





Evonik. Power to create.





# Surface chemistry is just as delicate as walking on water

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#### **AEROSIL®** optimizes:

- powder coatings
- air bags
- silicone sealants
- seals, e.g. coated bottle caps
- toothpastes
- creams, lotions, gels
- deodorants
- golf balls
- chemical anchors
- foils and films
- plastic bags
- toner for copiers and laser printers
- insulation materials
- shoe soles
- technical rubber goods
- dental composites and fillers
- ground herbs and spices
- 2-component mortar and concrete
- marine paints
- technical components, e.g.
- wind turbines
- adhesives
- tablets
- thermal insulation
- battery gels
- greases & lubricants
- inkjet paper







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## AEROSIL<sup>®</sup> – More than just a powder

For more than 70 years, people at Evonik have been working for, on, and with AEROSIL<sup>®</sup>. They promise their customers a lot – after all, the claim of the AEROSIL<sup>®</sup> brand is "Invented to improve." This promise has been kept for more than 70 years. How is this possible?

The worldwide success of AEROSIL® is based on the particular strengths of the product and the people behind AEROSIL®. They invented AEROSIL® and keep reinventing it: modifications, new applications, and effects.

The service provided for the product family is unique in the world, since scientists and engineers at Evonik are mastering the technology – their own and that of the customers. As a result of this, customers are given the best possible support in the areas of research, applied technology, and handling. We are always looking for continuous improvment.

This is the claim of everyone who is involved with AEROSIL<sup>®</sup>. It means improving our own products and processes and helping to make our customers' products and production processes just that little bit better. Often it's just that little bit that makes them stand out from the competition.

Α

Change in paper bag over the period of 70 years. AEROSIL® fumed silica.

It's simple and simply reassuring to work together with the AEROSIL® experts, since reliability and security are important to Evonik and stands for a whole range of topics: on-time delivery, product safety, quality assurance – at the highest level worldwide.

Worldwide is precisely the right term. AEROSIL<sup>®</sup> is produced in eight production sites throughout the world based on the same strict benchmarks, but, in every case, very close to the markets and the customers. Customer proximity also applies to the regional laboratories for research and applied technology, which Evonik operates for AEROSIL<sup>®</sup> on three continents. This is also especially true for the sales teams, who provide competent support for AEROSIL<sup>®</sup> customers on all continents.

However, if a brand is able to lead the market in the chemical industry for more than 70 years, it is because of something that you cannot plan, talk up, or force: the trust of the customers. We are very proud of our long-term customer relationships. Rightly so, since, in the final analysis, this proves that our customers get more than just white powder. Namely, always exactly the right solution.

#### AEROSIL®. Invented to improve.



AEROSIL® fumed silica is used in the applications adhesives and sealants to bond and seal cockpits, fuel tanks and pressurized cabins. Window frames containing AEROSIL® products exhibit temperature stability even in extreme conditions.

Hydrophilic Fumed Silica

# When it comes to extreme temperature fluctuations, AEROSIL<sup>®</sup> keeps you always well insulated

Along with the traditional polyester, silicone, paints and coatings applications, hydrophilic AEROSIL<sup>®</sup> products are used with increasing success in high technology fields. To meet these needs several grades have been developed with especially high chemical purity and distinctive particle nature.

Furthermore, the hydrophilic AEROSIL<sup>®</sup> grades are characterized by an amorphous structure (determined by X-ray diffraction and high resolution TEM). Depending on the market and application, products with different BET surface areas. Certain types are also available as densified, pharmaceutical, or food grades.

