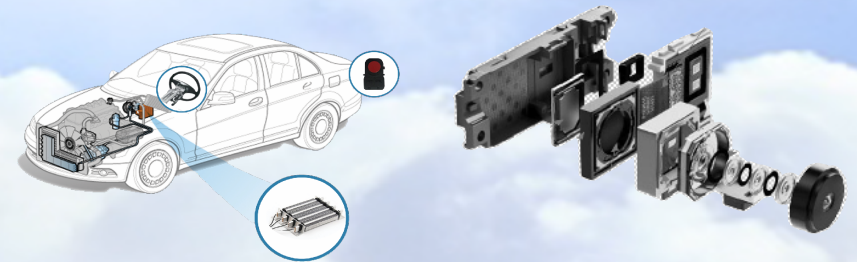
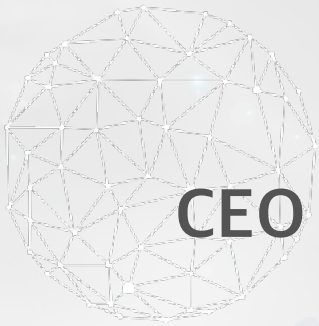


미 성 화 학(주) 회 사 소 개 서



MISUNG CHEMICAL Co.,LTD.



CEO Message

급변하는 기업경영 환경 속에서 그 변화에 도전하고 극복하며, 새로운 목표를 향하여 끊임없이 노력하는 모습으로 여러분의 곁에 늘 함께하는 미성화학(주)으로 거듭나기 위하여 최선을 다하겠습니다.

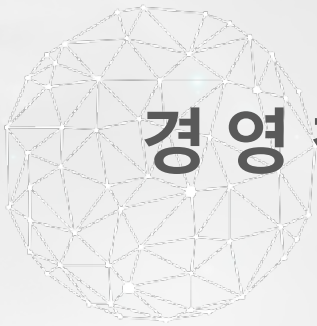
미성화학(주)는 **Epoxy, UV, Polyurethane** 등으로 자동차 및 전기, 전자부품시장에서 품질 고급화를 위하여 기술개발에 전력을 다하여 왔습니다.

앞으로 더욱 더 쾌적한 주거문화 창조와 고객 감동을 위해 최선을 다할 것을 약속 드립니다.

새로운 도전을 소비자의 신뢰를 바탕으로 믿을 수 있는 기업이 되기 위하여 저희는 열과 성을 다하겠습니다.



미성화학(주) 대표이사



경영철학

종업원과 고객

종업원과 고객의 입장에서
원원 할 수 있는 중시경영 지향

시장원칙에 입각한

시장원칙에 입각한 투명경영으로
사회에 공헌 할 수 있도록 한다

중시경영

투명경영

내실경영

미래창조

화합과 효율에 의한

화합과 효율에 의한 내실경영으로 어려움도
극복 해 나가는 강직한 회사가 되도록 한다

탐구와 도전정신

미지의세계에 대한 탐구와 도전정신으로
끊임없이 도전하며 미래창조에 이바지 한다



경영방침



품질방침

기본 품질을 준수하고, 고객의 요구사항을 바탕으로, 신속 대응한다.



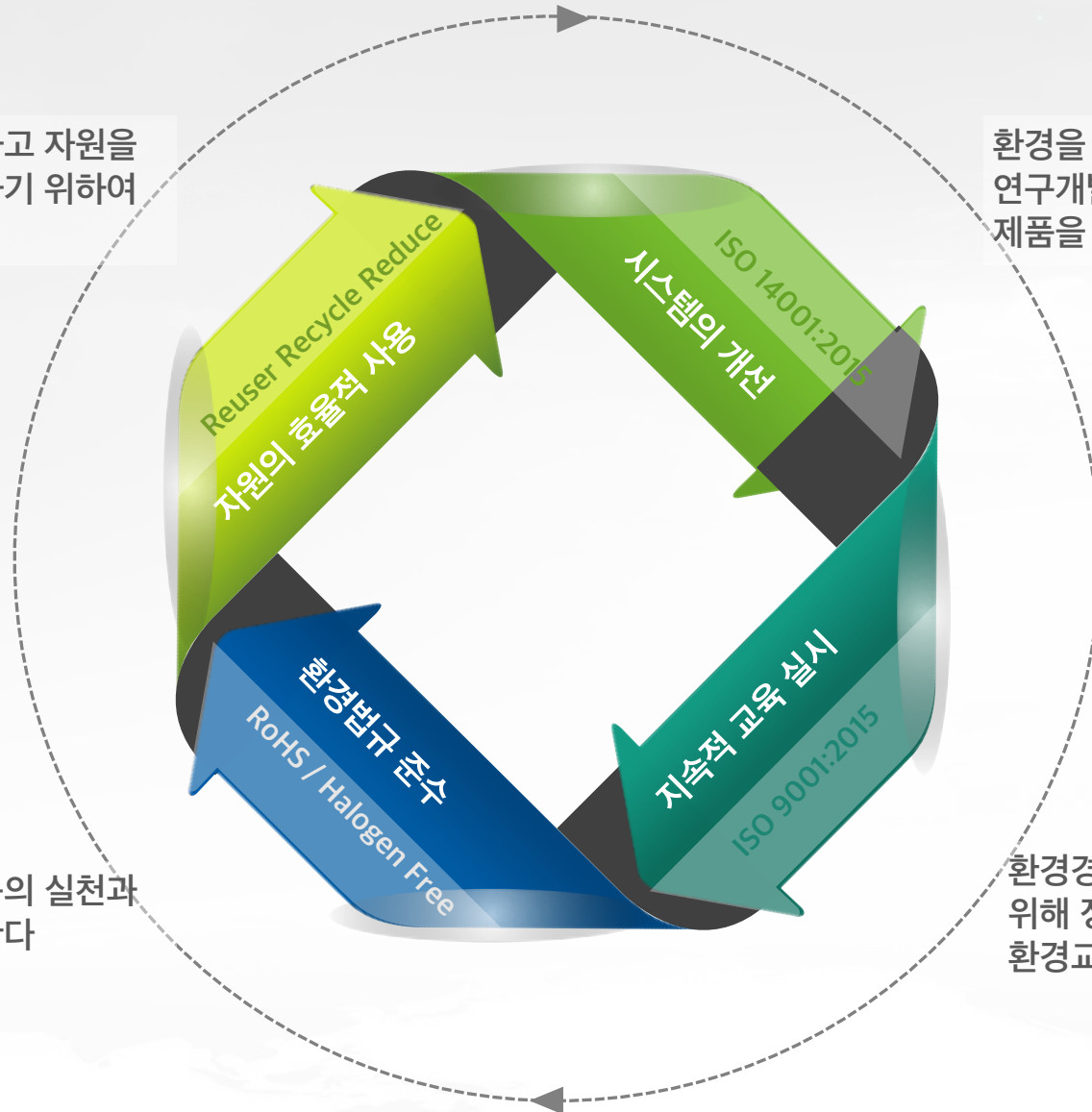
환경방침

환경오염을 방지하고 자원을
효율적으로 사용하기 위하여
3R을 수행한다

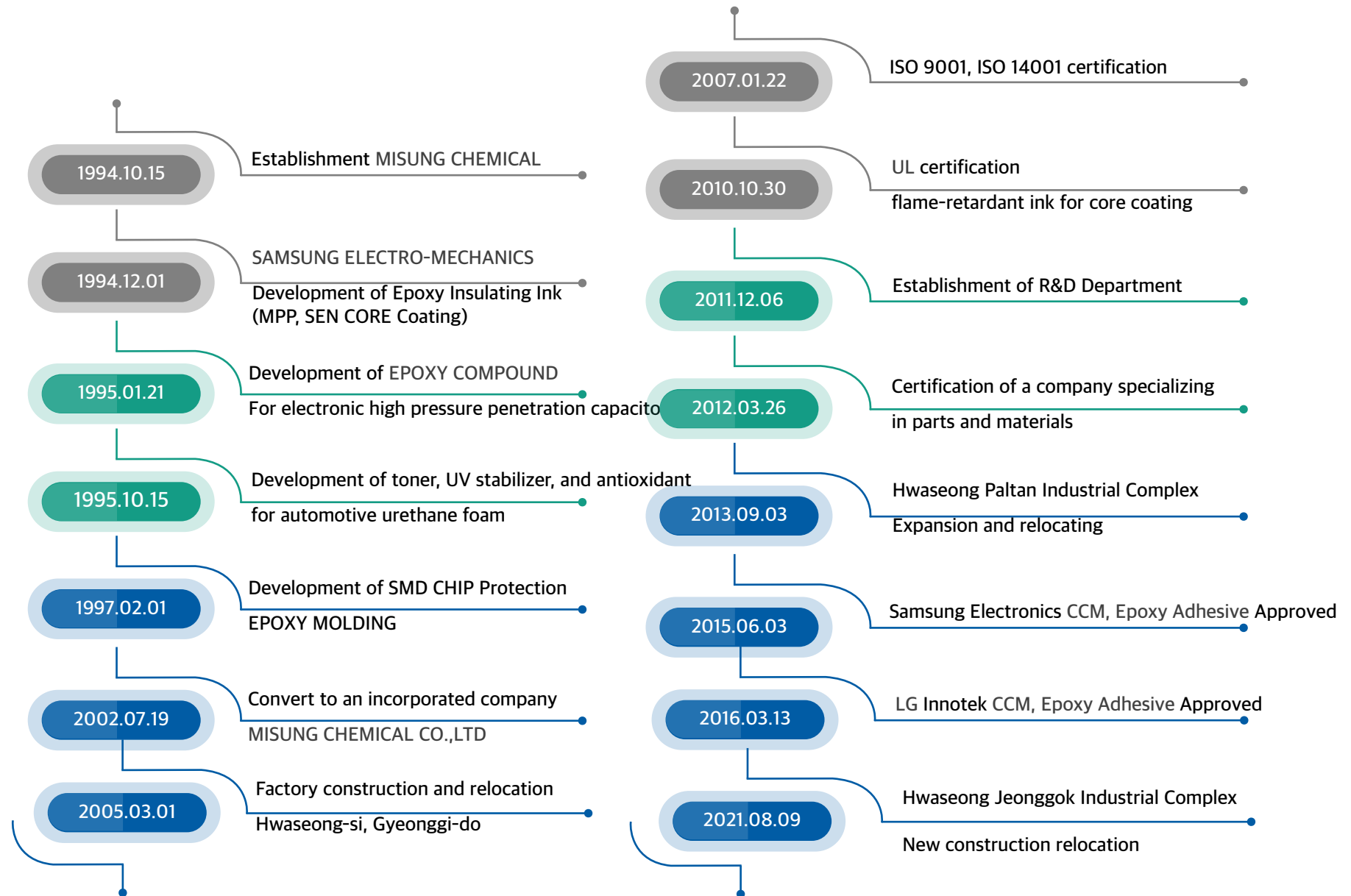
환경을 고려한 설계와
연구개발을 통하여 환경친화적
제품을 개발한다.

