DAXiN

A Materials Design House And More

DAXIN Materials Corporation

Products

Semiconductor Materials

DAXIN Design House for Chemical Materials

Display Materials

Key Raw Materials

Instrument Analysis

About DAXIN

Daxin Materials Corporation is a design house for chemical materials. We develop customized products including specialty chemicals for semiconductor ,display, and key raw materials. With our value in fundamental knowledge, diverse talents, and expertise in materials design, equipment technology and process development, we provide innovative and value-added solutions for our customers.

Founded in 2006, Daxin is continuously pursuing innovation, ambition and sustainability, aiming to become an advanced foundry for materials innovations.

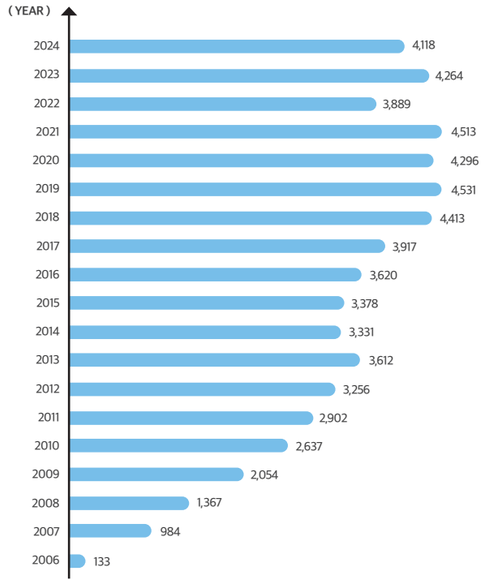
Culture
Daxin 5i
integrity
innovation
intelligent integration
intercommunication
individuals

Vision
To Be a Leading Company for Materials Innovations

Mission
Best Solution Provider for Customized Products

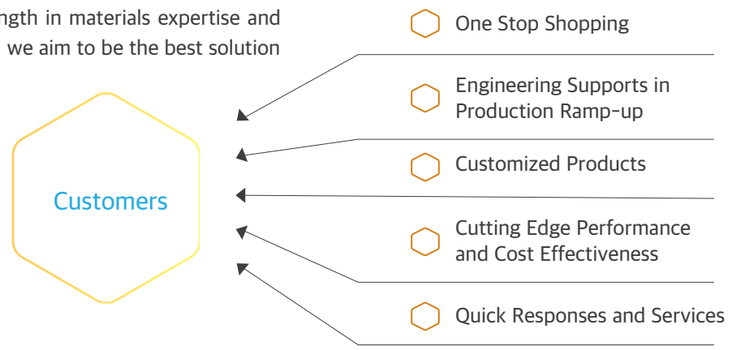
Foundation	July 12th, 2006
Paid-in capital	1.03 billion NTD
Chairman	Dr. Cheng-Yih Lin
President	Jeremy, Tsung-Hsing Kuo
Mission	To Be a Leading Company for Materials Innovations
Headquarters	R&D Center, Taichung, Taiwan
Employees	430 (RD >50%)
Product Domain	▪ Instrument Analysis Services
GOLD PANEL AWARDS	Polyimide wins “Gold Panel Awards 2010”

Annual Revenue (Million NTD)



Best Solution Provider for Customized Products

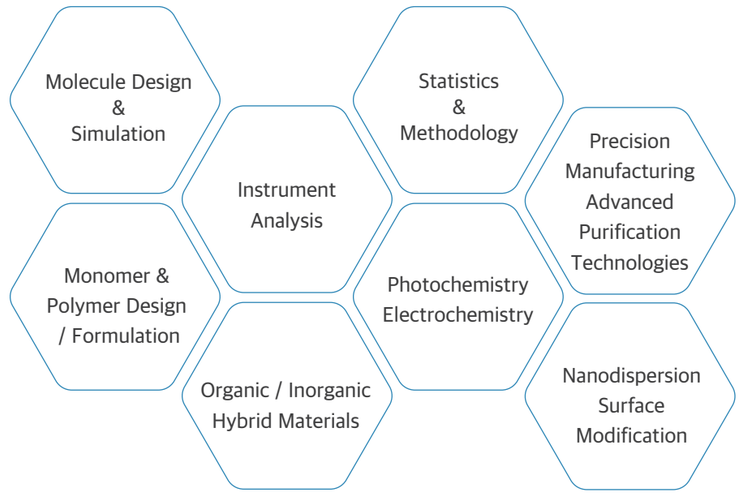
To contribute to our customers’ success, we always keep close relationships with clients to design products as desired. Combining our strength in materials expertise and strong manufacturing ability, we aim to be the best solution provider worldwide.



Research & Development

Core Technologies and Product Development

All the innovations are the extension of fundamental science. From the basic photochemistry to color simulation, molecular simulation, dispersion science, surface chemistry, organic and inorganic hybrid materials design, monomer & polymer design/formulation, and precision manufacturing and advanced purification technologies, Daxin links all these technologies to provide superior and customer-oriented products in different Semiconductor and Liquid Crystal Display (LCD) fields.



Consistent Innovation & Intellectual Property Protection

To defend our innovation and ensure the right for production, we are working to improve intellectual property protection and enforcement for our company in markets around the globe. Our patents include all ranges: from specific chemical formula, better solution to current technology, to the improvements of products. Until 2024 the approved patent license number was more than 331, the application number was more than 454. With intellectual property protection, it gives us exclusive right granted for invention and protects our corporate value in the market.

Semiconductor Materials

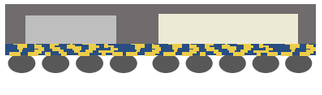
Photosensitive Dielectric/Passivation

Dielectric for Redistribution Layer

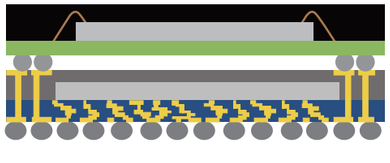
Applications

Varnish-type photosensitive dielectrics for the advanced chip packaging (WLP/PLP) are designed, which could be spin or slit-coated into thin film on the substrate and is photosensitive, able to be patterned into multi-layer redistribution layer (RDL). Low curing temperature, excellent Cu adhesion and electric properties are achieved for the varying chip applications.

