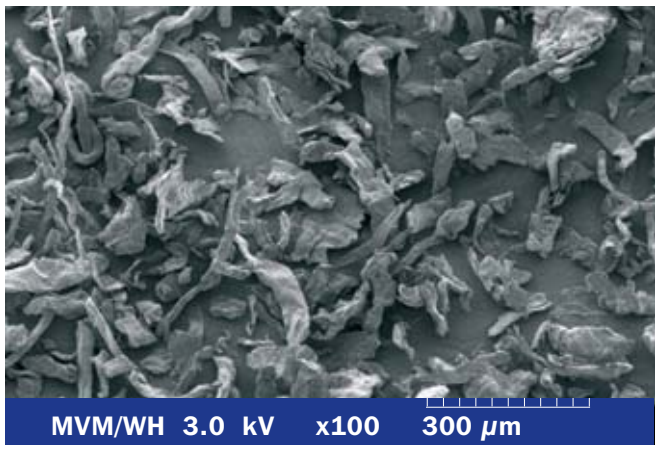
ARBOCEL®, powdered cellulose, is a plant-based functional filler. Powdered cellulose is chemically inert and is, thus, not metabolized by the human body.
Because it is not digested, it has no functional caloric value. It is commonly used by formulators as an alternative to lactose when designing medicine for lactose-intolerant patients. **ARBOCEL®**'s binding properties and natural fiber structure lead to stable tablets with low friability.



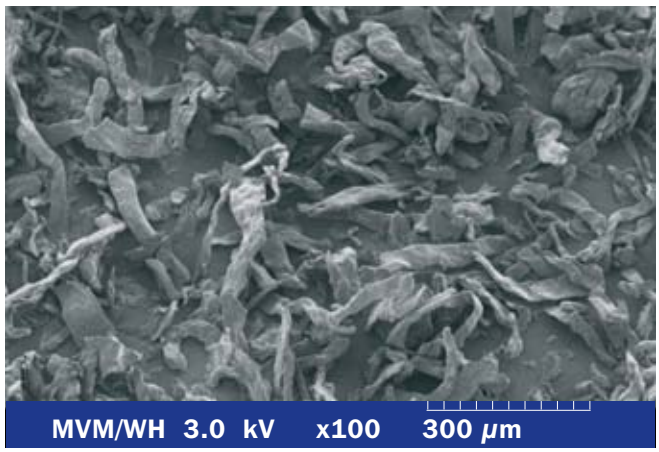
ARBOCEL® M 80

Physical Properties

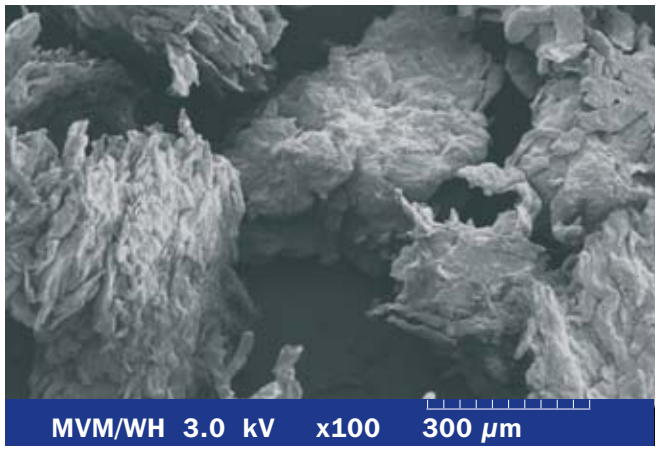
- Purified, mechanically processed cellulose
- Chemically inert
- Low moisture absorption
- Fibrous structure

	M 80	P 290	A 300
Appearance	**Powder**	**Powder**	**Granules**
Average Particle Size*	**60 µm**	**80 µm**	**250 µm**
Bulk Density**	**0.22 g/ cm³**	**0.30 g/ cm³**	**0.35 g/ cm³**
Angle of Repose	**62**	**49**	**36**
Identity	**Conforms to Ph. Eur., USP/ NF, JP**		
pH Value	**5.0 - 7.5**		
Ether Soluble Substances	**< 0.15 %**		
Water Soluble Substances	**< 1.50 %**		
Starch	**Negative**		
Heavy Metals	**< 10 ppm**		
Loss-on-Drying	**< 6.50 %**		
Sulphated Ash/ Residue on Ignition	**< 0.30 %**		
Residual Solvents	**Meets requirements of USP <467>**		
Microbial Contamination	**Conforms to Ph. Eur., USP/ NF, JP**		
Residual Solvents	**No residual solvents acc. Ph.Eur. 5.4.**		