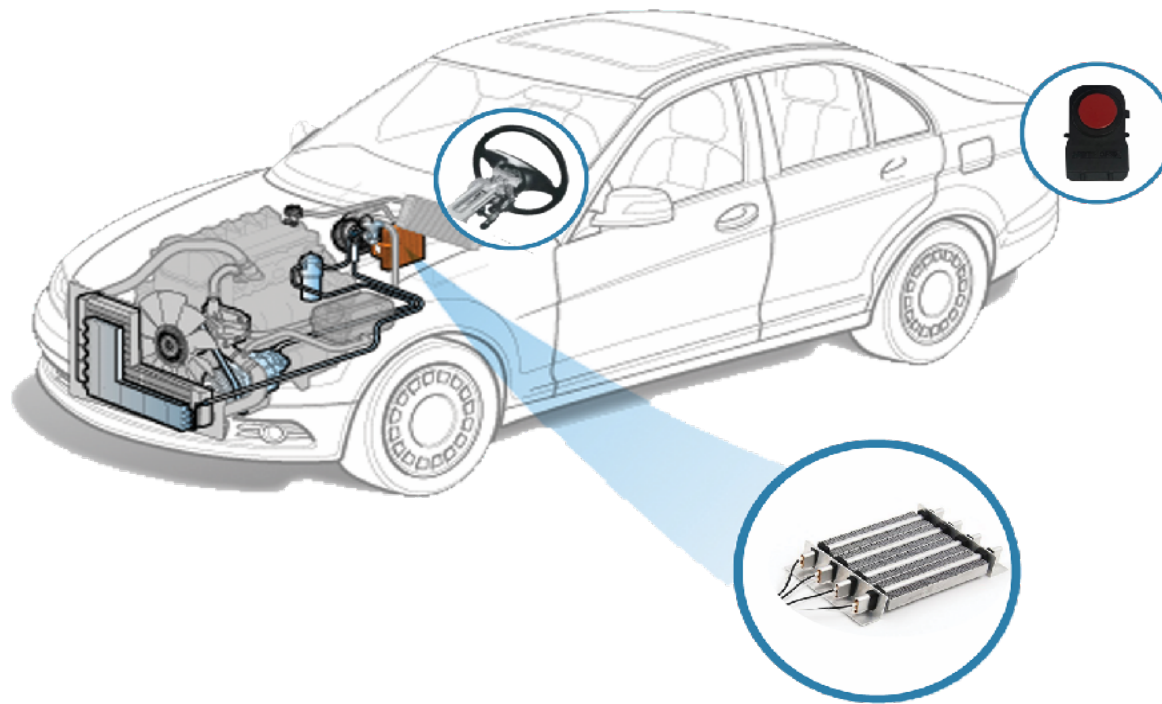
환경오염 예방활동의 실천과
환경법규를 준수한다

환경경영의 원활한 흐름을
위해 정기적이고 지속적인
환경교육을 실시한다.



Company History





Automotive



PRODUCT INTRODUCTION

MISUNG CHEMICAL CO.,LTD.

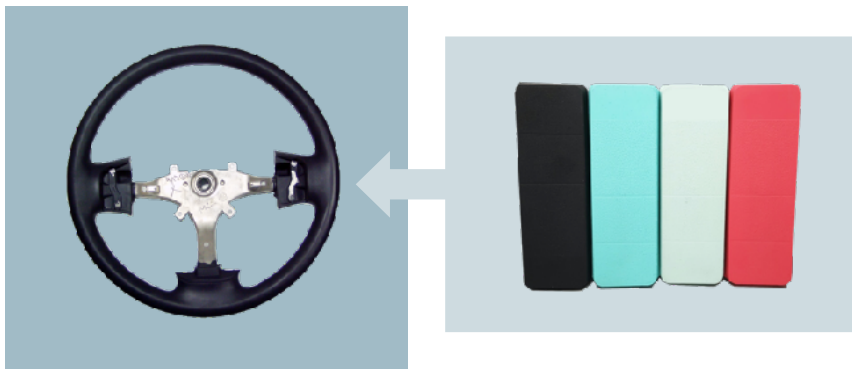
PU-FOAM COLOR TONER

Product Description

POLYOL FOR PU-TONER, Foam mold with ISOCYANATE to form URETHANE FOAM
(Automotive steering wheel foam, etc)

Product Features

It has excellent bending resistance, repulsive elasticity, and heat-resistant aging resistance, and has an even particle distribution and good dispersion to form a good foam



Product Application

It is a product optimized for workability that can be directly injected into the foaming facility color unit (CCS) and used in the main tank without secondary dilution according to the concentration. Automotive interior materials (steering wheels, dashboards, seats, etc.), furniture (chairs, desks, etc.) Children's toys and chairs can be used in various ways.

Storage of Products

- Use within 12 months from the date of manufacture.
- Store at room temperature between 20 and 30°C to avoid direct sunlight and prevent moisture absorption.
- Packaging unit: CAN 15KG / DRUM 170-200KG

PU-Foam ColorToner Pastes

Product	Color		Viscosity (CP #6/30rpm)	Specific Gravity	Application / Characteristic
OCE BLACK	Black	●	3,800 cps	1.26	Interior material of automobile , furniture, toys
FOSSIL GRAY	Gray	●	3,400 cps	1.20	Interior material of automobile , furniture, toys
MIDIUM GRAY	Gray	●	3,500 cps	1.17	Interior material of automobile , furniture, toys
ALL BLACK	Black	●	4,400 cps	1.26	Interior material of automobile , furniture, toys
1180YW	Yellow	●	1,600 cps	1.28	Interior material of automobile , furniture, toys
1180GN	Green	●	1,500 cps	1.29	Interior material of automobile , furniture, toys
1180CHERRY	Cherry	●	1,300 cps	1.16	Interior material of automobile , furniture, toys
1180PINK	Pink	●	1,700 cps	1.28	Interior material of automobile , furniture, toys
1180PURPLE	Purple	●	1,400 cps	1.17	Interior material of automobile , furniture, toys
310BLUE	Blue	●	2,200 cps	1.20	Interior material of automobile , furniture, toys
GN367	Green	●	2,800 cps	1.26	Interior material of automobile , furniture, toys
LIGHT AQUA BLUE	Light aqua blue	●	3,000 cps	1.26	Interior material of automobile , furniture, toys
TITANIUM SILVER	Titanium silver	●	1,000 cps	1.25	Interior material of automobile , furniture, toys
LIGHT PINK	Light pink	●	3,500 cps	1.28	Interior material of automobile , furniture, toys
LIGHT PURPLE	Light purple	●	3,300 cps	1.28	Interior material of automobile , furniture, toys
KIDS RED	Kids red	●	2,100 cps	1.37	Interior material of automobile , furniture, toys
KIDS BLUE	Kids blue	●	2,400 cps	1.41	Interior material of automobile , furniture, toys
CARAMEL	Caramel	●	2,300 cps	1.36	Interior material of automobile , furniture, toys

PU-FOAM BAR COAT - In Mold Coating Paint

Product Description

It is a one-component finish paint used in poly urethane foam molding.

It is used in interior materials such as automobiles, furniture, and toys, and is economical due to its good application efficiency during spray work, excellent storage stability and workability, and low work loss.

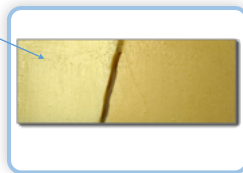
Product Features

It has a fast-drying speed, excellent workability as a one-liquid type, good adhesion to the foam due to its softness of flexibility, and good wear resistance, pollution resistance, and sulfur resistance to ultraviolet rays.



No sunscreen : Color change
after 24 hours of UV irradiation

Add sunscreen



UV radiation(24hr)



Product Application

Surface treatment : Completely remove moisture, dust and other contaminants from the inner surface of the molder and spray paint with release agent.

Air spray conditions

- Dilution ratio → paint : diluent (402T) = 1:1 ~1:2
- nozzle caliber : 0.8 ~ 1.5mm
- Spray pressure : 2 ~ 4 kg/cm²

Storage of Products

- Use within 12 months from the date of manufacture.
- Store at room temperature between 20 and 30°C to avoid direct sunlight and prohibit water absorption.
- Packaging unit: CAN 15KG / DRUM 170-200KG

PU- Foam Barrier Coat - In Mold Paint

Product	Color		Viscosity (CP #6/30rpm)	Specific Gravity	Application / Characteristic
OCE BLACK	Black	●	2,200 cps	1.20	Air spray, interior material of automobile , furniture, toys
FOSSIL GRAY	Gray	●	2,400 cps	1.12	Air spray, interior material of automobile , furniture, toys
GRAY	Gray	●	2,500 cps	1.12	Air spray, interior material of automobile , furniture, toys
MIDIUM GRAY	Gray	●	1,500 cps	1.11	Air spray, interior material of automobile , furniture, toys
JET BLACK	Black	●	2,800 cps	1.14	Air spray, interior material of automobile , furniture, toys
BLACK300	Black	●	3,400 cps	1.07	Air spray, interior material of automobile , furniture, toys
1180YW	Yellow	●	2,700 cps	1.11	Air spray, interior material of automobile , furniture, toys
1180GN	Green	●	3,000 cps	1.12	Air spray, interior material of automobile , furniture, toys
1180CHERRY	Cherry	●	2,800 cps	1.11	Air spray, interior material of automobile , furniture, toys
1180PINK	Pink	●	2,000 cps	1.11	Air spray, interior material of automobile , furniture, toys
1180PURPLE	Purple	●	2,700 cps	1.11	Air spray, interior material of automobile , furniture, toys
310BLUE	Blue	●	2,800 cps	1.11	Air spray, interior material of automobile , furniture, toys
GN367	Green	●	2,200 cps	1.09	Air spray, interior material of automobile , furniture, toys
LIGHT AQUA BLUE	Light aqua blue	●	1,900 cps	1.15	Air spray, interior material of automobile , furniture, toys
TITANIUM SILVER	Titanium silver	●	1,600 cps	1.11	Air spray, interior material of automobile , furniture, toys
LIGHT PINK	Light pink	●	1,200 cps	1.12	Air spray, interior material of automobile , furniture, toys
LIGHT PURPLE	Light purple	●	1,200 cps	1.12	Air spray, interior material of automobile , furniture, toys
KIDS RED	Kids red	●	6,400 cps	1.12	Air spray, interior material of automobile , furniture, toys
KIDS BLUE	Kids blue	●	6,700 cps	1.12	Air spray, interior material of automobile , furniture, toys

Urethane Mold Compound - Sensor Molding

MC# 3272 (A)/(B)

Product Description

MSC 3272 (A)/(B) is a medium-temperature curing two-component product consisting of MDI and Butadienepolyol, and has excellent elasticity, moisture resistance, and electrical insulation.

RoHs free, eco-friendly products that are suitable for protecting the functions of electrical and electronic components.

Product Features

- excellent workability with low viscosity.
- It is an eco-friendly product that does not detect ROHS (6 major regulatory hazards).
- excellent in water resistance.
- excellent electrical characteristics.

