



## Dow Construction Chemicals

# Redispersible Powders

## Technical Overview and Product Guide



### Introduction to Redispersible Powders from Dow Construction Chemicals

Redispersible latex powders from Dow Construction Chemicals are organic polymer powders obtained through the spray-drying of aqueous emulsions. In combination with cellulose ethers and other additives, DOW™ Latex Powders and DRYCRYL™ dispersion powders help improve the properties and performance of cement- or gypsum-based dry-mix products.

Redispersible latex powders combine the performance benefits of liquid latex modifiers with the convenience, reliability and handling/storage advantages of one-component dry-mix systems.

#### **Advantages for end-use products include:**

- Better water retention and open time
- Better strength development of the mortar
- Improved workability
- Increased adhesion to a variety of substrates
- Improved wetting of the substrate
- Higher flexural strength and flexibility
- Increased impact and abrasion resistance
- Freeze/thaw resistance
- Higher and more durable product quality (contributing to reduced job-site failure)

### Your Redispersible Powders Applications Specialist

Dow Construction Chemicals offers an expanding portfolio of redispersible powders for construction applications. We use our proven chemistry, world-class research capabilities and experience in the building and construction industry to remain current on the industry's ever-changing trends and help bring you the innovations of tomorrow.

High-performance redispersible latex powders and companion chemistries are used in a wide range of applications as binders and additives to influence workability, weatherability, strength development and many other application-specific properties. Employing construction chemical application and manufacturing expertise to offer solutions based on customer needs, we can help you take performance to the next level. Our strong supply chain capabilities and an expanded production capacity in North America provide customers with local product availability and simplified logistics. And we'll be here to respond quickly with technical service and support.

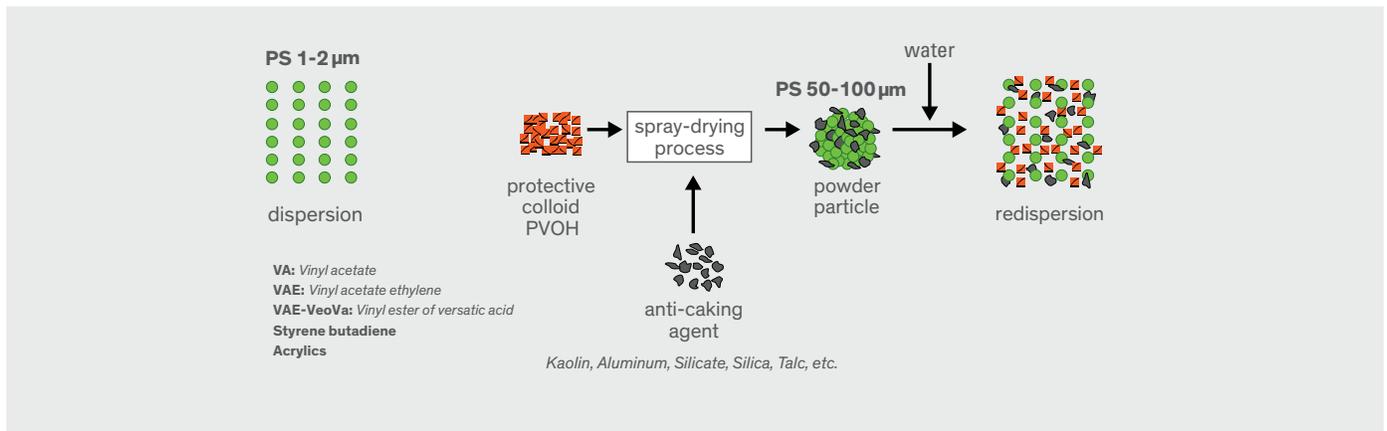
## Process and Chemistry

The redispersible latex powder development process involves three key steps:

1. Polymerization of dispersions that are specifically designed for redispersible powder production – provides optimal application properties
2. Selection of appropriate protective colloid system to be added to liquid dispersion prior to the spray-drying process – provides optimal redispersibility
3. Selection of appropriate quantity and quality of anti-caking agents to be added during spray-drying – provides optimal storage stability

A simplified model of the product development process is shown in Figure 1.

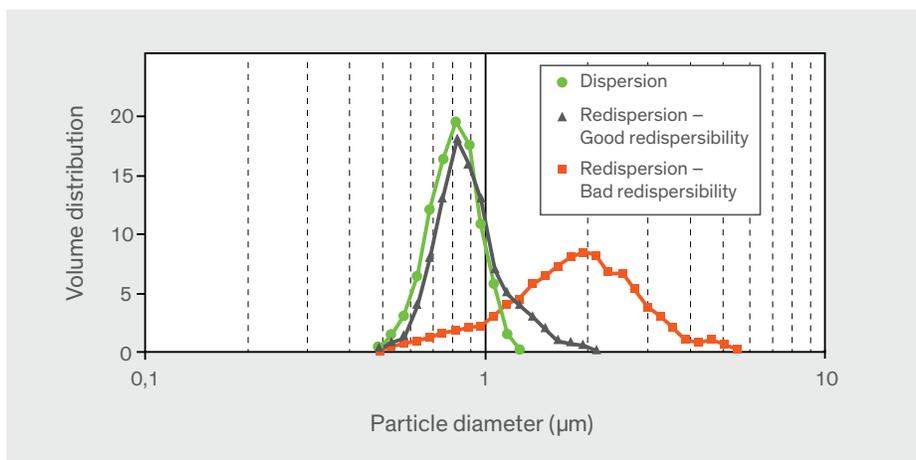
**Figure 1: Redispersible Powder – Simplified Model**



