Integerity • Responsbility • innovation • win-win



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Peak-tech

PEAK-TECH

Shandong Peak-tech New Material Co., Ltd





Product
Introduction

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Shandong Peak-tech New Material Co., Ltd

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Peak-tech

About the company

Shandong Peak-tech New Material Co., Ltd., founded in 2009, specializes in the production of high-end silica sol and nano-dispersions. Our product portfolio includes more than 30 offerings, such as large-particle size silica sol, small-particle size silica sol, non-spherical silica sol, modified silica sol, acidic silica sol, neutral silica sol, cationic silica sol, high-purity silica sol, and nano-silica polishing slurry.These products are widely applied in many industries, including integrated circuits, high-end catalysts, new energy, biomedicine, hollow microspheres, ceramic composites, agricultural silicon fertilizer, water-based coatings, papermaking, textiles, and refractory materials, with an annual production capacity of 50,000 tons.

Empowering industrial upgrading through cutting-edge technologies, the company has independently developed core technologies for nano-silica, including precise particle size control, targeted morphology regulation, surface functional modification, and deep ion purification. These technologies boast four distinctive advantages: high precision, high adaptability, high empowerment, and high purity. They effectively resolve the bottlenecks in optimizing the performance of nano-silica materials, break through the limitations of conventional technologies, and provide critical technical support for the R&D and production of high-end products.

Driven by R&D as the engine of innovation, we continue to focus on new product development and constantly push technical boundaries. Grounded in certifications as the cornerstone of quality, we leverage advanced technologies and refined management to deliver consistently premium products and efficient services to our customers.

Our philosophy: "Meet customer needs with quality products." Our values: "Integrity, Responsibility, Innovation,Win-Win." We seek sincere cooperation for mutual growth.



PRODUCTS LIST

Silica sol series 1 (Silicon as raw material)

Product types	Product model	Particle size (nm)	SiO_2(wt%)	pH	Remarks
Large particle	LS30	30–40	30–50	9.5–10.5	Used for polishing, coating, anti adhesive, etc
	LS50	50–60	30–50	9.5–10.5	
	LS80	80–90	30–50	9.5–10.5	
	LS100	100–110	30–50	9.5–10.5	
	LS120	110–120	30–50	9.5–10.5	
	LS150	140–160	30–50	9.5–10.5	
	LS180	170–190	30–50	9.5–10.5	
Small particle	SS3010	6–9	30	10–11	Used for batteries, coatings, high–temperature adhesives, etc
	SS3015	10–15	30	10–11	
Cationic	AP2510	40–80	25–26	2–5	Used for digital printing, hydrophilic coating, papermaking, etc
	AP2820	40–80	28–30	2–5	
	PI2020	60–100	20	3–6	
Acidic	HA2005	7–10	20	2–4	Used for catalyst carriers, coatings, ceramic composite materials, etc
	HA3010	10–15	30	2–4	
	HA3510	10–15	35	2–4	
	HA3020	15–25	30	2–4	
Neutral	HN2005	7–10	20	6–8	Used for coating, papermaking, etc
	HN3010	10–15	30	6–8	
	HN3020	15–25	30	6–8	
NH^{4+} stabilized	AM3010	10–15	30	8–10	For catalyst carriers, refractory materials, etc
	AM4010	10–15	40	8–10	
	AM4020	15–25	40	8–10	
High–purity	HP25D10	10–20	25	7–9	Metal<20ppm
Ceramics oating spec	CC4080	50	30	8–10	Used for non stick pots, aluminum veneers, etc
	CC50X	50	30	9–11	
	CC100X	100	40	9–11	
Modified surface	M3005	7–10	30	2–4	★The group of the particle surface is C–OH ★Used for resin synthesis, coating, etc
	M3010	10–20	30	2–4	
	M3005T	7–10	30	7–8	
	M3010T	10–20	30	7–8	

★ Parameters such as particle size, content, pH, ion type, positive and negative charges can be customized

Shandong Peak-tech New Material Co., Ltd

PRODUCTS LIST

Silica sol series 2 (Water glass as raw material)