* Tested by: Beckmann Coulter
** Method: JRS 0401

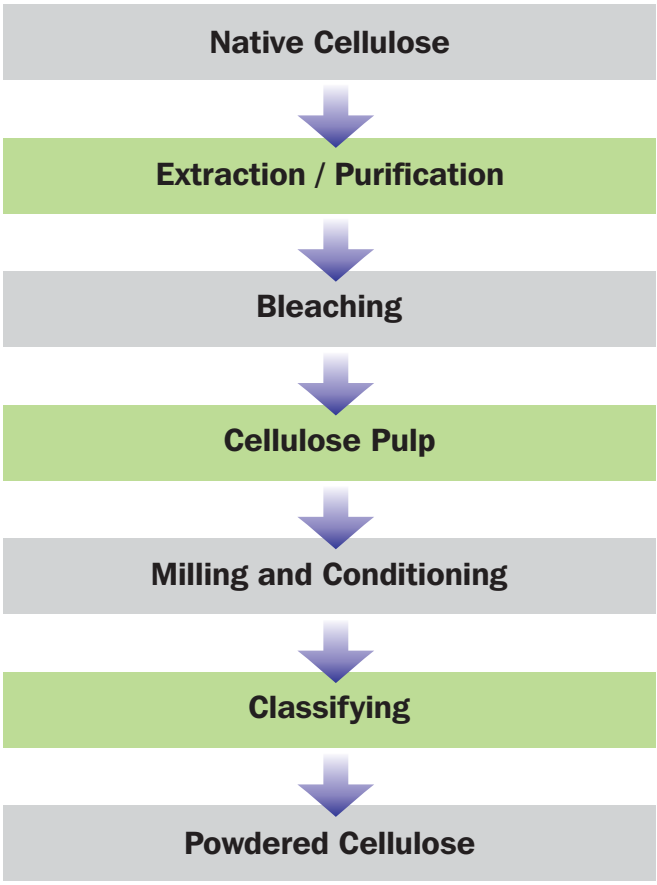


ARBOCEL® P 290



ARBOCEL® A 300

Manufacturing Process



Applications

- **Wet and Dry Granulation**
  Because of their fibrous structure and good binding characteristics, **ARBOCEL® M 80** and **ARBOCEL® P 290** are recommended as alternatives or supplements to other fillers.
- **Direct Compression**
  ARBOCEL® P 290 and **ARBOCEL® A 300** are recommended as inert fillers in direct compression formulations due to improved flow.
- **Capsules**
  ARBOCEL® A 300 is used as an inert filler and flow promoter. Excellent flow and low dusting improves handling and weight uniformity.

