AEROSIL® fumed silica

Lubricating grease applications

The use of AEROSIL® fumed silica is recommended for lubricating greases used in industrial applications, automotive, electrical as well as food grade.

Electrical

Hydrophilic AEROSIL®
- High thixotropic effect
- High temperature stability
- Dielectric properties

Hydrophobic AEROSIL®
- Offers rheology control as well as water resistance

Industrial

Hydrophilic AEROSIL®
- High thixotropic effect
- High temperature stability
- Wear resistance
- Extreme pressure resistance

Hydrophobic AEROSIL®
- Offers rheology control as well as excellent oxidation resistance against water and chemicals

Automotive

Hydrophilic AEROSIL®
- High thixotropic effect
- High temperature stability
- Wear resistance
- Reduced friction

Hydrophobic AEROSIL®
- Offers rheology control as well as excellent oxidation resistance against water and chemicals

Food

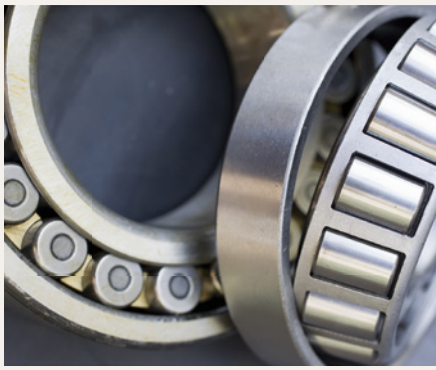
Hydrophilic AEROSIL® are generally recognized as safe (GRAS; direct food contact)
- High thixotropic effect
- High temperature stability
- Wear resistance

Hydrophobic AEROSIL® (indirect food contact)
- Offers rheology control as well as water resistance

AEROSIL® fumed silica in lubricating greases

AEROSIL® fumed silica helps to build a stable matrix to increase viscosity and suppress oil separation in lubricating greases. It can be used in the following systems:

- In non-soap greases, used in high-temperature applications up to 230° C as well as for extreme-pressure and multipurpose greases.
- In soap greases, thickened by fatty acid soaps of lithium, calcium, sodium or aluminum, AEROSIL® fumed silica can be used to further improve the performance of the lubricating grease.
- Hydrophilic fumed silica provides optimized thickening effects in non-polar oils.
- Hydrophobic fumed silica provides viscosity control and increased water repellency in semi-polar to polar oils.
- The surface area of the silica and the volume fraction of the silica in the final mass play a role in the long term storage and heat stability.



AEROSIL® fumed silica for wire drawing & metal working fluids

AEROSIL® COK 84

- This product is a mixture of AEROSIL® 200 and a highly dispersed fumed aluminum oxide especially designed for aqueous, highly polar liquids.
- It is used in metal working fluids and wire drawing lubricants for rheology control (thixotropic effect) but it can also stabilize lubricating solid particles (e.g. MoS_2, graphite) and improve the metal surface in some applications.

AEROXIDE® Alu C

- This product is a fine particulate, pure aluminum oxide with high specific surface area.
- It is used in metal working fluids and wire drawing lubricants: The AEROXIDE® Alu C particles can improve the metal surface in some applications.

AEROSIL® fumed silica recommendation by base oil and required properties

Base oil	Hydro-phobicity	Viscosity		Oil separation		Cone penetration		Dropping point	
		Good	Best	Good	Best	Good	Best	Good	Best
Mineral oil	Hydrophilic	AEROSIL® 200	AEROSIL® 300	Good with all types	Good with all types	Good with all types	Good with all types	No DP with all types	No DP with all types
	Hydrophobic	AEROSIL® R 106 ++	AEROSIL® R 974 +	AEROSIL® R 202 +++	AEROSIL® R 974 +	AEROSIL® R 202 +++	AEROSIL® R 974 +	AEROSIL® R 106 ++	AEROSIL® R 974 +
Polyalpha-olefin (PAO)	Hydrophilic	AEROSIL® 200	AEROSIL® 150	Good with all types	Good with all types	Good with all types	Good with all types	No DP with all types	No DP with all types
	Hydrophobic	AEROSIL® R 106 ++	AEROSIL® R 974 +	AEROSIL® R 106 ++	AEROSIL® R 974 +	AEROSIL® R 106 ++	AEROSIL® R 974 +	AEROSIL® R 106 ++	AEROSIL® R 974 +
Naphthenic oil	Hydrophilic	AEROSIL® 300	AEROSIL® 200	Good with all types	Good with all types	Good with all types	Good with all types	No DP with all types	No DP with all types
	Hydrophobic	AEROSIL® R 106 ++	AEROSIL® R 202 +++	AEROSIL® R 106 ++	AEROSIL® R 202 +++	AEROSIL® R 974 +	AEROSIL® R 202 +++	AEROSIL® R 805 +++	AEROSIL® R 816 +
Animal fat	Hydrophilic	AEROSIL® 200	AEROSIL® 150	Good with all types	Good with all types	Good with all types	Good with all types	No DP with all types	No DP with all types
	Hydrophobic	AEROSIL® R 106 ++	AEROSIL® R 974 +	AEROSIL® R 106 ++	AEROSIL® R 974 +	AEROSIL® R 106 ++	AEROSIL® R 974 +	AEROSIL® R 106 ++	AEROSIL® R 974 +
Silicone oil	Hydrophilic	AEROSIL® 300	AEROSIL® 200 HV	Good with all types	Good with all types	Good with all types	Good with all types	AEROSIL® 300	AEROSIL® 200 HV
	Hydrophobic	AEROSIL® R 974 +	AEROSIL® R 106 ++	AEROSIL® R 974 +	AEROSIL® R 106 ++	AEROSIL® R 974 +	AEROSIL® R 106 ++	No DP with all types	No DP with all types

+ = Low hydrophobicity ++ = Medium hydrophobicity +++ = High hydrophobicity

Premium product recommendations

- **AEROSIL® R 816:** Provides overall the best effects in most base oil systems and gives outstanding stability.
- **AEROSIL® R 805:** Provides excellent performance in oil separation and cone penetration due to high hydrophobicity as well as giving outstanding stability.

Evonik supports you in selecting the best suited AEROSIL® product and optimizing current formulations through our Application Technology Group.

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