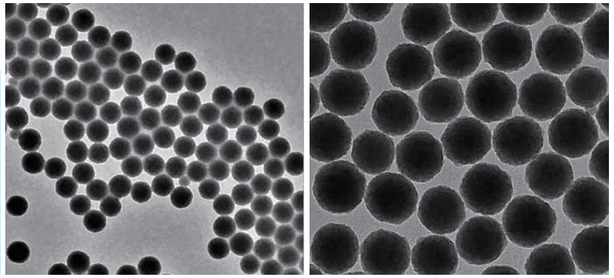
Product types	Product model	Particle size (nm)	SiO_2 (wt%)	pH	Remarks
Large particle	LX30	30–40	30–50	9–10	Used for polishing, coating, anti adhesive, etc
	LX50	50–60	30–50	9–10	
	LX80	80–90	30–50	9–10	
	LX100	100–110	30–50	9–10	
	LX120	110–120	30–50	9–10	
	LX150	140–160	30–50	9–10	
	LX180	170–190	30–50	9–10	
Small particle	SS1505	3–5	15	10–11	Used for batteries, coatings, high–temperature adhesives, etc
	LX10C30	6–9	30	9.5–10.5	
	LX20C30	10–15	30	9–10	
Cationic	APX50–20	50–90	20	2–5	Used for digital printing, hydrophilic coating, papermaking, etc
	APX80–30	70–100	30	2–5	
	APX100–30	100–120	30	2–5	
Acidic	HAX2005	7–10	20	2–4	★Used for catalyst carriers, metal surface treatment, coatings, ceramic composite materials, etc ★The metal content of HP2510A and HP4010A is very low
	HAX3010	10–15	30	2–4	
	HAX3020	15–25	30	2–4	
	HP2510A	10–20	21–25	2–4	
	HP4010A	10–20	38–42	2–5	
Neutral	HNX2005	7–10	20	6–8	Used for coating, papermaking, etc
	HNX3010	10–15	30	6–8	
	HNX3020	15–25	30	6–8	
NH^{4+} stabilized	AMX3010	10–15	30	8–10	For catalyst carriers, refractory materials, etc
	AMX4010	10–15	40	8–10	
	AMX4020	15–25	40	8–10	
Low alkali content	LA3010A	10–20	30	8–10	Na<0.01%
	LA3010B	10–20	30	8–10	Na<0.05%
	LA3010C	10–20	30	8–10	Na<0.1%
Modified surface	MX7–30	6–9	30	7–9	★The group of the particle surface is C–OH ★Used for resin synthesis, coating, etc
	MX12–30	10–20	30	7–9	
	VX2505	6–9	21–23	2–4	★The group of the particle surface is C=C ★Used for resin synthesis, coating, etc
	VX3010	10–20	26–28	2–4	
Non spherical particle	LZ–1	d=10–15 L=30–60	25	9–10	★Branched chain particle ★d–particle diameter (TEM) L–particle length (DLS) ★Used for special coatings
	LZ–2	d=10–15 L=60–100	25	9–10	
	LZ–1A	d=10–15 L=30–60	20	2–4	
	LZ–2A	d=10–15 L=60–100	20	2–4	
	LL–200	d=10–15 L=30–60	20	8–9	
	LL–600	d=4–6 L=30–60	20	8–9	

APPLICATIONS OF SILICA SOL

1 Large-particle-size Silica Sol

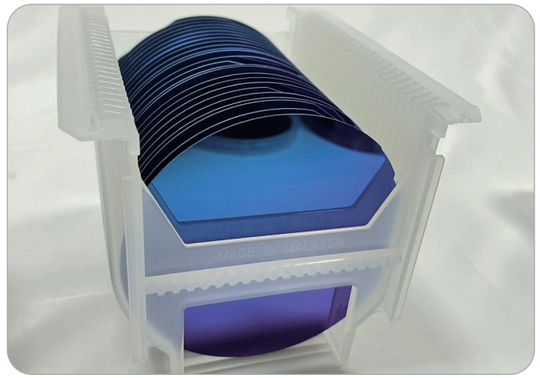
Product Features

- Uniform particle size distribution (±3 nm)
- Spherical particles
- Dense structure



Applications

Used for polishing integrated circuits, as well as the surface polishing of 3C metals, hard disks, glass, optical crystals, and other substrate materials



