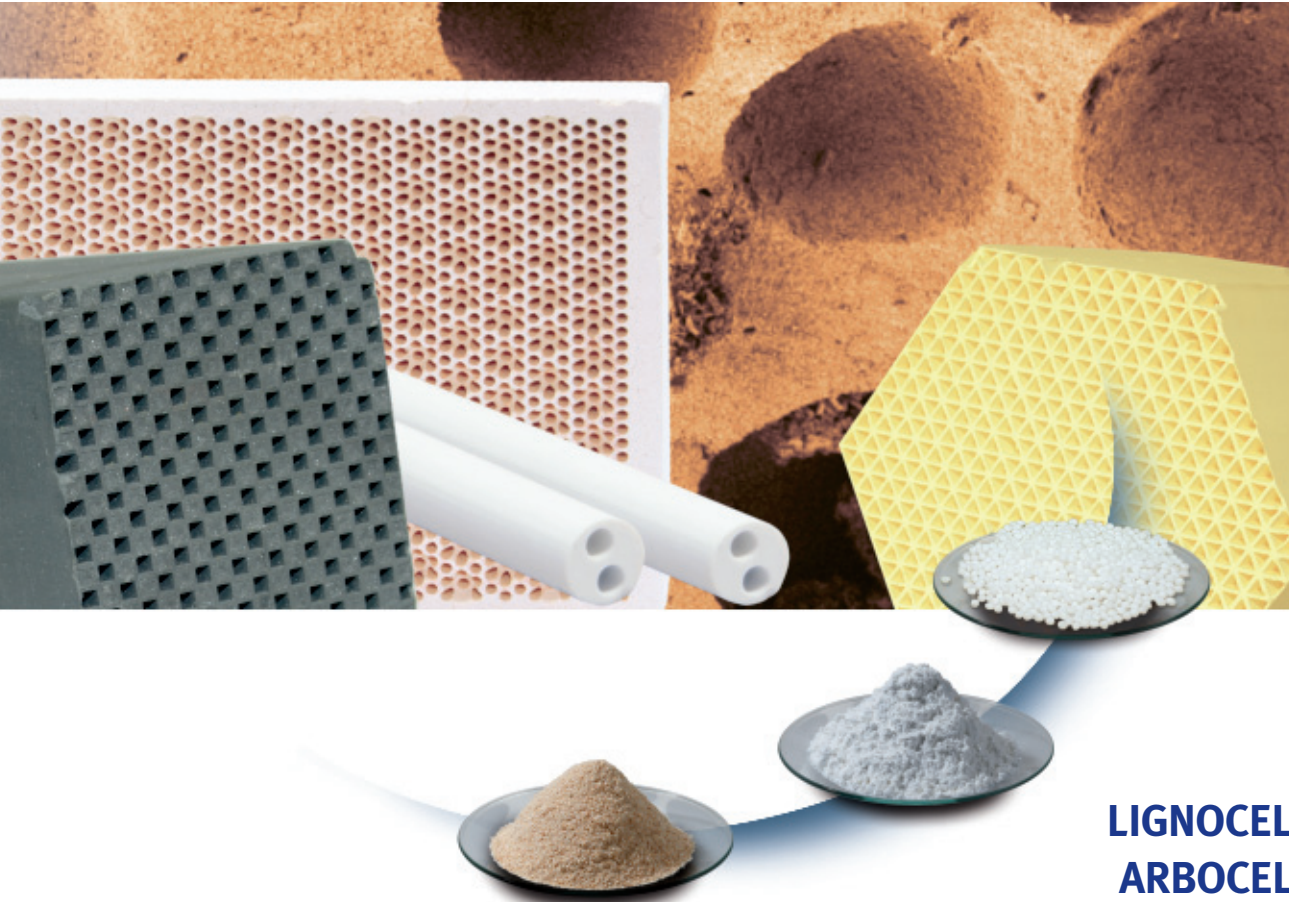


Pore Creators and Stabilizers

for Technical Ceramics



LIGNOCEL®
ARBOCEL®

Functional Cellulose and
Lignocellulose Processing Agents

Characteristics of JRS Products

What is ARBOCEL® and LIGNOCEL® ?

