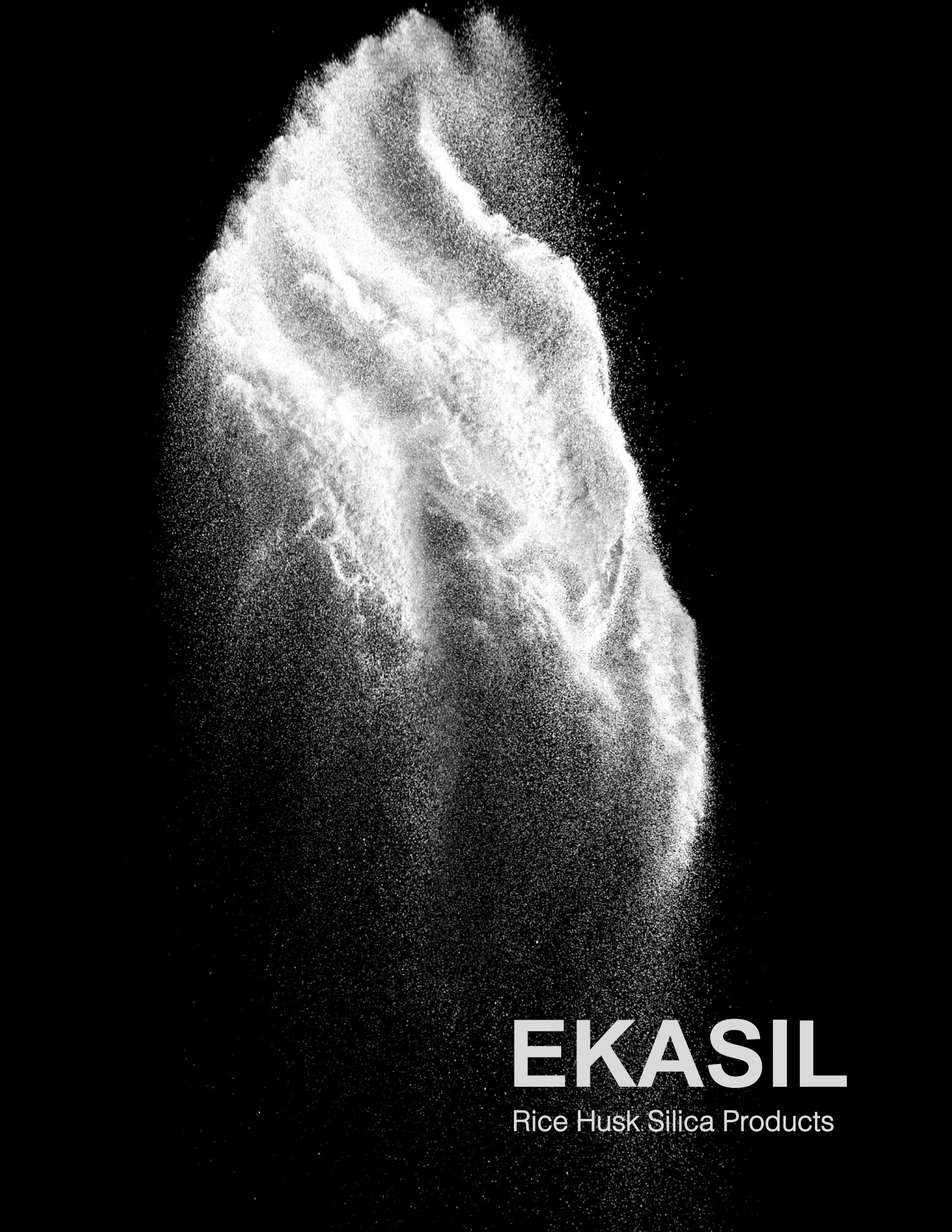

EKASIL

Rice Husk Silica Products

EKASIL Rice Husk Silica

EKASIL Rice Husk Silica is amorphous silicon dioxide products that are extracted from rice husk using EKASIL specially developed technology. Unlike typical silica from sand, EKASIL Rice Husk Silica is an environmentally friendly product as it is obtained through waste utilisation in a nonpolluting, low energy consuming manufacturing process. With better prices and more competitive specifications, EKASIL Rice Husk Silica is an excellent alternative to typical silica products in the market.

