

Improving your milling process

with AEROSIL® fumed silica and SIPERNAT® specialty silica

AEROSIL® and SIPERNAT® products help to keep your mill clean and ensure the flowability of your fine product.

Good flowability and anti-caking behavior of the milled powder is crucial in many applications for efficient handling, reduced shut down periods, accurate dosing and optimized conveying and storage.

Many ingredients in daily use undergo milling as a production step such as spices, seasonings, icing (confectioner's) sugar and herbs. The handling of several products during the milling step can cause problems such as adhesions at the mill wall and lumping of the product.



How can SIPERNAT® and AEROSIL® products help during the milling step?

- Silica reduces the caking of low melting powders.
- Silica absorbs promptly any released liquid.
- Silica avoids clogging of the mill and decreases the shutdown times.
- Silica improves the free flowing and anti-caking properties.
- Silica reduces time and cost consuming maintenance intervals.
- Silica increases the throughput by longer operation times.

The use of Evonik's specialty silica and fumed silica is beneficial for hammer mills, pin mills or similar. Applying the silica in this way is especially convenient, as the fine powder is already coated with silica during the milling process, which improves the flow-characteristics of the material for the following processing steps. In Table 1 some application examples are listed:

Table 1: Application examples of silica used as milling aid

Application	Examples	Recommended types of milling aid
Food/Feed	Seasonings/Spices Herbs Salt/Sugar Mineral mixes Limestone	SIPERNAT® 50 or SIPERNAT® 50 S SIPERNAT® 22 or SIPERNAT® 22 S SIPERNAT® 350 AEROSIL® 200 F or AEROSIL® 380 F SIPERNAT® D 17 for feed only
Agrochemicals	Wettable powders	SIPERNAT® 22 SIPERNAT® 320 SIPERNAT® 350 SIPERNAT® 360
Chemical products	Sulphur	SIPERNAT® 320

Examples for AEROSIL® and SIPERNAT® grades

By offering the broadest range of food and feed compliant SIPERNAT® or AEROSIL® products, Evonik is able to address a wide range of properties:

Characteristic physico-chemical data of selected silica grades

Silica	DOA*-absorption in g/100 g Internal method	Particle size in µm Laser diffraction following ISO 13320	Food grade**	Feed grade***
SIPERNAT® 22 S	240	13.5	Yes/E 551	Yes/E 551 a
SIPERNAT® 22	235	120	Yes/E 551	Yes/E 551 a
SIPERNAT® 50 S	280	18	Yes/E 551	Yes/E 551 a
SIPERNAT® 50	295	50	Yes/E 551	Yes/E 551 a
SIPERNAT® 350	170	4.5	Yes/E 551	Yes/E 551 a
SIPERNAT® 320	195	≤ 10 % > 63 µ	No	No
SIPERNAT® 340	235	20	Food grade available in the Americas only	No
SIPERNAT® D 17	Not specified	10	No	Yes/E 551 a
AEROSIL® 200 F	Not applicable	Not applicable	Yes/E 551	Yes/E 551 b
AEROSIL® 380 F	Not applicable	Not applicable	Yes/E 551	Yes/E 551 b

* DOA = Dioctyl adipate, the numbers show the absorption capacity of a product, higher numbers means a larger absorption capacity, measured on original substance.

** In Europe HACCP according to food additives EU 1333-2008

*** In Europe according to FAMI-QS

Purple marked product is hydrophobic

The given data are typical values. Specification on request.

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