Circuit Polishing



Metal Polishing



Optical Crystals Polishing



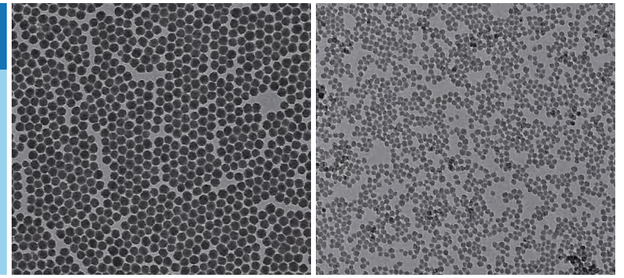
Glass Polishing

APPLICATIONS OF SILICA SOL

2 Small-particle-size Silica Sol

Product Features

- Extremely narrow particle size distribution (±1 nm)
- High sphericity of particles
- High surface activity

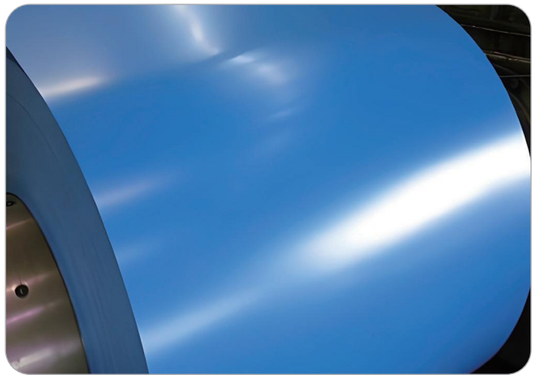


Applications

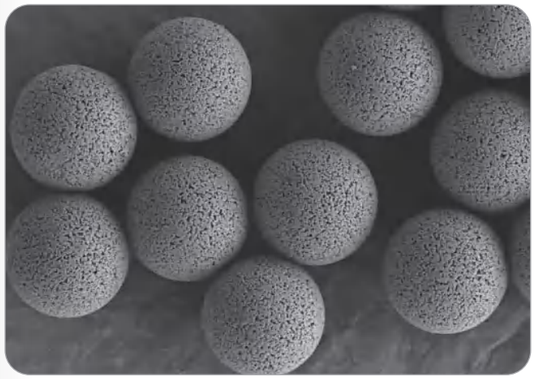
Oilfield cementing agents, special functional coating, expandable microspheres applications, valve-regulated gel battery



Oilfield Cementing Agents



Special Functional Coating



Expandable Microspheres



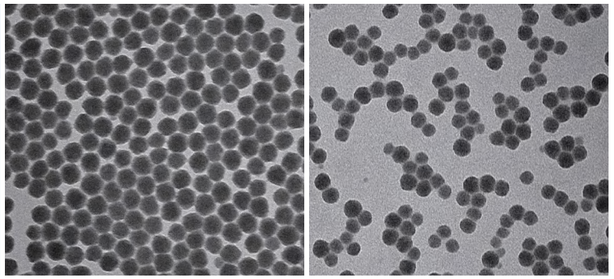
Valve-regulated Gel Battery

APPLICATIONS OF SILICA SOL

3 High-purity Silica Sol

Product Features

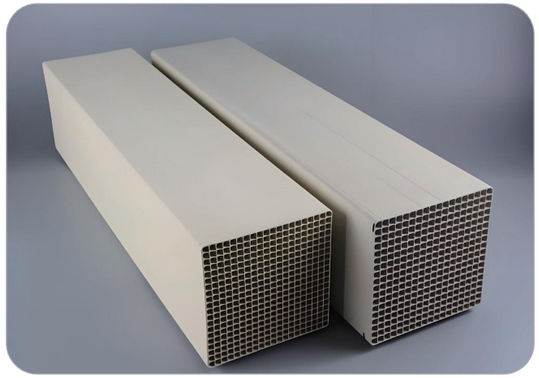
- High purity (Na/K ion content customizable)
- Uniform particle size distribution



Applications: Catalyst preparation, high-purity ceramic matrix composites, electrolytes for new energy batteries



SCR Ternary Catalyst



Desulfurization and Denitrification Catalyst



High-purity Ceramic Matrix Composites



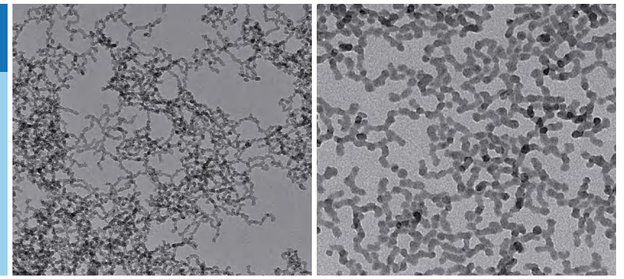
Electrolytes for New Energy Batteries

APPLICATIONS OF SILICA SOL

4 Non-spherical Silica Sol

Product Features

Branched and bead-chain nanoparticles interweave during drying, forming films with superior adhesion and flexibility compared to spherical silica sols. The structure also increases specific surface area and porosity.