Product Application

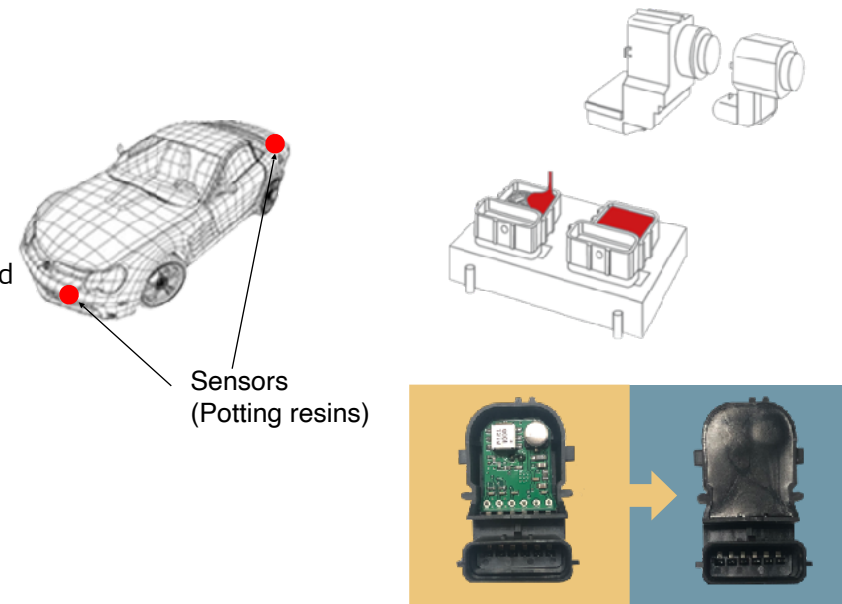
For molding electrical and electronic materials such as various CASES and SENSOR

Mixing ratio and curing conditions

- Mixing ratio (weight ratio) : MSC-3272(A) : MSC-3272(B) = 100 : 20
- Recommended curing conditions : 70°C×1hr~2hr

Storage of Products

- Seal to prevent air flow and avoid moisture and direct sunlight.
- Store in a dry and cool place.
- Storage Temperature: Room Temperature
- If left unattended for a long time after opening, crystallization may occur due to moisture in the air, and the increase in the moisture content of the product may cause appearance problems due to bubbles during curing, so it should be used in full when the product is opened.



MC#3272(A)/(B) - Properties

Properties Before Curing

Test items		Unit	Test Specifications	Test Method
Color	MSC-3272(A)	-	Black	-
	MSC-3272(B)		Dark Brown	
	Mix		Black	
Viscosity	MSC-3272(A)	cps (25°C)	2,000~4,000	DV HB
	MSC-3272(B)		300~600	
	Mix		2,000~4,000	
Specific Gravity	MSC-3272(A)	-	0.90~0.97	Specific Gravity Cup
	MSC-3272(B)		1.13~1.18	
	Mix		0.95~1.00	
Pot Life	25°C	min	20~30	

Properties After Curing

Test items	Unit	Test Specifications	Test Method
Hardness	Shore A	30~50	25°C×1 day
		30~50	25°C×7 day
PCT	Shore A	경도±10	Changes in hardness after 48 hours of PCT
Moisture Absorption Rate	%	0.3↓	PCT 30 min
T.G	°C	-45↓	TMA
Adhesion	kg/cm ²	1.1↑	PCB + PBT
RoHs	Mg/kg	ND	US EPA 3052

UV Curable Terminal Fixing Compound

MC#2300CF

Product Description

This is a UV-curable acrylate adhesive. It has very little shrinkage and minimizes the generation of heat-generating gases, and exhibits excellent adhesion to PBT and LCP materials.

Product Features

UV irradiation can be performed with lamp wavelengths ranging from 280 to 405 nm, and the curing time can be changed according to film thickness and light intensity control.

Light source: High pressure mercury and LED UV lamp

Light intensity: 100mW/cm² or more

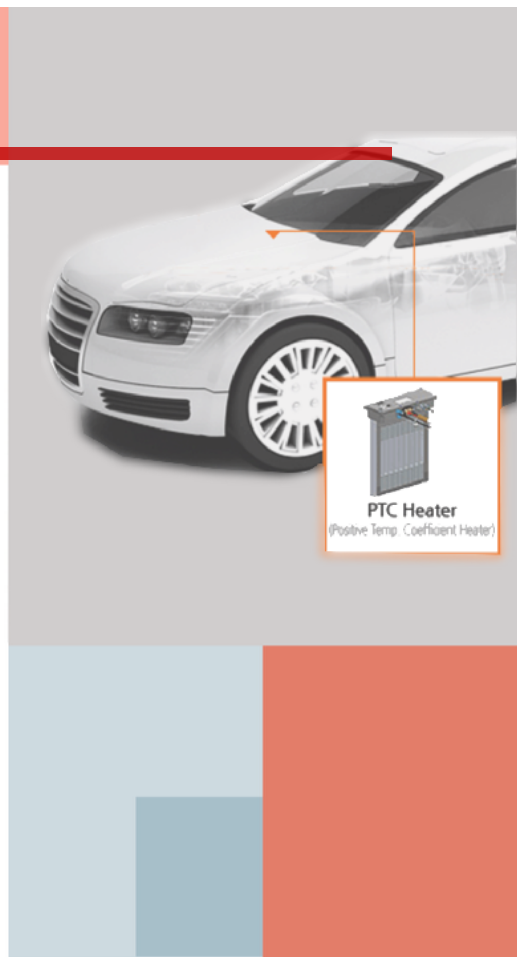
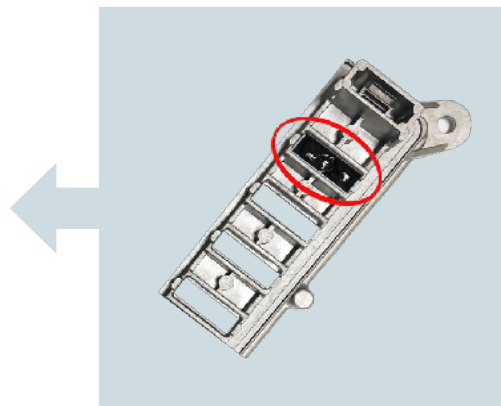
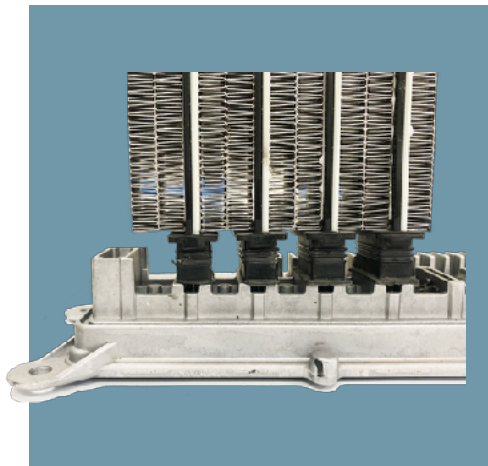
100mW/cm² @ 280 to 405 nm: 30 seconds

Product Application

For molding electrical and electronic materials such as various CASES and SENSOR

Storage of Products

For long-term storage, use a separate sealed container in a cool, dark place (9 to 35 ° C), and be especially careful as the curing characteristics may change if the storage period is exceeded.



MC#2300CF - Properties

Properties Before Curing

Appearance	Viscous liquid
Color	milk white
Specific Gravity	1.16
Viscosity (Brookfield, C&P HBDV-II, Spindle #51, 25°C) 5 RPM	13600
Thixotropic Index	0.95
Shelf Life at 25°C	6 months
Work Life at 25°C	7 days
Photo DSC(100 mW/cm2) Onset-End	9.84 sec

Properties After Curing

Coefficient of Thermal Expansion (CTE, ppm/°C)	Below α_1	4
	Above α_2	199
Glass Transition Temperature TMA (Tg, °C)	80	
Hardness, Shore D	65	
Volume Cure Shrinkage (%)	0.94	
Moisture Absorption (%) PCT-30 min	1.5	
Flame class	V-1	
Surface Resistivity, $\Omega\cdot\text{cm}$	2×10^{11}	
Dielectric Breakdown Strength, , kV/mm	16	

Poly Urethane Adhesive - Moisture Curing

MC# 3181

Product Description

MSC 3181 is a one-component URETHANE modified polyester adhesive that is a type of natural curing and thermal curing, and has excellent flexibility, water resistance, heat resistance, and adhesion to PC, LCP housing, metal materials, and F-PCB.

Standard Curing condition

Cure Temperature Room	25±5 °C, 35±5 %
Cure Time (Minutes) Tack free	10
Cure Temperature Room	25±5 °C, 35±5 %
Cure Time (Days) Full cure	3

Storage of Products

If stored for a long time, the curability may change, so special attention is required.



PTC heater electric heater :
Plastic housing and aluminum interface adhesion



MC# 3181 - Properties

Properties Before Curing

Appearance	Viscous liquid
Color	Clear
Specific Gravity	0.9
Viscosity (Brookfield, C&P HBDV-II, Spindle #51, 25°C) 50 RPM	5-10
Shelf Life at 25°C	1 months
Work Life at 25°C	7 days

Properties After Curing

Coefficient of Thermal Expansion (CTE, ppm/°C)	Below α_1	35
	Above α_2	199
Glass Transition Temperature TMA (Tg, °C)		29
Moisture Absorption (%) PCT-30 min		0.24
Hardness, Shore D		35

UV THERMAL DUAL ADHESIVE

MC#2630UT

Product Description

MSC 2630UT is a UV-curable and heat-curable acrylate adhesive. It is a product with very low shrinkage and minimal heat generation, and exhibits excellent adhesion to ceramic sensors and aluminum housing materials.

Curing Conditions

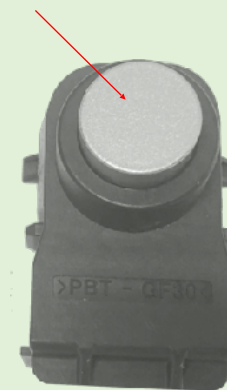
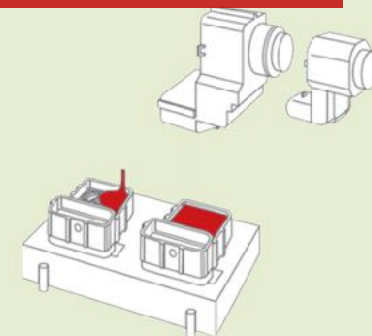
UV irradiation can be performed with lamp wavelengths in the range of 365/405 nm, and the curing time can be changed according to film thickness and light intensity control.
Light source: High pressure mercury UV lamp
Light intensity: 100mW/cm² or more
1 st Curing : 255 ~ 405 nm, 100 mW / cm² @ 30sec(3000 mJ / cm²) 2 st Curing: Dry Oven 120 ° C @ 30 min

Product Application

For fixing metal (AL) and ceramic SENSOR

Storage of Products

If the product is to be stored for a long period of time, use a separate sealed container in a frozen state (-20 ° C), and special care must be taken as the curing properties may change if the product's storage period is exceeded..



