Enlighten your formulation

Omyapharm

A new generation of multifunctional mineral excipients

Omyapharm

A new generation of multifunctional mineral excipient

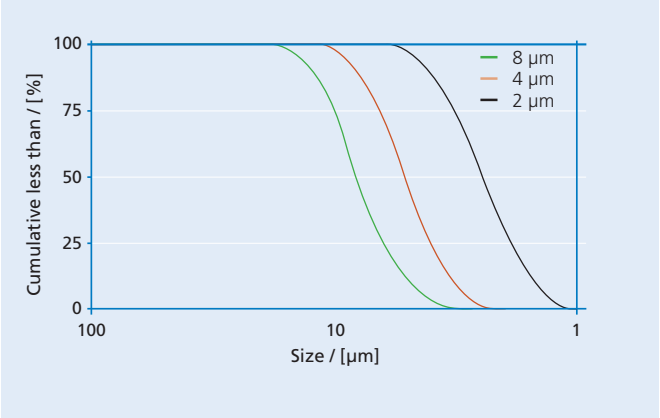
- Innovative functionalized excipient for pharmaceuticals
- High efficiency carrier for multiple substances
- Controlled-release properties

Discover the benefits of Omyapharm in your application.

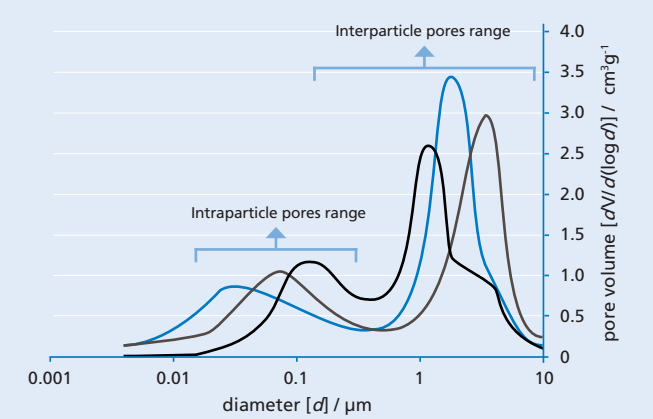
Advantages

- High loading capability
- Controlled release vector
- Direct compressibility
- Stabilization of API's
- Dissolution enhancement

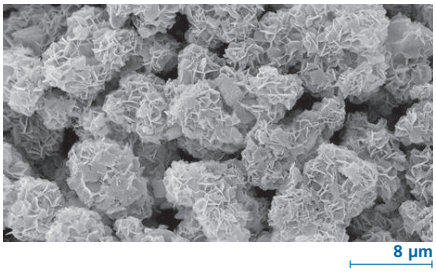
Particle size distribution (laser diffraction)

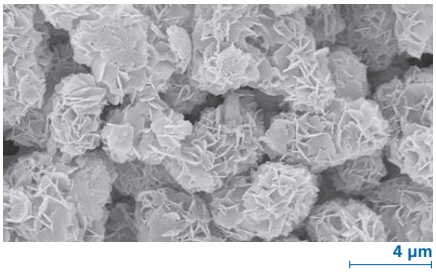


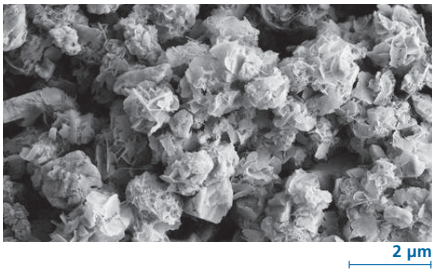
Pore Size (mercury porosimeter)



- Size range 2.5 to 10 µm
- Highly porous nature
- Surface area range 30-70m²g⁻¹







Omyapharm Compaction Behavior

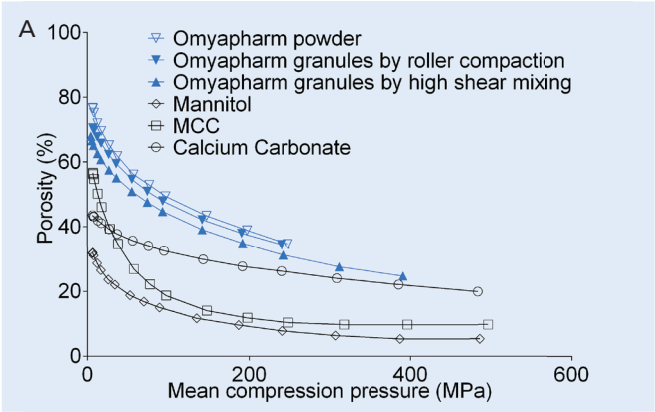
Stirnimann et al. (2014) International Journal of Pharmaceutics 466: 266–275

