



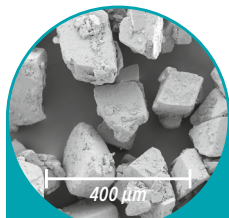
MEGGLE's alpha-lactose monohydrate qualities for dry powder inhalation



Step by step to the right
lactose product

MEGGLE has it: The right lactose product for dry powder inhalation

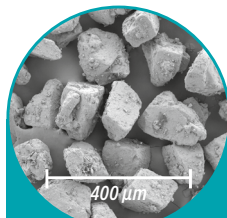
Sieved



InhaLac® 70

Particle size distribution

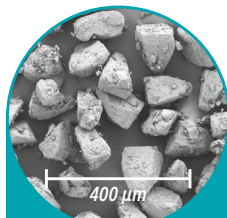
X ₁₀	110 – 160 µm
X ₅₀	180 – 250 µm
X ₉₀	270 – 340 µm



InhaLac® 120

Particle size distribution

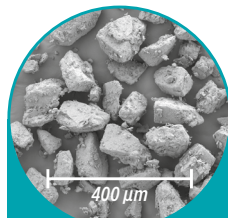
X ₁₀	70 – 105 µm
X ₅₀	110 – 155 µm
X ₉₀	160 – 215 µm



InhaLac® 160

Particle size distribution

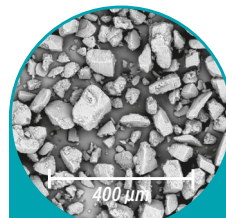
X ₁₀	55 – 85 µm
X ₅₀	90 – 120 µm
X ₉₀	125 – 165 µm



InhaLac® 230

Particle size distribution

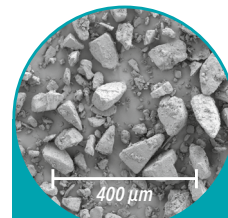
X ₁₀	30 – 60 µm
X ₅₀	70 – 110 µm
X ₉₀	110 – 150 µm



InhaLac® 240

Particle size distribution

X ₁₀	20 – 40 µm
X ₅₀	55 – 70 µm
X ₉₀	85 – 110 µm

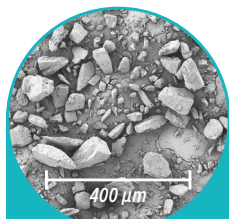


InhaLac® 251

Particle size distribution

X ₁₀	7 – 22 µm
X ₅₀	40 – 70 µm
X ₉₀	80 – 120 µm

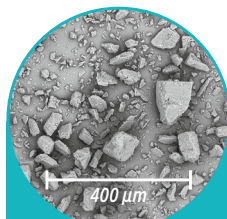
Milled



InhaLac® 140

Particle size distribution

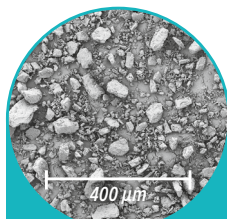
X ₁₀	3 – 7 µm
X ₅₀	37 – 61 µm
X ₉₀	120 – 190 µm



InhaLac® 145

Particle size distribution

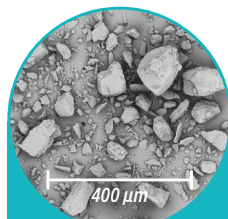
X ₁₀	1 – 6 µm
X ₅₀	20 – 50 µm
X ₉₀	65 – 140 µm



InhaLac® 150

Particle size distribution

X ₁₀	1 – 5 µm
X ₅₀	18 – 30 µm
X ₉₀	65 – 95 µm

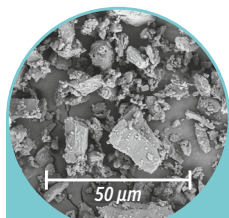


InhaLac® 180

Particle size distribution

X ₁₀	1 – 15 µm
X ₅₀	50 – 100 µm
X ₉₀	120 – 160 µm

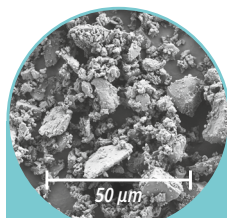
Fine milled



InhaLac® 300

Particle size distribution

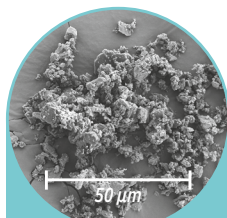
X ₁₀	2.0 – 3.5 µm
X ₅₀	14.0 – 19.0 µm
X ₉₀	40.0 – 56.0 µm



InhaLac® 400

Particle size distribution

X ₁₀	0.8 – 1.6 µm
X ₅₀	4.0 – 11.0 µm
X ₉₀	15.0 – 35.0 µm



InhaLac® 500

Particle size distribution

X ₁₀	–
X ₅₀	NMT 5 µm
X ₉₀	NMT 10 µm

Beyond that, a highly experienced team of specialists is waiting to support you in any matter.