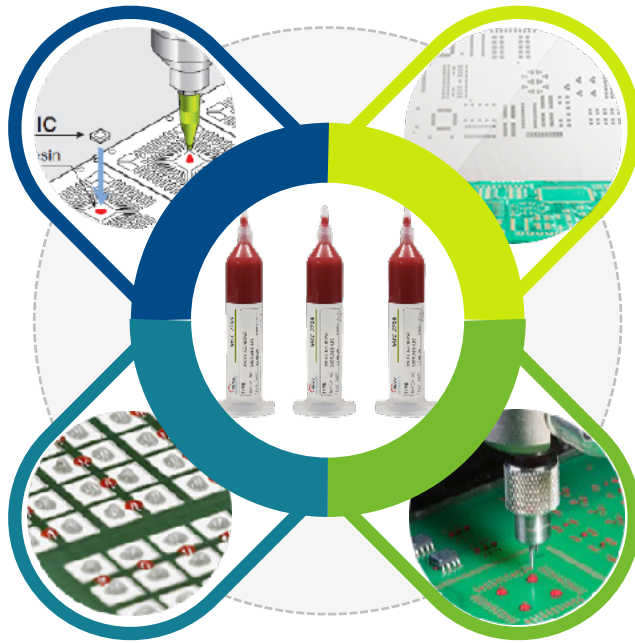
MC#2630UT - Properties

Properties Before Curing

Appearance	Viscous liquid
Color	Ivory
Thixotropic Index	4.0
Viscosity (Brookfield, C&P HBDV-II, Spindle #51, 25°C) 5 RPM	7,200
Shelf Life at -20°C	6 months
Work Life at 25°C	3 days

Properties After Curing

Coefficient of Thermal Expansion (CTE, ppm/°C)	Below α_1	32
	Above α_2	221
Glass Transition Temperature TMA (Tg, °C)		50
Moisture Absorption (%) PCT-30 min		0.93
Hardness, Shore D		62
Gel Time @ 120 °C (Hot Plate)		55 sec
Volume Cure Shrinkage (%)		0.53



EPOXY Coating & Adhesive



PRODUCT INTRODUCTION

MISUNG CHEMICAL CO.,LTD.

Epoxy Core Coating

Characteristic

Epoxy paint for core coating

Excellent workability

High productivity by fast cure time

Application

Coating for MPP, SEN, FERITE CORE



2306 Non-flammable
Insulating coating



2309 Flame retardancy
Insulating coating

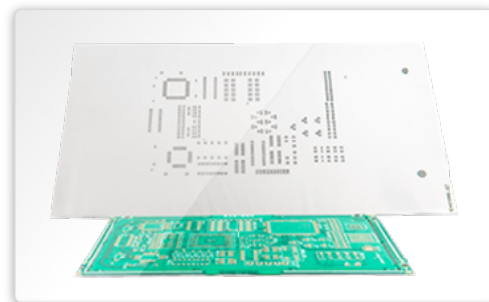
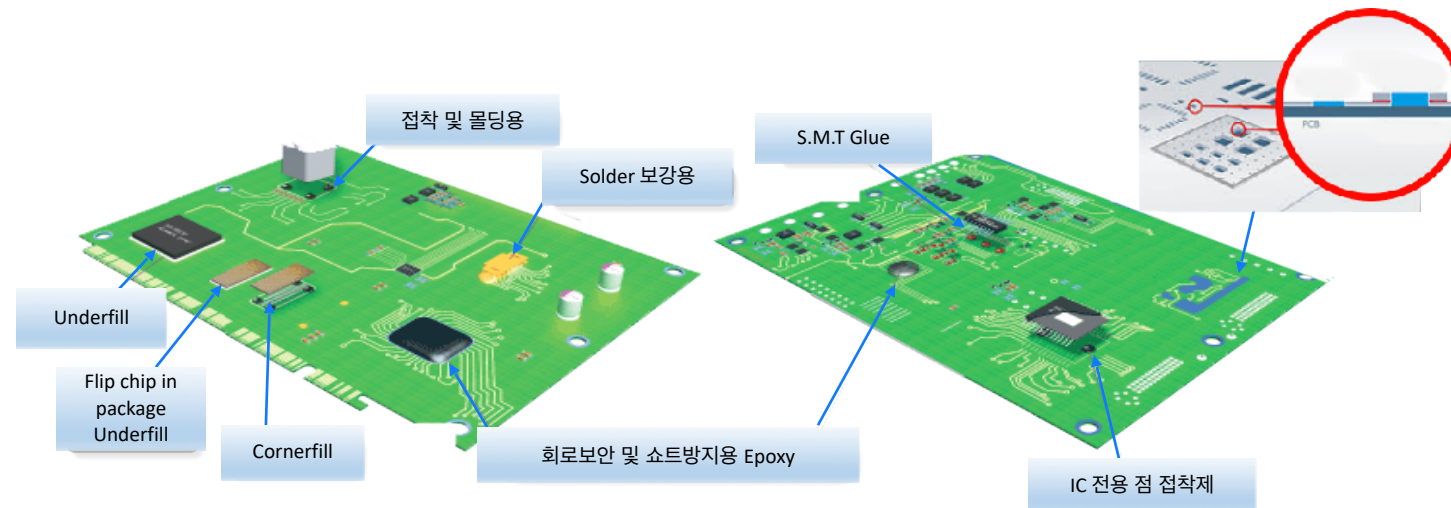


Core Coating
Power Supply

Product Detail

Product	Color	Viscosity (CP #51/5rpm)	TI	Specific Gravity	Hardness (Shore D)	T.G (TMA)	TMA α1, α2	Cure Condition	Storage Condition	Flame retardant UL94	Application / Characteristic
MSC 2309(R)/ 310(H)	Various Color	58,000~ 68,000 cps	5.6~ 6.5	1.54	75<	75	29/199	100℃ 60min~ 130℃ 30min	Room temperature	V-0	Available manufacturing more than 60 microns
MSC 2306(R)/ 310(H)	Various color	58,000~ 65,000 cps	5.5~ 6.5	1.55	70<	75	29/199	100℃ 60min~ 130℃ 30min	Room temperature	-	Available manufacturing more than 60 microns

SMT Adhesive Chip Bond - Application



Bonding for Metal Screen

Product : MSC 2004S



Bonding for SMD - dispenser

Product : MSC 1110D / 1110DL



Bonding for fixing the coil

Product : MSC 1065D

SMT Adhesive Chip Bond

Characteristic

Excellent heat resistance, chemical resistance & water resistance

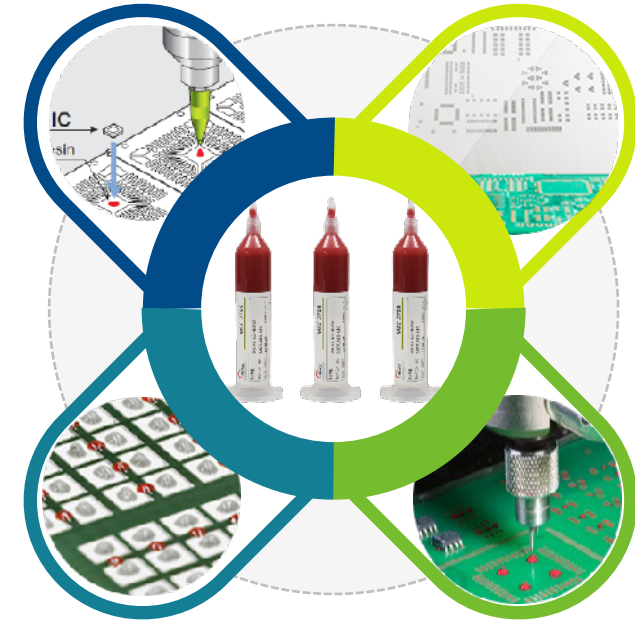
Excellent adhesion & mechanical strength

Various properties by the curing agent

Application

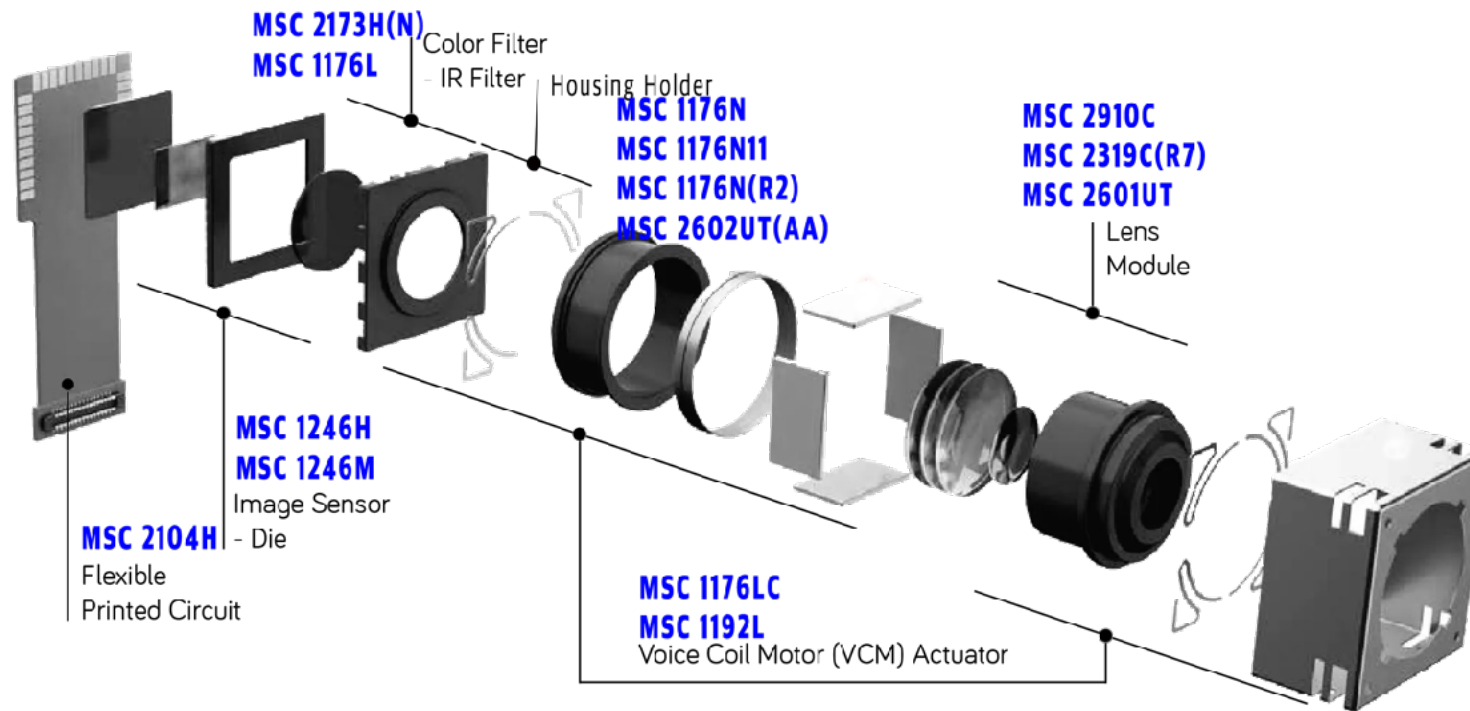
Adhesive for fixing PCB SMD chip parts (For low temperature cure)

Epoxy for protecting PCB SMD chip cob parts (For high temperature fast cure)



Product Detail

Product	Color	Viscosity (CP #51/5rpm)	Tl	Specific Gravity	Hardness (Shore D)	Tg (By TMA)	CTE α_1, α_2	Cure Condition	Work life (days)	Storage Condition	Application/ Characteristic
MSC 1110D	Red	40,000 cps	5.3	1.21	81	104	31/176	Oven 150°C 90s	3	<15°C	Bonding for SMD-dispenser
MSC 1110DL	Red	36,000 cps	5.3	1.25	84	100	29/184	Oven 150°C 90s	3	<15°C	Bonding for SMD-dispenser/ Excellent adhesion with EMC & PCB
MSC 2004S	Red	48,000 cps	4.5	1.16	86	111	33/149	Oven 150°C 90s	3	<15°C	Bonding for SMD-screen
MSC 1065D	Clear	24,000 cps	1.0	1.16	83	100	31/168	Oven 80°C 30m	3	<15°C	Bonding for fixing the PCB circuit coil



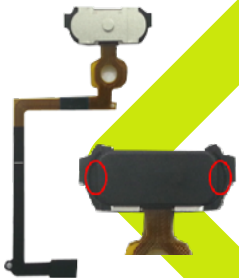
CCM (Compact Camera Module)



PRODUCT INTRODUCTION

MISUNG CHEMICAL CO.,LTD.