Multi-chip Fan-Out Package



Fan-Out PoP



Features of General Type

- Low temperature curing
- Excellent Cu adhesion
- Low CTE
- High resolution
- Excellent chemical resistance

Features of Low Dk/Df Type

- Low temperature curing
- Low Dk/Df
- High resolution
- Excellent chemical resistance

Specifications

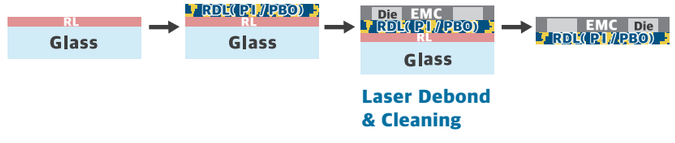
Product Name		PD series			
Features		• NMP free • Good mechanical properties	• NMP free • Low curing temp.	• NMP free • Low curing temp. • Higher modulus	• NMP free • Low curing temp. • Low Dk
Development		Solvent	Solvent	Solvent	Solvent
Patterning		Negative	Negative	Negative	Negative
Structure		Polyimide	Polyimide	Polyimide	Polyimide
Curing temp./time	℃/time	360 / 1h	230 / 1h	190 / 2h	180 / 3h
Application Example		Buffer Coating Flip Chip	Fan-out		

Laser Release Layer

Multi-functional Release Layer

Applications

Temporary bonding of wafer to glass carrier has emerged as a viable method for various electronic device processing. Laser debonding enables the use of laser release layer (RL) that can withstand high temperatures above 300°C. The processed devices are finally debonded and separated from the carriers easily.



Features

- Excellent thermal resistance and stability over 300° C
- Easily stripped by laser
- Applicable under various laser wavelength (308/355/532/1064nm) with high absorption
- Optical alignment (Tunable IR absorption or transmittance)

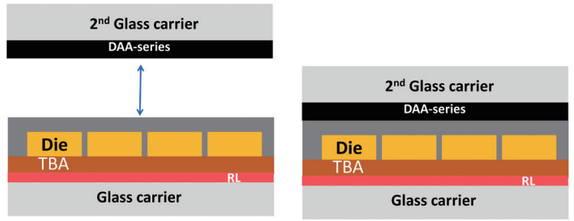
Specifications

Product Name			LRA series
Features			High laser absorption efficiency IR absorption
Laser Debond Wavelength		μm	308~1064
Clean Method			Plasma
Recommend Process Conditions	Coating Method	-	Slit or Spin
	Pre-bake	℃ ; min	90 ; 10
	Post-bake	℃ ; min	250 ; 30

Release Layer For Transfer Bonding

Applications

It is used in temporary bonding & debonding process for wafer/panel level packaging (WLP/PLP). It offers stable adhesion through subsequently physical or chemical processes. It can be debonded by laser easily.



Features

- ○ Can be used with multiple laser wavelengths.
- ○ High absorption efficiency.
- ○ Excellent chemical resistance.

Specifications

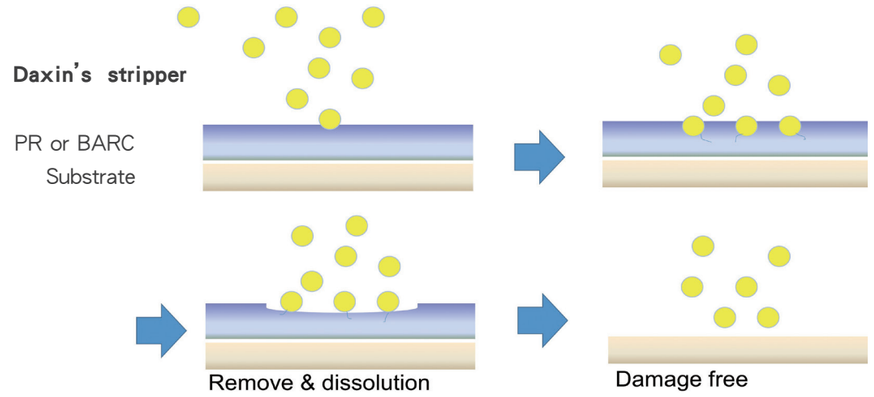
Product Name			DAA series
Features			High laser absorption efficiency IR absorption
Laser Debond Wavelength		μm	355~1064
Clean Method			Plasma
Recommend Process Conditions	Pre-bake	℃ ; min	150 ; 30
	Bonding Temperature	℃ ; min	150~180
	Bonding Pressure	Kg/cm^2	3~5
	Bonding Time	min	5
	Post-bake	℃ ; min	230 ; 30

High-Purity Specialty Chemicals for Wet Clean Process

Strippers Removers

Applications

Daxin's formulated strippers and removers are designed for effective removal of photoresist (PR) or bottom anti-reflection coating (BARC) with high protection and compatibility to metal or silicon congaing substrate, which are applicable in advanced IC process.



Features

- ○ Effective removability of thick resist
- ○ Effective removability of PERs/PARs
- ○ Low metal etching rate

- ○ Non-NMP/DMSO solvent system
- ○ High flash point
- ○ High purity (metal ions<1ppb)

Removers

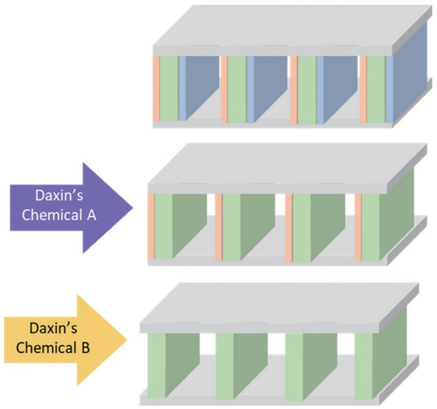
Applications

With the development of new-generation process technologies, the 3D structures in semiconductor processes are constantly evolving, and the materials in integrated circuits are becoming more complex.