#### **Positive Effects:**

- Optimum adjustment of rheology during processing
- Reinforcement of silicone elastomers
- Thickening of non-polar liquids
- Free-flow of foodstuffs and industrial powders
- High chemical purity
- Excellent insulation properties, even at high temperatures
- Conversion of liquids to powders, e.g. pharmaceuticals, cosmetics
- Gelification of battery acids
- Rheology control of
- greases & lubricants

#### Hydrophilic Fumed Silica

AEROSIL <sup>®</sup> Grades	BET Surface Area [m²/g]	Loss on Drying [wt.%]	pH value
AEROSIL <sup>®</sup> 90	75 - 105	≤ 1.0	3.7 - 4.7*
AEROSIL <sup>®</sup> 130	105 - 155	≤ 1.5	3.7 - 4.5*
AEROSIL <sup>®</sup> 150	135 - 165	≤ 1.5	3.7 - 4.5
AEROSIL <sup>®</sup> 200	175 - 225	≤ 1.5	3.7 - 4.5*
AEROSIL <sup>®</sup> 200 F	175 - 225	≤ 1.5	3.7 - 4.5
AEROSIL <sup>®</sup> 200 Pharma	175 - 225	≤ 2.5**	3.5 - 5.5**
AEROSIL <sup>®</sup> 255	230 - 280	≤ 1.5	3.7 - 4.5
AEROSIL <sup>®</sup> 300	270 - 330	≤ 1.5	3.7 - 4.5*
AEROSIL <sup>®</sup> 300 Pharma	270 - 330	≤ 2.5**	3.5 - 5.5**
AEROSIL <sup>®</sup> 380	350 - 410	≤ 2.0	3.7 - 4.5*
AEROSIL <sup>®</sup> 380 F	350 - 410	≤ 2.0	3.7 - 4.5
AEROSIL® OX 50	35 - 65	≤ 1.5	3.8 - 4.8
AEROSIL <sup>®</sup> TT 600	150 - 250	≤ 2.5	3.6 - 4.5
AEROPERL <sup>®</sup> 300/30	270 - 330	≤ 3.5	4.0 - 6.0
AEROPERL <sup>®</sup> 300 Pharma	260 - 320	≤ 2.5**	3.5 - 5.5**

The data represents typical values.

\* Narrower range possible

\*\* Tested according to USP/NF, Ph.Eur. and JP



Application properties of a coating. (left) reference (right) containing 0.5% of AEROSIL® R 816 Rheometer MCR 300 Paar Physica.

AEROSIL<sup>®</sup> ensures an exellent long-time look of your products.

#### Hydrophobic Fumed Silica

## AEROSIL® gives water-repellent paints and coatings an edge

Numerous grades of hydrophobic AEROSIL® fumed silica have been developed to solve particular technical problems. AEROSIL® hydrophobic fumed silica is produced by a chemical treatment of hydrophilic grades with silanes or siloxanes. In the finished product, the treatment agent is chemically bonded to the former hydrophilic oxide. AEROSIL® hydrophobic products are characterized, among other things, by a low moisture adsorption, excellent dispersibility and their ability to adjust rheological behavior, even that of polar systems.

AEROSIL<sup>®</sup> grades such as R 7200, R 8200 and R 9200 undergo additional structural modification ideal for higher loading levels without impacting the viscosity. These properties are especially useful in generating scratch resistance effects.

#### **Positive Effects:**

- Optimum rheology during processing • Thickening of polar liquids, e.g. epoxy resins
- Reinforcement of silicone elastomers
- High levels of loading, e.g. molding
- compounds • Excellent water-repelling properties
- leading to improved corrosionprotection
- · Improvement of dielectric properties, e.g. in cable compounds
- Free-flow of powders, e.g. in fire extinguishers
- · Increased scratch resistance, e.g. in paints and plastics