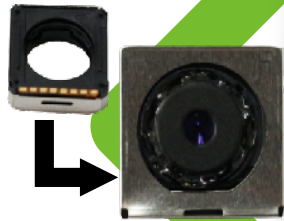
CAMERA MODULE - Epoxy Adhesive



Home-Key Bonding

- Excellent adhesion with EMC&AI
- High hardness
- Good workability
- Good reliability

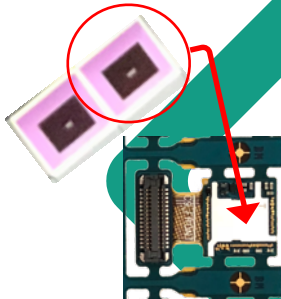
Product : **MSC 1187F**



Housing Attach

- Excellent adhesion
- Fast curable
- Good dispensability

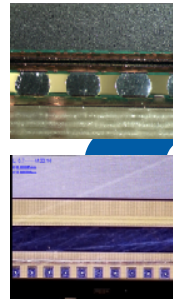
Product : **MSC 1177H**
MSC 1176L(R2)
MSC 1176N
MSC 1176-N11



Die Attach

- High reliability
- High impact resistance
- Low warpage
- Low tilt

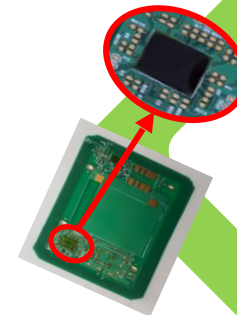
Product : **DA-1246M**
DA-1246H



Underfill Adhesive

- Micro LED underfill
- Excellent adhesion
- Fast curable

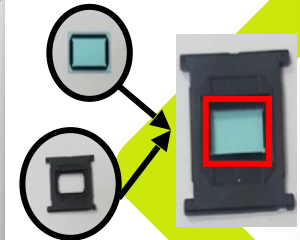
Product : **MSC 1356**
MSC 1320H



INCAP

- Fast flow speed
- Low temp curable
- Good workability
- Good reliability

Product : **MSC 1355**
MSC 1350CG



IR Filter Bonding

- Fast flow speed
- Low temp curable
- Good workability

Product : **MSC 1172**
MSC 1176L

UV Adhesive



Characteristic

Adhesion for optical components or precision parts

Rapid cure by UV

Rapid desiccation, transparency

Low volume cure shrinkage

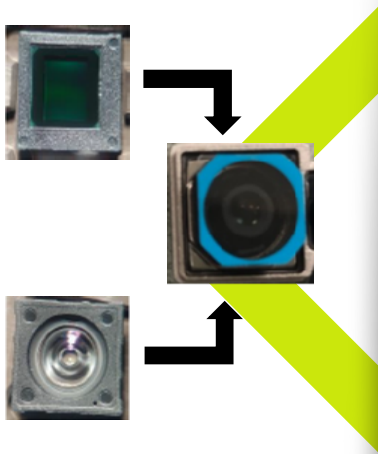
Application

Magnet of motor, cone and coil of speaker

Circuit board

boding for fixing and Attach

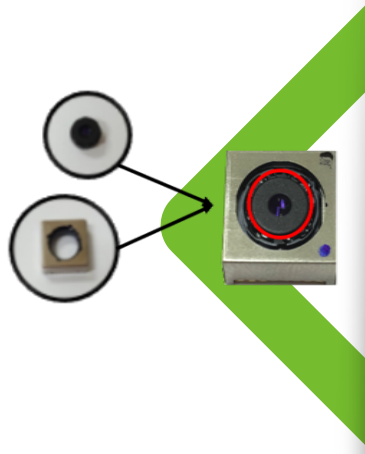
CAMERA MODULE - UV Adhesive



Active Align

- Excellent adhesion
- Low modulus
- Good impact resistant
- Good reliability

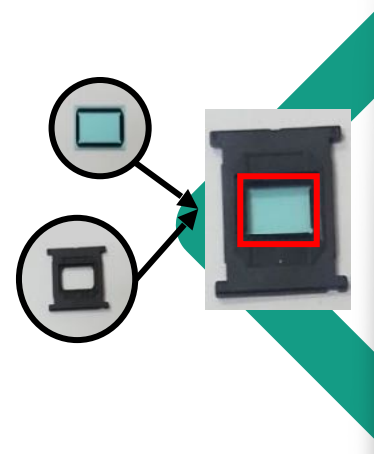
Product : MSC 2601L
MSC 2172



Lens Barrel Bonding

- Lens Bobbin fixing
- Good adhesion
- Low hardness
- Excellent drop resistance

Product : MSC 2319C(R3)
MSC 2910C



IR Filter Bonding

- Low RBO
- Excellent adhesion
- Fast curable
- Low out gassing

Product : MSC 2173H
MSC 1176L



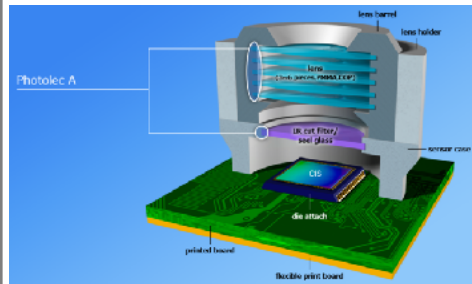
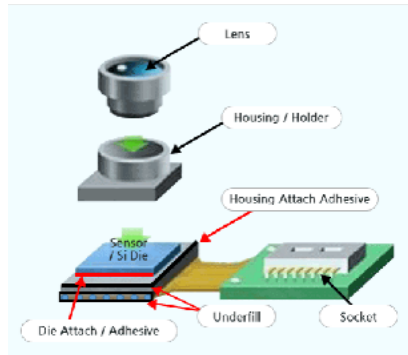
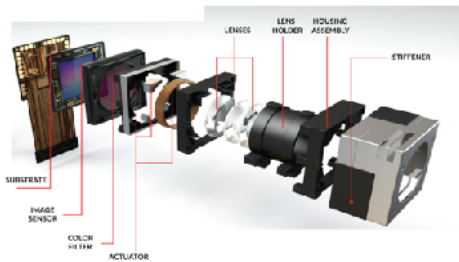
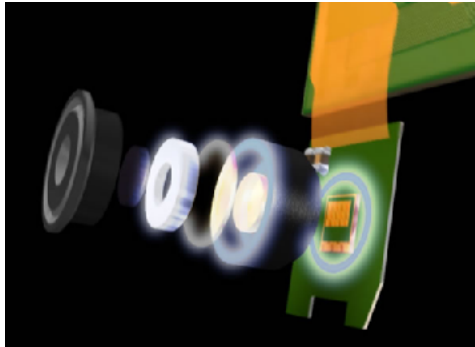
단자부 보강용.

- Neck protection
- Good adhesion
- High flexibility
- Low out gassing

Product : MSC 2104
MSC 2105H

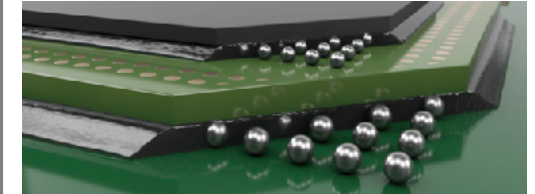
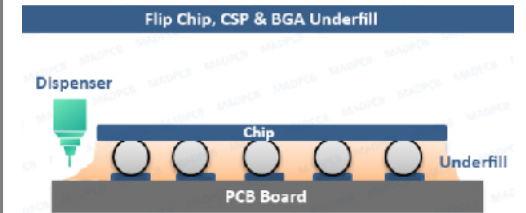
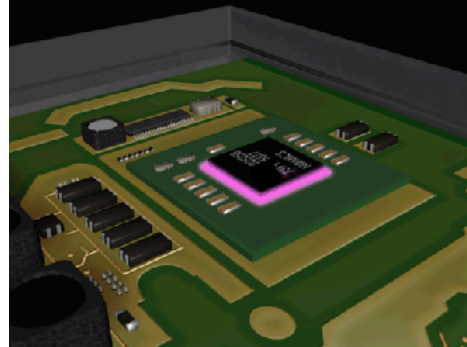
Application

CCM



Housing attach adhesive
IR filter adhesive
Die attach adhesive
Actuator attach adhesive