Applications: Specialty coatings (surface coatings for photovoltaic glass panels, automotive coatings, surface coatings for optical materials)



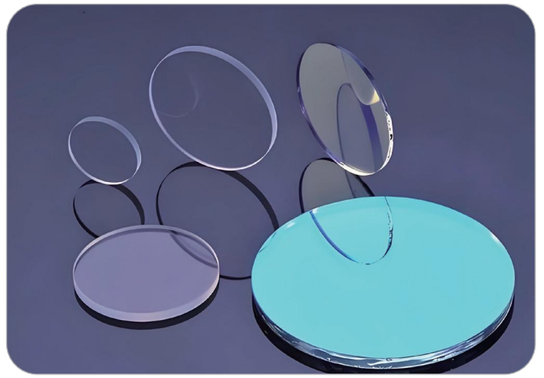
Surface Coatings for Photovoltaic Glass Panels



Automotive Coatings



Surface Coatings for Optical Materials



Surface Coatings for Optical Materials

APPLICATIONS OF SILICA SOL

5 Modified Silica Sol（Surface organo-modified silica sol, Cationic silica sol）

Product Features

- Surface organo-modified silica sol: Branched and bead-chain nanoparticles interweave during drying to form films with superior adhesion and flexibility compared to spherical silica sols, while increasing specific surface area and porosity.
- Cationic silica sol:The silica sol particles are positively charged on the surface and can be mixed with cationic emulsions, alumina sol, etc., with good compatibility.

Applications

Surface organo-modified silica sol:Water-based wood coatings, emulsion polymerization, and water-soluble silica fertilizers.
Cationic silica sol: Hydrophilic coating, digital printing coating, cellophane, agricultural greenhouse film