#### Hydrophobic Fumed Silica

AEROSIL <sup>®</sup> Grades	BET Surface Area [m²/g]	Loss on Drying [wt.%]	pH value	Carbon Content [wt.%]
AEROSIL <sup>®</sup> R 972	90 - 130	≤ 0.5	3.6 - 5.5*	0.6 - 1.2*
AEROSIL® R 972 Pharma	90 - 130	≤ 0.5**	3.6 - 5.5**	0.6 - 1.2**
AEROSIL <sup>®</sup> R 974	150 - 190	≤ 0.5	3.4 - 5.0	0.9 - 1.5
AEROSIL <sup>®</sup> R 976	225 - 275	≤ 1.0	3.8 - 5.0	1.3 - 2.2
AEROSIL <sup>®</sup> R 976 S	215 - 260	≤ 0.5	4.0 - 5.5	1.8 - 2.7
AEROSIL <sup>®</sup> R 104	125 - 175	≤ 1.5	≥ 4.0	1.0 - 2.0
AEROSIL <sup>®</sup> R 106	220 - 280	≤ 0.5	≥ 3.7	1.4 - 3.0
AEROSIL <sup>®</sup> R 202	80 - 120	≤ 0.5	4.0 - 6.0	3.5 - 5.0
AEROSIL <sup>®</sup> R 202 S	80 - 120	≤ 0.5	4.0 - 6.0	3.5 - 5.0
AEROSIL <sup>®</sup> R 208	80 - 140	≤ 0.5	4.5 - 6.5	4.5 - 6.5
AEROSIL <sup>®</sup> R 805	125 - 175	≤ 0.5	3.5 - 5.5	4.5 - 6.5
NEROSIL® R 812 230 - 290		≤ 0.5 5.5 - 8.0		2.0 - 3.0
AEROSIL® R 812 S	195 - 245	≤ 0.5	5.5 - 9.0	3.0 - 4.0
AEROSIL® R 816	170 - 210	≤ 1.0	4.0 - 5.5	0.9 - 1.8
AEROSIL <sup>®</sup> R 7200	125 - 175	≤ 1.5	4.0 - 6.0	4.5 - 6.5
AEROSIL <sup>®</sup> R 8200	135 - 185	≤ 0.5	≥ 5.0	2.0 - 4.0
AEROSIL <sup>®</sup> R 9200	150 - 190	≤ 1.5	3.0 - 5.0	0.7 - 1.3
AEROSIL® R 711	125 - 175	≤ 1.5	4.0 - 6.0	4.5 - 6.5

The data represents typical values.

\* Narrower range possible

\*\*Tested according to USP/NF and Ph.Eur.

Developmental products are labeled with the VP designation. Their commercialization depends on market response. Even though they are produced in commercial quantities, future availability should be verified. In some cases, these products may not have undergone complete testing.





All grades of AEROSIL® demonstrate themselves through their high chemical purity.

Fumed Mixed Oxides

# From an optical perspective, AEROSIL<sup>®</sup> add clarity

#### AEROSIL<sup>®</sup> MOX grades are recommended for the production of

highly-loaded low viscous aqueous dispersions. The fumed mixed oxides are manufactured using a co-fumed process and may be regarded as a mixture of SiO<sub>2</sub> • Catalyst support and  $Al_2O_3$  on the molecular level. AEROSIL<sup>®</sup> COK 84 is a physical mixture of SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> which provides strong thickening effects in aqueous media.

#### **Positive Effects:**

- High-loading levels of AEROSIL® MOX grades in dispersions
- Strong thickening effect in polar media with AEROSIL® COK 84
- Rheology control of greases & lubricants

#### **Fumed Mixed Oxides**

AEROSIL <sup>®</sup> Grades	BET Surface Area [m²/g]	Loss on Drying [wt.%]	pH value	Chemical Composition
AEROSIL <sup>®</sup> MOX 80	60 - 100	≤ 1.5	3.6 - 4.5	SiO <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub>
AEROSIL® MOX 170	140 - 200	≤ 1.5	3.6 - 4.5	SiO <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub>
AEROSIL® COK 84	155 - 215	≤ 1.5	3.6 - 4.3	SiO <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub>

The data represents typical values.

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AEROXIDE<sup>®</sup> Alu C extends the life expectancy of fluorescent lamps.

Hydrophilic Fumed Metal Oxides

# AEROXIDE<sup>®</sup> putting you on the brighter side of life

The AEROSIL® manufacturing process can also be applied to produce fumed aluminum and titanium oxides. The treatment processes mentioned previously are also applicable here and result in a wide range of fine particle products with extraordinary properties.

AEROXIDE<sup>®</sup> Alu C is a pure aluminum oxide with a hydrophilic character. Their primary use is as a free-flow agent and it regulates triboelectric effects.

