

# PPG HI-SIL<sup>®</sup>

## Silica Products for Agrochemical Applications



### AGROCHEMICAL APPLICATIONS

#### Carrying, Free-Flow and Anti-Blocking

As a trusted name with global agrochemical manufacturers for decades, PPG HI-SIL<sup>®</sup> silica includes an extensive collection of products with a range of physical properties, making it uniquely equipped to help address many of the diverse challenges that agrochemical manufacturers encounter when working with liquid and dry active ingredients.

#### Challenges Faced by Agrochemical Manufacturers

- Safe storage and handling of both dry powder and highly viscous liquid ingredients
- Precise dosing of thick, viscous or sticky liquids or cohesive, sticky solids
- Efficient release of active ingredients into soil to increase efficacy
- Stabilizing insoluble active ingredients
- Increasing the efficiency of insoluble active ingredients
- Improving crop yields through early-stage seed treatment and young plant nutrition

#### Solutions for Liquid Active Ingredients and Formulations<sup>1</sup>

PPG Hi-Sil silica converts liquid ingredients – especially thick, viscous and sticky liquids – into a free-flowing powder, or dry liquid concentrate (DLC), to deliver a variety of benefits to agrochemical manufacturers.

- Supports accurate and consistent dosing of liquid active ingredients to help control formulation efficacy and cost
- Serves as a vehicle to efficiently deliver active ingredients and micro-nutrients that aid seed germination and young plant nutrition
- Helps make liquid active ingredients easy to handle, transport and store

#### Solutions for Dry Active Ingredients and Formulations<sup>1</sup>

PPG Hi-Sil silica serves as an agent to promote flow, anti-caking and anti-blocking for dry active ingredients and formulations.

- Increases flow rates and improves flow rate consistency through bulk material handling equipment, such as hoppers, silos, and feeders
- Absorbs ambient moisture to reduce caking and extend product shelf-life
- Serves as an anti-blocking agent to improve the flow of coated seeds through handling equipment



#### Potential Applications

- Biocides
- Fertilizers
- Fungicides
- Herbicides
- Insecticides
- Pesticides
- Seed treatment
- Young plant nutrition



<sup>1</sup>Benefits referred to in this document are relative to the product without silica added. Benefits are observed in a combination of customer applications and/or controlled lab settings. Users may or may not observe all of the aforementioned benefits based on their specific application. The referenced benefits are not exhaustive.

### Typical Performance by Function<sup>2</sup>

The PPG HI-SIL® silica portfolio for carrying, free-flowing and anti-blocking applications includes a broad range of products. While the suitability of a PPG Hi-Sil silica product is specific to your unique situation and application, the chart below provides particle size and the strengths of each product and can help you begin the evaluation process. Actual results may vary depending on process conditions. Final product selection should be based on testing in customer-specific products and processes.

+++	Preferred
++	Recommended
+	Suitable

Manufacturing Location	PPG Silica Product	Particle Size, µm*	Carrying / Dry Liquid Concentrate	Free-Flowing / Anti-Caking / Anti-Blocking
North America	Hi-Sil 210	1,400	+++	+
	Hi-Sil 213	600	+++	+
	Hi-Sil SC-72X	250	+++	++
	Hi-Sil 215	250	+++	+
	Hi-Sil LPC	140	+++	++
	Hi-Sil SP	45	+	+++
	Hi-Sil ABS	40	+++	+++
	Hi-Sil FF	20		+++
	Hi-Sil 233	18	+++	++
	Hi-Sil 532EP	15		+
	Hi-Sil 915	10	+	+++
Europe	Hi-Sil 255C-D	45	+++	++
	Hi-Sil 233-D	45	+++	++
	Hi-Sil ABS-D	40	+++	+++
	Hi-Sil 315-D	30	++	++
	Hi-Sil 155C-D	22	+++	++

\* Median D 50 particle size as determined by laser scattering.

<sup>2</sup>Suitability ratings are based on the experience of PPG's technical service team.