Water-based Wood Coatings



Emulsion Polymerization



Photo Paper Coatings



Agricultural Greenhouse Film

APPLICATIONS OF SILICA SOL

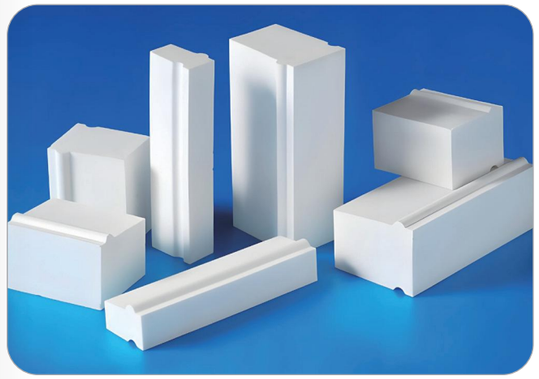
6 Other Applications



Ceramic Coating



Fireproof Glass



Refractory Binder



Fruit Wine Clarifier



Textile Auxiliary



Ceramic Tile Polishing

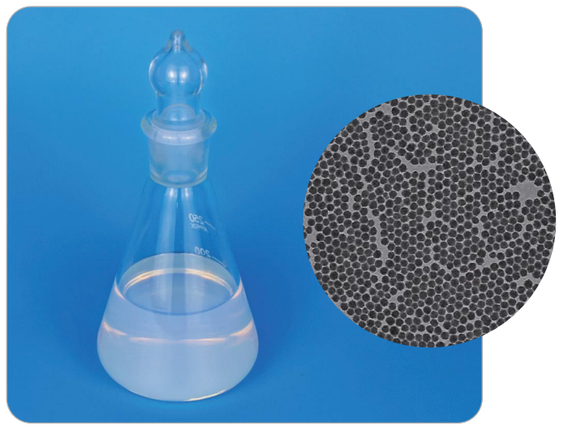
SILICA SOL KNOWLEDGE

Definition of Silica Sol

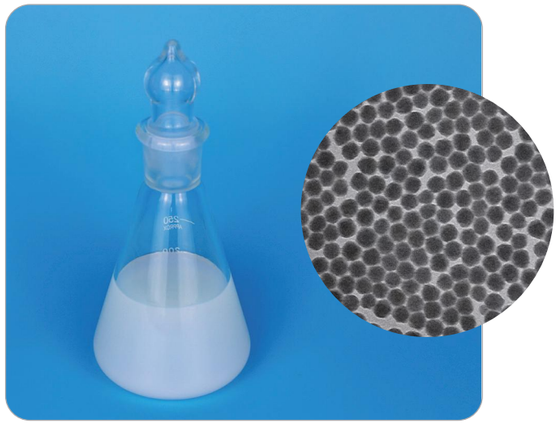
Silica sol is a dispersion of nano-sized silica particles, with a typical solid content of 30–50%. Its appearance ranges from transparent to milky white (depending on particle size), and it is slightly more viscous than water. The interior of silica sol particles consists of amorphous silica, while the particle surface is composed of silicate groups (SiO_3^{2-}) or silanol groups (Si–OH). Its specific surface area is approximately 30–1100 m²/g.



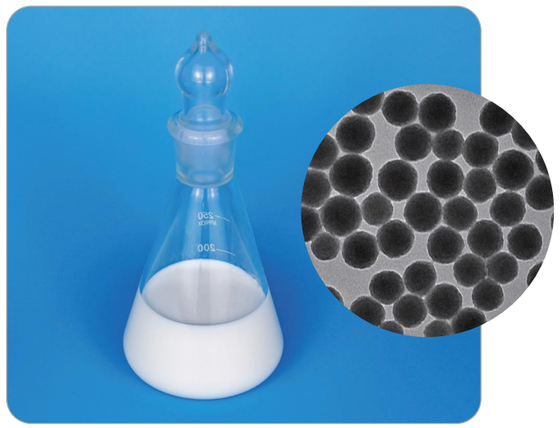
4nm



12nm



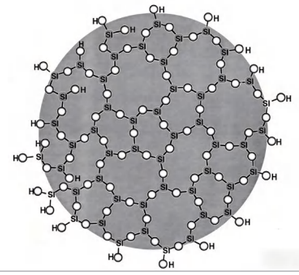
50nm

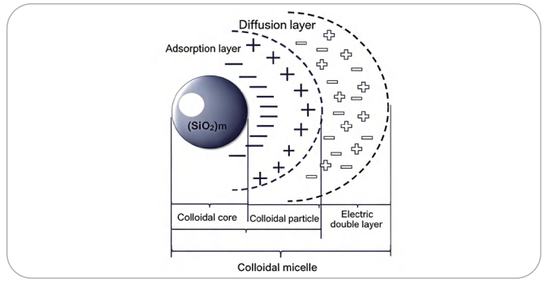


100nm

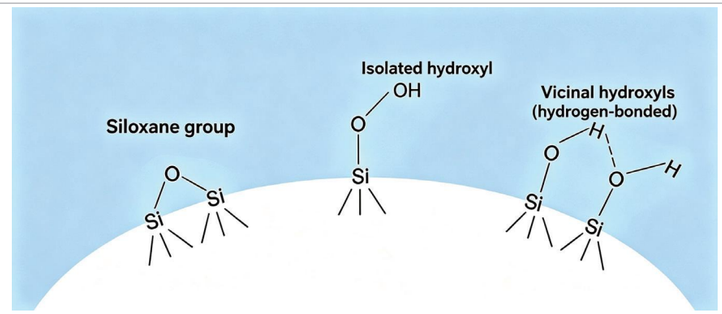
SILICA SOL KNOWLEDGE

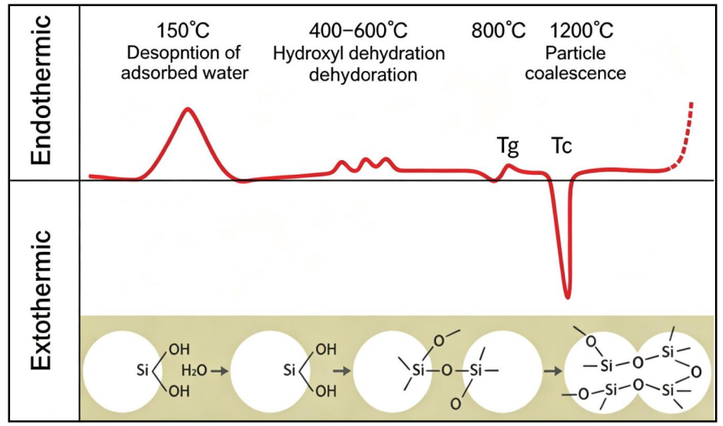
Schematic diagram of the particle structure