Decisions made easy – all features at a glance.

MEGGLE's dry powder inhaler – InhaLac®													
Product category	Sieved						Milled				Fine milled		
InhaLac® Type	InhaLac® 70	InhaLac® 120	InhaLac® 160	InhaLac® 230	InhaLac® 240	InhaLac® 251	InhaLac® 140	InhaLac® 145	InhaLac® 150	InhaLac® 180	InhaLac® 300	InhaLac® 400	InhaLac® 500
PSD typical laser diffraction													
x ₁₀ (µm)	140	97	75	50	30	15	5	4	4	9	2.5	1.2	–
x ₅₀ (µm)	215	137	111	96	63	52	45	34	25	65	16	8	3.1
x ₉₀ (µm)	295	178	152	144	101	92	135	102	80	143	50	25	7.9
Span (µm)	0.7	0.6	0.7	1.0	1.1	1.5	2.9	2.9	3.0	2.1	3.0	3.0	2.5
x fines < 5 µm (%)	0	1	2	2	3	3	10	11	14	6	18	38	75
Typical powder technological values													
BET surface (m ² /g)	0.2	0.3	0.3	0.3	0.3	0.4	0.9	1.3	1.3	0.4	1.5	2.2*	5.3*
Density bulk (g/ml)	0.66	0.73	0.71	0.73	0.71	0.62	0.58	0.54	0.51	0.63	0.44	0.35	0.21
Density tapped (g/ml)	0.77	0.83	0.83	0.87	0.87	0.87	0.90	0.87	0.84	0.91	0.72	0.58	0.32
Hausner ratio	1.17	1.14	1.17	1.19	1.23	1.40	1.55	1.61	1.65	1.44	1.67	1.66	1.52
Carr's index (%)	14	12	14	16	18	29	35	38	39	31	39	40	34
Packaging unit													
Carton box (kg)				25				20		25		15	6
Retest (Months)						24							18

*Nitrogen

Our product portfolio encompasses a broad array of options with solutions for any requirement. This table outlines the product properties, shelf life, and standard package sizes, helping you decide on the perfect solution for your formulation needs – from MEGGLE, of course.

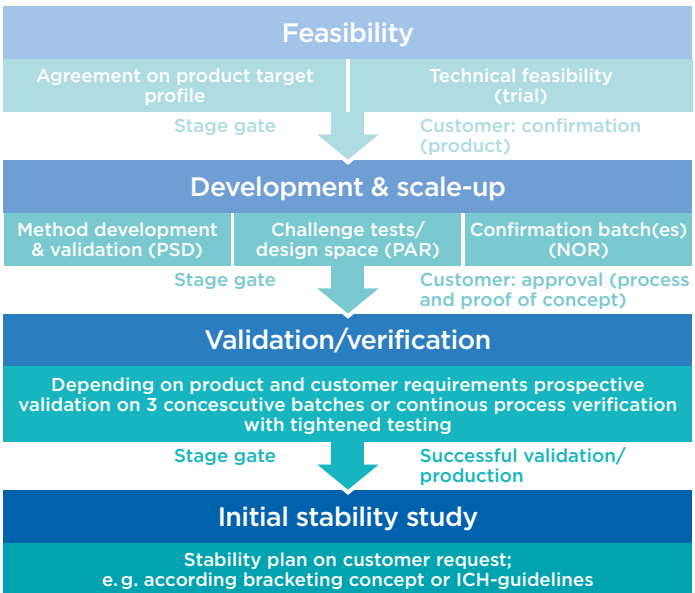
BENEFITS

InhaLac®

- High-quality inhalation grade lactose with strict microbial and endotoxin limits
- Broad spectrum of tightly controlled particle sizes
- DPI grades available for all types of devices
- Customization and tailored solutions
- Global application laboratories to optimize new and existing formulations

Tailormade InhaLac[®] from MEGGLE – the benchmark for dry powder inhalers

To provide best support and to be able to fully meet your specific inhalative lactose needs, MEGGLE offers the development of tailor-made product solutions including further individual physio-chemical product parameters. As the development of a new customized product is a challenging task, we developed a well structured process plan:



Stage-Gate-Model for the development process of customized products.

Inhalation products portfolio:
 For more information on our entire InhaLac[®] portfolio, please contact info.excipients@meggle.com

**MEGGLE GmbH & Co. KG
 Business Unit Excipients**
 83512 Wasserburg, Germany
 Phone +49 8071 730
www.meggle-excipients.com