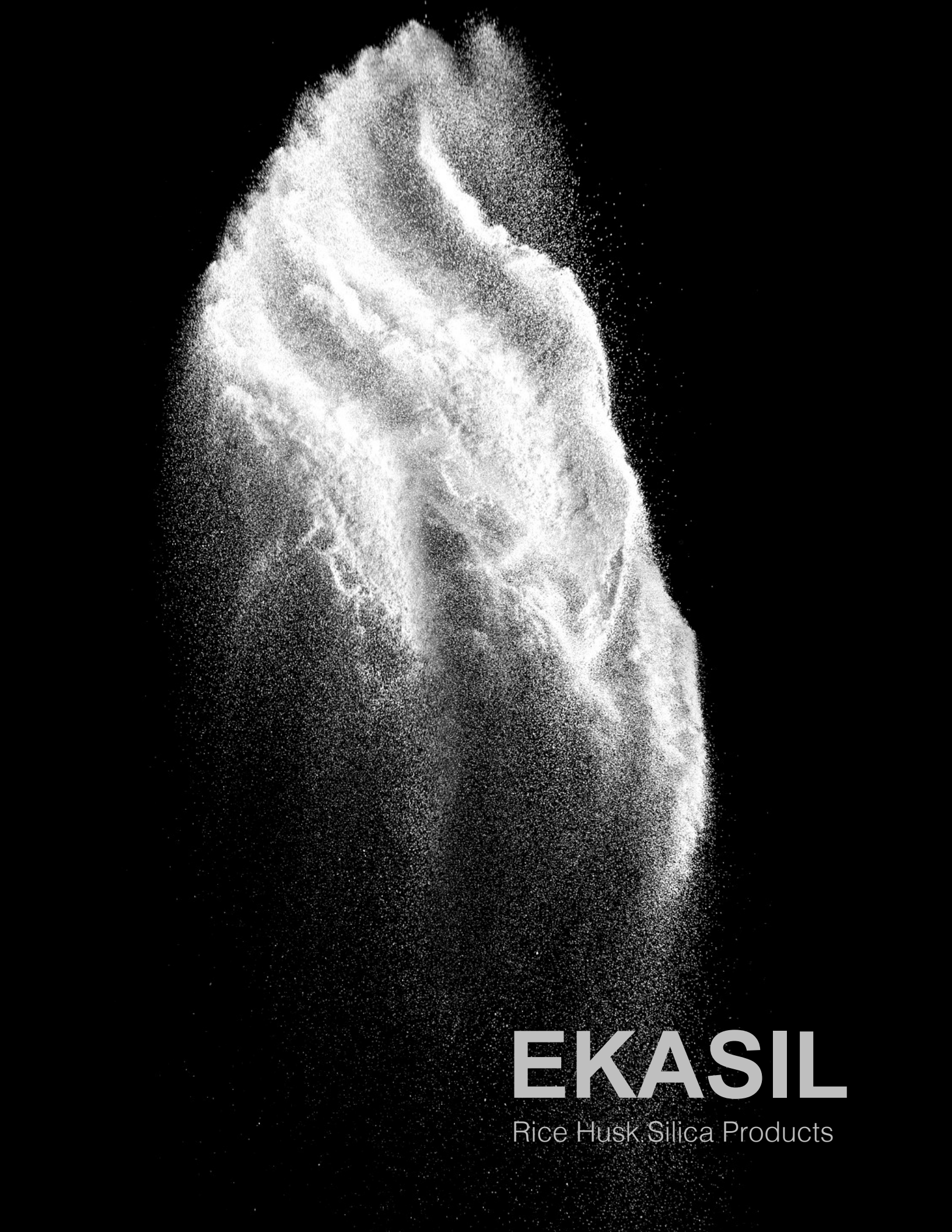

EKASIL

Rice Husk Silica Products

EKASIL Basic Specifications

EKASIL basic specifications are silica products that are obtained directly from the extraction process. The specifications are based on the purity of silica: 99.99% for **EKASIL A** and 96% for **EKASIL B**. Both the specifications are amorphous silica with physico-chemical properties that are adjustable to customers' needs.

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
Color		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 Specifications

EKASIL advanced specifications are silica products that are developed from the basic specifications based on customers' requirements of physico-chemical properties. The specifications are various and applicable to a wide range of user industries.

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 D972 PHARMA
Paints and coatings	EKASIL 200, EKASIL 300, EKASIL 380
3D Printing	EKASIL 50, EKASIL 200, EKASIL D150, EKASIL P150
Paper and media coatings	EKASIL 150, EKASIL 200, EKASIL 300
Toner	EKASIL P150, EKASIL D150
Cosmetics	EKASIL 200, EKASIL 300, EKASIL 380, EKASIL P150, EKASIL H200, EKASIL D150, EKASIL HM200
Health care	EKASIL 200 PHARMA, EKASIL 300 PHARMA, EKASIL D972 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 P150, EKASIL HM200, EKASIL HM250, EKASIL H200, EKASIL D150
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 D150
Unsaturated polyester resins	EKASIL 200, EKASIL 300, EKASIL P150, EKASIL D150, EKASIL D200
Adhesive and sealants	EKASIL 50, EKASIL P150, EKASIL D150, EKASIL D200
Thermal insulation	EKASIL 150, EKASIL 200, EKASIL 300, EKASIL D200,
Lubricating grease	EKASIL 200, EKASIL 380, EKASIL P150, EKASIL D150, EKASIL D200
Oil and gas	EKASIL 200, EKASIL HM250, EKASIL D150
Cable gel	EKASIL 200, EKASIL 380, EKASIL P150, EKASIL D150, EKASIL D200
Catalyst	EKASIL 50, EKASIL 200
Plastics	EKASIL 50, EKASIL 200, EKASIL D150, EKASIL D200
Technical powder	EKASIL 200, EKASIL D150
Electronics	EKASIL 200, EKASIL D150, EKASIL D200
Battery	EKASIL 200
Deformers	EKASIL 130, EKASIL 200, EKASIL P150, EKASIL HM200, EKASIL HM250
Construction	EKASIL 200, EKASIL D150
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
- Silicon 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 D150

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
- Silicon rubber
- Adhesives and sealants
- Cable gels
- Lubricating grease
- Cosmetics
- Oil and gas

Properties

- Hydrophobic component for thickening and reinforcement of silicon 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 D200

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
- Silicon rubber
- Negative toner
- Coating polymers
- Cosmetics
- Lubricating grease
- Cable gel

Properties

- Hydrophobic component for thickening and reinforcement of silicon sealants
- Improving shelf-life of silicone sealants
- Water resistant, hydrophobising of liquid systems
- For coatings as 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 P150

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 behavior of pigments and anti-sagging behavior
- Surface additive to increase charge and improve flowability.
- High hydrophobicity, small particle with good flowability.

EKASIL H200

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 D150 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.

EKASIL

www.ekasil.com