CSP & BGA

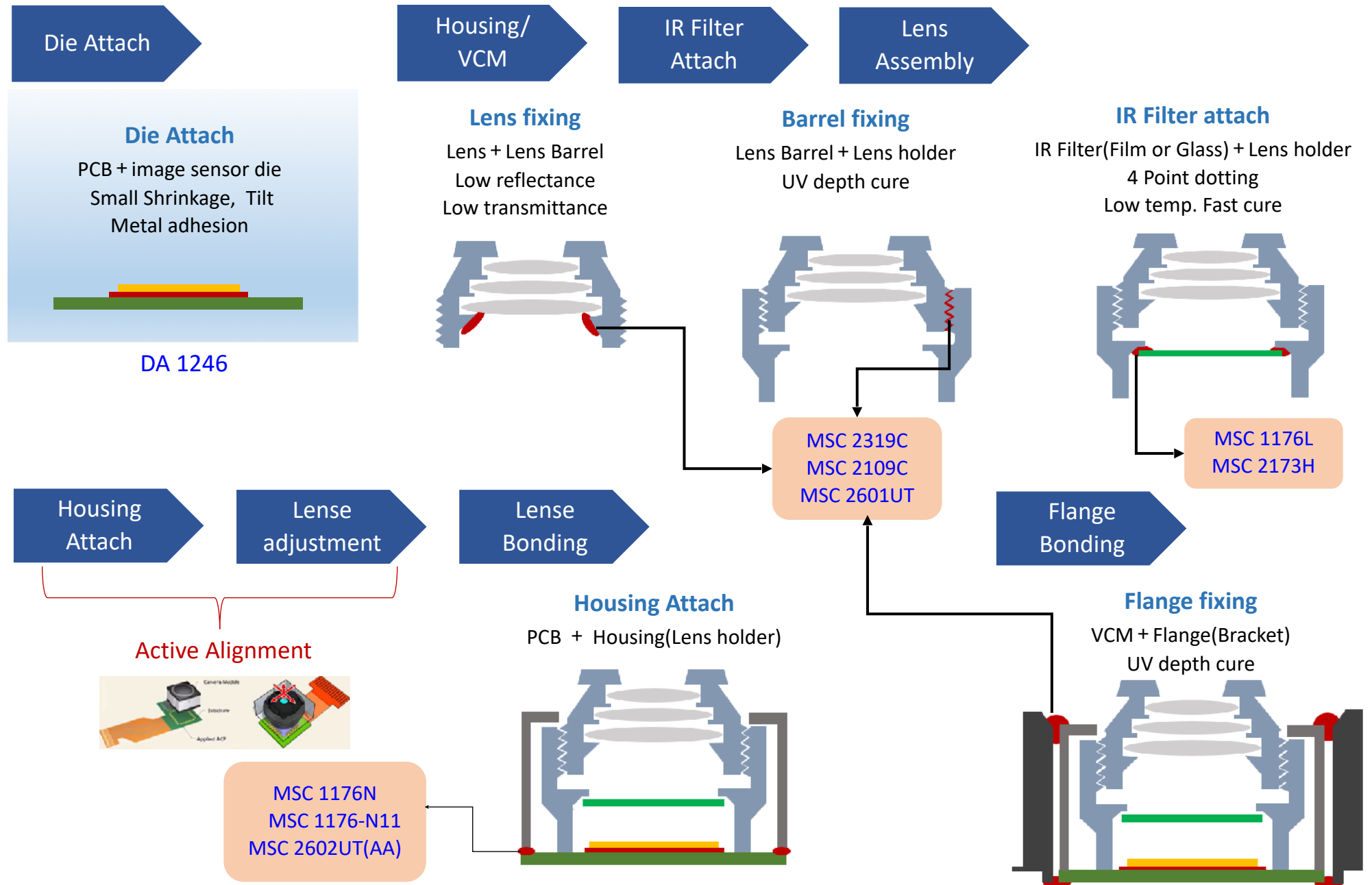


Flip chip underfill

Required Characteristics of Adhesive

Classification		Application	Required Characteristics
Adhesive	Thermal cure	Housing IR Filter Lens Barrel Actuator INCAP	- Heat resistance, Chemical resistance and Humidity resistance - excellent adhesive force (LCP, PA, PC)
	UV cure		- Fast cure - Small shrinkage and minimized generation of exothermic gas - excellent adhesive force(LCP, PA, PC, Glass, PCB)
	Dual cure (Thermal + UV)		- Interfacial flowability and Curing Properties Optimized for Active Aline Process - Excellent impact strength and reliability
	Conductive	Image Sensor	
Die Attach		Image Sensor	- low Warpage, Tilt - Excellent impact strength and reliability
Underfill		CSP, BGA	- Excellent workability and fast cure speed - Excellent adhesion and reliability

CCM Products



Housing : MSC 1176-N11

Application : Housing attach

Key Feature

- Fast cure speed
- Excellent adhesion to LCP, PA and PC
- Non flowability(Non-sagging)
- Good impact strength
- Moisture resistance, chemical resistance, thermal shock resistance(-40 °C ~ 120 °C)

Application field

- CCM(H/A)
- Lens, connector, electronic component adhesion
- Semiconductor

Current state

Supply to SEV, Q-Tech

Table 1. Basic property

		MISUNG MSC 1176-N11
Color		Black
Viscosity, #51	5 rpm	28,000
TI	0.5 / 5 rpm	7.3
Gel Time	Hot plate 100 °C	23 sec
Cure condition		Oven 80 °C × 30 min or Hot plate 120 °C × 40 sec
Hardness	Shore D	50

Table 2. Adhesion

		MISUNG MSC 1176L(R)	
SEA10N + PCB		Hot plate 120 °C × 30 sec	
1		4.95	5.55
2		5.12	4.95
3		5.09	4.81
4		4.81	4.84
5		4.16	4.77
6		5.46	4.90
Aver. (kgf)		4.95	
Ball drop test ⁽¹⁾		5 of 6 Pass	

(1) Ball drop test : BLT 350 μm, ball 35 g, height 130 mm, 3 times
Push test speed : 90 mm/min, Push test tip size : 2 ø

Thermal, IR filter : MSC 1176L(R)

Application : Housing attach, IR filter Comparison : E社

Key Feature

- Fast cure speed
- No RBO
- Excellent adhesion to LCP, PA, PC, PCB and Glass
- Good impact strength
- Non flowability(Non-sagging)
- Moisture resistance, chemical resistance, thermal shock resistance(-40 °C ~ 120 °C)

Application field

- CCM(H/A, IR filter)
- Lens, connector, electronic component adhesion
- Semiconductor

Current state

Supply to Cammsys

Table 3. Basic property

		E社	MISUNG MSC 1176L(R)
Color		Black	Black
Viscosity, #51	5 rpm	27,000	22,000
TI	0.5 / 5 rpm	6.2	5.0
Gel Time	Hot plate100 °C	20 sec	23 sec
Cure condition		80 °C × 30 min	80 °C × 30 min
Hardness	Shore D	85	53

Table 4. Adhesion (E社 vs. 1176L(R))

	E社	MISUNG MSC 1176L(R)
SEA10N + PCB	Oven 80 °C, 30 min	Oven 80 °C, 30 min
1	2.71	3.24
2	2.98	3.52
3	2.81	3.47
4	3.06	3.16
5	3.04	3.11
6	2.68	3.31
Aver. (kgf)	2.88	3.30
Ball drop test ⁽¹⁾	0 of 6 (All Crack)	6 of 6 (All Pass)

(1) Ball drop test : BLT 350 μm, ball 35 g, height 130 mm, 3 times
Push test speed : 90 mm/min, Push test tip size : 2 ∅

IR filter UV : MSC 2173H

Application : IR filter Comparison : G社

Key Feature

- Fast cure speed
- Excellent adhesion to LCP, PA, PC and Glass
- Impact resistance
- Non flowability(Non-sagging)
- Moisture resistance, chemical resistance, thermal shock resistance(-40 °C ~ 120 °C)

Application field

- CCM(IR filter)
- Lens, connector, electronic component adhesion
- Semiconductor

Current state

Supply to Cammsys, COASIA, Namuga, Powerlogics

Table 5. Basic property

		G社	MISUNG MSC 2173H
Color		Clear	Clear
Viscosity, #51	5 rpm	14,000	12,000
TI	0.5 / 5 rpm	1.9	1.9
Cure condition		3,000 mJ/cm ²	
Hardness	Shore D	50	40

Table 6. Adhesion (G社 vs. 2173H)

	G社	MISUNG MSC 2173H
Inner housing + filter	6000mJ	6000mJ
1	0.657	0.766
2	0.671	0.783
3	0.734	0.798
4	0.670	0.786
5	0.707	0.861
6	0.710	0.890
Aver. (kgf)	0.692	0.814

Push test speed : 5 mm/min, Push test tip size : 3.5 ø

Lens fixing UV : MSC 2319C

Application : Lens fixing

Key Feature

- Fast cure speed
- Excellent adhesion to LCP, PA, PC and Glass
- Good impact strength
- Non flowability(Non-sagging)
- Low shrinkage, Low outgassing
- Moisture resistance, chemical resistance, thermal shock resistance(-40 °C ~ 120 °C)

Application field

- CCM(Lens)
- Lens, connector, electronic component adhesion
- Semiconductor

Current state

Supply to Cammsys, COASIA

Table 7. Basic property

MISUNG MSC 2319C(Rev.3)		
Color		
Clear		
Viscosity, #51	5 rpm	4,000
TI	0.5 / 5 rpm	2.9
Cure condition		3,000 mJ/cm ²
Hardness	Shore D	64
TMA	Tg	71 °C
	CTE1,2	42,290 ppm/°C
Volume Cure Shrinkage (%)		0.73

Table 8. Lens Adhesion (in COASIA)

MISUNG MSC 2319C(Rev.3)			
Lens	Lens	Tumble	High temp. & hum.
1	0.80	1.00	1.22
2	0.50	1.10	1.22
3	0.70	1.0	1.24
4	0.80	1.20	1.24
5	0.80	0.90	1.16
Aver. (kgf)	0.72	1.00	1.22

Lens Spec : 0.2 kgf

Bracket fixing UV : MSC 2910

Application : Bracket fixing

Key Feature

- Fast cure speed
- Excellent adhesion to Al and SUS
- Good impact strength
- Non flowability(Non-sagging)
- Low shrinkage, Low outgassing
- Moisture resistance, chemical resistance, thermal shock resistance(-40 °C ~ 120 °C)

Application field

- CCM(Bracket)
- Bracket, connector, electronic component adhesion
- Semiconductor

Current state

Supply to Cammsys, COASIA

Table 9. Basic property

MISUNG MSC 2910		
Color		
Clear		
Viscosity, #51	5 rpm	10,000
TI	0.5 / 5 rpm	3.0
Cure condition		3,000 mJ/cm ²
Hardness	Shore D	74
TMA	Tg	92 °C
	CTE1,2	74,253 ppm/°C
Volume Cure Shrinkage (%)		0.95

Table 10. Bracket Adhesion (in COASIA)

MISUNG MSC 2910			
Bracket	Bracket	Tumble	High temp. & hum.
1	11.3	14.2	17.8
2	13.3	10.6	17.1
3	11.7	13.5	15.7
4	13.8	14.3	16.9
5	13.6	11.6	15.3
Aver. (kgf)	12.7	12.8	16.6

Bracket Spec : 7.0 kgf

Dual Cure Epoxy : MSC 2602UT

Application : Active Align Comparison : N社

Key Feature

- Dual cure (UV + Heat)
- High UV hardening rate
- Excellent adhesion after curing
- Excellent adhesion after PCT
- Non flowability(Non-sagging)
- Reduced heat-curing time.
- Low shrinkage, Low outgassing
- Moisture resistance, chemical resistance, thermal shock resistance(-40 °C ~ 120 °C)

Application field

- CCM(Active align)
- Lens, connector, electronic component adhesion
- Semiconductor

Current state

Cammsys - in progress

Table 11. Basic property

		N社	MISUNG MSC 2602UT
Color		Dark gray	Dark gray
Viscosity, #51	5 rpm	29,000	30,000
TI	0.5 / 5 rpm	5.2	5.5
Gel Time	Hot plate 100 °C	2 min 30 sec	2 min
Cure condition		1 st. 2000 mJ/cm ² 2 nd. 80°C × 60min	1 st. 2000 mJ/cm ² 2 nd. 80°C × 30min
Hardness	Shore D	50	45

Table 12. Adhesion (Namics vs. 2602UT)

SEA10N + PCB	N社			MISUNG MSC 2602UT		
	UV	Oven ⁽¹⁾	PCT	UV	Oven ⁽²⁾	PCT
1	0.74	3.34	1.26	0.82	3.69	2.67
2	0.81	3.28	1.54	0.82	4.13	3.02
3	0.92	3.45	1.84	0.75	4.32	3.56
4	0.94	3.46	1.17	0.85	4.30	2.84
5	0.76	3.31	1.33	0.83	4.12	2.72
6	0.69	3.26	1.35	0.81	3.83	3.18
Aver. (kgf)	0.81	3.35	1.42	0.81	4.07	3.00

UV : 2000 mJ/cm²

(1) Oven : 80°C × 60min, (2) Oven : 80°C × 30min

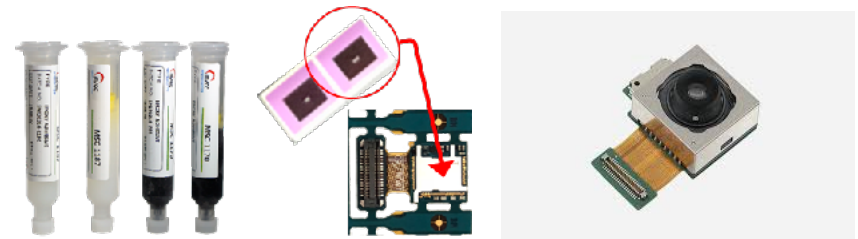
PCT : 121 °C, 1 atm, 60 min

Push test speed : 30 mm/min, Push test tip size : 2 ø

CCM (Thermal Cure)