EKASIL Rice Husk Silica comes with two main specification categories.

- EKASIL Basic Specification
- EKASIL Advanced Specification

Environmentally friendly silica products, non-polluting

Adjustable physico-chemical properties for specific requests

High purity silica content up to more than 99.99%

Better price compared to other silica products in the market

CSR & PR for using environmentally-friendly products

Stable specifications and properties for specific applications

Flexible customisation of specifications and properties

Amorphous silica without crystalline structure

Wide range of user industries, covering all applications

EKASIL Basic Specification

EKASIL basic specifications are rice husk silicon dioxide products that are obtained directly from the rice husk silica extraction process. The specifications are based on the purity of silica: 99.99% for **EKASIL A** and 96% for **EKASIL B**. Both specifications are amorphous silica without crystalline content. The characteristic physico-chemical properties are as follows.

Characteristic Physico-Chemical Data			
Properties and Test Methods	**Unit**	**EKASIL A**	**EKASIL B**
Purity	[%]	99.99% Purity Nano Silica	96% Purity Nano Silica
Form		Amorphous	Amorphous
Colour		Snow White	Light Gray
pH (5g/100ml H2O)		5.5-8.0 (Adjustable)	6.5-7.5 (Adjustable)
Surface area (BET analysis)	m2/g	350-600 (Adjustable)	120-170 (Adjustable)
Mass fraction of moisture (2 hours at 105 C)	[%]	10-27 (Adjustable)	10-27 (Adjustable)
LOI (2 hours at the 1000 C)	[%]	13-30 (Adjustable)	4.7-5.9 (Adjustable)
Water-soluble salts content (total)	[%]	≤ 2	3.1-3.5
The mass fractions of Carbon	[%]	≤ 0,01	1.5-1.9
The mass fractions of SiO2	[%]	99.99	96
The mass fractions of Na2O	[%]	Not detected	Not detected
The mass fractions of MgO	[%]	Not detected	Not detected
The mass fractions of CaO	[%]	Not detected	Not detected
The mass fractions of K2O	[%]	Not detected	Not detected
The mass fractions of Cl	[%]	Not detected	Not detected
The mass fractions of Al2O3	[%]	Not detected	Not detected
The mass fractions of P2O5	[%]	Not detected	Not detected
The mass fractions of SO3	[%]	Not detected	Not detected
The mass fractions of MnO	[%]	Not detected	Not detected
The mass fraction (residue) remaining on the 75 μм sieve	[%]	4-6	4-6
The mass fractions of FeO impurities	[%]	Not detected	Not detected
Mass fraction of crystalline Silicon Dioxide	[%]	Not detected	Not detected
Nanoparticle size	nm	15-50	15-50

EKASIL Advanced Specification

EKASIL advanced specifications are rice husk silicon dioxide products that are developed from EKASIL basic specifications for specific physico-chemical properties based on customer requirments. The specifications are various and applicable to a wide range of user industries. The characteristic physico-chemical properties are as follows.

Physico-Chemical Properties	Unit	Adjustability
Purity	[%]	Adjustable
pH		Adjustable
Surface area	m2/g	Adjustable
Moisture	[%]	Adjustable
LOI	[%]	Adjustable
Hydrophilic / Hydrophobic		Adjustable
Application properties		Adjustable

User Industries	Example of EKASIL Products
Pharmacy	EKASIL 200 PHARMA, EKASIL 300 PHARMA, EKASIL D120 PHARMA
Paints and coatings	EKASIL 200, EKASIL 300, EKASIL 380
3D Printing	EKASIL 50, EKASIL 200, EKASIL D120, EKASIL P100
Paper and media coatings	EKASIL 150, EKASIL 200, EKASIL 300
Toner	EKASIL P100, EKASIL D120
Cosmetics	EKASIL 200, EKASIL 300, EKASIL 380, EKASIL P100, EKASIL H180, EKASIL D120, EKASIL HM200
Health care	EKASIL 200 PHARMA, EKASIL 300 PHARMA, EKASIL D120 PHARMA
Personal care	EKASIL 200, EKASIL 300, EKASIL 380, EKASIL 300 PHARMA

