

Functional Inorganic Particles Produced by Flame-Based Process AEROSIL® and AEROXIDE® Series

AEROSIL® is a highly functional material based on silica (fumed silica) produced by the flame-based process, and has a wide variety of properties. Its thickening and thixotropic effects allow it to adjust the viscosity of liquid substances and improve their fluidity with the addition of a small amount. Its dispersing effect also prevents re-agglomeration and sedimentation of pigments and other particles, maintaining a stable dispersion state. It also has excellent temperature stability, retaining its viscosity even at high temperatures, making it suitable for heat-resistant greases and baked resins.

When added to silicone rubber and other rubbers, it improves tear and tensile strength and provides a reinforcing effect. It has the effect of preventing caking and improving fluidity in powdery and granular substances, making it possible to produce powders containing high concentrations of liquid components. In addition, it can adjust the bulk volume of the powder, improving fluidity.

AEROSIL® also has a large external surface area, making it used in medicines, catalysts, and adsorption materials. It has an anti-blocking effect and a matte effect, and provides excellent performance while maintaining transparency. It also contributes to slip prevention and emulsification, and has water resistance and water repellency, making it suitable for anti-corrosion paints. It has been reported to improve electrical properties and thermal insulation, and further improve heat resistance.

AEROXIDE® P25 is a titanium dioxide produced by a flame-based process, and due to its characteristic ratio of anatase and rutile crystal structures, it is suitable for many catalytic actions, especially photocatalytic applications. It is also used as an effective UV filter.

AEROXIDE® Alu C is an aluminum oxide produced by a similar method. It is an aluminum oxide suitable for lithium-ion battery separator coatings, and has been reported to further extend the driving range of electric vehicles, as well as improve battery safety and fast charging performance.

Trademark name	Product name	Product description	Specific surface area m ² /g (BET)	Average particle size nm (ref. value)	Size and product code
AEROSIL® 200	Silicon(IV) Oxide	The standard type of fumed silica most widely used for thickening, reinforcing and thixotropic applications	175 - 225	12	100g [I1200]
AEROSIL® 130	Silicon(IV) Oxide	Fumed silica with low viscosity and highly loaded into resins	105 - 155	16	100g [I1316]
AEROXIDE® P25	Titanium(IV) Oxide	High-purity titanium dioxide particles, produced using the same flame-based process as AEROSIL®, with approximately 80% of the crystal phase being anatase type	35 - 65	21	100g [T4118]
AEROXIDE® Alu C	Aluminum(III) Oxide	High-purity ultrafine aluminum oxide produced using the same flame-based process as AEROSIL®	85 - 115	13	100g [A3546]
AEROSIL® R972	A Dichlorodimethylsilane-treated Fumed Silica	Fumed silica based on AEROSIL® 130 and surface treated with dichlorodimethylsilane	90 - 130	16	100g [I1201]
AEROSIL® R974	A Dichlorodimethylsilane-treated Fumed Silica	Fumed silica based on AEROSIL® 200 and surface treated with dichlorodimethylsilane	150 - 190	12	100g [A3794]
AEROSIL® R812	A Hexamethyldisilazane-treated Fumed Silica	Fumed silica with a small particle size based on AEROSIL® 300 and surface treated with trimethylsilyl group	230 - 290	7	100g [A3793]
AEROSIL® R202	A Polydimethylsiloxane-treated Fumed Silica	Fumed silica based on AEROSIL® 150 and surface treated with dimethyl silicone oil	80 - 120	14	100g [A3791]
AEROSIL® R805	A Octyltrimethoxysilane-treated Fumed Silica	Fumed silica based on AEROSIL® 200 and surface treated with octylsilane	125 - 175	12	100g [A3792]

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