



Experts in excipients.

The whole world of lactose.



How we became who we are today.

The world of lactose is MEGGLE's world. What began in 1887 as a dairy operation in the town of Wasserburg, near Munich, is now one of the leading manufacturers of pharmaceutical lactose worldwide. For over 70 years, we have been providing the pharmaceutical market with a broad-based lactose product portfolio unmatched in the industry. Over forty years of experience in direct compression also speaks for itself – and for us.

With committed, highly qualified employees in all areas of expertise, our customers benefit from the experience and innovative drive of a true pioneer in industrial milk and whey processing. We constantly work to develop high-tech products that deliver maximum performance in our customers' applications. And yet, in all our advancements and strides toward innovation, we remain what we always have been: a family business with firm values and high standards. Our success is founded upon strong performance and partnerships with customers. You can count on that. We do.

Our vision.

Short-term goals are important and good. However, long-term goals are what give a company its perspective and chart its course. It is what guides us each and every day.

- In the development of innovative, effective products and the implementation of trends in the application of new dosage forms.
- In our leadership in the development and innovation in pharmaceutical excipients.
- In our independent, global network in the fields of research, development, technical support, engineering, sales, and distribution.
- Supporting customers in resolving challenges with new and existing formulations.



MEGGLE stands for more value.

MEGGLE means more. Especially when it comes to service. We are not only a manufacturer and supplier. We are your partner, your advisor, your development team. Whatever your requirements may be, our team of experts is available to you for any questions regarding development, production, application, and processing of pharmaceutical excipients. You can rely on our worldwide network of application engineers to assist you quickly. We welcome specialized contract manufacturing projects where we have the opportunity to share our experience and expertise with customers and partners. We are driven by innovation, which is why we stay close to scientific and educational institutions around the globe. And this benefits you as well.

In short, MEGGLE means:

- Modern, innovative product range
- Quality control that meet the highest international standards
- Fully implemented GMP/GDP system
- Global sales and distribution network
- Customers in over 100 countries
- Local, individualized service
- Comprehensive expertise
- Team of experienced application advisors around the world
- Global research network
- Contract manufacturing at the highest level:
www.meggle-lohnfertigung.de

Product configuration:

- The right lactose product for you is only a click away
- Comparing the facts and figures of your preferred products
- All the technical performance parameters for each product, at a glance
- Sample and documentation requests in under a minute

DirectCost optimization for your lactose formulations:

- The easiest way to compare wet granulation with direct compression
- Fast evaluations of the cost- and time-saving potential for your formulation
- Total flexibility in batch sizes and procedures
- Immediate graphic visualisations and reports
- Off-line capabilities on all your devices
- Local or cloud-based storage for your calculations

We make it easy for you.

What properties, dosages, applications, shelf-life, and standard packaging is available for which MEGGLE lactose product?

Our services will help you find out quickly and easily:

www.meggle-pharma.com

DC

OPTIMIZE YOUR TABLETING PROCESS

Project title: Ibuprofen
No of tablets: 1000000 pcs
Batch size: kg



Basic Information

STEP 1

Raw Materials

STEP 2

Process Costs

STEP 3

Summary

STEP 4

The navigation center of MEGGLE's new online tool, DirectCost

When it comes to quality, our goals are simple: do everything better.

Whatever your needs in pharmaceutical lactose, we have it. Our comprehensive, lactose-based pharmaceutical excipient portfolio is no other in the industry and covers solid dosage forms from tablets, capsules, and sachets to powder formulations and dry powder inhalation. Some of these products are exclusive to MEGGLE.

In order to guarantee optimum quality and batch-to-batch consistency, we develop all our own products and manufacture most of them in-house. A few of our products are made under strict oversight and to our exacting quality standards by contract manufacturers in Europe. We make sure all international quality standards are met or exceeded. This is one of the many reasons why leading global pharmaceutical and supplement manufacturers have chosen us as a supplier.

MEGGLE stands for expertise.