Particle size distribution of the redispersion is a measure of the redispersibility – and is one of the most important properties of a redispersible polymer powder. As illustrated in Figure 2,

smaller-diameter powder particles will contribute to more uniform redispersions with less clumping than larger-diameter particles.

**Figure 2: Particle Size Distribution (Comparison of Dispersion and Redispersion)**



## Available in VAE, VAE-VeoVa, Styrene Butadiene and 100% Acrylic Powder

Dow Construction Chemicals offers four basic types of redispersible powders for construction applications:

- Vinyl acetate ethylene (VAE) copolymers
- Vinyl acetate/vinyl ester of versatic acid (VAE-VeoVa) copolymers
- Styrene butadiene (SB)
- 100 percent acrylic powder

A range of products is available to meet the performance requirements of a variety of dry mortar applications, including: tile adhesives, grouts, plasters, renders, self-leveling flooring compounds, skim coats, repair mortars, gypsum fillers, waterproofing mortars, and exterior insulation and finish systems (EIFS).

### DOW™ Latex Powder (DLP) and DRYCRYL™ Product Portfolio

PRODUCT	Composition	MFFT (°C) <sup>(1)</sup>	RHEOLOGY	FEATURES
DLP 211	VAE-VeoVa	3	Neutral	Medium hard, multipurpose
DLP 212	VAE-VeoVa	0	Neutral	Flexible, multipurpose
DLP 2000	VAE	3	Neutral	Medium hard, multipurpose
DLP 2001	VAE-VeoVa	2	Neutral	Medium hard, improved water resistance
DLP 2101	VAE	0	Neutral	Flexible, multipurpose
DLP 2020	VAE	3	Thixotropic	Medium hard, thixotropic
DLP 2141	VAE-VeoVa	0	Neutral	Flexible, hydrophobic
DLP 442	100% SB	4	Neutral	Medium-hard, hydrophobic
DRYCRYL™ DP-2903	100% Acrylic	–	Neutral	Medium-hard; excellent adhesion and UV stability

<sup>(1)</sup> Minimum film formation temperature, approx.

### Recommended Applications for DOW™ Latex Powders (DLP) and DRYCRYL™ Products

PRODUCT	MFFT (°C) <sup>(1)</sup>	TILE ADHESIVES	TILE GROUTS	EIFS	Cement-Based Plasters	Masonry Mortar for ALC	Self-Leveling Under-layments	Gypsum-Based Crack Fillers	Repair Mortars
DLP 211	3	••			•	•	•	•	
DLP 212	0	•	•	••	•	•		••	•
DLP 2000	3	••						•	
DLP 2001	2	••		•	••	•	••		
DLP 2101	0		••	••	••				••
DLP 2020	3	••							
DLP 2141	0		••	••					
DLP 442	4		•						•
DRYCRYL™ DP-2903	–		••	••					••

<sup>(1)</sup> Minimum film formation temperature, approx.

- Highly Recommended
- Recommended



### Handling and Safety Considerations

Material Safety Data Sheets (MSDS) for DLP and DRYCRYL™ products are available from Dow to help satisfy your own handling, disposal and safety needs, and those that may be required by government regulations. Such information should be requested prior to handling or use. The general information that follows is not a substitute for the detailed safety information found in the MSDS.

### Storage

DLP and DRYCRYL™ DP-2903 products should be stored in a dry and cool environment. It is recommended to use these products within six months of purchase. Storage in high humidity and temperature will increase the risk of blocking. Storage under pressure should also be avoided. Do not stack pallets on top of each other to avoid compaction.

### Health

As is typical when working with powders, ensure that adequate respiratory protection measures are taken. Please refer to the safety data sheet for more specific respiratory protection measures, as well as more detailed health and safety considerations.

### Flammability

DLP and DRYCRYL™ DP-2903 products are free-flowing powders and, as such, can create dust. Avoid dust buildup. Fine dust of these products can form explosive mixtures with air and could pose a fire and explosion hazard; keep away from ignition sources. Take precautions to avoid accumulation of static charge. To prevent dust explosions, employ bonding and grounding for operations capable of generating static electricity.

## Better Building Starts Here



In the U.S.

[dowconstructionchemicals.com](http://dowconstructionchemicals.com)

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This document is designed as a general overview of Dow Construction Chemicals products. Always review specific product literature/safety data sheets for current information. Please contact your local Dow Construction Chemicals representative for detailed technical information applicable to individual requirements.

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Form No. 832-00224 - 1217  
CDP 83234