To address the inter-mixing between different materials and the development of selective deposition structures, Daxin provides customized removers to meet the needs of microstructure fabrication, which can include the removal of metal-organic materials and the by-products formed during the dry etching process.

Features

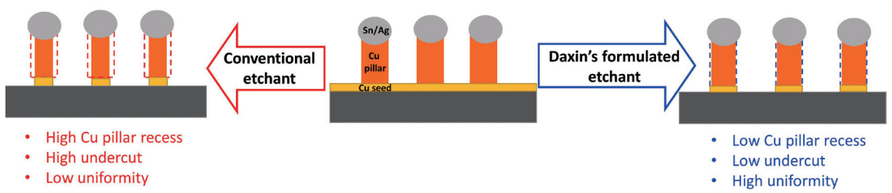
- High wettability
- High selectivity
- Customized materials design
- Low inter-mixing effect
- High purity/Low metal ions



Selective Etchants

Applications

The specifications and purity of wet chemicals are continuously increasing due to the leading technology. Daxin provides a variety of solutions for different etch selectivity between materials.
Daxin's selective etchants can demonstrate high metal loading and can be applied during the reclaim mode process. Without environmentally hazardous substances, not only the process cost but also chemical waste can be reduced.
Furthermore, various advantageous properties such as low undercut and high uniformity can be achieved by crystal orientation-dependent etching so that it can be applied to fine-pitch packages.



High-Purity Specialty Chemicals for Nanolithography

High-Purity Solvent

With advanced purification technologies, Daxin provides high purity solvent which can be used in the semiconductor/display industries and fulfills the needs of low metal ions and low particle content.

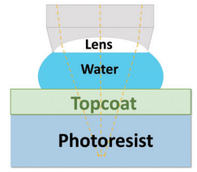
Topcoat

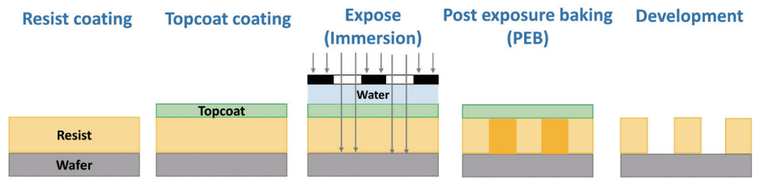
Applications

Daxin provides topcoat materials for immersion lithography, which can prevent photoresist from composition change due to substances dissolving into liquid (ex: water). In addition, topcoat materials can used for refractive index adjustment. A variety of specialty chemicals for nanolithography process are under development.

Features

- Good water-repellent
- Good dissolution in developer
- No intermixing and dissolution with photoresist





Specifications

Product Name			DTC series	Remarks
Features			High dissolution rate Low metal ions	
Recommend Process Conditions	Pre-bake	℃ ; min	80 ; 1	
Refractive Index at 193nm		-	1.53-1.60	@THK=500Å Customized
Extinction Coefficient at 193nm		-	<0.01	
Receding Angle		degree	70-75	

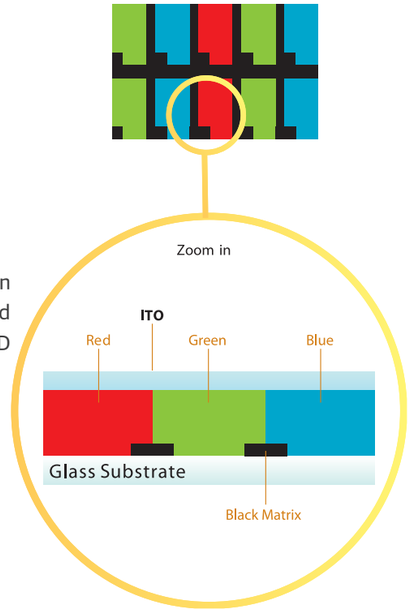
Display Materials

LCD Materials

Black Matrix Resist

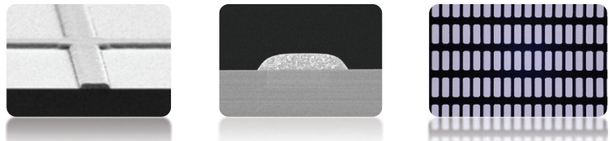
Applications

Black matrix is arranged in the form of stripes, grids or mosaics between color patterns of RGB in color filter for LCD panel. This product is designed for high light-shielding properties to increase the contrast ratio of LCD panel.



Features

- High optical density
- High coating uniformity, high sensitivity, excellent adhesion, excellent developing performance
- Excellent reliability in heat, light,and chemical resistance with good shelf-life
- New: Black matrix resist for LCD panel with high resolution



Specifications

Product Name			ABK 406X	ABK 408X
Field of Application			FHD	UHD
Features			Standard	High Resolution High Resistance
Line Width		μm	6-30	4-8
Optical Density		1/μm	4.5-4.0	4.0-3.0
Surface Resistivity		Ω/□	1×10^{8}	$>1 \times 10^{14}$
Recommend Process Conditions	Pre-bake	℃ ; min	70-120 ; 90	
	Exposure Energy	mJ/cm^2	40-100	
	Development	-	KOH/Buffer	
	Post-bake	℃ ; min	230 ; 20	

Photo Spacer

Applications

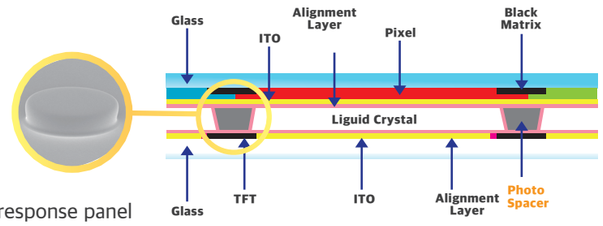
Via adjusting electric field between two glass substrates, the arrangement of liquid crystal materials can be controlled to make LCD exhibit expected pictures. Photo Spacer acts as a key component in TFT LCD which is used to maintain the cell gap's uniformity.

