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Carrier and Free-Flow

## FOOD



## PPG Precipitated Silica Products for the Food Industry

For more than 30 years, PPG has engineered FLO-GARD™ silica products to meet the flow conditioning challenges associated with virtually every type of powdered, granulated, emulsified or grated food product. Designed to prevent caking and optimize the flow characteristics of food products, *Flo-Gard* flow conditioning silica products enable improved product performance and manufacturing productivity by:

- Imparting uniformity to irregularly shaped particles
- Absorbing ambient moisture and oils from food particles
- Forming micro-layers of dust on sticky particle surfaces to prevent agglomeration
- Serving as a dry lubricant
- Dissipating electrostatic charge between particles

For food manufacturers, the resulting benefits include:

- Increased processing efficiency through smoother ingredient blending and less caking in screens, hoppers, conveyors, spray dryers and machinery
- Enhanced product consistency and quality control through accurate, automated dosing of fruit and vegetable extracts, spices, nutrients, preservatives and other constituent materials
- Easier packaging
- Greater storage and transportation flexibility, including the ability to ship products in a variety of temperature, humidity and environmental conditions

### *Flo-Gard* Silica Product Properties for Food Free-Flow and Carrier Applications

	Particle Size* (µm)	DBP Oil Absorption (mL/100g)	pH	Residual Salt Type	Bulk Density		General Use Recommendations
					lb/ft <sup>3</sup>	g/L	
<i>Flo-Gard</i> LPC	135	245	6.9	Na <sub>2</sub> SO <sub>4</sub>	12	195	Medium to

							large particle size applications
<i>Flo-Gard</i> SP	45	265	6.9	Na <sub>2</sub> SO <sub>4</sub>	11	175	Medium particle size applications with higher oil and fat absorptivity
<i>Flo-Gard</i> AB/AB-D	40	305	6.9	Na <sub>2</sub> SO <sub>4</sub>	8	130	Medium particle size applications with higher oil and fat absorptivity, including with aqueous components
<i>Flo-Gard</i> FF/FF-D	20	210	6.9	Na <sub>2</sub> SO <sub>4</sub>	8	130	Fine particle size applications with higher oil absorptivity
<i>Flo-Gard</i> 915	10	220	6.9	Low Na <sub>2</sub> SO <sub>4</sub>	5	80	Fine to ultra-fine particle size applications with increased oil absorptivity
<i>Flo-Gard</i> T-700	4	215	6.9	Na <sub>2</sub> SO <sub>4</sub>	2.5	40	Ultra-fine particle size applications
<i>Flo-Gard</i> T-800	2.5	220	6.9	Na <sub>2</sub> SO <sub>4</sub>	2	30	Demanding ultra-fine particle size applications

\* Median particle size by laser diffraction.

View table listing specific food product applications and the recommended *Flo-Gard* silica product.

<i>Flo-Gard</i> LPC	<i>Flo-Gard</i> SP	<i>Flo-Gard</i> AB/AB-D	<i>Flo-Gard</i> FF/FF-D	<i>Flo-Gard</i> 915	<i>Flo-Gard</i> T-700	<i>Flo-Gard</i> T-800
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Cocoa Powder			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Dried Egg Yolks*			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Dried Eggs*			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Garlic and Onion Salt		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Instant Coffee and Tea		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ground Herbs and Spices	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lemon, Lime and Orange Powders		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Malt-emulsifier Powder		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Non-Dairy Creamer		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Pancake and Cake Mixes			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Paprika	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Powdered Drink Mixes		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Powdered Milk			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Powdered Sugar				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Granulated Salt and Sugar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Grated Cheese**			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Tableting Aid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Salt and Sugar Substitutes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Except as noted, all applications conform to 21 CFR 172.480, which allows precipitated silica in quantities not to exceed 2% by weight of the finished food product.

\* Per 21 CFR 160.185 and 21 CFR 160.105, silica is limited to no more that 1% of the finished food weight

\*\* Per 21 CFR 133.146, silica is limited to no more than 2% of the finished food weight

*Flo-Gard* is a trademark of PPG Industries Ohio, Inc.

### Related Resources

*Flo-Gard* AB Silica Product sheet

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*Flo-Gard* FF Silica Product Sheet

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*Flo-Gard* SP Silica Product Sheet

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*Flo-Gard* Silica for Food Applications

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