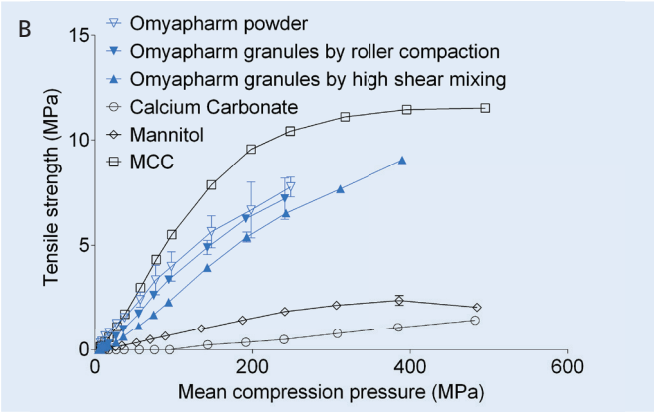
Omyapharm was granulated both by high shear mixer (HSM) and roller compaction (RC), with and without binder respectively. Granulation of Omyapharm had no significant influence on tensile strength and porosity (figure A and B).

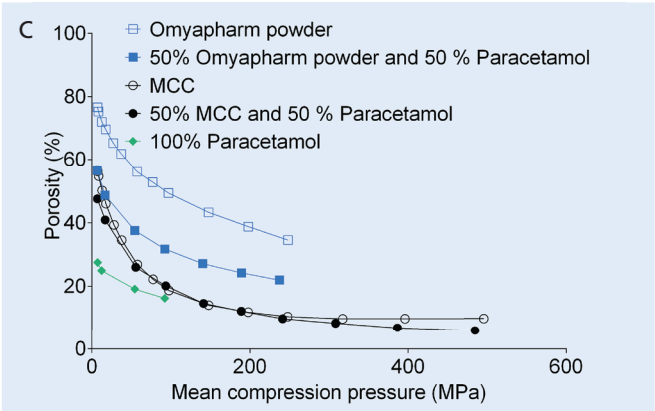
Also formulations with Omyapharm showed higher porosity than the same formulations with MCC at different compression pressures (figure A).

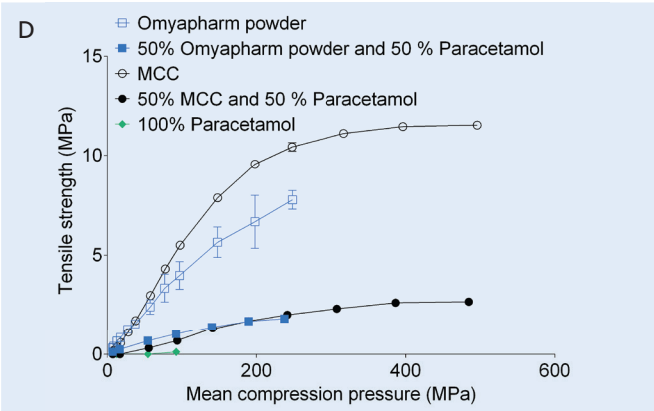
Omyapharm required comparable or lower compression pressures than other excipients such as MCC or mannitol, in order to produce robust tablets (figure B).

High porosity and tensile strength were preserved after blending Omyapharm with an API like paracetamol (figures C and D).









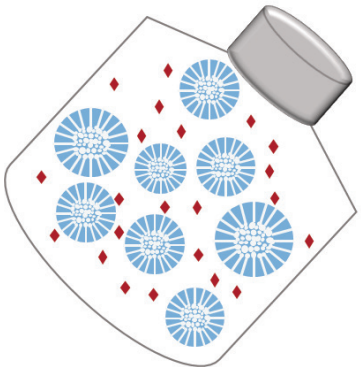
Omyapharm and Drug Loading

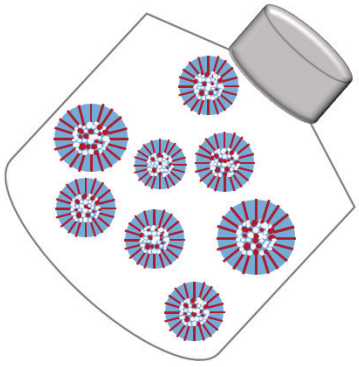
Preisig et al. (2014) European Journal of Pharmaceutics and Biopharmaceutics 87:548- 558