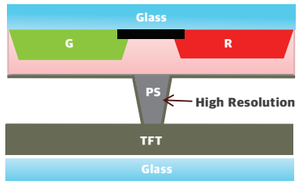
Features

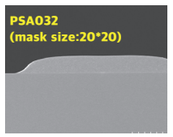
- High sensitivity
- Good coatability
- High elastic recovery ratio
- Excellent mechanical properties
- New:

  High resolution photo spacer for fast response panel

  Applicable for ultra-high LCD cell thick panel







Specifications

Product Name			Normal PS	Low Cell Gap-HPS	Ultra High PS
Field of Application			TN/VA/PSA/COA	AFFS	3D display/electro-chromic glass
Features			・Widely used in different process conditions ・Wide LC margin, Excellent pressure resistance	・Applicable in fast response high-resolution screens ・Stable with low volatility	・High aspect ratio, thickness can be achieved tp 45μm ・High taper angle
Physical Properties	Viscosity	cP	4.3±0.3	3.25±0.3	5.1±0.3
	Non-Volatile Mater Content	wt%	18.7±0.5	23.2±0.5	23.3±0.5
	Remanent	%	88.5±2	86±2	90±2
	Resolution	μm	10*10	5*5	20*20
	Height diff. between main & sub PS	μm	0.3-0.7	0.3-0.5	-
Optical Properties	Sensitivity	mJ	40-50	40-50	70
Mechanical Properties	Recovery Ratio	%	>88 (40 mN, mask size: 20×20μm)	>80 (40 mN, mask size: 10×10μm)	>90 (50 mN, mask size: 28×28μm)

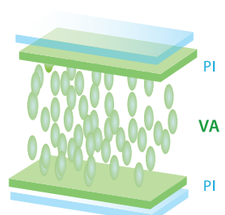
PI Alignment Layer (PSA-mode)

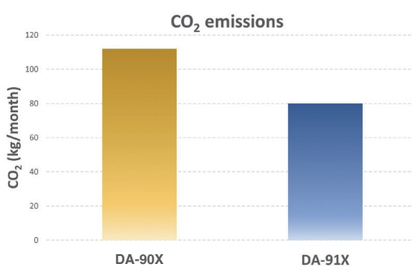
Applications

The main function of Polyimide alignment film material is to control the orientation of liquid crystal molecules and provide a pretilt angle for the liquid crystal. The PSA-mode provided by Daxin Materials is mainly used in the alignment film material for TVs, enabling the liquid crystal components to have excellent performance and wide processability conditions.

Features

- No image sticking
- High VHR and excellent reliability
- Stable pre-tilt angle
- Drop mura free
- Excellent adhesion
- Excellent coating properties





Specifications

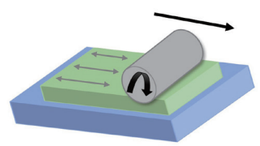
Product Name			DA-90X	DA-63X	DA-91X
Field of Application			Normal type		Pioneer ESG
Features			1. Drop Mura Free 2. No Image Sticking	Suitable for PFA Type PSA-LCD	Low hard bake temperature
Viscosity		cP	6~25	6~25	14~22
Non-Volatile Matter Content		wt%	3.0~7.0	3.0~7.0	6.0~7.0
Voltage Holding Ratio, VHR		%	>90	>90 (Normal) >80 (After PCT 12hr)	> 90
Volume Resistivity		Ω · cm	10^{11}~10^{13}	10^{11}~10^{13}	10^{11}~10^{12}
Recommend Process Conditions	Pre-bake	°C ; min	70~90 ; 2	70~90 ; 2	70~90 ; 2
	Post-bake	°C ; min	210~230 ; 15~60	210~230 ; 15~60	180~230 ; 15~30

PI Alignment Layer(FFS-mode)

Applications

The main function of Polyimide alignment film material is to control the orientation of liquid crystal molecules and provide a pretilt angle for the liquid crystal. The FFS-mode provided by Daxin Materials is mainly used in the alignment film material for TVs, enabling the liquid crystal components to have excellent performance and wide processability conditions.

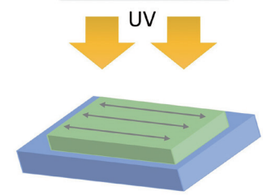
Rubbing type



DA-160X

- High wear resistance
- No image sticking
- Suitable for IJP process

Photoalignment



DA-115X

- Photo-alignment
- High Transmittance
- Suitable for IJP process

Specifications

Product Name			DA-110X	DA-160X	DA-115X
Field of Application			Normal type	High-wear resistant type	Photoalignment type
Features			1. Good Rubbing Resistance 2. High transmittance	1. Faster charge releasing 2. No Image Sticking 3. Inkjet Printing	1. High transmittance 2. Excellent Printing Performance and Electric Properties
Viscosity		cP	40~45	11~13	6~9
Non-Volatile Matter Content		wt%	6.5~7.5	2.5~3.5	2~4
Pre-tilt Angle		°	1.5~3.0	1.5~2.5	<1.0
Volume Resistivity		Ω · cm	10^{13}~10^{14}	10^{12}~10^{13}	10^{12}~10^{13}
Recommend Process Conditions	Pre-bake	°C ; min	80	100 ; 130	80
	Post-bake	°C ; min	230 ; 30	230 ; 20	230 ; 30
	Exposure Energy	mJ/cm^2	-	-	200~500

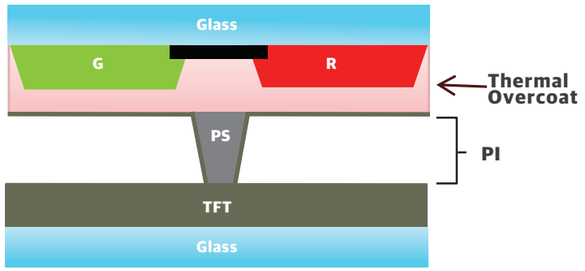
Thermal Overcoat

Applications

Thermal overcoat is applied to IPS-like panel and acts a transparent planarization layer on Color resists (RGB) and Black matrix (BM), protecting color filter and providing flat surface to ensure subsequent process uniformity.

