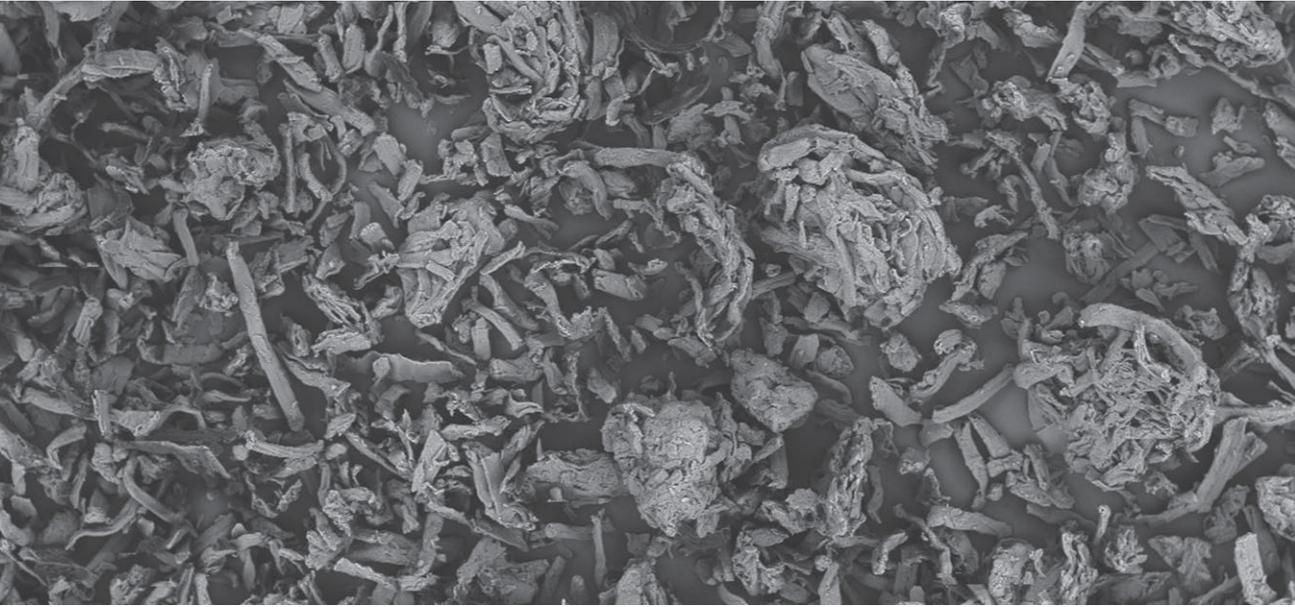


VIVAPUR®

Microcrystalline Cellulose



The High Quality MCC with
Reduced Carbon Footprint

**VIVAPUR®**

Microcrystalline Cellulose

VIVAPUR® – The High Quality MCC with Reduced Carbon Footprint

Premium Quality MCC for Direct Compression and Wet Granulation

VIVAPUR® MCC (microcrystalline cellulose) is an odorless, tasteless white powder with a high degree of brightness, derived from highly purified wood pulp. With a wide range of chemical, technical, and economic benefits, MCC is one of the most widely used binder/filler excipients for tablet formulations. The **VIVAPUR®** brand offers the most complete range of JRS Pharma's high quality MCC - with twelve grades designed for specific formulation needs. Decades of manufacturing high quality MCC in large volumes ensure high batch-to-batch consistency. In addition, Functionality Related Characteristics, such as flowability, are analysed and certified for all twelve **VIVAPUR® MCC** grades.

Benefits include

- High compactability
- Robust tablets with low friability
- High production yield
- Practically inert – compatible with most APIs
- Created from sustainable organic materials
- Contains no additives, impurities, or irradiated components
- Advanced carton packaging design for fast NIR identification (see pictures page 4)

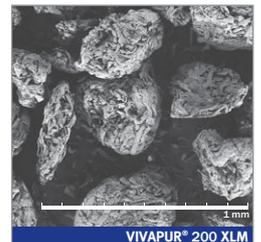
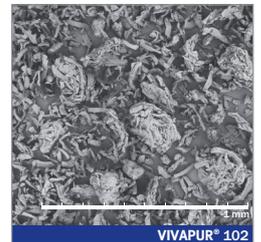
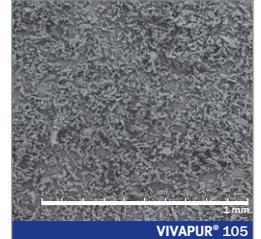
Twelve Grades Designed for Specific Formulation Needs