APP.	PROD.	Viscosity ⁽¹⁾	T.I ⁽²⁾	Cure condition	G.T Hot plate (100°C)	TMA (Tg, °C)	PCT 30 min(%)	Hardness (Shore D)	TMA ppm/°C	Volume Cure Shrinkage (%)	Shelf Life(20°C) Work Life(25°C)	Features
Housing Attach	MSC1176N	21,500cps	5.7	80°C×30 mins	38sec	26	1.0	50	Below α_1 31 Above α_2 236	0.9	6 months 3 days	Fast cure Dispensing
Housing Attach	MSC1176-N11	28,000cps	7.3	80°C×30 mins	23sec	32	0.8	50	Below α_1 29 Above α_2 258	0.4	6 months 3 days	Flexibility Adhesion(LCP, PA, PC)
IR Filter	MSC 1176L	12,500cps	4.8	80°C×30 mins	45sec	23	1.16	40	Below α_1 36 Above α_2 261	1.22	6 months 3 days	Flowability Low temp, Fast cure
INCAP	MSC 1350	4,600cps	0.8	80°C×30 mins	40sec	55	1.09	81	Below α_1 30 Above α_2 153	1.08	6 months 3 days	Dispensing High reliability Low temp
Die Attach	DA 1246	11,500cps	4.0	80°C×30 mins	25sec	79	0.61	80	Below α_1 40 Above α_2 154	0.41	6 months 3 days	High reliability low Warpage and Tilt
Actuator	MSC 1192	2,800cps	0.9	80°C×30 mins	35sec	44	0.45	75	Below α_1 53 Above α_2 249	0.46	6 months 3 day	Flexibility Adhesion(PA, PC)
Actuator	MSC 1176LC	10,000cps	4.0	80°C×30 mins	22sec ⁽³⁾	52	0.58	53	Below α_1 20 Above α_2 250	0.73	6 months 3 day	Flexibility Adhesion(LCP, PA, PC)

- (1) HBDV-II, Spindle #51, 25°C, 5rpm
 (2) HBDV-II, Spindle #51, 25°C, 0.5/5rpm



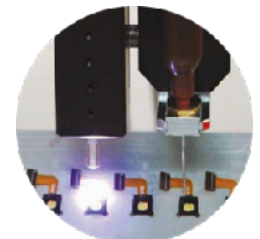
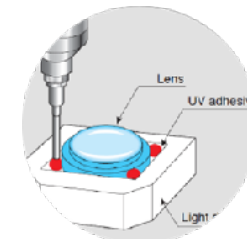
CCM (UV Thermal, Dual Cure)

APP.	PROD.	Viscosity ⁽¹⁾	T.I ⁽²⁾	Cure Condition ⁽³⁾	TMA (Tg, °C)	PCT 30min (%)	Hardness (Shore D)	TMA ppm/°C	Volume Cure Shrinkage (%)	Shelf Life(20°C) Work Life(25°C)	Features
Bracket, Flange	MSC 2920	10,000cps	3.0	3000mJ/cm2	92	1.44	74	Below $\alpha 1$ 74 Above $\alpha 2$ 253	0.95	6 months 7 days	Flowability Fast cure Dispensing
IR Filter	MSC 2173H	12,000cps	1.9	3000mJ/cm2	13	0.4	40	Below $\alpha 1$ 15 Above $\alpha 2$ 217	0.3	6 months 7 days	Low RBO Low Gas Fast cure
Lens Barrel	MSC 2319C(R3)	4,000cps	3.0	3000mJ/cm2	48	0.55	53	Below $\alpha 1$ 74 Above $\alpha 2$ 208	1.29	6 months 7 days	Flowability Low shrinkage Low Gas
Lens Barrel	MSC 2109C	11,000cps	4.4	3000mJ/cm2	83	1.62	70	Below $\alpha 1$ 42 Above $\alpha 2$ 284	0.14	6 months 7 days	Low shrinkage Low Gas Adhesion(LCP, PA, PC)
Lens fixing	MSC 2601L	7,400cps	1.8	3000mJ/cm2 80°C 30mins	40	0.56	60	Below $\alpha 1$ 38 Above $\alpha 2$ 265	1.16	6 months 3 days	Low shrinkage Low Gas Adhesion(LCP, PA, PC)
Active Align	MSC 2602	50,000cps	5.0	2000mJ/cm2 80°C 40mins	25	0.74	55	Below $\alpha 1$ 25 Above $\alpha 2$ 125	1.05	6 months 3 days	Low Modulus High reliability
Neck Bonding	MSC 2104	2,700cps	3.0	3000mJ/cm2	58	3.4	40	Below $\alpha 1$ 37 Above $\alpha 2$ 304	0.4	6 months 3 days	Flexibility

(1) HBDV-II, Spindle #51, 25°C, 5rpm

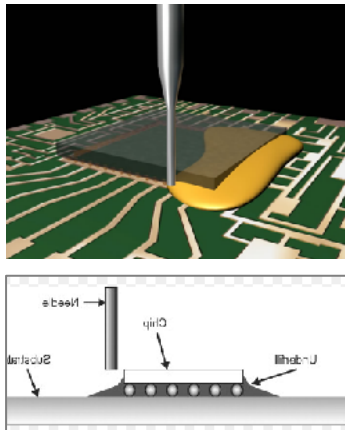
(2) HBDV-II, Spindle #51, 25°C, 0.5/5rpm

(3) 100~150 μ m, 100 mW/cm2@ 255~405 nm, 30seconds

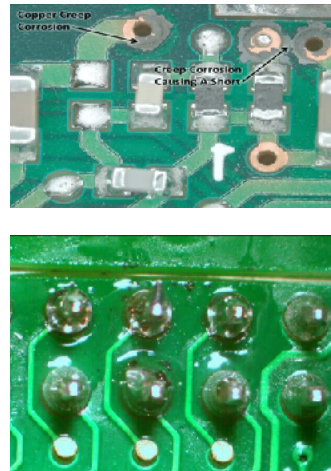


Other Application

Underfill



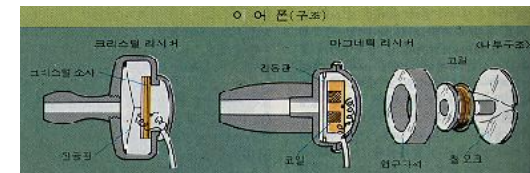
Solder protection



Automobile Sensor, Harness, PTC heater



Earphone coil, case

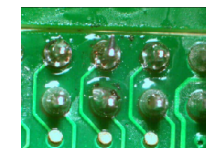
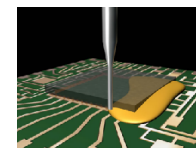


Thermal Cure - Underfill and other Products

APP.	PROD.	Viscosity ⁽¹⁾	TI ⁽²⁾	Cure condition	T.G	PCT (30 min)	Hardness Shore D	TMA	Volume Cure Shrinkage (%)	Conductivity (W/mk)	Work Life (25°C)	Features
Underfill	MSC 1352M	2,200cps	1.2	120°C×30 mins	122	0.43	85	Below α 1 42 Above α 2 206	0.38		6 months 3 days	Flexibility adhesion
Underfill	MSC 1360D	334cps	0.9	120°C×30 mins	105	1.8	85	Below α 1 62 Above α 2 207	0.5		6 months 3 days	Fast cure
Underfill CSP & BGA	MSC 1320H-SI	800	-	Oven 120°C 60min 150°C 30min 180°C 10min	142	0.17	85	Below α 1 32 Above α 2 174	2.65	-	2	Middle temp, Fast cure
Underfill CSP & BGA	MSC 1355 M7	26,000	1.1	Oven 150°C 60min	172	0.28	94	Below α 1 16 Above α 2 95	0.87	0.59	1	Middle temp cure
Power tool(Ag)	MSC 1021	11,000	6.0	Oven 170°C 60min	108	0.1	87	Below α 1 57 Above α 2 189	0.12	0.0005 Ω square	3	High heat resistance
Automotive bumper sensor molding	MSC 3272	R : 2,000~5,000 H : 300~600 M : 2,000~5,000	-	25°C, 35% 24hr Oven 70°C 60min	-40	< 0.3	20~ 60	-	-	-	20~30min	Tow-component

(1) HBDV-II, Spindle #51, 25°C, 5rpm

(2) HBDV-II, Spindle #51, 25°C, 0.5/5rpm

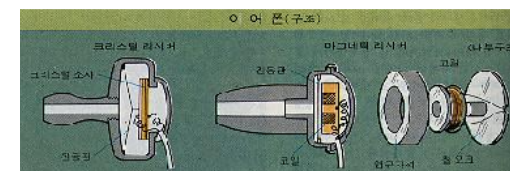


UV Cure - Automotive and other products

APP.	PROD.	Viscosity ⁽¹⁾	T.I ⁽²⁾	Cure condition	T.G	PCT-30 min	Hardness Shore D	TMA	Volume Cure Shrinkage (%)	Work Life (25°C)	Features
Automotive Wiring Harness (Protective sealing)	MSC 2102	580	-	1000mJ/cm ² ⁽³⁾ Photo DSC 17sec	60	0.88	Shore A 90	Below α 1 79 Above α 2 318	1.77	7	PVC, nickel adhesive
Automotive Wiring Harness (Protective sealing)	MSC 2102Y7	9,300	0.8	3000mJ/cm ² Photo DSC 9.5sec	7	1.84	Shore A 27	Below α 1 98 Above α 2 300	1.88	7	Surface resistance 1×10 ¹² Breakdown voltage 5kV/mm
Automotive PTC heater (Molding)	MSC 2300CF	13,600	0.95	3000mJ/cm ²	80	1.5	65	Below α 1 4 Above α 2 199	0.94	7	Surface resistance 2×10 ¹¹ Breakdown voltage 5kV/mm Flame Class V-1
Earphone coil fixing	MC# 801C-CL	4,500	1.8	3000mJ/cm ²	92	1.44	74	Below α 1 74 Above α 2 253	0.95	7	LCP, PC, metal 부착
Solder corrosion protection	MSC 800B	7800	3.1	3000mJ/cm ²	-	-	55	-	-	7	LCP, PC, metal 부착
bluetooth earphone case(sealing)	MSC 2376	8,300	5.0	3000mJ/cm ²	12	0.48	Shore A 48	Below α 1 30 Above α 2 339	1.1	7	LCP, PC부착

Small outgassing, Shrinkage

- (1) HBDV-II, Spindle #51, 25°C, 5rpm
- (2) HBDV-II, Spindle #51, 25°C, 0.5/5rpm
- (3) 100mW/cm² @ 255~405 nm : 10 seconds