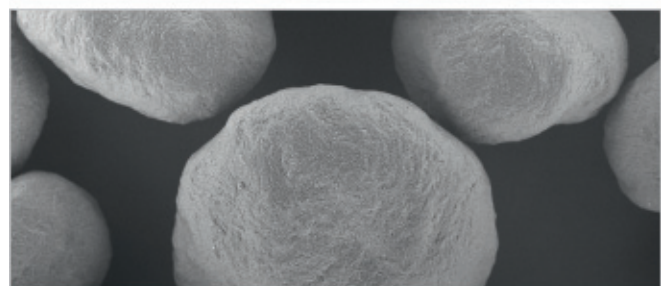
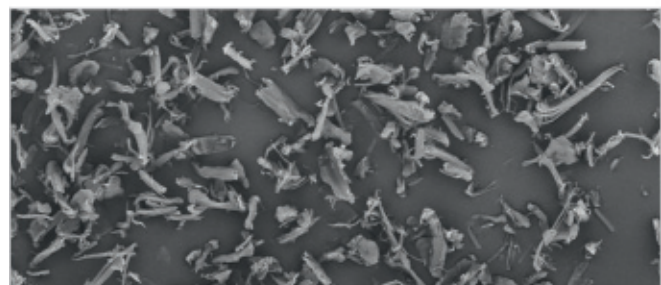
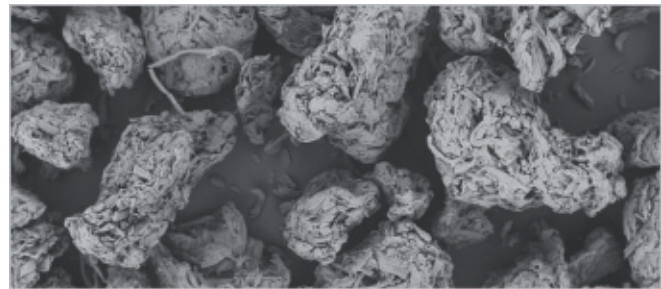
Organic cellulose and lignocellulose particles modified for utilization in the ceramic industry. You can expect high-class purity combined with constant product performance. Outstanding quality is guaranteed by certified quality control. High variety enables optimal usage !

Different structures lead into different effects in your production process as well as for the performance of your final ceramic products. Tailor-made selection of natural particles allows controlled improvement of your application.

Available in various sizes and structures:

- Long fibers
- Cubic particles
- Granules
- Spheres
- Cellulose gels

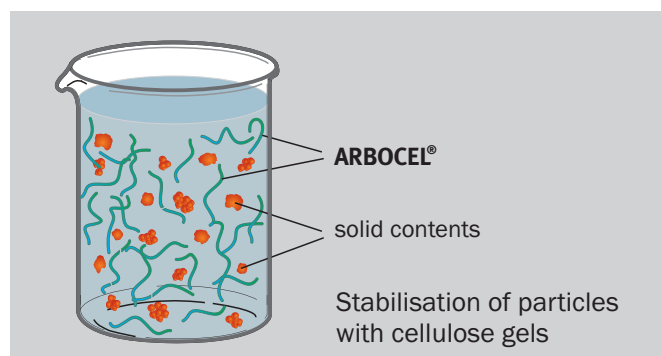
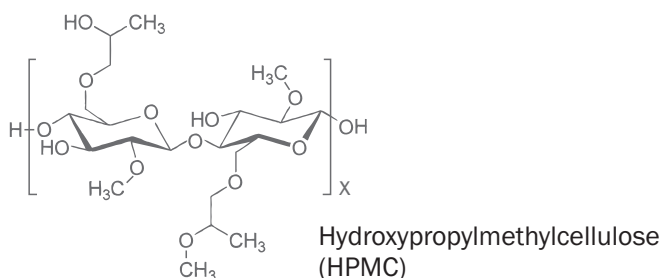
Recognize the precious functionality of special treated green products and become a member of technical innovators.



Functionality of ARBOCEL® and LIGNOCEL®

Binding Agent:

Viscosity of water-based slurries can be reasonable increased by cellulose derivates (HPMC, MCG). They act as **stabilizer and binding agent** for mixture and green part.



ARBOCEL® Cellulose gels are our latest specialty: Particle stabilization and viscosity are influenced independently.

Functionality

Pore Creator:

During sintering natural particles are completely burned out, so that pores remain. **Pore volume, pore structure and pore size distribution are controlled.**

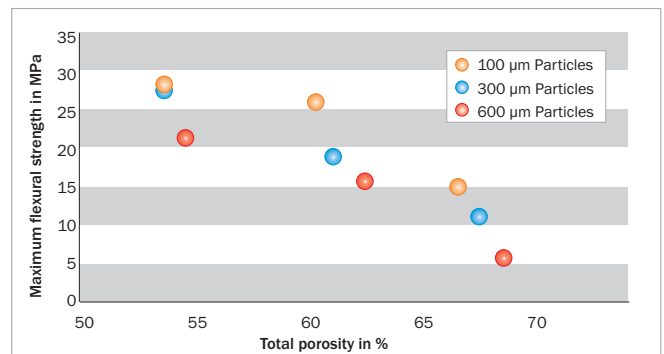
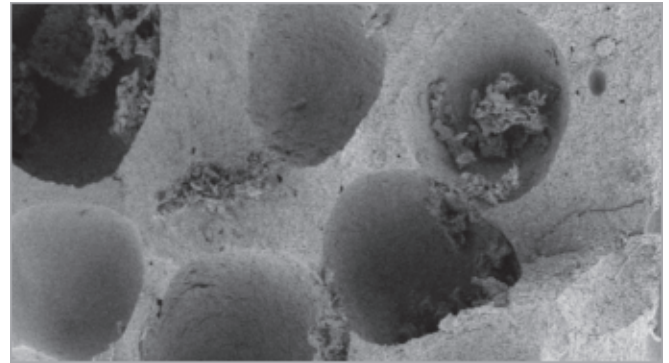
Advantages of higher porosity are

