

COLLOIDAL-SIL™

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Colloidal silicas are aqueous dispersions of fine amorphous, nonporous, typically spherical silica particles. The silica particles are electrostatically charged, repelling each other and staying suspended in solution.

COLLOIDAL-SIL™ is available in a wide variety of grades for various industrial applications. With our product line's extensive coverage of particle size, particle size distribution, pH, and stabilizing ions, we can help you find the perfect colloidal silica for use in your application.

Below are some of the most commonly used grades. Contact us for more information or to suggest a suitable grade for your application.

INDUSTRY	FUNCTION	COLLOIDAL-SIL™ GRADES
Catalysts	Carrier for catalysts, binder & silica source for synthesis	(NS8)30, (NS815)30, (NS14)40, (NS20)40, (NS15)30LA, (NS20)40LA
Concrete/Shotcrete/Grouting	Imparts pozzolanic activity and CSH gel creation, accelerating setting. Enhances early-stage compressive strength, improves pumpability, reduces rebound, provides reduction in thickening time and decreases permeability. Provides bleed and segregation control.	(NS6)15, (NS7)15, (NS8)20, (NS20)40
Floor & Surface Densification	Imparts pozzolanic reaction increasing CSH gel creation, stabilizes bleed and segregation control, improves workability and finishing, provides early strength enhancement as set accelerator, enhances the cement paste density, reinforcing the structure between cement grains, and reducing permeability.	(NS6)15, (NS7)15, (NS8)30, (NS815)30, (NS20)40
Ceramics & Refractory	Binder, source of silica, reactive agent, increase strength & rigidity	(NS8)30, (NS815)30, (NS14)40, (NS20)40
Oil Well Cementing	Impart pozzolanic activity, improve strength, decrease set times, decrease permeability, decrease gas migration & other benefits	(NS6)15, (NS7)15, (NS8)30, (NS20)40
Dust Agglomeration (coal, cement plants, etc.)	Binder, agglomeration & granulation	(NS8)30, (NS815)30, (NS14)40, (NS20)40
Electroplating	Improves adhesion, corrosion resistance, durability, anti-skid & anti-abrasion properties	(NS8)30, (NS15)30LA, (NS20)40LA
Paints & Coatings	Improves adhesion, corrosion resistance, durability, anti-skid & anti-abrasion properties	(NS8)30, (NS14)40
Battery	VRLA batteries & gel formation	(NS6)15, (NS20)40
Paper Manufacture	Retention, drainage, flocculation & frictionizing	(NS6)15, (NS7)15, (NS8)30

Product Features & Benefits:

- Adhesion promoter
- Anti-blocking properties
- Densification
- Excellent binder
- Flocculant
- Improved abrasion resistance
- Improved polishing performance
- Strength enhancer

PARAMETER	GRADE ^{*(1)}										
	UNIT	(NS6)15	(NS7)15	(NS8)20	(NS8)30	(NS815)30	(NS15)30	(NS15)30LA	(NS14)40	(NS20)40	(NS20)40 LA
SILICA (SiO ₂)	(%wt.)	15 - 16	15 - 16	19.5 - 20.5	29.5 - 30.5	29.5 - 30.5	29.5 - 30.5	29.5 - 30.5	39.5 - 40.5	39.5 - 40.5	39.5 - 40.5
ALKALI (Na ₂ O)	(%wt.)	0.30 - 0.40	0.30 - 0.40	0.3 - 0.4	0.40 - 0.60	0.30 - 0.60	0.30 - 0.50	<0.10	0.2 - 0.4	0.3 - 0.5	<0.15
pH (25°C)	-	9.50 - 10.50	9.50 - 10.50	9.50 - 10.50	9.50 - 10.50	9.50 - 10.50	9.50 - 10.50	9.50 - 10.50	9.50 - 10.0	9.50 - 10.50	9.50 - 10.50
DENSITY (25°C)	g/cm ³	1.08 - 1.09	1.08 - 1.09	1.12 - 1.13	1.18 - 1.20	1.18 - 1.20	1.18 - 1.20	1.18 - 1.20	1.275 - 1.29	1.275 - 1.29	1.275 - 1.29
VISCOSITY (FORD B4 CUP, 25°C)	sec	11-12	11-12	11-12	12-13	12-13	12 - 13	12-13	12-15	13-15	13-15
COUNTER ION	-	Na	Na	Na	Na /K	Na /K	Na	NH ₄	Na	Na	NH ₄
AVG. PARTICLE SIZE	nm	6	7	8	8	10 ^{*(2)}	15	15	14	20	20
SURFACE AREA (MIN.)	m ² /g	450	380	300	300	250	180	180	190	140	140

* (1) (Numeral within parenthesis designates nano particle size followed by % Solids outside parenthesis. Example (NS7)15 = 7 nm Particle Sized Colloidal Silica Sol with 15% Solids.

* (2) (Nano particle size ranges 8 -15 with an average size 10). For more detailed product information, please refer to the separate Technical Data Sheet TDS and Safety Data Sheet SDS. Approval of sample is preferred before any customer places an order.