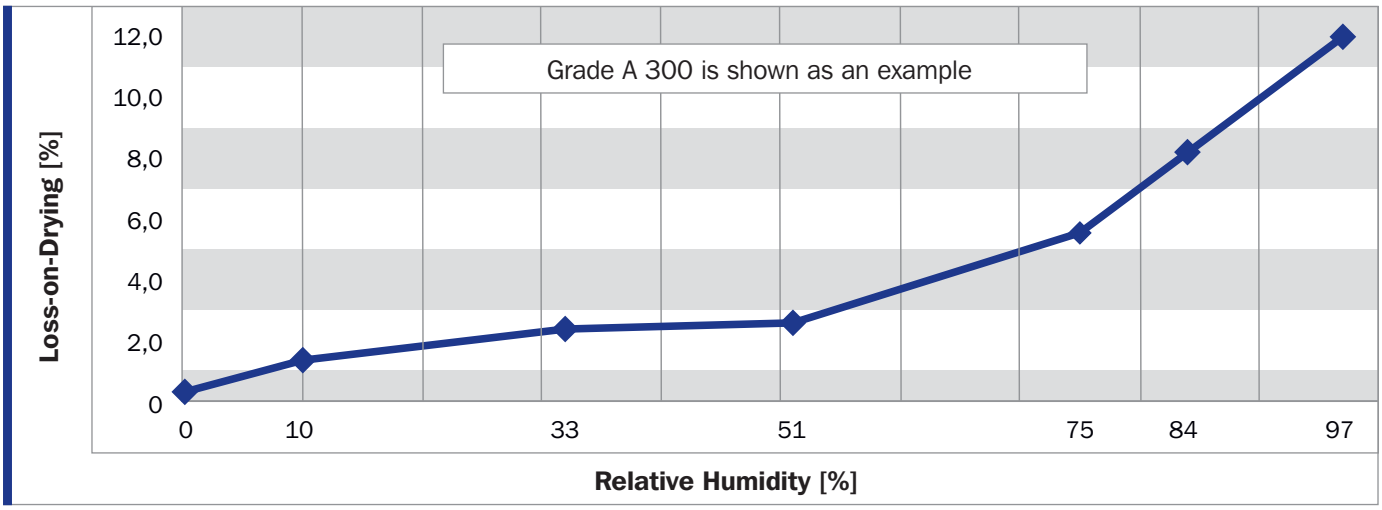
Benefits

- Chemically and physiologically inert
- Does not support microbial growth
- Natural fiber structure and binding properties lead to stable tablets with low friability
- 100 % plant derived
- Good compressibility
- Accelerated disintegration
- Low residual moisture content
- Well suited for sticky herbal extracts
- Pesticide-free and herbicide-free
- Free of genetically modified organisms (GMOs)
- Free of organic solvents
- Free of gluten and other allergens
- Does not contain irradiated materials nor is it irradiated in any manner during the manufacturing and packaging process
- Does not contain any additives and is not preserved, blended, flavored, colored, stabilized or diluted by any additive

Grades

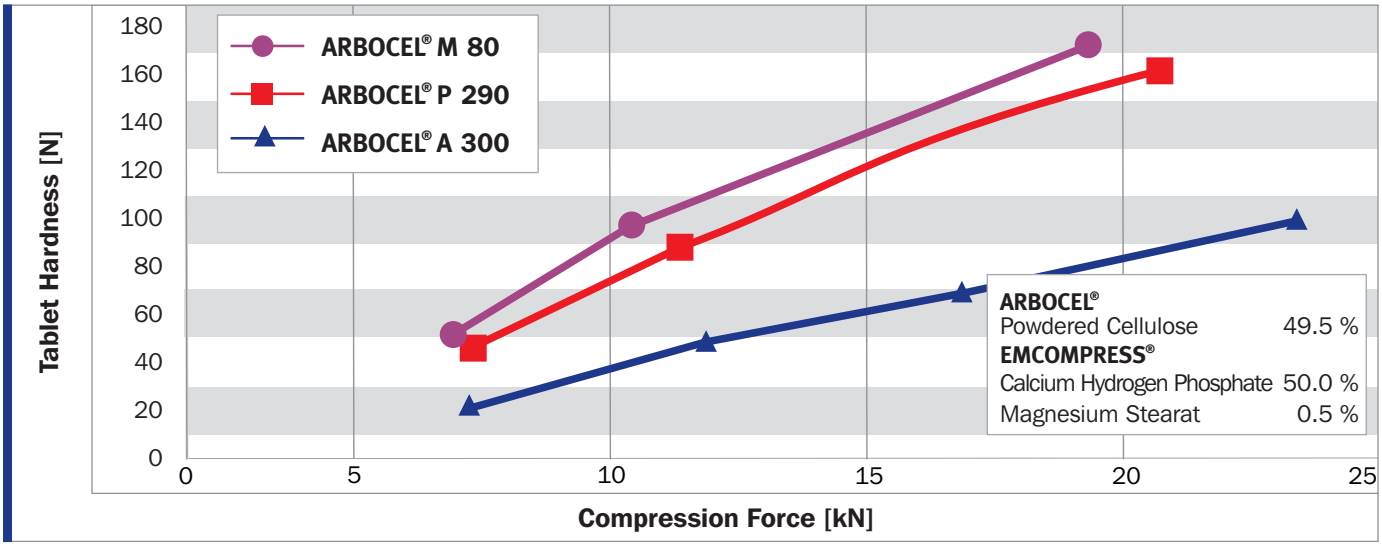
Powdered Cellulose, Ph. Eur., NF, JP, E 460(ii), FCC			
Grade	**Average Particle Size by Laser Diffraction (µm)**	**Bulk Density (g/mL)**	**Main Application**
ARBOCEL® M 80	55	0.20 - 0.24	Fine, fibrous grade, suitable for wet granulation.
ARBOCEL® P 290	75	0.27 - 0.33	Fine grade with increased density and improved flow. Suitable for wet granulation and direct compression.
ARBOCEL® A 300	320	0.31 - 0.41	Coarse grade with excellent flow properties used in direct compression and for capsule fillings.

Moisture Absorption



Low moisture absorption assures good shelf life stability.