Surface structure of silica sol particle





SILICA SOL KNOWLEDGE

Compatibility with Other Substances

1.Metal ion

Multivalent cations (e.g., Al^{3+}, Fe^{2+}, Ca^{2+}) induce flocculation in anionic silica sols, while multivalent anions (e.g., SO_4^{2-}, PO_4^{3-}) cause flocculation in cationic silica sols. Monovalent ions (e.g., Na^+, K^+, Cl^-, NO_3^-) are compatible at low concentrations.

2.Polymers

Water-soluble polymers with molecular weights >5,000 may gradually gel silica sols. Polymers with molecular weights <3,000 are compatible.

3.Diluents

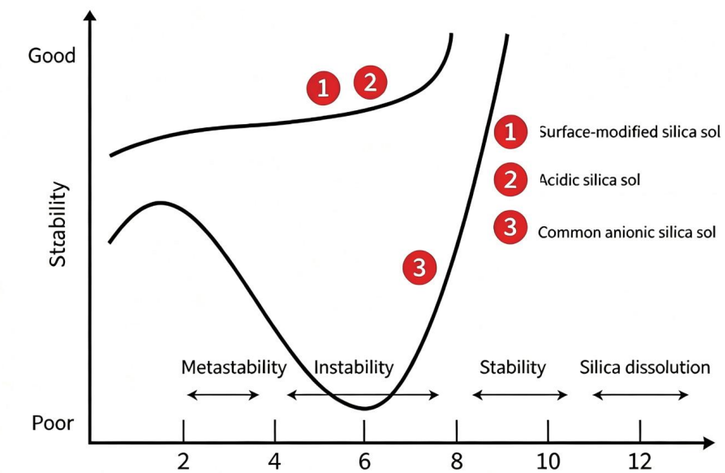
Dilution is permitted using pure water, small-molecule alcohols, ketones, or other hydrophilic solvents. Tap water, containing multivalent cations (e.g., Ca^{2+}, Mg^{2+}), must not be used.

4.High-concentration electrolytes

Excessive electrolyte concentrations (>1%) may trigger flocculation.

SILICA SOL KNOWLEDGE

Stability of Silica Sol



Storage Conditions

1.It should be stored at a temperature between 0-40℃. Freezing below 0℃ will cause irreversible flocculation and render the product unusable!

2.It should be stored away from light, as prolonged exposure to light can promote the growth of green algae.

3.The storage container should not be left open for extended periods to prevent moisture evaporation and the precipitation of solid silica, which could affect product quality.

4.The shelf life is generally 6-12 months. If the product exceeds this period but shows no signs of increased viscosity or gelation, it can still be used.

Core Technology

1.Precise Particle Size Control

The particle size of silica sol can be precisely controlled within the range of 3-180 nm (with a precision of ±1 nm for small particles and ±5 nm for large particles).

2.Particle Morphology Regulation

Spherical, branched, bead-like, and potato-shaped silica sol particles can be prepared.

3.Particle Surface Modification

The surface of silica sol particles can be modified with organic groups such as carbon hydroxyl (-CH_2OH), vinyl (-CH_2=CH_2), and quaternary ammonium (-N^+R_4) through surface grafting reactions.

4.Deep Ion Purification

The content of metal impurities is significantly reduced, enabling the preparation of high-purity silica sol (e.g., Na < 5 ppm).







Certificate of Honor

- National Little Giant Enterprise
- National High-Tech Enterprise
- Shandong Specialized & Innovative SME
- Shandong Gazelle Enterprise









Corporate Culture

Vision

Become a respected high technology enterprise

Mission

To provide better products and services by more advanced technology and management, to made contribution for social progress

CoreValues

Integrity, Responsibility, Innovation, Win-Win