## Typical Properties

PPG Silica Product	Particle Size, $\mu\text{m}^*$	DOA Oil Absorption, mL/100g	pH	Bulk Density		Carrying Capacity**
				lb/ft <sup>3</sup>	g/L	
<i>Hi-Sil 210</i>	1,400	200	7.0	15	240	60-65%
<i>Hi-Sil 213</i>	600	200	6.9	16	256	60-65%
<i>Hi-Sil SC-72X</i>	250	290	6.7	13	208	70-75%
<i>Hi-Sil 215</i>	250	200	7.0	15	240	60-65%
<i>Hi-Sil LPC</i>	140	250	6.9	12	192	60-65%
<i>Hi-Sil 255C-D</i>	45	290	6.3	8	128	65-70%
<i>Hi-Sil SP</i>	45	275	6.9	11	176	55-60%
<i>Hi-Sil 233-D</i>	45	280	7.0	9	136	60-65%
<i>Hi-Sil ABS-D</i>	40	305	6.9	8	128	70-75%
<i>Hi-Sil ABS</i>	40	305	6.9	8	128	70-75%
<i>Hi-Sil 315-D</i>	30	290	7.0	6	96	60-65%
<i>Hi-Sil 155C-D</i>	22	285	6.9	5	80	55-60%
<i>Hi-Sil FF</i>	20	215	7.0	8	128	55-60%
<i>Hi-Sil 233</i>	18	190	7.0	9	144	55-60%
<i>Hi-Sil 532EP</i>	15	186	8.0	10	160	40-45%
<i>Hi-Sil 915</i>	10	265	7.0	5	80	50-55%

\* Median D 50 particle size as determined by laser scattering.

\*\* Carrying capacity is an typical range based on the experience of PPG's technical service team.

**PPG Hi-Sil 233 silica** is highlighted in the formulations of several registered agrochemical products due to its time-tested effectiveness in converting liquid active ingredients, such as herbicides, pesticides and fertilizers, into DLCs to improve ease of handling and to promote accurate dosing within formulations.

**PPG Hi-Sil 210 and Hi-Sil 213 silicas** are used to carry mold-prevention ingredients, such as propionic acid, and other active ingredients to crops to reduce yield loss caused by mold and plant growth inhibitors.

## Product Safety and Regulatory Information

For the latest safety and regulatory information, please reference:

- Product Safety Data Sheets, available at [www.ppgsilica.com/SDS](http://www.ppgsilica.com/SDS)
- Global Product Safety and Regulatory Information Sheet, available at [www.ppgsilica.com/GPSRIS](http://www.ppgsilica.com/GPSRIS)

## Packaging

Standard packaging includes small bags and Flexible Intermediate Bulk Containers (FIBCs). Bags are unitized for shipping on pallets that are stretch wrapped with clear plastic film. FIBC's are double stacked on wood pallets. Please consult with Customer Service or your sales representative regarding additional packaging options including custom package sizes and bulk shipments.

## Samples

Samples are available upon request from PPG's customer service team at 1-800-243-6745 (U.S.) or +31-596-676710 (Europe).

## Storage

To ensure product integrity, PPG recommends that our silica products be stored under dry, clean conditions and protected against exposure to other substances. Since silica may pick up moisture, we also recommend that products that are stored for more than one year from the date of manufacture be re-tested for moisture content. There is no shelf life limit when stretch-wrapped palletized units or bags are kept under the above stated conditions. Pallets should not be double-stacked.

## Safety and Health Effects

PPG recommends that, before use, anyone using or handling this product thoroughly read and understand the information and precautions on the label, as well as in other product safety publications such as the Safety Data Sheet. Any health hazard and safety information contained herein should be passed on to your customers or employees, as the case may be. The products mentioned herein can be hazardous if not used properly. Like all potentially hazardous materials, this product must be kept out of the reach of children.

Visit [www.ppgsilica.com](http://www.ppgsilica.com) for more information.



**USA**  
**PPG Silica Products**  
440 College Park Drive  
Monroeville, PA 15146 USA

Customer Service: 1-800-243-6745  
Technical Service: 1-800-764-7369  
E-mail: [silicacustserv@ppg.com](mailto:silicacustserv@ppg.com)

**EUROPE**  
**PPG Delfzijl Plant**  
P.O. Box 181  
9930 AD Delfzijl, The Netherlands

Customer Service: +31-596-676710  
Technical Service: +31-596-676710  
E-mail: [csdelfzijl@ppg.com](mailto:csdelfzijl@ppg.com)