Features

- High transparency
- Excellent planarization ability
- Good heat and chemical resistivity
- Low UV transmittance, which protect RGB from UV damage
- High crosslink ratio



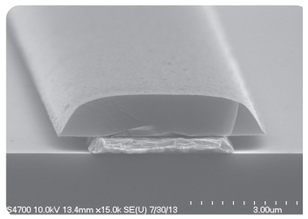
Specifications

Product Name			DTOCV5	DTOCV6	Remarks
Field of Applications			IPS model with Photo Alignment PI	IPS model with Rubbing type PI	
Features			high hardness good chemical resistance good adhesion	excellent plnanarization ability good adhesion	
Flatness		μm	0.37	0.25	Max-Min (ΔHx)
Remanent		%	97.6	92.3	230°C, 30min
Pencil Hardness		-	6H	5H	@765g
Transmittance		%	99.8	99.7	@400nm
Heat& Chemical Resistance	TGA weight loss	%	0.25	0.17	150°C, 30min Water absorption
		%	0.20	0.25	250°C, 30min Out-gassing
	NMP elution test	-	0.000	0.002	OC on Red Resist @ 520nm

Cu/Mo Etchant

Features

- Hydrogen peroxide type is environmental friendly
- Good stability for very high copper loading (> 10k ppm)
- Good etching uniformity
  Good taper profile after etching.



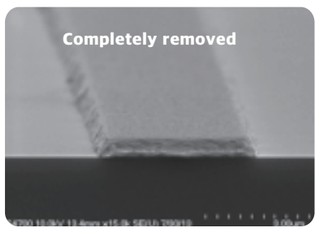
Specifications

Test Items	Unit	DE-series	Remarks
Max.Cu Loading	ppm	>10k	
Etching Rate	Å/min	4,000~6,000	35°C
pH value		3.7~4.4	
H_2O_2 Concentration	%	6~8.5	
Taper	°	30~70	

Photoresist Stripper

Features

- Non-Corrosive to Cu, Mo, Al, ITO and IGZO
- Water compatible, favorable for post-clean process
- Regenerable and environmental friendly
- Low toxicity, no reproductive toxicity



Specifications

Test Items	Unit	GD-series	Remarks
Appearance		Colorless to light yellow	
Density	g/cm^3	1.062~1.082	
pH value		11	15% aq.
Solubility		Soluble in water	
Operating Temp.	°C	40~50	

Touch Panel Materials

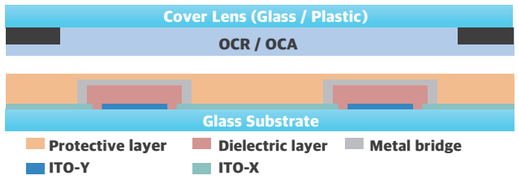
Photo Overcoat

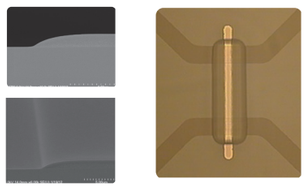
Applications

Photo overcoat is applied in touch sensor a dielectric layer and a insulating layer. Photo overcoat contains good properties of insulation, adhesion, chemical resistance and hardness.

Features

- Optical properties: high transparency and good color hue
- Mechanical properties: good adhesion to bare glass, ITO and metal substrates; good hardness
- Electrical properties: excellent insulating properties
- Chemical properties: excellent chemical resistance
- Process window: easy to coat and high sensitivity





Specifications

Product Name			POCA	Remarks
Features			Good Chemical Resistance Good Adhesion	
Viscosity		cP	4~7	25℃, 60rpm
Transmittance at 400nm		%	>95	UV visible
Refractive Index at 633nm		-	1.51~1.52	
Surface Resistivity		Ω/ □	1 X 10^{14}	
Dielectric Constant			4.3	10KHz, 1V
Hardness			3H	JIS pencil hardness
Remanent		%	85±3.0	100mJ/cm^2 THK ratio of before/after Post-Bake
Recommend Process Conditions	Pre-bake	℃ ; min	90~110 ; 90	
	Exposure Energy	mJ/cm^2	50-100	
	Development	-	KOH	
	Post-bake	℃ ; min	220~240 ; 30	

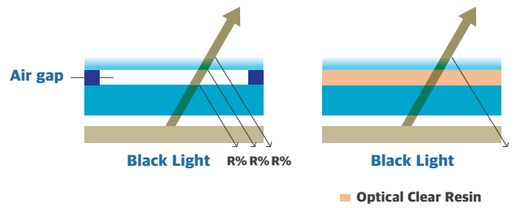
Optical Clear Resin

Applications

OCR(Optical clear resin) is an optical grade adhesive applied on laminated cover lens, touch panels and LCD modules. OCR can improve visibility and contrast ratio by reducing the reflection light between the interfaces in cover lens, touch panels or LCMs.