AEROXIDE<sup>®</sup> TiO<sub>2</sub> P 25 is a titanium dioxide without pigment properties. Due to its purity and fine particle size, it may be used as a catalyst support or as a heat stabilizer for silicone rubber.

#### **Positive Effects:**

- Free flow in powder coatings
- Heat stabilization of silicone elastomers
- Optimization of adsorption properties, e.g. inkjet applications

#### Hydrophilic Fumed Metal Oxides

AEROXIDE <sup>®</sup> Grades	BET Surface Area [m²/g]	Loss on Drying [wt.%]	pH value	Chemical Composition
AEROXIDE <sup>®</sup> Alu C	85 - 115	≤ 5.0	4.5 - 5.5	Al <sub>2</sub> O <sub>3</sub>
AEROXIDE <sup>®</sup> Alu 65	55 - 75	≤ 5.0	4.5 - 6.0	Al <sub>2</sub> O <sub>3</sub>
AEROXIDE <sup>®</sup> Alu 130	110 - 150	≤ 5.0	4.4 - 5.4	Al <sub>2</sub> O <sub>3</sub>
AEROXIDE <sup>®</sup> TiO <sub>2</sub> P 25	35 - 65	≤ 1.5	3.5 - 4.5	TiO <sub>2</sub>
AEROXIDE <sup>®</sup> TiO <sub>2</sub> P 90	70 - 110	≤ 4.0	3.2 - 4.5	TiO <sub>2</sub>
AEROXIDE® TiO, PF 2	45 - 70	≤ 2.0	3.5 - 4.5	TiO <sub>2</sub> / Fe <sub>2</sub> O <sub>3</sub>

#### The data represents typical values.





AEROSIL® is used as a rheology modifier in coatings Dispersions used in the paper industry and adhesives formulations, among others. Dispersions are easy to mix with other components.

## **Dispersions**

Evonik has extensive knowledge, sophisticated equipment and many years of experience, all of which are necessary to produce high quality dispersions.

AERODISP<sup>®</sup> is the ideal solution for the dust-free handling of AEROSIL® fumed silica and AEROXIDE<sup>®</sup> fumed metal oxides. A special manufacturing process and many years of know-how enable us to provide these products in an exceptional state of dispersion.

#### **Positive Effects:**

- High ink absorptivity in photo inkjet papers
- Improved surface properties for cleaning, polishing and coating of metals, paper, textiles etc.
- Improved mechanical properties of latex rubber
- Optimized adhesion properties of self-adhesive labels
- Improved optical properties of wood stains
- Optimized rheological properties of paints, varnishes and battery gels
- Enhanced anti-blocking effect in PET-film