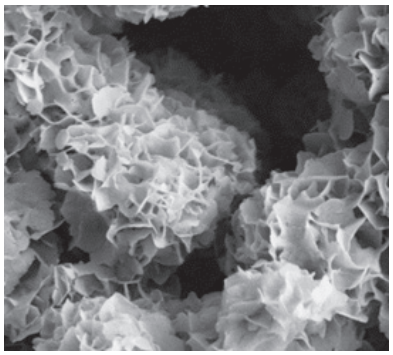
Omyapharm
+ Drug

Omyapharm
Loaded with Drug

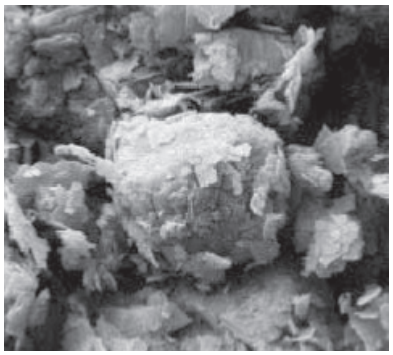
Drug Impregnation







2 µm



2 µm

Omyapharm microparticles and four separate drugs with different permeability and solubility properties respectively were selected as model substances to investigate drug loading by solvent evaporation.

Nifedipine and Metronidazole benzoate loaded Omyapharm: complete drug dissolution occurred in half the time compared to formulations in which Omyapharm was mixed with the corresponding drug.

Ibuprofen loaded Omyapharm: little changes in dissolution rate were observed but proved to be an interesting alternative to micronization of this poorly soluble drug.

Losartan potassium loaded Omyapharm: little changes in dissolution rate were observed but might be an advantage when low doses have to be administered.

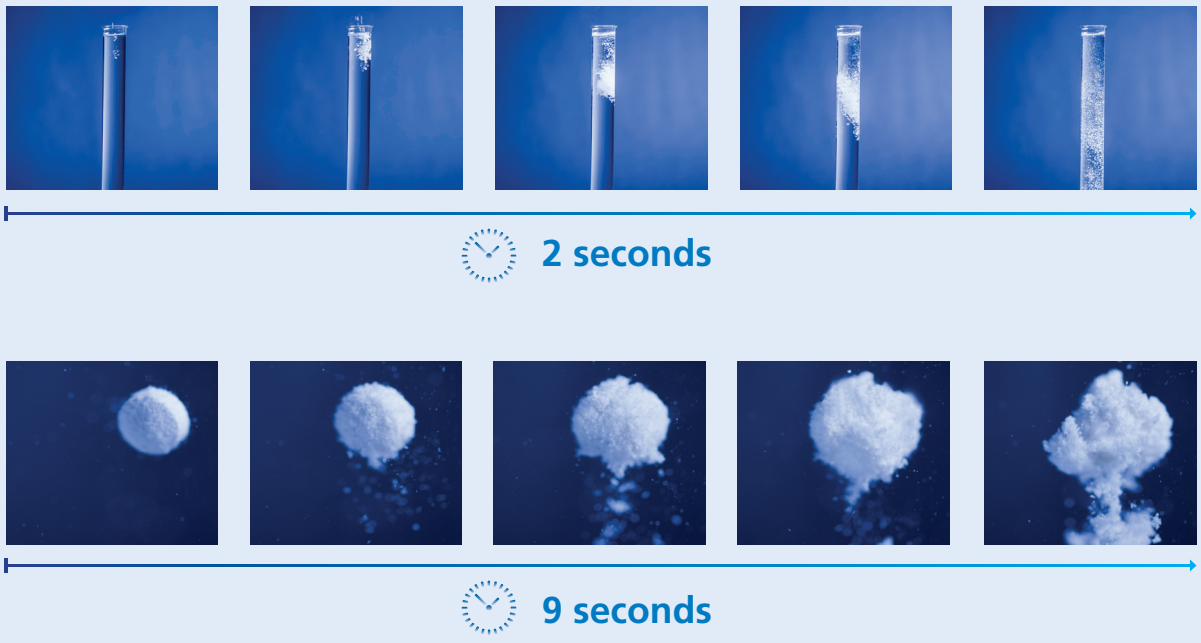
Omyapharm for Orally Dispersible Tablets (ODTs)

Stirnimann et al. (2013) Pharmaceutical Research (2013) 30:1915–1925

ODTs are preferred to conventional tablets due to numerous advantages such as rapid dissolution and fast onset of action. Moreover, ODTs have improved compliance and the tablets can be swallowed without the need of water. To maintain the porous structure needed for fast tablet disintegration, most market ODT formulations are limited by insufficient mechanical strength.

The lamellar structure of Omyapharm allows to produce granules and tablets with high mechanical strength and at the same time fast disintegration time. Omyapharm based ODTs can be produced by direct compression.