Features

- High transmittance
- Easy to rework
- Excellent adhesion on cover lens, touch panels and LCMs
- Non-yellowing, low dosage
- Fast cure, low dosage



Specifications

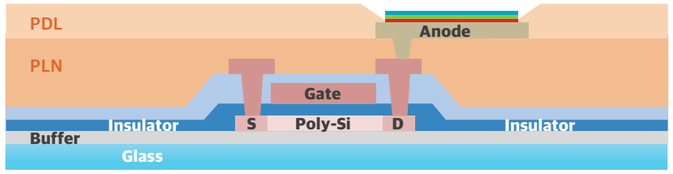
Product Name		OCRP198	Remarks
Field of Application		DGS/LCM&GFF LCM@&On-cell	
Features		Low Modulus for Mura Free Easy to rework High Dielectric Constant	
Viscosity	cP	2,900	Brook Field Viscometer at 25.0±1.0oC, CPE 51
Exposure Energy	mJ/cm^2	2,000-5,000	Depend on UV lamp
Transmittance at 400nm	%	>95	THK=0.3mm G/G
Yellow Index		0.55	THK=0.3mm G/G
Haze	%	0.26	THK=0.3mm G/G
Tensile Adhesion	KPa	210	THK=0.3mm G/G
Dielectric Constant		5.2	1MHz

Flexible EPD/OLED Materials

Photosensitive Dielectric/Passivation

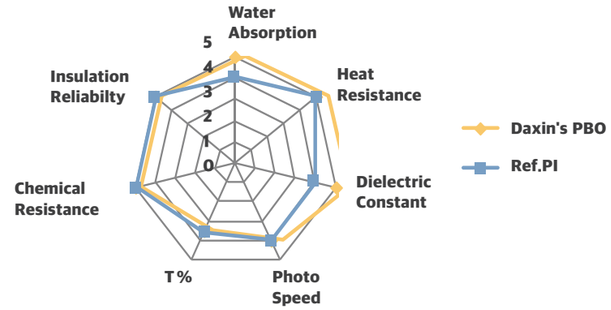
Applications

PBO dielectric layers can be used as the pixel defining layer (PDL) over the pixel electrode or the planarization layer (PLN) covering the TFTs in an organic light emitting diode display (OLED) and Electronic Paper Display (EPD).



Features

- Low water absorption
- Low dielectric constant
- Precision planarization capabilities
- Excellent mechanical and thermal properties
- High chemical resistance
- New : UV-resistance



Specifications

Product Name		PDLN-200 Series			Remarks
Pattern Availability		PLN	PDL	PS	
Features		THK 2.0 μm Via5~6 μm Taper50°~60°	THK 1.5 μm Via10~15 μm Taper<30°	THK 1.0 μm Dot10~15 μm Taper<30°	
Water Absorption	%	(1)0.11 (2)0.39			TGA(RA85/85,24Hr) (1)30°C, 30min (2)120°C, 10min 10°C/min
Td(1%)	°C	293			
Weight Loss	%	0.57			After250°C/1hr
Chemical Resistance	-	5B			TMAH, Stripper, Ag etchant, Oxalic acid
Dielectric Constant	-	3.43 3.21			@1kHz @1MHz
Recovery Ratio	%	55.4			Bump size: 10 μm× 10 μm THK: 1 μm
Transmittance	%	94.5			THK1.5 μm at 550 μm

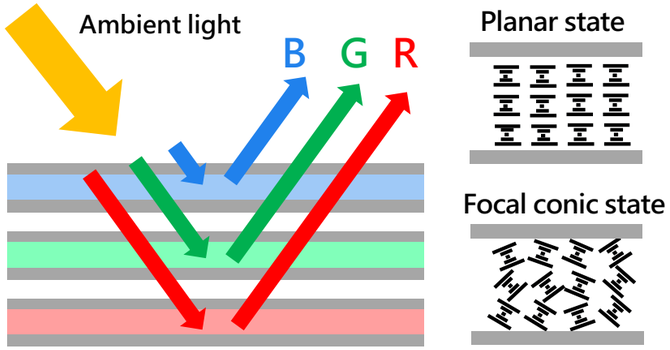
PI Alignment Layer (ChLC PI)

Applications

The Cholesteric Liquid Crystal (ChLC) color Electronic Paper Display(EPD) technology features energy-saving and eye-protection characteristics: full reflectivity and bistability. It consumes no power to maintain a static screen—power is only required during screen refreshe — making it highly energy-efficient.
Daxin's alignment layer utilizes a special diamine monomer that can stabilize both the planar state and the focal conic state, achieving high reflectivity and high contrast.

Features

- High-brightness reflectivity
- Excellent contrast
- Low operating voltage
- Good coatability



Specifications

			DA-series
Features			High Bright State Good Contrast Low Operating Voltage
Viscosity		cP	6-25
Non-Volatile Matter Content		wt%	2.5 - 6.5
Bright State		%	24
Dark State		%	0.4
Contrast		-	60
Dark State Voltage		V	18
Reset Voltage		V	28
Recommend Process Conditions	Pre-bake	°C ; min	90-120 ; 2
	Post-bake	°C ; min	230-250 ; 15-60

Key Raw Materials

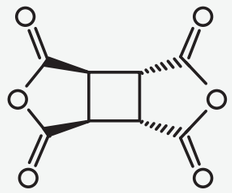
Functional Monomer

CBDA

Cyclobutane-1,2-3,4-tetracarboxylic dianhydride (CBDA) is an alicyclic dianhydride.
Based on our unique photochemical reaction, we can develop the core structure of cyclobutane and the configuration of CBDA can be determined to be cis-trans-cis.
CBDA is widely used as a raw material for polyimide resins or polyamic acid resins because of its high reactivity during polymerization. In the application of display materials, such as alignment films for liquid-crystal-display devices, CBDA provides excellent electrical properties such as high VHR (Voltage Holding Rate) and low RDC (residual DC Voltage Measurement).
Furthermore, polymers made of CBDA offer good transparency and excellence flexibility, and therefore it is a good candidate for flexible substrate applications.