#### Physico-Chemical Data of AERODISP® Dispersions

		-			
AERODISP <sup>®</sup> grades	Solids conte [wt.%]	nt <sup>1)</sup> pH value <sup>2)</sup>	Viscosity <sup>3)</sup> [mPas]	Density [g/cm³]	Stabilizing Agent/Remarks
SiO <sub>2</sub> dispersions, alkaline					
AERODISP <sup>®</sup> W 7520	20	9.5 - 10.5	≤ 100	1.12	Ammonia
AERODISP <sup>®</sup> W 7520 N	20	9.5 - 10.5	≤ 100	1.12	Sodium hydroxide
AERODISP <sup>®</sup> W 7520 P	20	9.0 - 10.0	≤ 300	1.12	Caustic Potash
AERODISP <sup>®</sup> W 7622	22	9.5 - 10.5	≤ 1000	1.13	Ammonia
AERODISP <sup>®</sup> W 1226	26	9.0 - 10.0	≤ 100	1.16	
AERODISP <sup>®</sup> W 1244	48	10.6 - 11.2	≤ 200	1.41	Caustic Potash
VP Disp. W 1250	50	9.5 - 10.5	≤ 2000	1.38	Ammonia
AERODISP <sup>®</sup> W 7330 N	30	9.5 - 10.5	≤ 1000	1.20	Sodium hydroxide
AERODISP <sup>®</sup> WR 8520	20	10.0 - 11.0	≤ 100	1.13	DMEA
AERODISP <sup>®</sup> W 1813	12	9.0 - 10.0	≤ 100	1.07	
AERODISP <sup>®</sup> W 7225 P	25	9.8 - 10.8	≤ 300	1.16	Caustic Potash
SiO <sub>2</sub> dispersions, acidic					
AERODISP <sup>®</sup> W 1714	14	5.0 - 6.0	≤ 100	1.08	Phosphate/4)
AERODISP <sup>®</sup> W 1824	24	5.0 - 6.0	≤ 150	1.15	Phosphate/4)
AERODISP <sup>®</sup> W 1836	34	4.0 - 6.0	≤ 200	1.23	Phosphate/4)
AERODISP <sup>®</sup> W 7215 S	15	5.0 - 6.0	≤ 100	1.09	Ammonia
AERODISP <sup>®</sup> W 7512 S	12	5.0 - 6.0	≤ 100	1.07	Ammonia
SiO <sub>2</sub> dispersions, cationic					
AERODISP <sup>®</sup> WK 341	41	2.5 - 4.0	≤ 1000	1.28	Cationic Polymer/4)
AERODISP <sup>®</sup> WK 7330	30	2.5 - 4.0	≤ 1000	1.20	Cationic Polymer/4)
Al <sub>2</sub> O <sub>3</sub> dispersions					
AERODISP <sup>®</sup> W 630	30	3.0 - 5.0	≤ 2000	1.26	
AERODISP <sup>®</sup> W 440	40	3.0 - 5.0	≤ 1000	1.38	
AERODISP <sup>®</sup> W 925	25	3.0 - 5.0	≤ 1000	1.20	
TiO <sub>2</sub> dispersions					
AERODISP <sup>®</sup> W 740 X	40	5.0 - 7.0	≤ 1000	1.41	
VP Disp. W 2730 X	30	6.0 - 8.0	≤ 5000	1.28	
Solvent-based dispersions					
AERODISP <sup>®</sup> G 1220	20	-	≤ 300	1.23	Ethylene Glycol
VP Disp. G 6020 X	20	_	≤ 200	1.24	
AERODISP <sup>®</sup> 1030	30	_	≤ 10 [Pas] <sup>3)</sup>	1.16	1-Methoxy-2-Propylaceta

Further dispersions of hydrophilic and hydrophobic silica and metal oxides in organic solvents are available on request. The data represents typical values.

1) Solid contents may vary +/-1%

2) Measured according to EN ISO 787-9 method

3) Measured according to DIN EN ISO 3219 at a shear rate of 100s-1

4) Stabilized with small amounts of aluminum compounds.

Developmental products are labeled with the VP Disp. designation. Their commercialization depends on market response. Even though they are produced in commercial quantities, future availability should be verified. In some cases, these products may not have undergone complete testing.

## Special Hydrophobic Silica and Hydrophobic Metal Oxides

Specialized industries have different requirements for fumed oxides with specific properties. In order to fulfill these high technical requirements, combinations of different raw materials (SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub> or TiO<sub>2</sub>), surface treatments and many manufacturing processes are employed.

The R and N grades of AEROSIL\* products listed below can be used to

regulate flow tribo-charge and stability of toner for copiers and laserprinters. AEROXIDE<sup>®</sup> TiO<sub>2</sub> T 805, an efficient UV-filter, is characterized by its ease of dispersibility and low moisture adsorption.

AEROXIDE® Alu C 805 is especially recommended for moisture sensitive powder coating applications.

#### **Positive Effects:**

- Regulation of toner tribo-charge
- · Free flow agent for toner
- Improved storage stability of toner
- Loading levels in dental composites
- Effect for the self-cleaning of surfaces
- Increased heat stability of silicone