Compressibility



Compression Diagram of the 3 **ARBOCEL®** Grades.
EMCOMPRESS® used as a model API

Flowability

ARBOCEL® M 80	$\alpha < 62°$
ARBOCEL® P 290	$\alpha < 49°$
ARBOCEL® A 300	$\alpha < 36°$

α = Angle of Repose

ARBOCEL® P 290 vs. Lactose-Free Formulation Alternative

Ascorbic Acid	50.0 %	50.0 %
VIVAPUR® 102 (Microcrystalline Cellulose)	24.5 %	24.5 %
ARBOCEL® P 290 (Powdered Cellulose)	24.5 %	
Lactose		24.5 %
Magnesium Stearate	1.0 %	1.0 %
Tablet Weight	200 mg	200 mg
Diameter	10 mm	10 mm
Compression Force	11.0 kN	11.4 kN
Hardness	10.8 kp	10.7 kp
Disintegration Time	50 sec	62 sec

In an ascorbic acid formulation, the lactose was replaced by **ARBOCEL® P 290**. Hardness and compression force were the same in both tablet formulations, indicating that **ARBOCEL® P 290** can be used as an alternative to lactose.

ARBOCEL® P 290 in a Wet Granulation Formulation

Piroxicam	10.00 mg	6.7 %
VIVAPUR® 101 (Microcrystalline Cellulose)	76.80 mg	51.2 %
ARBOCEL® P 290 (Powdered Cellulose)	51.20 mg	34.1 %
VIVASOL® (Croscarmellose Sodium)	3.00 mg	2.0 %
PVP K 30	7.50 mg	5.0 %
Magnesium Stearate	0.75 mg	0.5 %
Fumed Silica	0.75 mg	0.5 %
Tablet Weight		150 mg
Diameter		8 mm
Compression Force		17.5 kN
Hardness		5.8 kp
Disintegration Time		39 sec

Preparation method: Piroxicam, **VIVAPUR® 101**, and **ARBOCEL® P 290** were granulated using a 20 % ethanolic povidone solution. **VIVASOL®** , fumed silica, and magnesium stearate were then added and mixed for 5 minutes. The blend was compressed at a compaction force of about 17.5 kN.

Packaging, Samples and Storage

Storage
Store in well closed container. Protect from excessive heat and moisture.

Packaging

Paper bag with liner
20 kg

Pallet-container
420 kg (bags)

Big Bags
1000 kg

Sample Sizes
Available in 400 g and 2 kg containers

Case Studies
Case studies and formulation examples are available upon request. Please contact your sales rep for more information or visit *www.jrspharma.com.*

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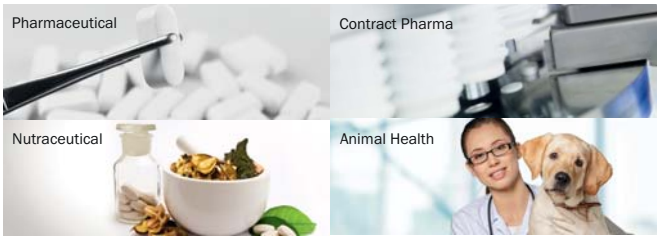

Bringing Health Science to Life

Products and Services

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Family of High Functionality Excipients
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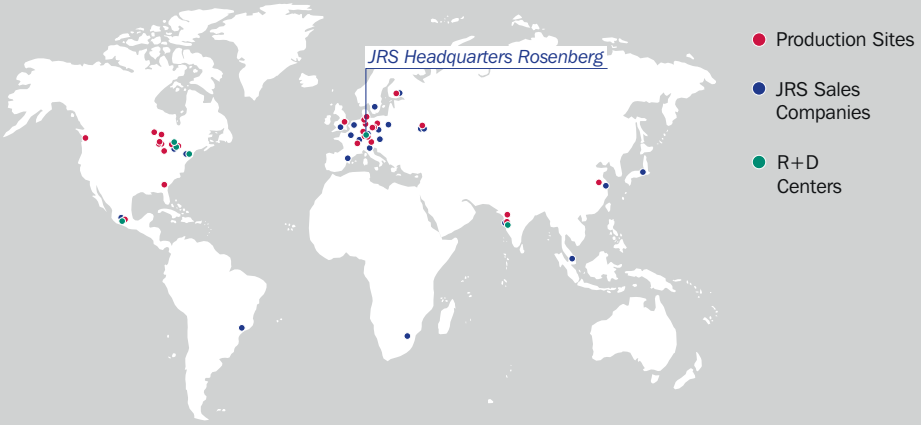
Functional Fillers
Lubricants
Thickeners+Stabilizers
Carriers
Superdisintegrants

Coatings

Biopharmaceuticals

Contract R+D
Manufacturing



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