Variety of Additives Available:

- Freeze-thaw stable versions available
- Polymer enhanced binders available for investment casting.
- Entire range of lithium silicates available for refractory applications, flooring, paints and coatings applications.
- Low alkaline grades (denoted by LA) available for catalyst ceramics and refractory applications where the presence of sodium can cause problems.

Packaging:

1250 kg TOTE/IBC.

Also available in bulk Flexi and ISO tanker.

Usage & Storage:

The COLLOIDAL-SIL™ range are extremely sensitive materials. Do not contaminate, use dirty tools to handle or store.

Reseal the containers tightly after use. If containers are left open, evaporation or contamination will occur, spoiling the contents completely.

Keep the container tightly closed after use. All equipment should be cleaned and sanitized regularly to avoid contamination.

COLLOIDAL-SIL™ is best stored in dark, closed tanks made of non-rusting material such as plastic or coated steel.

Uncoated, metallic tanks or piping should be avoided.

DO NOT store at temperatures below 5°C/41°F or above 43°C/110°F to avoid irreversible gel formation or silica precipitation.

Bulk storage tanks or drum storage areas should be in temperature-controlled buildings.

Outdoor storage can be used if suitably insulated, heated and protected from the weather. Outside storage should be in a shaded location or a sunscreen should be erected over the tanks or drums.

12-month shelf life. Product must be mildly agitated before use.

Keep from freezing.

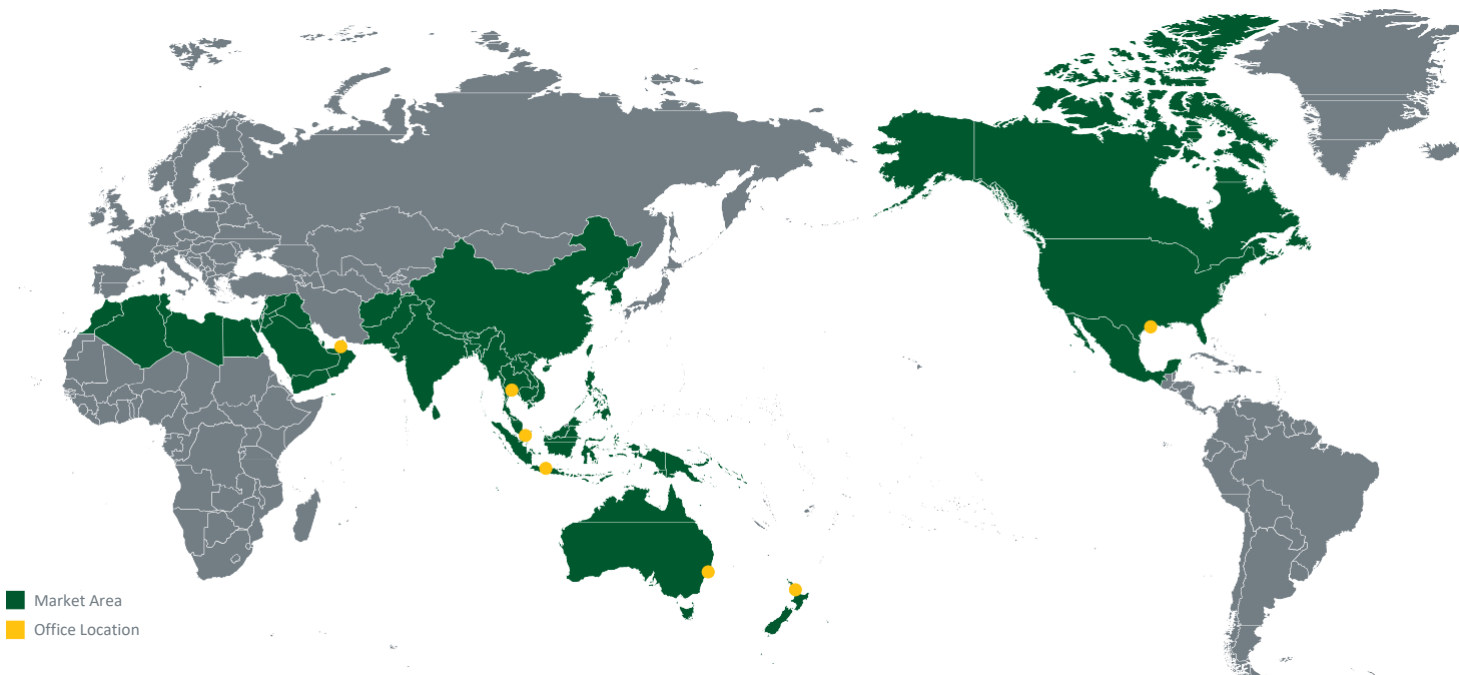
Health & Safety:

COLLOIDAL-SIL™ is a stable form of synthetic amorphous silica dispersed in water.

Additional information can be found in our Safety Data Sheet (SDS). Please refer also to national laws and regulations.

Further solutions

Please let us know if you are searching for a different type of product or solution which better suits your application area. Our experts in this area are happy to assist you.



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