Properties	
Formula	$C_8H_4O_6$
CAS Number	4415-87-6
Molecular Weight	196.11
Appearance	White Powder
Melting Point	>300°C
Ion Content(Na,K,Cu,Fe)	<500 ppb
Solubility	Soluble in NMP, DMAc Slight soluble in Ac2O

Structure



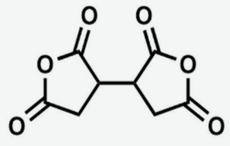
cis-trans-cis form

BDA

Meso-Butane-1,2,3,4-tetracarboxylic dianhydride (BDA) has good dielectric properties and flexibility which makes it widely used in polyimide resins or polyamic acid resins.

Properties	
Formula	$C_8H_6O_6$
CAS Number	4534-73-0
Molecular Weight	198.13
Appearance	white powder
Melting Point	>240°C
Ion Content (Na, K, Cu, Fe)	<500ppb
Solubillity	Soluble in NMP, DMAc

Structure

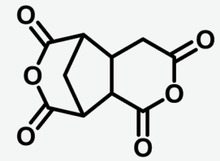


TCA

3-(Carboxymethyl)-1,2,4-cyclopentanetricarboxylic Acid 1,4:2,3-dianhydride (TCA) is an alicyclic dianhydride, which is widely used as a raw material for polyimide resins or polyamic acid resins in the application of alignment films for liquid-crystal-display devices due to good solubility and thermal stability. Based on our own developed preparation process, TCA can be obtained in high purity with low ion content.

Properties	
Formula	$C_{10}H_8O_6$
CAS Number	6053-46-9
Molecular Weight	224.17
Appearance	white powder
Melting Point	>197°C
Ion Content (Na, K, Cu, Fe)	<500ppb
Solubillity	Soluble in NMP, DMAc

Structure



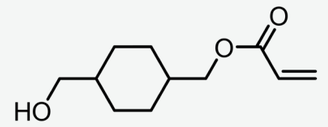
Monoacrylate

CHDMMA

1,4-Cyclohexanedimethanol monoacrylate(CHDMMA) is manufactured with high purity by Daxin unique development method and widely applied to coating, photoresist and adhesives.

Properties	
Formula	$C_{11}H_{18}O_3$
CAS Number	23117-36-4
Molecular Weight	198.26
Appearance	Transparent liquid
Viscosity(25°C)	90-105cPs
Purity	>98%

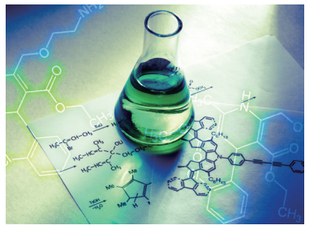
Structure



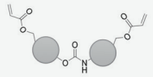
Specialty Polymer

Modified Acrylate

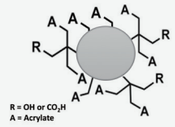
Daxin is committed to providing a wide range of modified acrylate oligomers and polymers with high performance, such as high reactivity, high adhesion and ability of development, to satisfy customer's requirements of high-end products. Daxin's modified acrylates have been used in the optical adhesives, photoresists for display, UV coatings, and other specialty applications.



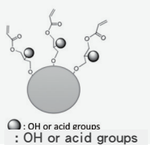
Polyurethane Acrylate

Product name	Structure	Functionality	Viscosity (cP @ 25℃)	D_k (@1MHz)	Characteristics	Applications
DAU001		2	54,000-68,000	5.2	Flexibility, High elongation, High Dk	UV adhesives

Multifunctional Acrylate

Product name	Structure	Functionality	Viscosity (cP @ 25℃)	Acid Value (mg KOH/g)	Characteristics	Applications
DAC001		≧ 5	42.5 ± 4	14.5 ~ 18	Alkaline-soluble, High mechanical strength, High photo sensitivity	UV ink, UV-coating, Photoresist

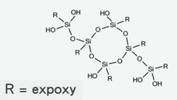
Alkaline-soluble Acrylate

Product name	Structure	Functionality	Viscosity (cP @ 25℃)	Characteristics	Applications
DAE001		560-600	22 ± 4	High thermal stability, Alkaline-soluble	UV coating, photoresist

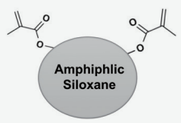
Modified Siloxane

With its expertise in side-chain design and preparation approaches, Daxin has developed several modified-siloxane products, including epoxy-modified siloxane and acrylate-modified siloxane, with thermal/UV curable abilities. In addition, special structures introduced in the side chain provides siloxane-based materials unique features, such as flexibility, low shrinkage, amphiphilicity…etc., that make them good candidates for special requirements. The potential applications for these modified siloxanes are sealant, hardener for coating, silicone hydrogel…etc.

Epoxy-modified Siloxane

Product name	Structure	Functionality	EEW (g/eg)	(cP @ 25℃)	Characteristics	Applications
DSE002		1	178	40 ± 10	High thermal stability, low shrinkage, hardness	Thermal curing hardcoat

Acrylate-modified Siloxane

Product name	Structure	Functionality	(cP @ 25℃)	Characteristics	Applications
DSA001		2	40,000	UV/thermal curable, amphiphilicy	Silicone hydrogel, coating,

Customized Polymers

With the ability of polymer design, precision manufacturing and purification technologies, DAXIN can provide customized design and production to the specific polymer property requirements of various industries.