Oral care	EKASIL 200 PHARMA
Food	EKASIL 200
Home care	EKASIL 200, EKASIL 300, EKASIL P100, EKASIL HM200, EKASIL HM250, EKASIL H180, EKASIL D120
Agriculture	EKASIL 200, EKASIL 300
Tire	EKASIL 80U, EKASIL 110U, EKASIL 160U
Mechanical rubber goods	EKASIL 110U, EKASIL 160U
Shoe sole	EKASIL 200, EKASIL 160U
Silicone rubber	EKASIL 130, EKASIL 150, EKASIL 200, EKASIL HM200, EKASIL D120
Unsaturated polyester resins	EKASIL 200, EKASIL 300, EKASIL P100, EKASIL D120, EKASIL D170
Adhesive and sealants	EKASIL 50, EKASIL P100, EKASIL D120, EKASIL D170
Thermal insulation	EKASIL 150, EKASIL 200, EKASIL 300, EKASIL D170,
Lubricating grease	EKASIL 200, EKASIL 380, EKASIL P100, EKASIL D120, EKASIL D170
Oil and gas	EKASIL 200, EKASIL HM250, EKASIL D120
Cable gel	EKASIL 200, EKASIL 380, EKASIL P100, EKASIL D120, EKASIL D170
Catalyst	EKASIL 50, EKASIL 200
Plastics	EKASIL 50, EKASIL 200, EKASIL D120, EKASIL D170
Technical powder	EKASIL 200, EKASIL D120
Electronics	EKASIL 200, EKASIL D120, EKASIL D170
Battery	EKASIL 200
Deformers	EKASIL 130, EKASIL 200, EKASIL P100, EKASIL HM200, EKASIL HM250
Construction	EKASIL 200, EKASIL D120
Ceramics	EKASIL 50, EKASIL 200
Glass	EKASIL 50
Metals	EKASIL 200

EKASIL 50

Hydrophilic Fumed Silica with a Specific Surface Area of 50 m2/g

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	35-65	m2/g
pH Value	3.8-4.8	-
Loss on Drying	≤ 1.5	%
Tamped Density	apx. 100	g/l

Applications

- Adhesives and sealants
- 3D printing
- Ultra-pure glass
- Polymers and silicone
- Composite materials
- Catalyst
- Ceramics
- Plastic

Properties

- High filler loading
- Low thickening properties
- High tamped density
- High purity
- Improving physicochemical characteristics of polymers

EKASIL 200

Hydrophilic Fumed Silica with a Specific Surface Area of 200 m2/g

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	175-225	m2/g
pH Value	3.7-4.5	-
Loss on Drying	≤ 1.5	%
Tamped Density	apx. 50	g/l

Applications

- Pharmacy
- Paints and coatings
- Adhesives and sealants
- 3D printing and inks
- Cosmetics
- Health and personal care
- Oil and gas
- Thermal insulation
- Silicone rubber
- Cable compounds

Properties

- Improving free flow and anticaking characteristics of powder
- Reinforcement of silicone rubber
- Anti-settling, thickening and anti-sagging agent
- Rheology and thixotropy control of liquid systems, binders and polymers, etc.

EKASIL 300

Hydrophilic Fumed Silica with a Specific Surface Area of 300 m2/g

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	270-330	m2/g
pH Value	3.7-4.5	-
Loss on Drying	≤ 1.5	%
Tamped Density	apx. 50	g/l

Applications

- Pharmacy
- Paints and coatings
- Adhesives and sealants
- Printing inks
- Cosmetics
- Health and personal care
- Thermal Insulation
- Unsaturated polyester resins

Properties

- Optimal dispersion for thickening and thixotropy
- Reinforcement of silicone rubber
- Excellent transparency in unsaturated polyester resins
- Rheology and thixotropy control of liquid systems, binders and polymers, etc.