Type	Average Particle Size by Laser Diffraction (µm)	Bulk Density (g/mL) VIVAPUR®	Main Application
VIVAPUR® 105	15	max 0.26	Very fine grade, which gives a pleasant mouth feeling, masks bitter tastes and supports flavors.
VIVAPUR® 101	65	0.26 – 0.31	Fine standard MCC grade, especially suited for wet granulation, roller compaction and spherulization. Very high compactability.
VIVAPUR® 103	65	0.26 – 0.31	Same quality as grade 101, but very low moisture content (< 1.5 %) for processing water-sensitive actives.
VIVAPUR® 301	65	0.35 – 0.46	Same quality as grade 101, but increased bulk density and improved flow properties.
VIVAPUR® 102	130	0.28 – 0.33	Medium size standard MCC grade, suited for the majority of directly compressible actives. Combines good flow and high compactability.
VIVAPUR® 112	130	0.30 – 0.36	Same quality to grades 102, but very low moisture content (< 1.5 %) for processing water-sensitive actives.
VIVAPUR® 302	130	0.35 – 0.50	Same quality to grade 102, but increased bulk density and improved flow properties. Especially suited for high speed tableting and processing high density actives.
VIVAPUR® 102 SCG	170	0.28 – 0.34	Coarse, DC-grade MCC.
VIVAPUR® 12	180	0.30 – 0.36	Coarse grade MCC, combines good compactability and high binding capacity with outstanding flow. Provides good content uniformity at low weight variation – even when used with low concentrations of fine actives.
VIVAPUR® 14	170	0.32 – 0.40	Same quality as grade 12, but very low moisture content (<1.5 %) for processing water-sensitive actives.
VIVAPUR® 200	250	0.31 – 0.37	Large size MCC grade with excellent flow properties for a variety of direct compression formulations.
VIVAPUR® 200 XLM	250	0.33 – 0.40	Same quality to grades 200, but very low moisture content (<1.5 %) for processing water-sensitive actives.

