

PL series

High Purity Organo Silica Sol

This product is surface modified colloidal silica made from ultra high purity colloidal silica prepared by a sol-gel process and can be stably dispersed in various organic solvents.

Characteristics

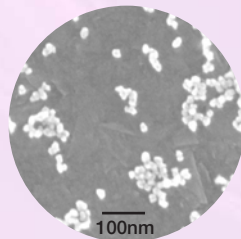
- Surface modified colloidal silica by using the FUSO's original technique
- Based on ultra high purity colloidal silica containing metal impurities at 1 ppm or less
- Freely controllable particle size and aggregate ratio
- Dispersible in various organic solvents such as alcohol, ketone, ether, toluene and so on
- Stably dispersed without sedimentation for a long time

Applications

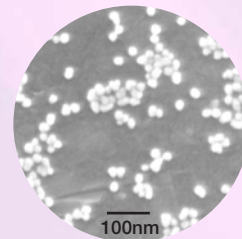
Applicable to a wide range of field

- Anti-reflection coating/hard coating materials
- Nano-composite materials
- Organic/inorganic hybrid materials
- Ceramic binder
- Functional resin with properties such as heat-resistant, gas barrier, insulation and scratch resistance

SEM Pictures



PL-1-IPA



PL-2L-PGME

Properties

Item		Unit	PL-1-IPA	PL-1-TOL	PL-2L-PGME	PL-2L-MEK
Particle size (specific surface conversion)		nm	10~15	10~15	15~20	15~20
Composition	Silica content	%	12.5	40.0	25.0	20.0
	Solvent	—	Isopropanol	Toluene	Propylene Glycol Monomethyl Ether	Methyl Ethyl Ketone
	H ₂ O	%	1 or less	0.2 or less	1 or less	1 or less
Properties	Appearance	—	Clear	Clear	Clear	Clear
	Specific gravity(20/4°C)	—	0.86	1.16	1.08	0.92
Metal impurities		ppm	1 or less	1 or less	1 or less	1 or less

Depending on the customer's demands, we can provide the product adjusted in particle size, particle shape, specific surface, etc.

High Purity Organo Silica Sol

Miscibility

Compatibility (Organo silica sol/organic solvent=1:1 vol ratio)

● : Stably dispersed ▲ : Opaque/Vis up ✕ : Not miscible/Gelation/Phase separation

	Methanol Sol	IPA Sol	MEK Sol	PGME Sol	Toluene Sol
Water	●	●	✕	▲	Separation
Methanol	●	●	●	●	✕
n-Butanol	●	●	●	●	●
MEK	●	●	●	●	●
PGME	●	●	●	●	●
Ethyl acetate	●	●	●	●	●
n-Hexane	Separation	▲	✕	✕	●
Toluene	▲	●	▲	●	●
DMF	●	●	●	●	●

When an organo sol is used as an ingredient for coating agents, paints, or others, even if the solution seems well dispersed, silica particles may aggregate depending on the compatibility with the resins.

Structural Image

- Silanol groups of the silica can be modified on the molecular level.
- Various functions such as hydrophobicity and reactivity can be added by modification of R radical.

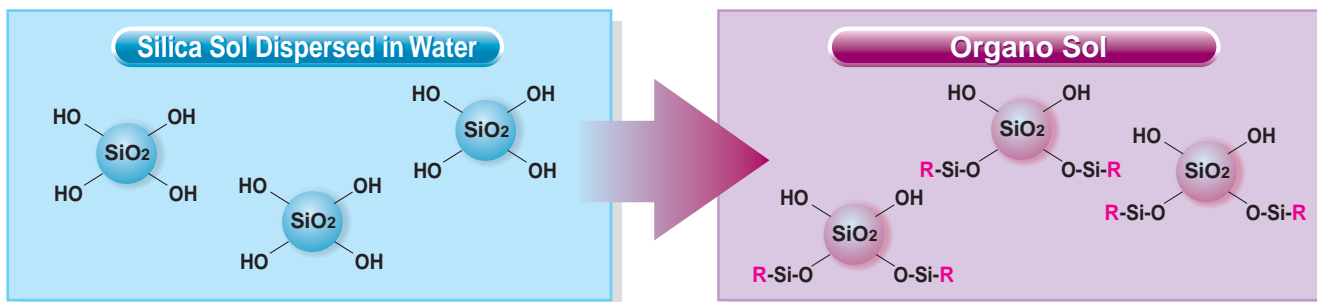


Image comparison

Colloidal Silica

PL-1

Dispersed in water

Silica Content 12%

Organo Sol

PL-1-TOL

Dispersed in toluene

Silica Content 45%

※Data in this catalogue indicates not an example of standard value but that of measured value.