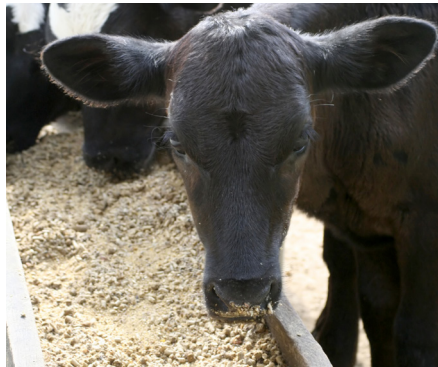


SIPERNAT® 45 and SIPERNAT® 45 S High Absorption Capacity Problem Solvers



Inside, to get it right – Evonik provides solutions to improve the flow behavior and storage stability of powders with specialty engineered anti-caking, free-flow agents, and carriers. Through advanced controlled structure technology and custom application development, SIPERNAT® 45 and SIPERNAT® 45 S can efficiently provide the optimal application solution.

SIPERNAT® 45

This precipitated silicon dioxide is an extremely absorptive, medium particle size carrier that converts liquids into free-flowing powders for easy processing and handling. SIPERNAT® 45 is specifically engineered to be used when you need the highest level of carrying capacity, forming dry liquid concentrates up to 75%!



Liquids that SIPERNAT® 45 can convert to highly concentrated absorbates:

- Organic Acids
- Fragrances and Flavors
- Antioxidants
- Oleoresins
- Ethoxylated Monoglycerides
- Methionine
- Choline Chloride
- Surfactants

Maximum Absorption Capacity of ZEOFREE® and SIPERNAT® products/wt%

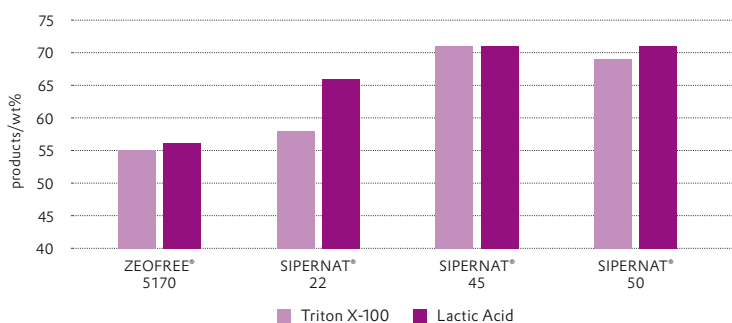
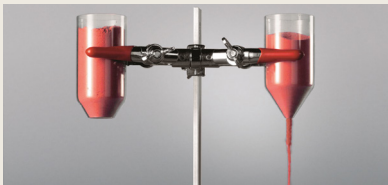


Figure 1
SIPERNAT® 45, despite being lower in surface area, serves as a highly absorptive, specialty carrier for liquids. In the example above, it exceeded a loading of 70% liquid, while maintaining free flow and easy handling properties.

SIPERNAT® 45 S

This precipitated silicon dioxide is a high-performance anti-caking agent and free flow aid. With its combination of high absorption capacity and small particle size, SIPERNAT® 45 S protects hygroscopic ingredients, prolonging shelf life and improving powder rheology.

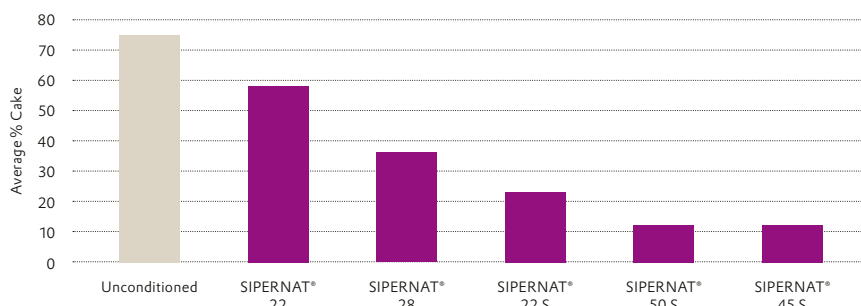


Products which may benefit from SIPERNAT® 45 S:

- Spices and Seasonings
- Non-Dairy Creamer
- Milk Replacers
- Instant Beverages
- Protein Powders
- Salts
- Cheese Powders
- Soup and Bouillon Mixes

Anticaking Impact of SIPERNAT® 45 S on Hygroscopic Formulations

Moisture and Pressure (2.0 mL/100 g) (2.0 psi for 15 min.)



*Example:
Fruit Punch Pre-workout
Powder*

Figure 2
SIPERNAT® 45 S is extremely effective at reducing caking. In the example above, at 2% dosage SIPERNAT® 45 S reduced caking by over 80% in a hygroscopic, nutritional pre-workout powder.

PRODUCT	DOA ABSORPTION (ml/100g)	PARTICLE SIZE (µm)	pH	SPECIFIC SURFACE AREA (m ² /g)	TAMPED DENSITY (g/L)	REGIONAL AVAILABILITY
SIPERNAT® 45	285	25	7.5	265	150	Americas
SIPERNAT® 45 S	275	18	7.5	260	90	Americas

The given data are typical values. Specifications are available on request. Evonik strives for quality, consistency and reliability.

Evonik precipitated silica and silicates comply with various global regulatory requirements, i.e. FDA 21 CFR 172.480, 173.340,160.105, and the FCC Silicon Dioxide monograph. Please contact Evonik for specific information regarding regulatory approvals.



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The Silica specialists at Evonik – Inside, to get it right.