Making processes faster and better – and therefore more efficient – has been our motto. It has helped make us a global market leader in direct compression and co-processed tableting excipients. We invest heavily in research and development and work closely with noted scientific and educational institutions all over the world. This is how we have achieved and maintained our leadership position. Innovation is the driving force behind our success. We prove this every day. MEGGLE's employees are highly motivated, competent, and welcome change.



international excipients
certification



DIN EN ISO 9001:2015
QUALITY MANAGEMENT SYSTEM

DIN EN ISO 50001
ENERGY MANAGEMENT SYSTEM

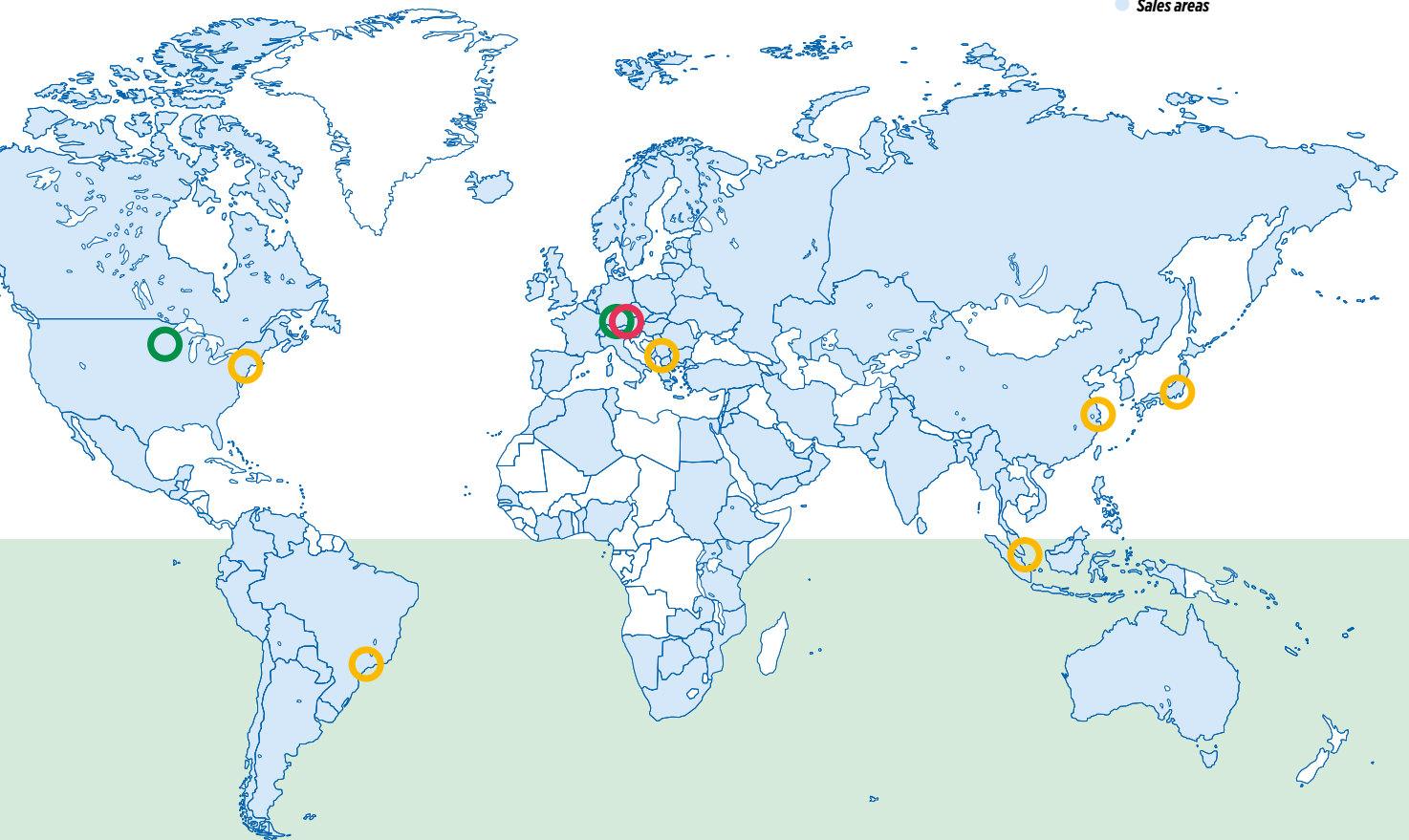
DIN EN ISO 14001
ENVIRONMENTAL MANAGEMENT SYSTEM

DIN EN ISO 45001
OCCUPATIONAL HEALTH AND SAFETY SYSTEM

Wherever you are – we are there for you.

MEGGLE is present. We are in over 100 countries. We have production facilities in Wasserburg-am-Inn in Bavaria as well as in Le Sueur/Minnesota in the US from which we service the North American market. Our global network for expert representatives, regional offices, and subsidiaries ensure that we are always nearby, bringing our first-class reputation. Wherever you are, when it comes to distribution, consultation, and service, you can count on the same quality you have come to expect of our products.