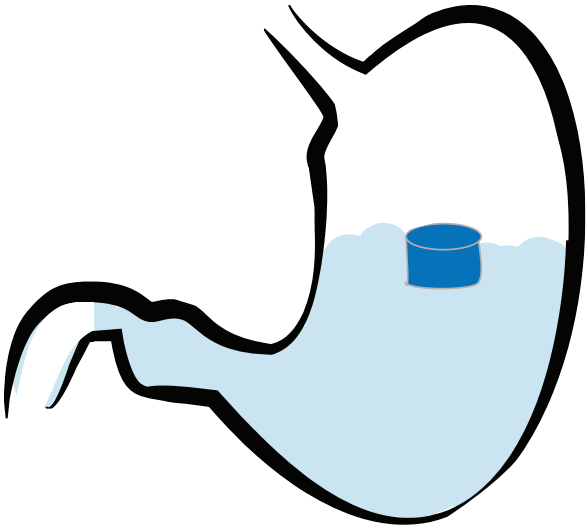
Disintegration of Omyapharm granules and tablets



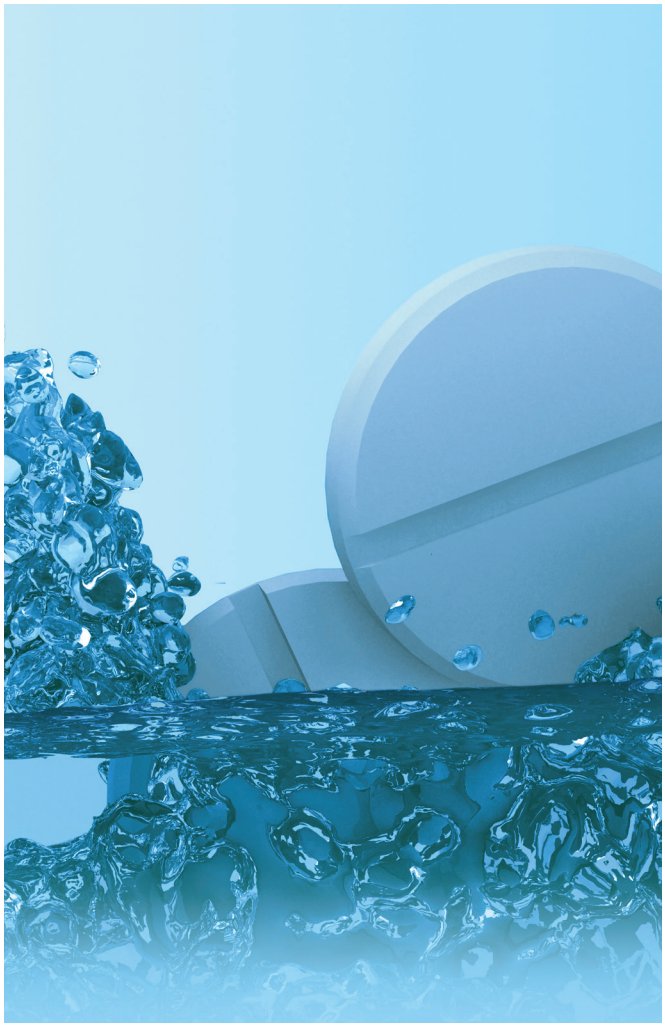
Omyapharm for Floating Drug Delivery Systems (FDDS)

Eberle et al. (2014) European Journal of Pharmaceutical Sciences 58: 34-43

FDDS float in the stomach while releasing the drug they carry, due to their lower density compared to the gastric fluids. Thus, FDDS improve bioavailability of drugs whose site of action or absorption is located in the stomach or upper intestinal tract by increasing the gastric residence time. Given the low densities of Omyapharm - based tablets, Omyapharm is a promising novel pharmaceutical excipient for the preparation of FDDS.



Schematic representation of a FDDS in the human stomach



Formulation	Omyapharm (%)	Polyox WSR 301 (%)	Methocel K100 (%)	Citric acid (%)	Lubritab (%)	Caffeine (%)
HF1 (hydrophilic)	56.25	7.50	10.875	0.375	0.00	25.00
LF2 (lipophilic)	37.50	5.00	0.000	0.000	40.83	16.67

	Formulation HF1 (hydrophilic)	**Formulation LF2** (lipophilic)
No Floating lag time	+	+
Floating behavior	Tablets eroded completely while releasing drug substance	Lipophilic matrix remained after complete drug release
Floating time	90 min	Several days
Drug release	100% caffeine released after 90 min	100% caffeine released after 17 h
Drug release mechanism	Erosion controlled	Diffusion controlled

Our Technical Services and Innovation Department can assist you in finding the optimal formulation with Omyapharm and your API.

Natural Products for Sustainability

Omya - Swiss based Corporation

LIFE SCIENCES
- Personal care
- Oral care
- Food
- Pharmaceuticals

R&D
- Interdisciplinary
- Targeted
- Cost-oriented
- Research clusters

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- Expert skills
- Analytics
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- State-of-the-art production facilities
- ISO-certified quality control

LOGISTICS
- Optimized supply chain
- Flexibility
- Distribution network
- Warehouses

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