EKASIL 380

Hydrophilic Fumed Silica with a Specific Surface Area of 380 m2/g

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	350-410	m2/g
pH Value	3.7-4.5	-
Loss on Drying	≤ 2.0	%
Tamped Density	apx. 50	g/l

Applications

- Paints and coatings
- 3D printing
- Adhesives and sealants
- Cosmetics
- Personal care
- Printing inks
- Silicone rubber
- Cable compounds
- Lubricating grease

Properties

- High surface area for best thickening and thixotropy
- Reinforcement of silicone rubber
- Excellent transparency in unsaturated polyester resins
- Rheology and thixotropy control of liquid systems, binders and polymers, etc.
- Flow aid

EKASIL D120

Fumed Silica aftertreated with Dimethyldichlorosilane

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	90-130	m2/g
pH Value	3.6-5.5	-
Loss on Drying	≤ 0.5	%
Tamped Density	apx. 50	g/l
C Content	0.6-1.2	%

Applications

- Paints and coatings
- Electronics
- Technical powder
- 3D printing
- Printing inks and toner
- Silicone rubber
- Adhesives and sealants
- Cable gels
- Lubricating grease
- Cosmetics
- Oil and gas

Properties

- Hydrophobic component for thickening and reinforcement of silicone sealants
- Improving shelf-life of silicone sealants
- Water-resistant, hydrophobising of liquid systems
- Anti-settling agent for coatings
- Pigment stabilization and improvement of corrosion protection
- Improving hydrophobicity and rheology of inks
- Improving and maintaining free flow and anti-caking characteristics of powders

EKASIL D170

Fumed Silica aftertreated with Dimethyldochlorosilane

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	150-190	m2/g
pH Value	3.7-4.7	-
Loss on Drying	≤ 0.0	%
Tamped Density	apx. 50	g/l
C Content	0.7-1.3	%

Applications

- Paints and coatings
- Electronics
- Adhesives and sealants
- Thermal insulation
- Silicone rubber
- Negative toner
- Coating polymers
- Cosmetics
- Lubricating grease
- Cable gel

Properties

- Hydrophobic component for thickening and reinforcement of silicone sealants
- Improving shelf-life of silicone sealants
- Water-resistant, hydrophobising of liquid systems
- For coatings as an anti-settling agent
- For pigment stabilization and improvement of corrosion protection
- Improving hydrophobicity and rheology of inks
- Improving and maintaining free flow and anti-caking characteristics of powders

EKASIL P100

Fumed Silica aftertreated with Polydimethylsiloxane

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	80-120	m2/g
pH Value	4.0-6.0	-
Loss on Drying	≤ 0.5	%
Tamped Density	apx. 60	g/l
C Content	3.5-5.0	%

Applications

- 3D Printing and toner
- Cosmetics
- Home care
- Unsaturated polyester resins
- Adhesives and sealants
- Lubricating grease
- Cable gel
- Deformers

Properties

- Improving water resistance of moisture-sensitive formulations
- Guaranteeing marked hydrophobia of the product
- Highly efficient effect in the thickening and thixotropy of complex polar liquids
- Improving anti-settling behaviour of pigments and anti-sagging behaviour
- Surface additive to increase charge and improve flowability.
- High hydrophobicity, small particle with good flowability.

EKASIL H180

Fumed Silica aftertreated with Hexadecylsilane

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	170-210	m2/g
pH Value	4.0-5.5	-
Loss on Drying	≤ 1.0	%
Tamped Density	apx. 60	g/l
C Content	0.9-1.8	%

Applications

- Cosmetics
- Home care
- Water-based coatings systems

Properties

- Effective rheology control in complex liquid systems
- Anti-settling agent and corrosion protection

EKASIL HM200

Fumed Silica aftertreated with Hexamethyldisilazane

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	195-245	m2/g
pH Value	5.5-9.0	-
Loss on Drying	≤ 0.5	%
Tamped Density	apx. 60	g/l
C Content	3.0-4.0	%

Applications

- Cosmetics
- Paints and coatings
- Health care
- Home care
- Silicone rubber
- Construction
- Adhesives and sealants

Properties

- Effective rheology control in complex liquid systems
- Anti-settling agent and corrosion protection
- Free flow aid in powder coatings
- Improving mechanical and optical properties

EKASIL HM250

Fumed Silica aftertreated with Hexamethyldisilazane

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	230-290	m2/g
pH Value	5.5-8.0	-
Loss on Drying	≤ 0.5	%
Tamped Density	apx. 60	g/l
C Content	2.0-3.0	%