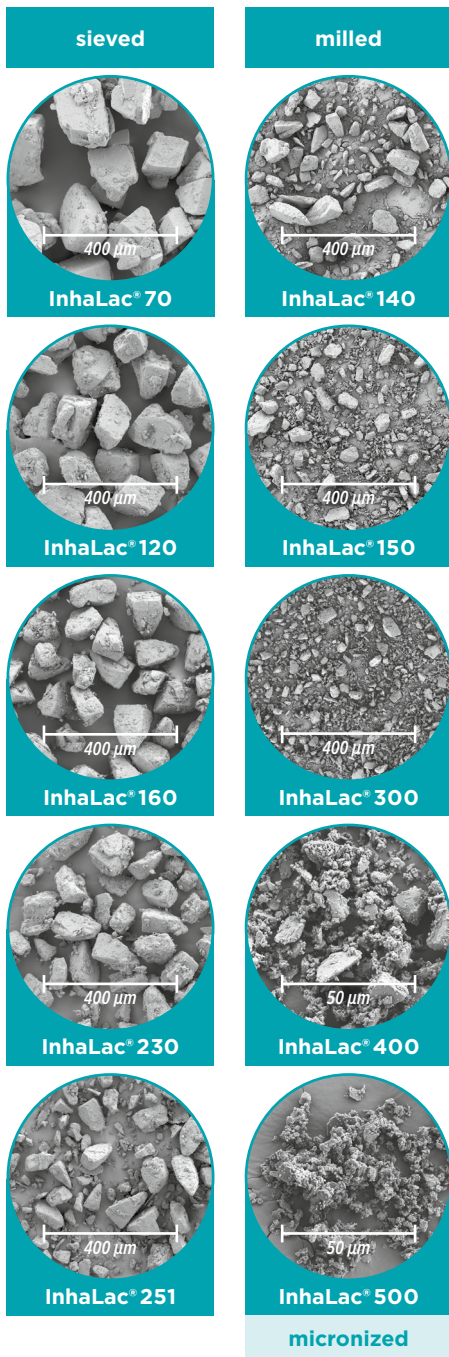
- **Headquarters**
Wasserburg
- **Production sites**
Wasserburg
Le Sueur/Minnesota
- **Regional offices**
New York
São Paulo
Pristina
Shanghai
Singapore
Tokyo
- **Sales areas**



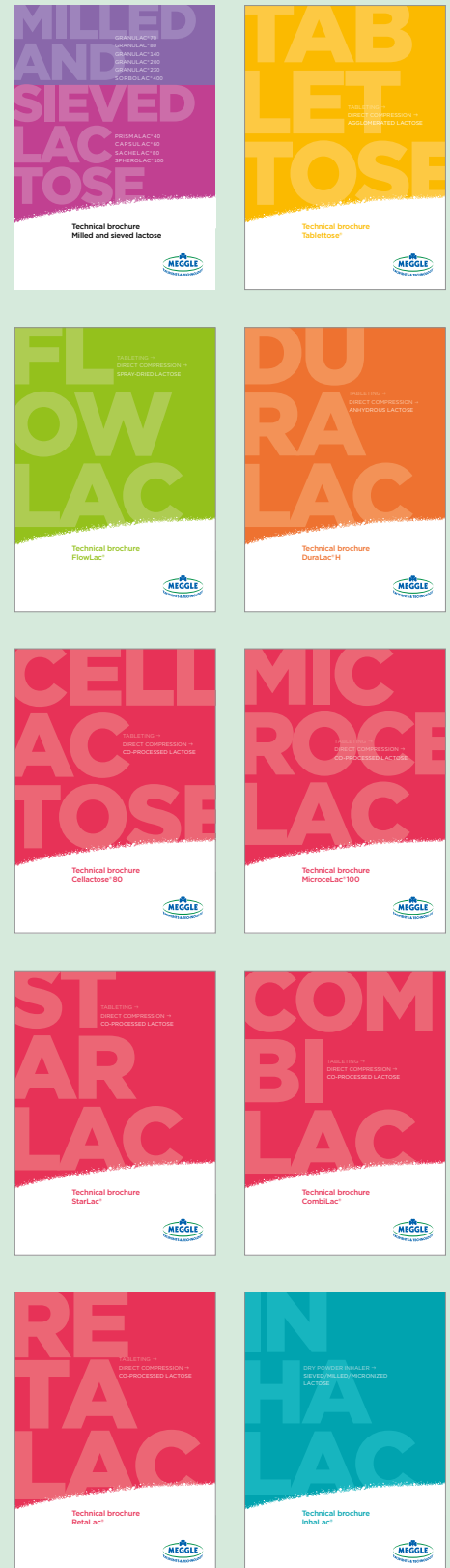
MEGGLE has got it: The right lactose product to meet any demand.

