

Heat Radiate Adhesive (Reference Exhibit)

Suitable for heat sink, to fixing LIB and more

It makes strong adhesion to be based on epoxy resin adhesive.
To be cartridge type makes stable application without capital investment.

Product Features

▶ Good heat conductivity

2.0W/m·k

▶ Strong adhesion

It makes strong adhesion to be based on epoxy resin adhesive.

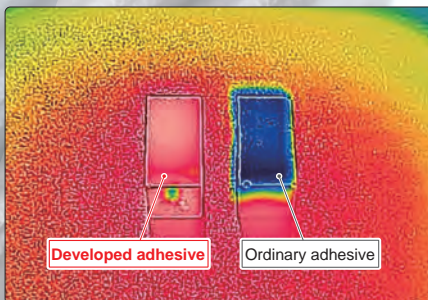
▶ Cartridge type available

Efficient/great workability. Reduce manufacturing process, measuring and mixing.

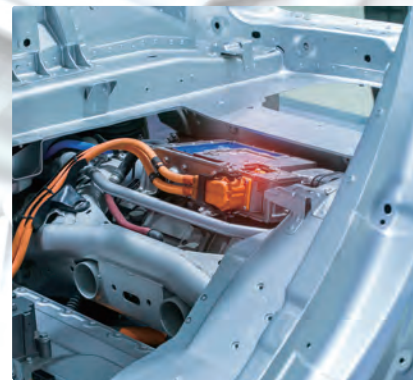
▶ Siloxane free

It is not contained in Siloxane which causes problems such as a poor contact.

● Good heat conductivity



● Cartridge type image



Properties and Performances

▶ General properties

	Bottle type		Cartridge type	
	Resin	Hardener	Resin	Hardener
Appearance	Gray	White	Gray	White
Mixing ratio (weight ratio/volume ration)	100	100	100	100
Viscosity (mPa·s)	100,000	95,000	100,000	95,000
Specific gravity	2.8	2.7	2.8	2.7
Cure time (h)	24		24	

▶ Cured Materials Properties

	Bottle type	Cartridge type
Surface resistivity ($\Omega \cdot \text{cm}$)	$>10^{14}$	$>10^{14}$
Volume resistivity ($\Omega \cdot \text{cm}$)	$>10^{14}$	$>10^{14}$
Permittivity	1MHz : 4.5	1MHz : 4.6
Dissipation factor	1MHz : 0.009	1MHz : 0.010
Hardness (HDD)	92	91
Tensile strength (N/mm^2)	17	17
Thermal conductivity ($\text{W/m}\cdot\text{K}$)	2.1	2.1
Flame rating(UL-94)	V-0 equivalent	V-0 equivalent

Light Curing Cyanoacrylate Adhesives

It has two features as an instant adhesive and a light curing adhesive.

Rapidly curing by UV prevents blooming phenomenon as instant adhesive-specific.
It can bond difficult-to-bond materials like PP and Silicone rubber with ALTECO primer.

Product Features

▶ Humidity curing & Light curing

Using as instant adhesive can be humidity cured parts where the light doesn't reach.
Moreover, it can bond thickness of 10mm clearance with UV light.

▶ Reduce manufacturing process

The final strength will be reached as soon as UV irradiated. Reduce the curing process.

▶ Prevent blooming

Rapid curing by UV prevents blooming phenomenon as instant adhesive-specific and doesn't impairing the beauty of appearance.

▶ For hard-to-bond materials

Bonding PP and Silicone rubber to use primer for hard-to-bond.