- Light weight materials
- Controlled permeability
- Higher specific inner surface
- Acoustic and thermal insulation
- Improved thermal shock resistance
- Increased capillary activity

Correlation between porosity and flexural strength:

Flexural strength decreases with an increase of porosity. With JRS cellulose particles the stability is still on a high level even for porosities up to 60 %.

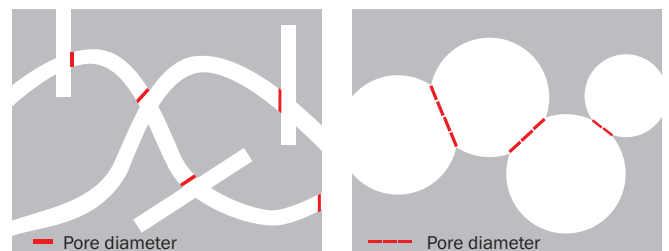
The lower the particle size of the pore creator, the lower its impact on flexural strength; as a result especially micro porosity becomes attractive for applications with high stability requirements.



Pore size distribution*:

The pore channel is defined by the contact area of the single pores. For fibrous particles the contact area corresponds to the pore diameter. This diameter is uniform and therefore results in a **unimodal pore size distribution**. For granules and spheres the contact area varies. This leads into a **wide pore size distribution** (bimodal or even multimodal).

* according to mercury intrusion porosimetry and micro tomography (µCT) measurements



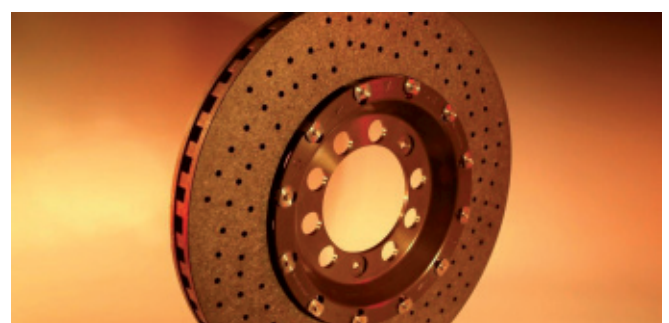
Fibers create narrow pore distribution

Granules create wide pore distribution

Pyrolysis into pure carbon:

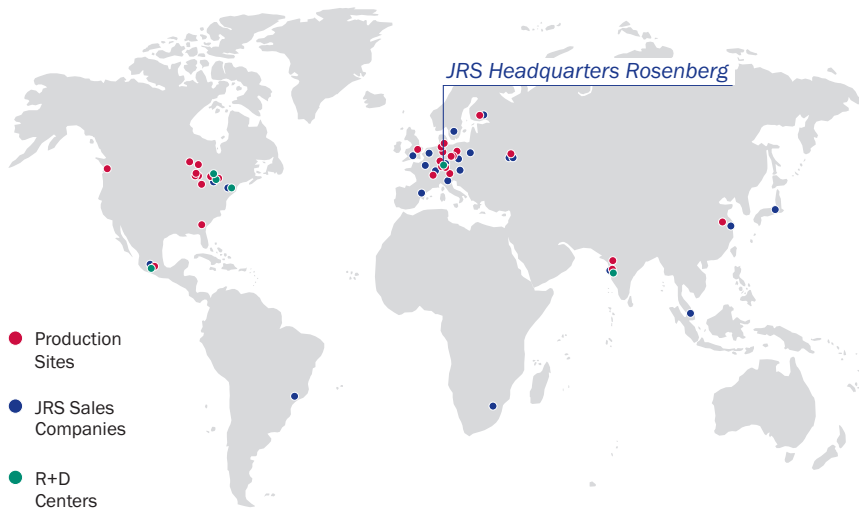
Under inert conditions natural particles are pyrolysed into pure carbon.

Particles shrink 25 % by volume and 70 % per weight.



JRS – Your Strong System and Technology Partner

JRS – YOUR Qualified Partner – worldwide



- Worldwide logistics and presence
- High availability and efficient, high-capacity production
- 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

Our Innovation Network:

ADVANCED CERAMICS



ENSCI

École Nationale Supérieure de Céramique Industrielle



FAU, Institute of Glass and Ceramics

Friedrich-Alexander Universität Erlangen-Nürnberg



SPCTS

Science des Procédés Céramiques et de Traitements de Surface



UNIVERSITÄT BREMEN