Tableting					Powder preparations
Granulation	Direct compression				
milled	agglomerated	spray-dried	anhydrous	co-processed	sieved
 GranuLac® 70	 Tablettose® 70	 FlowLac® 90	 DuraLac® H	 Cellactose® 80	 PrismaLac® 40
 GranuLac® 80	 Tablettose® 80	 FlowLac® 100		 MicroceLac® 100	 CapsuLac® 60
 GranuLac® 140	 Tablettose® 100			 StarLac®	 Sachelac® 80
 GranuLac® 200				 CombiLac®	 SpheroLac® 100
 GranuLac® 230				 RetaLac®	
 SorboLac® 400				sustained release	
				 Reta M®	
				lactose-free	

Dry powder inhalation



The world of lactose is our world. We are able to meet the specific needs of any and all of your applications. For further information on any product shown here, please refer to the specific product brochure available for downloading at www.meggle-pharma.com.



All product brochures and specifications can be downloaded as PDFs from www.meggle-pharma.com.

The highest dedication to the highest standards.

Milled lactose – for optimum granulation.

Milled Lactose shows a limited flowability and should therefore be granulated before tableting. GranuLac® and SorboLac® have a small particle size. Because of its good compression and blending properties, lactose is the most frequently used excipient for granulation.

Applications:

- Wet granulation
- Dry compression
- Premixes
- Triturations
- Fermentation
- Flavor off-set

Products:

- GranuLac® 70
- GranuLac® 80
- GranuLac® 140
- GranuLac® 200
- GranuLac® 230
- SorboLac® 400

Advantages:

- Good compactability
- Good blending properties
- Narrow particle size distribution
- High storage stability
- High batch-to-batch consistency

Sieved lactose – with superior blending properties.

Lactose is sieve-fractionated into various grades with narrow particle size distributions and exhibits good flow. Sieved lactose consists of mono-crystals and agglomerates. The variety of products allows you to optimize your selection for your particular application. Good blending properties and excellent flowability make these products especially well-suited to powder blends, and capsule and sachet filling.

Applications:

- Capsule filling
- Sachet filling
- Powder blend
- Triturations

Products:

- PrismaLac® 40
- CapsuLac® 60
- SacheLac® 80
- SpheroLac® 100

Advantages:

- Excellent flowability
- Narrow particle size distribution
- Good blending properties
- High storage stability
- High batch-to-batch consistency

Direct compression (DC) – maximum profitability.

Direct compression is the alternative to traditional granulation. Because they are convenient and safe to administer, tablets are the most popular pharmaceutical dosage form. They can be produced inexpensively in large volumes. Moreover, the prescribed active ingredient dosage can be prepared with a higher degree of accuracy. In the pharmaceutical industry, Direct Compression has already become the preferred method for manufacturing tablets. This is because of its economical production due to cost-effectiveness in manufacturing sites, labor, validation, as well as the increase in overall stability of the active ingredient within the tablet.

The selection of pharmaceutical excipients for direct compression is more critical than that for granulation in general, or wet granulation in particular. Few traditional excipients combine the functional characteristics, specifically powder flow and compactability, required for robust direct compression. This makes modifying traditional excipients a necessity.

Products:

- **Tablettose® 70**
- **Tablettose® 80**
- **Tablettose® 100**
- **FlowLac® 90**
- **FlowLac® 100**
- **DuraLac® H**

Co-processed excipients:

- **Cellactose® 80**
- **MicroceLac® 100**
- **StarLac®**
- **CombiLac®**
- **RetaLac®**
- **Reta M®**

Lactose for inhalation applications – flexible, according to your requirements.

InhaLac® is sieved, milled or micronized pharmaceutical lactose that is especially suited to applications in dry powder inhalation drug delivery. The InhaLac® product line is available in standard formulation or as a customized solutions to suit your requirements. Sieved InhaLac® has excellent flowability, defined particle surface, and chemical and physical stability that are the characteristics needed in dry powder inhalation excipients. The sieved product qualities are practically free of amorphous lactose.