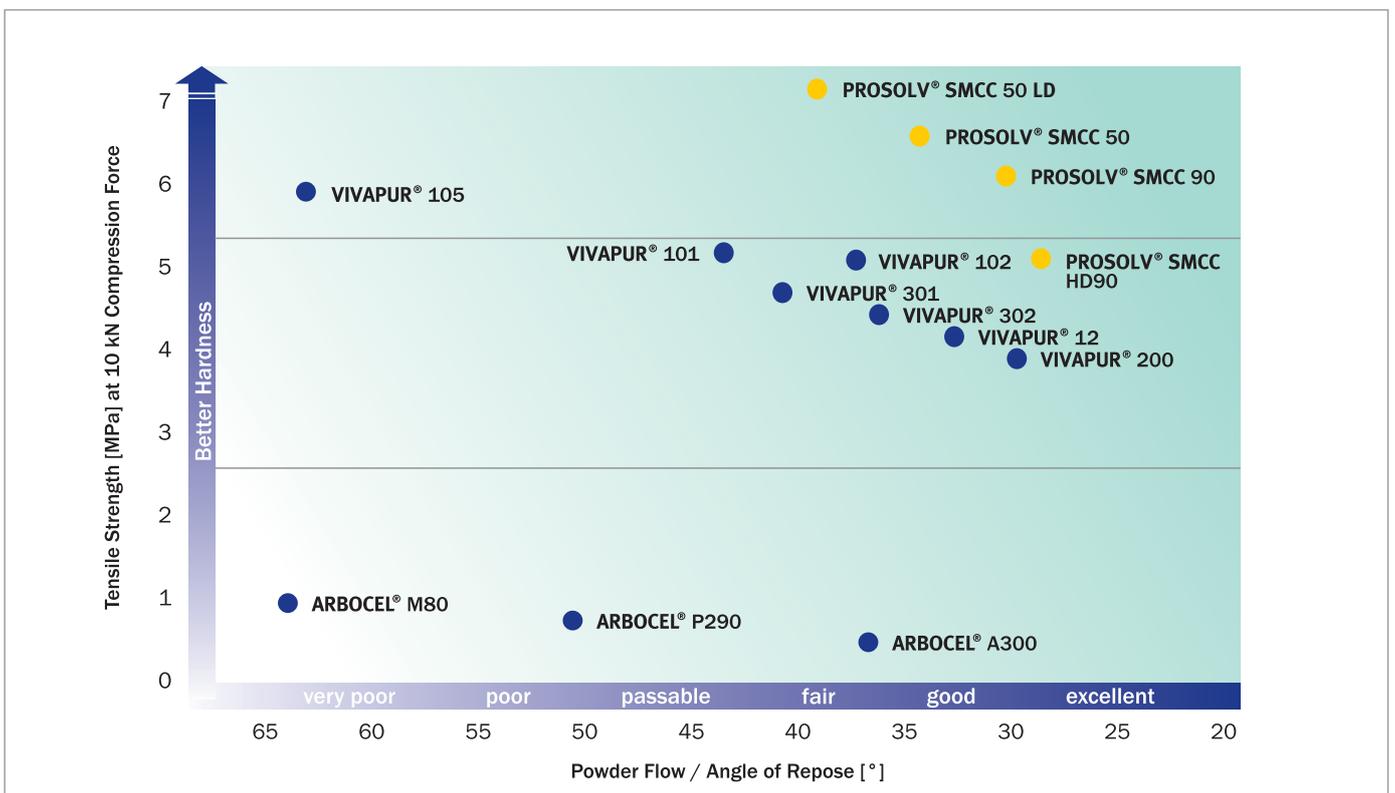
Regulatory and Quality Assurance

- EXCiPACT™ certification in progress (MCW)
- Conforms to Ph.Eur., NF, JP monograph requirements
- CEP, US and Chinese Drug Master Files (DMFs)
- QbD and historical production data
- Audit questionnaire according to the IPEC GMP Audit guideline for bulk pharmaceutical excipients (BPE)
- Full documentation package and regulatory support
- TUP profile according to IPEC guideline
- Tableting functionality regularly tested to ensure consistent quality and performance

- ✓ 100 % Plant derived – avoid BSE / TSE risks
- ✓ Genetically Modified Organism (GMO) free
- ✓ Pesticide & Herbicide free
- ✓ Halal certified
- ✓ Kosher certified
- ✓ Allergen free



Cellulose Compactability Map



The Global Excipient Maker

Logistics

- Seven state-of-the-arts manufacturing sites around the world, three of them particularly for **VIVAPUR®**, guarantee supply chain security and business continuity, offering risk mitigation
- Regional manufacturing of **VIVAPUR®** in Europe, USA, and Asia to minimize duty, currency conversion and freight costs
- Global sales network, local technical support
- Bar code labeling and vendor managed inventory possible
- Warehouses in line with global pharmaceutical standards

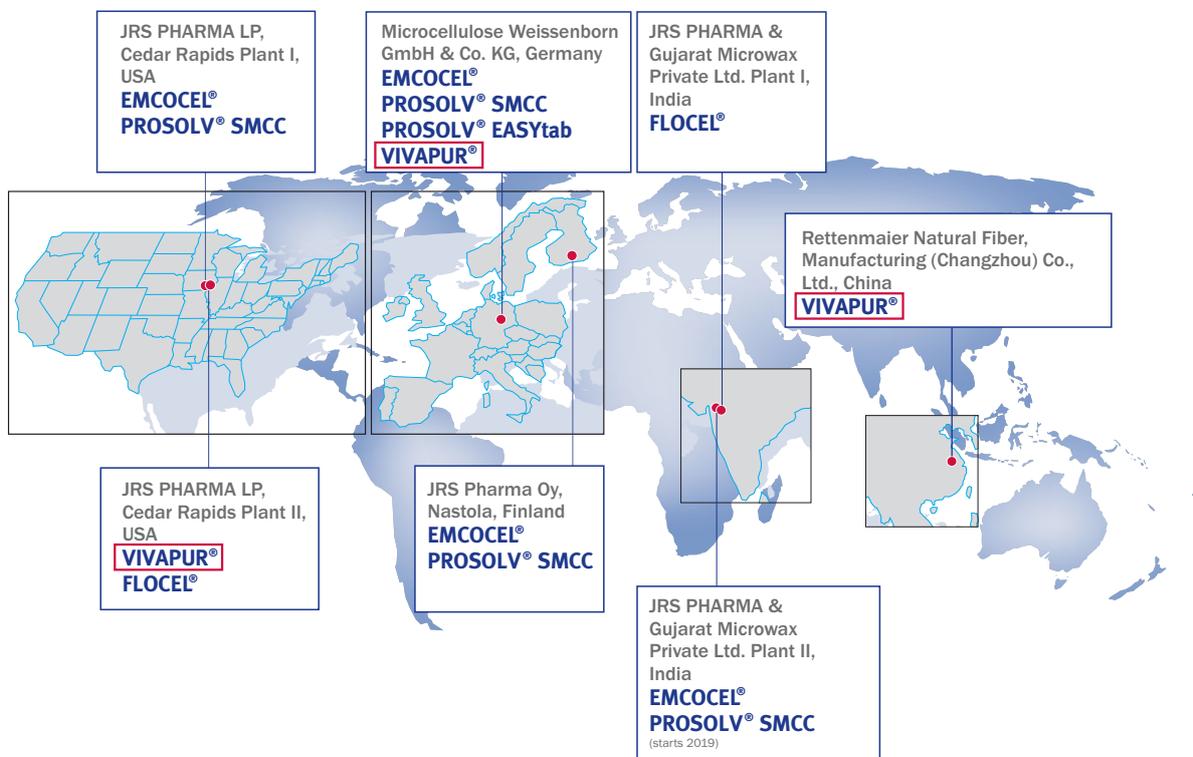
Packaging and Sample Size

	Packaging Size	Pallet Size
VIVAPUR® All Types	20 kg carton box	400 kg US pallets, 320 kg EURO pallets
VIVAPUR® 105	17.5 kg paper bag	262.50 kg EURO pallets
Supersacks and Drum Packaging	available upon request	

Sample size: 400 g and 2 kg



JRS PHARMA – The Global MCC Manufacturing Network



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