Applications

- Home care
- Adhesives and sealants
- Cosmetics
- Powder coatings
- Oil and gas
- Deformers
- Toners
- Agrochemicals
- Polymer systems such as silicone rubber

Properties

- Large specific surface area and high hydrophobicity
- Good flowability with dispersion properties
- Excellent effect in the rheological control of complex liquid systems
- Excellent flow agent for fine powders

EKASIL D120 Pharma

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content (Assay)	99.0-100	%
Specific Surface Area	90-130	m2/g
Limit of Chlorides	≤ 250	ppm
Water dispersible fraction	≤ 3.0	%
Tamped Density	50	g/l

Applications

- High purity amorphous silica for pharmaceutical uses, especially for solid dosage forms and emulsions

Properties

- Glidant for improving powder flow, suitable for very hygroscopic and/or cohesive powder
- Viscosity adjuster for thickening of non-polar pharmaceutical oils
- Stabilizer for water in oil emulsions
- Used to adjust release behavior of active ingredients

EKASIL 200 Pharma

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content (Assay)	≥ 99.8	%
Specific Surface Area	175-225	m2/g
Chlorides	≤ 250	ppm
Al Content	Pass	-
Fe Content	≤ 500	ppm
Ca Content	Pass	-
Loss on drying	≤ 2.5	%
Tamped Density	apx. 50	g/l

Applications

- High purity amorphous silica for pharmaceutical uses in all types of dosage forms

Properties

- Free flow and anti-caking agent to improve powder properties
- Improving tablets properties such as hardness and friability
- Used as viscosity increasing agent to thicken and thixotropize liquids
- Used as anti-setting, thickening and anti-sagging agent
- High purity, low humidity
- No influence of taste
- Not alter natural color of powder formulations

EKASIL 300 Pharma

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content (Assay)	≥ 99.0	%
Specific Surface Area	260-320	m2/g
Chlorides	≤ 250	ppm
Fe Content	≤ 500	ppm
Ca Content	Pass	-
Loss on drying	≤ 2.5	%
Tamped Density	apx. 270	g/l
Particle Size	20-60	µm

Applications

- High purity granulated silica for pharmaceutical uses
- Carrier for liquid and pasty
- Increasing dissolution of poorly soluble active ingredients
- Desiccant for moisture activated dry granulation

Properties

- Easy handling, low dust
- High purity
- Excellent flow behavior both loaded and unloaded

EKASIL 80U

Precipitated Amorphous Silica
for Rubber Industries

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 99.8	%
Specific Surface Area	80	m2/g
pH Value	6.5	-
Loss on Drying	6.0	%
Tamped Density	apx. 60	g/l

Applications

- Tires
- Mechanical rubber goods

Properties

- Improving dispersion properties
- High reinforcement
- Excellent hysteresis

EKASIL 110U

Precipitated Amorphous Silica
for Rubber Industries

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 98	%
Specific Surface Area	110	m2/g
pH Value	6.5	-
Loss on Drying	5.5	%
Tamped Density	apx. 60	g/l

Applications

- Tires
- Mechanical rubber goods

Properties

- High reinforcement
- Excellent hysteresis
- High filler loading for optimization of wet and winter properties

EKASIL 160U

Precipitated Amorphous Silica
for Rubber Industries

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	≥ 98	%
Specific Surface Area	160	m2/g
pH Value	6.5	-
Loss on Drying	5.5	%
Tamped Density	apx. 60	g/l

Applications

- Tires
- Mechanical rubber goods

Properties

- High reinforcement
- Easily dispersible
- High abrasion resistance

EKASIL XXX

Customised Silica for
Your Special Applications

Physico-Chemical Data

Properties	Value	Unit
SiO2 Content	xxx	xxx
Specific Surface Area	xxx	xxx
pH Value	xxx	xxx
Loss on Drying	xxx	xxx
etc.	xxx	xxx

Applications

- According to your applications

Properties

- According to your requirements

At EKASIL, we provide customisation of silica products based on your specially required properties and applications. Please contact us for the collaboration.