The finely milled lactose InhaLac® 400 as well as the micronized lactose InhaLac® 500 are both excellently suited as tertiary components in dry powder inhalation drug delivery. As such, they are able to elevate the efficiency of the formulation. In addition they may serve as the basis for soft pellet formulations.

InhaLac®'s special suitabilities are due to its narrow particle size distribution.

Products:

- **InhaLac® 70**
- **InhaLac® 120**
- **InhaLac® 140**
- **InhaLac® 150**
- **InhaLac® 160**
- **InhaLac® 230**
- **InhaLac® 251**
- **InhaLac® 300**
- **InhaLac® 400**
- **InhaLac® 500**

Decisions made easy – all features at a glance.

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

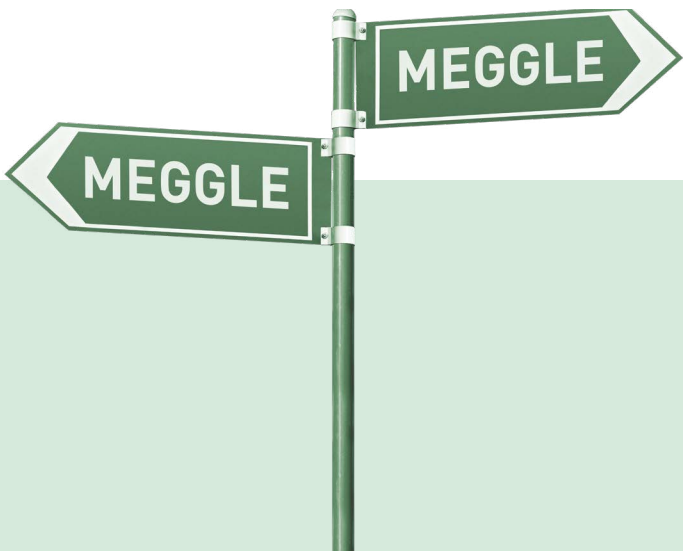
Product decision matrix

MEGGLE product	Product category						Tableting			Powder preparations				
	Sieved	Milled	Micronized	Agglomerated	Spray-dried	Anhydrous	Co-processed	Wet granulation	Dry granulation	Direct compression	Dry powder inhalation	Capsules	Sachets	Spheres
GranuLac® 70*		■						■	■			■	■	
GranuLac® 80*		■						■	■			■	■	
GranuLac® 140*		■						■	■					■
GranuLac® 200*		■						■	■					■
GranuLac® 230		■						■	■					■
SorboLac® 400		■						■	■					■
Tablettose® 70				■						■		■	■	
Tablettose® 80				■						■		■	■	
Tablettose® 100				■						■		■	■	
FlowLac® 90					■					■		■	■	
FlowLac® 100					■					■		■	■	
FlowLac® 100					■					■		■	■	
DuraLac® H**						■			■	■		■	■	■
Cellactose® 80					■		■		■	■		■	■	
MicroceLac® 100					■		■		■	■		■	■	
StarLac®					■		■		■	■		■	■	
CombiLac®					■		■		■	■		■	■	
RetaLac®				■			■		■	■		■	■	
Reta M®				■			■		■	■		■	■	
PrismaLac® 40	■											■	■	
CapsuLac® 60	■											■	■	
SacheLac® 80	■											■	■	
SpheroLac® 100	■											■	■	
InhaLac® 70	■										■			
InhaLac® 120	■										■			
InhaLac® 140		■									■			
InhaLac® 150		■									■			
InhaLac® 160	■										■			
InhaLac® 230	■										■			
InhaLac® 251	■										■			
InhaLac® 300		■									■			
InhaLac® 400		■									■			
InhaLac® 500			■								■			