Mass Product

APP.	PROD.	Viscosity ⁽¹⁾	TI ⁽²⁾	Cure condition	Hardness Shore D	TMA T.G	TMA	Volume Cure Shrinkage (%)	Work Life (25°C)	Feature	Customer
Housing attach IR Filter attach	MSC 1176L	12,500	5.0	80°C 30min Hot plate 100°C 2min	31	15	36 261	1.22	3	Low viscosity Ball-drop resistance	Cammsys
Housing attach IR Filter attach	MSC 1176LC	10,000	4.0	Oven 80°C 30min Hot plate 80°C 90sec	53	52	20 252	0.73	2	Low temperature fast cure	MCNEX, Chemtronics
Housing attach IR Filter attach	MSC 1176N	21,500	5.7	80°C 30min Hot plate 90°C 2min	50	26	20 252	0.9	3	No RBO	Cammsys, COASIA, NAMUGA, Chemtronics
Housing attach IR Filter attach	MSC 1176L(R)	22,000	5.0	80°C 30min	53	34	45 217	0.8	3	Low temperature fast cure, No RBO	Cammsys, COASIA
Housing attach	MSC 1176-N11	28,000	7.3	80°C 30min Hot plate 120°C 40min	35	15	29 258	0.4	3	High viscosity Ball-drop resistance	Q-tech, SEV
Home key	MSC 1187F	19,000	3.7	80°C 30min Hot plate 75°C 2min	73	35	12 198	1.3	3	Excellent Al adhesion	Dreamtech
Underfill	MSC 1320H-SI	800	-	150°C 30min 180°C 10min	85	142	32 174	2.65	2	Low viscosity High Tg BGA underfill	LG Display
Sidefill	MSC 1352M	2,200	1.2	120°C 30min	85	122	42 206	0.38	3	Pinger switch sidefill	Dreamtech
COB Underfill	MSC 1355 M7	26,000	1.1	180°C 60min	94	172	16 95	0.87	1	Chip molding COB underfill	IWIN Plus
COB Underfill	MSC 1355	18,000	1.1	180°C 60min	90	105	9 110	0.57	1	Chip molding COB underfill	IWIN Plus
Underfill	MSC 1360D	334	0.9	120°C×30min	85	105	62 207	0.5	3	BGA underfill	Dreamtech
IR Filter attach	MSC 2173H	12,000	1.9	3000 mJ/cm ²	40	13	15 217	0.3	7	Good adhesion	Cammsys, COASIA, NAMUGA, Patron
Lens Barrel fixing	MSC 2109C	11,000	4.4	3000 mJ/cm ²	70	83	42 284	0.14	7	Excellent adhesion	Cammsys
Lens Barrel fixing	MSC 2319C (Rev.3)	4,000	2.9	3000 mJ/cm ²	64	71	42 290	0.73	7	Jet dispensing workability	COASIA
Bracket fixing	MSC 2910	10,000	3.0	3000 mJ/cm ²	74	92	74 253	0.95	7	Excellent adhesion	Cammsys, COASIA

(1) HBDV-II, Spindle #51, 25°C, 5rpm

(2) Thixotropic Index : HBDV-II, Spindle #51, 25°C, 0.5/5rpm

New Development - '25 year

Reworkable adhesive

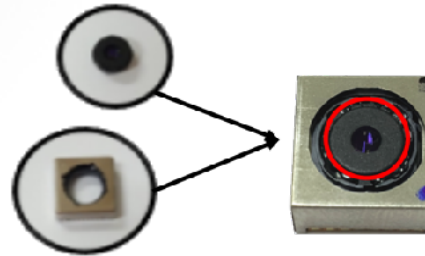
- Recover parts with less damage (holder attach.)
- Cost reduction
- High reliability



Product : MSC 1176L

Barrel Fixture Bonding (UV + Thermal)

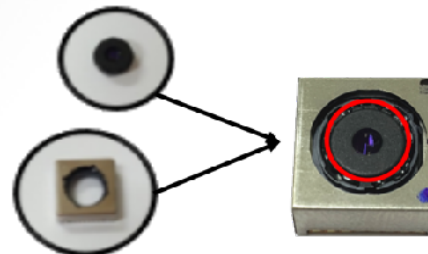
- Barrel fixing dure cure adhesive
- Good adhesion (PC + PC)
- Low hardness
- Excellent drop resistance
- Fast curing adhesive



Product : MSC 2601UT

Barrel Fixture Bonding (UV)

- Good flow control
- Low volume shrinkage
- Low out gassing



Product : MSC 2319C(R7)

Development Trend - '25~'26year

Low fume housing attach (Thermal)

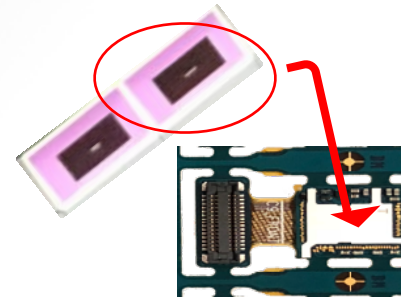
- Low out gassing adhesive.
- Low temperature curing (@80°C 5min)
- Excellent adhesion.
- Minimize lens contamination



Product : MSC 117X
MSC 113X

Low warpage die attach

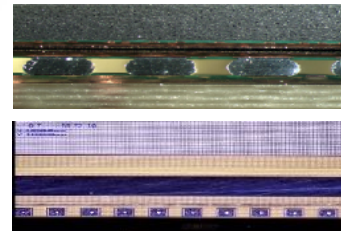
- Low warpage in big pixel image sensor
- Good adhesion (PCB(SUS) + image sensor)
- Less bad resolution
- High reliability
- Good adhesion



Product : DA 12XX

Low warpage underfill for mobile

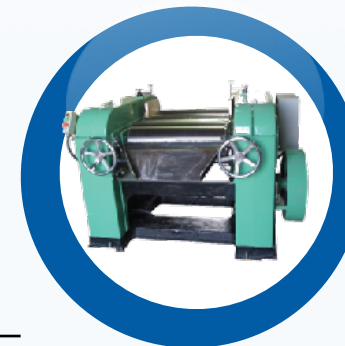
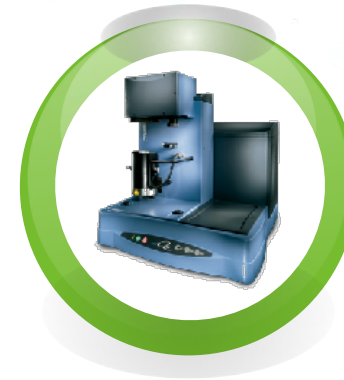
- Good flow control
- Low CTE
- High reliability
- Good vending test



Product : MSC 119X

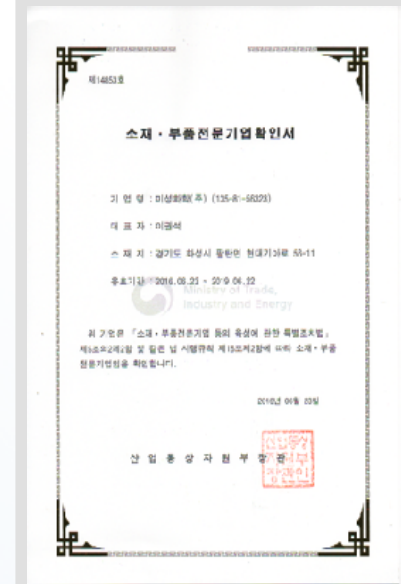
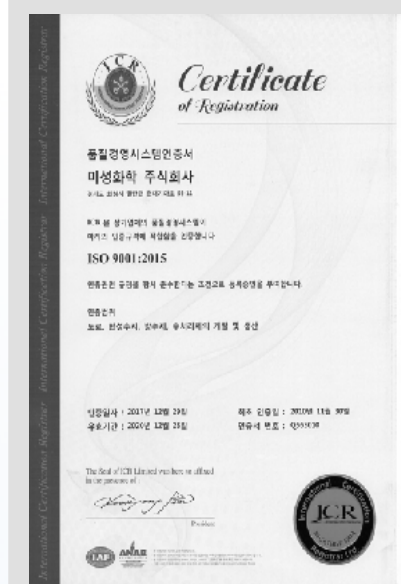
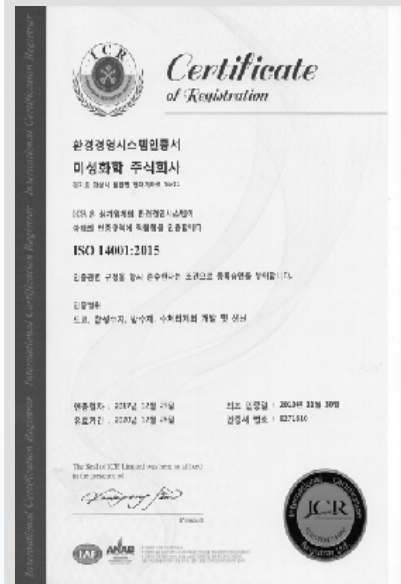
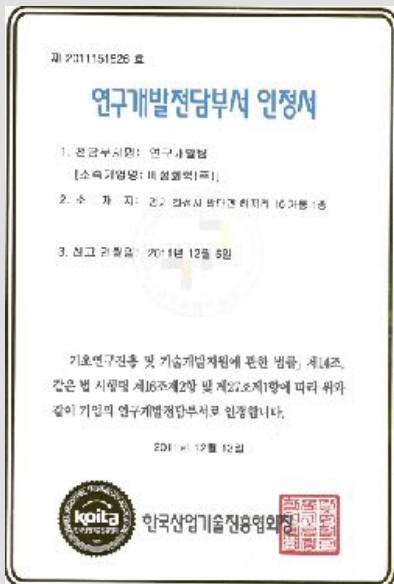
제조-품질 분석설비

품질관리	설비명	제조사/규격	수량	제작사
1	점도계	BF-RVDV-I	1	ENG
2	점도계	BF-DV-II+ Pro	2	USA
3	점도계	DV-I Prime	1	USA
4	전자저울	210g-0.00001g	1	USA
5	전자저울	GH-202/0.0001mg	4	JAP
6	입도계		1	KOR
7	경도계	SHOER-A,D	2	JAP
8	비중컵		1	KOR
9	색차계	ZE-6000/NE3000	2	JAP
10	Thinky Mixer	ARV-310	2	JAP
11	Thinky Mixer	ARE-310	3	JAP
12	내전압 측정기	KIKUSUI	1	JAP
13	절연 저항계	DU-5211	1	TAI
14	분광 광도계	THERMO	1	USA
15	FT-IR	PerkinElmer	1	USA
16	PHOTO DSC	PerkinElmer	1	USA
17	TGA	TA - Q50	1	USA
18	TMA	TA - Q400	1	USA
19	DMA	DMA-8000	1	USA
20	열전도측정기	TCi Unit	1	CAN
21	IR광원 분석기	ILT-950	1	USA
22	열충격기(챔버직하식)	-50℃~+150℃	1	KOR
23	Moisture Analyzer	AND/MS-70	1	JAP
24	INCUBATOR	4~60 ℃	1	KOR
25	고온 오븐경화기	+300℃	3	KOR
26	항온항습기	-25℃~+150℃	2	KOR
27	원샷3D형상측정기	VR6000	1	JAP
28	Die Bond Tester	STELLAR 4000	1	USA
29	UTM 인장압축시험기	SHIMADZU	1	JAP
30	UTM 인장압축시험기	QMESYS	1	KOR
31	Pressure Cooker Test	121℃~1atm	2	KOR





Certificates



Major Partners



THANK YOU



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