elastomers

AEROSIL® and AEROXIDE® Grades	BET Surface Area [m²/g]	pH value	Carbon Content [wt.%]	Chemical Composition
AEROSIL® RY 50	15 - 45	4.5 - 7.5	3.0 - 4.5	SiO <sub>2</sub>
AEROSIL <sup>®</sup> NY 50	20 - 40	5.0 - 6.0	2.5 - 3.8	SiO <sub>2</sub>
AEROSIL® RY 200	80 - 120	4.0 - 7.0	4.0 - 6.5	SiO <sub>2</sub>
AEROSIL <sup>®</sup> RY 200 S	65 - 95	4.5 - 6.5	3.5 - 5.0	SiO <sub>2</sub>
AEROSIL <sup>®</sup> RY 200 L	80 - 120	4.0 - 7.0	4.0 - 6.6	SiO <sub>2</sub>
AEROSIL <sup>®</sup> RY 300	110 - 140	4.5 - 5.5	7.0 - 8.0	SiO <sub>2</sub>
AEROSIL <sup>®</sup> RX 50	25 - 45	6.0 - 8.0	0.5 - 1.0	SiO <sub>2</sub>
AEROSIL® NAX 50	30 - 50	5.5 - 7.5	0.5 - 1.0	SiO <sub>2</sub>
AEROSIL® RX 200	115 - 165	5.5 - 8.5	2.0 - 3.0	SiO <sub>2</sub>
AEROSIL <sup>®</sup> RX 300	180 - 220	6.0 - 8.0	3.0 - 4.0	SiO <sub>2</sub>
AEROSIL <sup>®</sup> R 504	125 - 175	8.5 - 11.0	2.0 - 4.5	SiO <sub>2</sub>
AEROSIL <sup>®</sup> NX 90 S	50 - 70	5.0 - 7.5	0.8 - 1.2	SiO <sub>2</sub>
AEROSIL <sup>®</sup> NX 90 G	50 - 80	5.0 - 7.5	0.7 - 1.5	SiO <sub>2</sub>
AEROSIL® NX 130	80 - 120	5.5 - 7.5	1.0 - 2.0	SiO <sub>2</sub>
AEROSIL <sup>®</sup> REA 200	110 - 150	8.0 - 10.0	5.0 - 7.5	SiO <sub>2</sub>
AEROSIL <sup>®</sup> REA 90	40 - 70	7.5 - 10.0	3.0 - 6.0	SiO <sub>2</sub>
AEROSIL <sup>®</sup> NA 50 Y	25 - 45	6.5 - 9.0	2.0 - 4.0	SiO <sub>2</sub>
AEROSIL <sup>®</sup> NA 200 Y	100 - 150	6.5 - 9.5	3.5 - 6.5	SiO <sub>2</sub>
AEROSIL® NA 50 H	30 - 50	8.0 - 10.0	≤ 2.0	SiO <sub>2</sub>
AEROSIL <sup>®</sup> RA 200 HS	120 - 160	8.0 - 10.0	≤ 3.5	SiO <sub>2</sub>
AEROXIDE <sup>®</sup> TiO <sub>2</sub> T 805	35 - 55	3.0 - 4.0	2.7 - 3.7	TiO <sub>2</sub>
AEROXIDE <sup>®</sup> Alu C 805	75 - 105	3.0 - 4.5	3.5 - 4.5	Al <sub>2</sub> O <sub>3</sub>
AEROXIDE <sup>®</sup> TiO <sub>2</sub> NKT 90	50 - 75	3.0 - 4.0	2.5 - 4.5	TiO <sub>2</sub>
AEROXIDE <sup>®</sup> STX 501	25 - 45	6.0 - 9.5	0.2 - 1.0	TiO <sub>2</sub> / SiO <sub>2</sub>
AEROXIDE <sup>®</sup> STX 801	45 - 65	6.5 - 9.0	0.8 - 1.2	TiO <sub>2</sub> / SiO <sub>2</sub>
VP NA 130 Y	50 - 80	6.5 - 9.5	5.0 - 7.5	SiO <sub>2</sub>

The data represents typical values. Special products can be developed and delivered on demand.

Developmental products are labeled with the VP designation. Their commercialization depends on market response. Even though they are produced in commercial quantities, future availability should be verified. In some cases, these products may not have undergone complete testing



For us, handling includes emptying of packaging units, storage in silos, conveying within the plant, dosing and incorporating AEROSIL® fumed silica into the processing equipment.