Application	Photoresist Materials	PCB/Substrate Materials	Battery/Supercapacitor Materials
Property Control	• Molecular Weight / PDI • Copolymer Ratio • Low Metallic Ion Impurities	• Dielectric Properties (Dk / Df) • Crosslinking • Flame Retardancy	• Copper/Aluminum Foil Adhesion • Viscoelastic Properties • Ionic Conductivity

Instrument Analysis

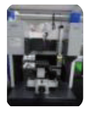
Development and Improvement of Analytical Techniques and Testing Equipment

- Cold trap-GC/MS (Ex. Evolved Gas Analysis and Thermal Desorption Analysis)
- Development of testing method for the thermal expansion coefficient of transparent material film
- Development of technology on the rate of development of thin film material
- Modifications of variable temperature testing

Identification of Chemical Composition

- Separation and purification of mixtures
- Composition identification
- Product failure mode analysis
- Identification of impurities and source tracking
- Product efficacy difference analysismaterial

- Chromatography: GC, HPLC, IC, GPC
- Mass Spectrometry: GC-MS,ICP-MS
- Spectrum: FTIR, UV-Visible



- Drop Shape Analyzer
- Microwave Oven
- Oxygen Bomb

- TGA
- DSC
- UV-DSC
- TMA
- DMA

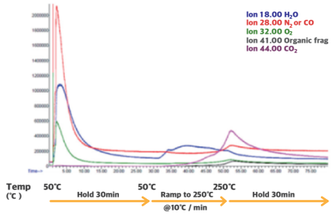
- SEM
- OM

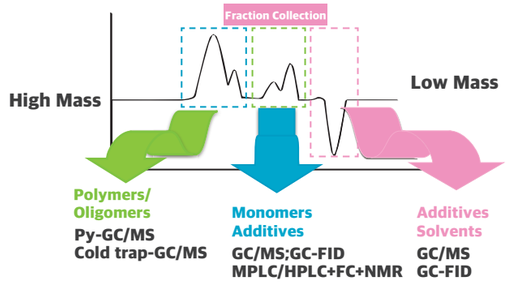
- Thin Film Thickness Measurement System

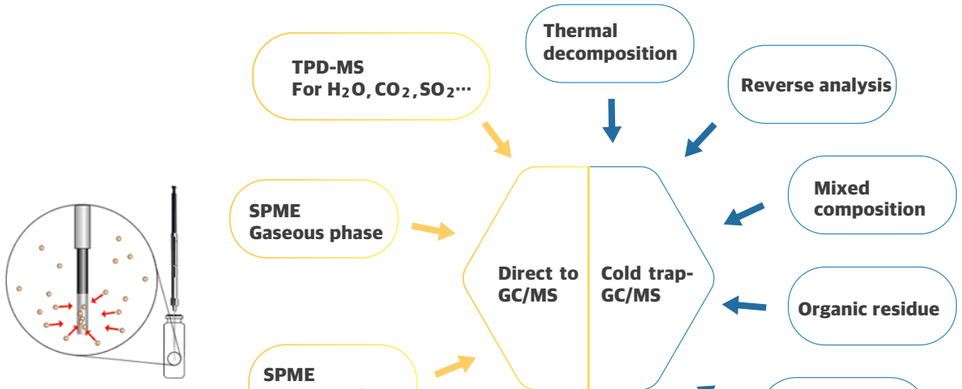
- Universal Tensile Tester
- Rheometer

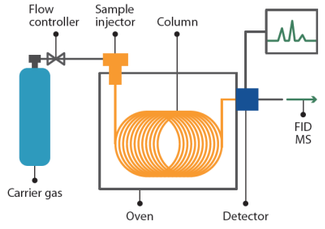
- LCR Meter
- Zeta Potential Analyzer
- High Resistance Meter

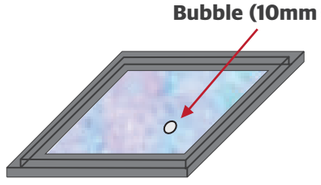
Organic Components/Outgas Analysis

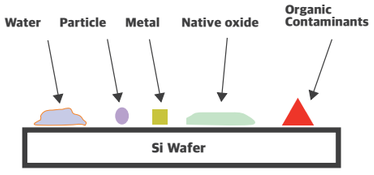








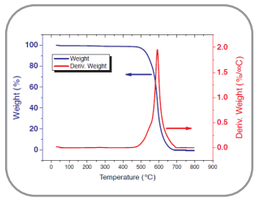


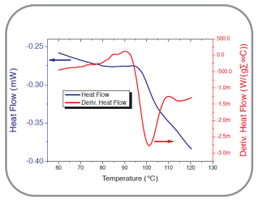


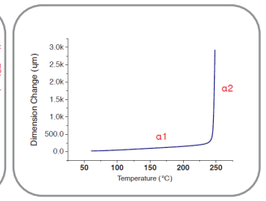
Thermal Analysis

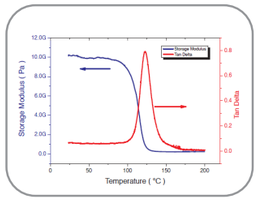
Physical parameter varies with temperature, time, and environment

TGA	DSC	TMA	DMA
Weight change	An endothermic or exothermic change	Dimension change	The response to obtain phase angle and deformation data as applying a stress or strain the sample
· Decomposition temperature (T_d) · Composition information · Thermal stability	· Glass transition temperature · Melting temperature · Crystallization temperature · Endothermic or exothermic reaction	· Thermal expansion coefficient · Glass transition temperature · Melting temperature	· Change with temperature while under dynamic stress

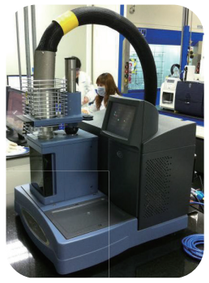




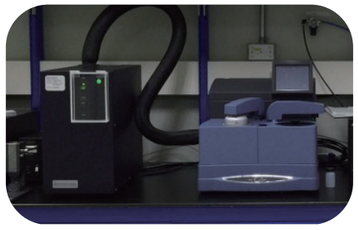




TA TGA
Model: Q500
Applications:
1. Weight loss analysis
2. Thermal stability analysis
3. General composition analysis



TA TMA
Mode: Q400EM
Applications:
1. CTE
2. Strain & stress
3. Creep analysis



TA DSC
Model: Q200 & Q2000
Applications:
1. Phase transition temperature (T_m, T_g, T_c)
2. Heat of reaction
3. Specfic heat capacity
4. Compatible with UV-light

DAXIN
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