

**Parreck® Mn SD Excipient**

# Small particles add up to make a big difference.

**Fine particle size and  
highest purity.**

Parreck® Mn SD manganese sulfate features  
a small particle size, narrow particle size  
distribution and low impurity levels.

The life science business  
of Merck KGaA,  
Darmstadt, Germany  
operates as MilliporeSigma  
in the U.S. and Canada.

**SAFC®**

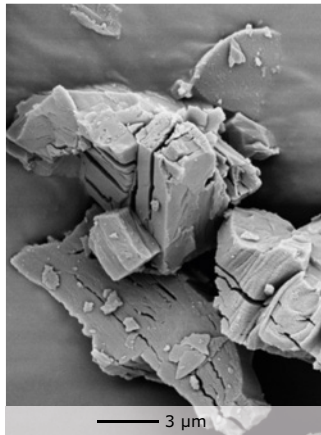
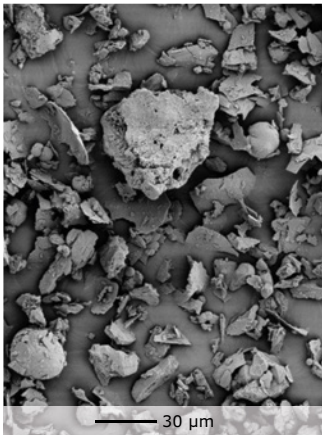
Pharma & Biopharma Raw  
Material Solutions

# Pardeck® Mn SD Excipient

## One trace element, many qualities.

Manganese is an important trace element used in various applications. As it is usually administered in very small quantities, content uniformity is key – for any application. Consequently, a fine and even distribution is required. The fine particle size and narrow and reproducible particle size distribution (PSD) of Pardeck® Mn SD manganese sulfate is very beneficial. Additionally, its large particle surface area contributes to fast and quantitative dissolution which supports improved absorption, one of the key factors for good bioavailability.

High purity standards and regulatory qualification and documentation are expected for any fine powder grade applications. Our high-quality raw materials and services will perform consistently and reliably at every stage and scale and come with a comprehensive documentation package.



### Optimal particle size.

The unique spray drying production process leads to a very fine powder and a large particle surface area of up to 1 m<sup>2</sup>/g. As a result, Pardeck® Mn SD excipient shows an extraordinarily fast dissolution rate.

Fig. 1: SEM of Pardeck® Mn SD excipient particles.

	Batch 1	Batch 2	Batch 3	Mean value
D10 [µm]	3.72	3.67	3.79	3.73
D50 [µm]	13.09	13.02	13.54	13.22
D90 [µm]	31.53	31.80	32.81	32.05
Bulk density [g/ml]	0.41	0.40	0.41	0.41
Packed density [g/ml]	0.75	0.78	0.80	0.78

Table 1: Typical particle size, bulk density and packed density of Pardeck® Mn SD excipient.

## High purity.

Manganese sulfate tends to form manganese dioxide ( $\text{MnO}_2$ ) as a particulate impurity. Special proprietary production steps take care of that, which leads to unmatched high purity of the Parreck® Mn SD material. Thanks to change control, a constant high purity process is guaranteed. All manufactured under GMP conditions. Additionally, with our Emprove® Program, Parreck® Mn SD excipient comes with comprehensive regulatory documentation.

### PARTECK® MN SD EXCIPIENT PROVIDES:



Unique fine particle size –  
with a narrow distribution



Unmatched high surface area of up to  $1 \text{ m}^2/\text{g}$   
supporting fast dissolution



Highest chemical purity available  
on the market



### The Emprove® Program

## Your fast track through regulatory challenges.

Ensuring the compliance of your pharma and biopharma products involves the compilation of a vast amount of data, which can be time and resource intensive. Our Emprove® Program helps you meet the latest regulatory requirements for risk assessment and offers assistance in developing more robust processes. To help you optimize your process, our Emprove® Program provides comprehensive and thorough documentation for approximately 400 raw and starting materials as well as a selection of filters, single-use devices and components. It not only covers the latest regulatory requirements, but also anticipates industry expectations not yet covered by regulation. The Emprove® Program is organized into three different types of dossiers. Every dossier supports you throughout different stages of your operations: qualification, risk assessment, and optimization – so you can speed your way through the regulatory maze.

Find out more at:

**[EMDMillipore.com/emprove](http://EMDMillipore.com/emprove)**

# CLICK. EXPLORE. LEARN MORE.

## Parteck® Product Portfolio

Excipients for oral solid dosage forms featuring unique particle properties and outstanding individual functionalities such as solubility enhancement or controlled release.

For more information, visit:

**[EMDMillipore.com/parteck](https://www.emdmillipore.com/parteck)**

## Formulation Product Finder App

Find the right product for specific applications at:

**[EMDMillipore.com/formulationapp](https://www.emdmillipore.com/formulationapp)**

## Need excellent binding and content uniformity?

Parteck® M is a directly compressible excipient that combines stability with rapid disintegration for your solid dosage form – and excellent content uniformity even for low-dose formulations.

Explore Parteck® M excipient at:

**[EMDMillipore.com/parteckm](https://www.emdmillipore.com/parteckm)**

## Ordering information

Cat. No.	Product	Pack size	Packaging
1.05999.0500	Parteck® Mn SD EMPROVE® ESSENTIAL Ph Eur,USP,FCC	0.5 kg	Plastic bottle in corrugated box
1.05999.1000		1 kg	Plastic bottle in corrugated box
1.05999.9029		25 kg	PE bag in corrugated box

The typical technical data above serve to generally characterize the excipient. These values are not meant as specifications and they do not have binding character. The product specification is available separately, from the website: **[EMDMillipore.com](https://www.emdmillipore.com)**

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

For additional information, please visit **[EMDMillipore.com](https://www.emdmillipore.com)**

To place an order or receive technical assistance, please visit **[EMDMillipore.com/contactPS](https://www.emdmillipore.com/contactPS)**