AEROSIL® fumed silica in a semi bulk container. (FIBC: Flexible Intermediate Bulk Container)

### Packaging and Handling

Our expertise is concentrated on applications

#### Standard Packaging

AEROSIL® products are supplied in a multi-layer paper bag and are equipped with a polyethylene coating on one layer. The net weight of these bags ranges from 10 kg to 20 kg (also 10 lbs in NAFTA), depending on the AEROSIL® grade and their corresponding tapped density.

#### Flexible Intermediate Bulk Container (FIBC)

Evonik also delivers AEROSIL® products in FIBCs. These are flexible containers made of woven polypropylene bands, with loops attached to the upper corners for lifting purposes. The valve used to empty the container is located in the center of the base and is adapted to Evonik's uniquely-designed Powder Emptying System (PESy). This system is available to our customers and enables the simple and dust-free emptying of our product. The quantity delivered varies according to the product.

#### Silo Transport

When large amounts of AEROSIL® fumed silica are required, delivery by silo transport is another option. While

silotruck shipment is standard practice in Europe and Japan, the use of railcars prevails in NAFTA. Bulk-delivered quantities vary by transport equipment and product.

#### Thermal Packaging for AERODISP®

AERODISP<sup>®</sup> dispersions are available in 60 kg canisters, 220 kg drums and in 1000 kg Intermediate Bulk Containers, IBC. Depending on the region, additional thermal insulation packaging is used.

#### Compaction Technology

Certain AEROSIL® grades are also available in a compacted form under the names AEROSIL<sup>®</sup> V and AEROSIL<sup>®</sup> VV. The densification process is carried out by means of a vacuum combined with mechanical pressure. AEROSIL® V and AEROSIL® VV differ from each other with respect to the compaction technology used (for details please check AEROSIL® website or contact our sales representatives).

#### AEROPERL<sup>®</sup> Technology

Upon request, certain hydrophilic and hydrophobic fumed oxides can be delivered in granulated form.





Typical bag packaging of Evonik AEROSIL<sup>®</sup> fumed silica.

These products are manufactured using a specially-developed AEROPERL® process. AEROPERL® products display a high tapped density, good abrasion resistance and a high moisture adsorption. Products manufactured according to the AEROPERL® process exhibit excellent free-flow behavior and handling properties.

#### Storage Stability

We recommend all AEROSIL® grades to be stored in closed containers under dry conditions, protected from volatile substances and processed within 1 to 2 years after manufacture. AERODISP\* dispersions should be protected from heat and frost and should be processed within 6 to 12 months after manufacturing date, depending on the grade. The date of production can be determined via the control number printed on each packaging unit.



#### Production

- Mobile, USA 1
- Waterford, USA 2
- Antwerp, Belgium 4
- 5 Rheinfelden, Germany
- 6 Roussillon, France
- Leverkusen, Germany 7
- 10 Yokkaichi, Japan
- 14 Map Ta Phut, Thailand

#### • Research & Development

- 8 Hanau, Germany 10 Yokkaichi, Japan
- 13 Ta Yuan, Taiwan
- Applied Technology
  3 Piscataway, USA
  8 Hanau, Germany

  - 9 Mumbai, India
  - 10 Yokkaichi, Japan
  - 11 Seoul, Korea
  - 12 Shanghai, China
  - 13 Ta Yuan, Taiwan

# The Advantage of a Global Enterprise – Local Proximity

In almost every country in the world, A supplier can say that it is close to its customer only when it really understands Evonik has experts to give customers help and advice: The AEROSIL® sales teams. the customer's wishes and problems and Evonik produces AEROSIL® in eight plants is able to fulfill or resolve these. From on three continents. Research centers and paints to pharmaceuticals, toners to applied technology in Germany, the US, thermal insulation – customer proximity Japan, India, Korea and China help find is the key that opens many doors to the best solution. These are the facts. But innovative companies in many different the AEROSIL® team understands customer industries for the market leader AEROSIL<sup>®</sup>. For the last 70 years. proximity to mean much more. It takes the meaning literally: we are close to our customers. AEROSIL<sup>®</sup>. Invented to improve.



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RE-13-1-OKT15Tools

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