* Dual production sites in Germany and the US

** US production site

*** In process



Regulatory			Functionality		Retest/Shelf-life	Packaging		Special features	
Ph. Eur./USP-NF/JP/ChP compliant	MEGGLE Specification	Drug master file (DMF)	Flowability	Compactibility		Packaging unit	PE-EVOH-PE inliner	Aluminum inliner	
■*			●●●●●	●●●●●	36 Months	25 kg paper bag	■		
■*			●●●●●	●●●●●	36 Months	25 kg paper bag	■		
■*			●●●●●	●●●●●	36 Months	25 kg paper bag	■		
■*			●●●●●	●●●●●	36 Months	25 kg paper bag	■		
■			●●●●●	●●●●●	36 Months	25 kg paper bag	■		
■			●●●●●	●●●●●	36 Months	20 kg paper bag		■	
■			●●●●●	●●●●●	36 Months	20 kg paper bag	■		Reduced fines, improved flowability
■			●●●●●	●●●●●	36 Months	25 kg paper bag	■		
■			●●●●●	●●●●●	24 Months	20 kg paper bag	■		Improved compactibility performance
■			●●●●●	●●●●●	36 Months	25 kg carton box		■	Virtually dust-free
■			●●●●●	●●●●●	18 Months	25 kg paper bag	■		
■			●●●●●	●●●●●	24 Months	25 kg carton box		■	
■**			●●●●●	●●●●●	36 Months	25 kg carton box		■	
■	■	■	●●●●●	●●●●●	36 Months	20 kg paper bag	■		Diluent/binder combination
■	■	■	●●●●●	●●●●●	18 Months	20 kg paper bag	■		Diluent/binder combination
■	■	■	●●●●●	●●●●●	36 Months	25 kg paper bag	■		Diluent/disintegrant combination
■	■	***	●●●●●	●●●●●	24 Months	20 kg carton box	■		Diluent/binder/disintegrant combination
■	■	■	●●●●●	●●●●●	24 Months	12 kg plastic drum	■		Controlled release matrix system
■	■		●●●●●	●●●●●	24 Months	15 kg carton box	■		Controlled release matrix system/lactose-free
■			●●●●●	●●●●●	36 Months	20 kg paper bag	■		
■			●●●●●	●●●●●	36 Months	25 kg paper bag	■		
■			●●●●●	●●●●●	36 Months	25 kg paper bag	■		
■			●●●●●	●●●●●	36 Months	25 kg paper bag	■		
■		***	n/a	n/a	24 Months	25 kg carton box	■		
■		■	n/a	n/a	24 Months	25 kg carton box	■		
■		***	n/a	n/a	24 Months	25 kg carton box	■	■	
■		***	n/a	n/a	24 Months	20 kg carton box	■	■	
■		***	n/a	n/a	24 Months	25 kg carton box	■		
■		***	n/a	n/a	24 Months	25 kg carton box	■	■	
■		***	n/a	n/a	24 Months	25 kg carton box	■	■	
■		■	n/a	n/a	24 Months	15 kg carton box		■	
■		■	n/a	n/a	18 Months	6 kg carton box	■	■	

- Excellent
- Very good
- Good
- Satisfactory
- Sufficient
- Insufficient/not advised



Are you curious? Would you like to know more?

Do you need technical support?

Our experts are available to you worldwide.

- Meetings with customers
- Technical presentations
- In-house seminars on lactose, direct compression, and all topics having to do with solid dosage forms as well as powder inhalers
- Customer-requested seminars

Please contact:

Technical department: Phone: +49 8071 73 623
Research and Development: Phone: +49 8071 73 138

Would you like to receive samples?

Please contact our customer service:

Phone: +49 8071 73 476
service.pharma@meggle.com
www.meggle-pharma.com

Do you have sales related questions?

Our field sales representatives are available worldwide:

Africa and Middle East:

Phone: +20 100 1486 826 or hani.calache@meggle.com

Asian Regions:

Phone: +65 693 158 50 or siangmeng.chua@meggle.sg

China:

Phone: +86 21 3393 2457 308 or yi.kang@meggle-china.com

Japan:

Phone: +81 3 3561 3491 or yokomizo@meggle.co.jp

Europe:

Phone: +49 8071 73 118 or service.pharma@meggle.com

USA and Canada:

Phone: +1 845 289 0264 or customer.service@meggle.com

Central and South American Regions:

Phone: +55 11 2893 4831 or fabio.ikuno@meggle.com

For additional regional representatives, please visit us at www.meggle-pharma.com.

Submitted by

MEGGLE Group Wasserburg BG Excipients & Technology

Megglestrasse 6-12
83512 Wasserburg
Germany

Phone +49 8071 73 476
service.pharma@meggle.com
www.meggle-pharma.com

MEGGLE warrants that its products conform to MEGGLE's written specification and makes no other expressed or implied warranties or representations. For any specific usage, the determination of suitability of use or application of MEGGLE products is the sole responsibility of the user. The determination of the use, application, and compliance of this product with regard to any national, regional, or local laws and/or regulations is the sole responsibility of the user, and MEGGLE makes no representation with regards to same. Nothing herein shall be construed as a recommendation or license to use the product or any information that conflicts with any patent or intellectual property of MEGGLE or others and any such determination of use is the sole responsibility of the user. © MEGGLE