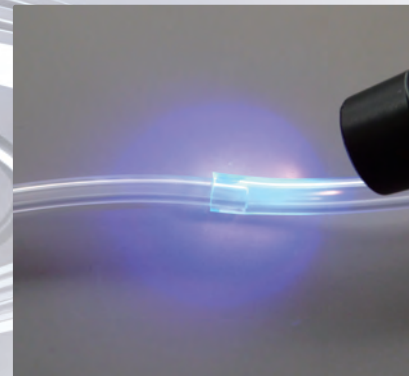
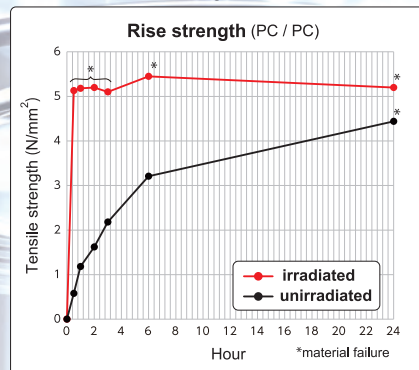
● Prevent blooming

To be rapidly cured by UV prevents blooming phenomenon



● Reduce manufacturing process

It reached the best strength with UV



Properties and Performances

Product Code		HK3X	HK100X	HK500X	HKV10X	HK Gel (under development)
Viscosity (mPa·s)		3	100	500	1000	Gel form
Appearance		Light green	Light green	Light green	Light green	Light yellow
Hardness (shore D)		85	85	85	85	85
Tg (°C)		140	140	140	140	140
Cure time (sec) 100mW / cm ² 365nm	Irradiation time (sec)	1	1	1	1	3
	Steel plate / Steel plate	10	30	30	45	45
Set time (sec) (UV unirradiated)	Aluminum / Aluminum	10	30	30	40	40
	ABS / ABS	8	15	15	17	30
	Steel plate / Steel plate	15	15	15	15	15
Tensile strength (N/mm ²) (UV unirradiated)	Aluminum / Aluminum	8	8	8	8	8
	ABS / ABS	6 *1	6 *1	6 *1	6 *1	6 *1
	PP / PP *2	6 *1	6 *1	6 *1	6 *1	6 *1
	Silicone rubber / Silicone rubber *2	0.3 *1	0.3 *1	0.3 *1	0.3 *1	0.3 *1
	Silicone rubber / Silicone rubber *2	0.3 *1	0.3 *1	0.3 *1	0.3 *1	0.3 *1

*1 : material failure

*2 : combine with Primer

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High-Performance Instant Adhesive

ALTECO GH300

The best thermal resistance performance of ALTECO (*Instant adhesive)

ALTECO GH300 is a high performance instant adhesive for thermal resistance.
Good adhesion for plastic, rubber, metal.

Product Features

▶ **High thermal resistance**

Thermal resistance performance for long hours under 120°C.

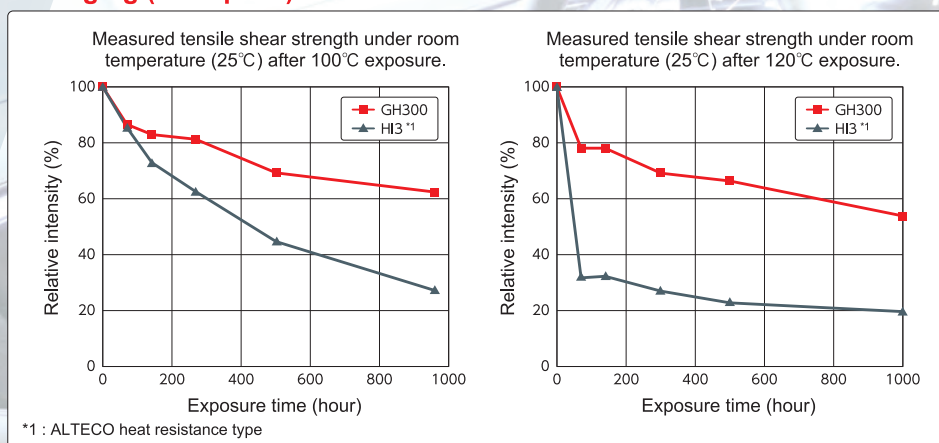
▶ **Water resistance**

Almost no decreases strength bonded plastic (ABS) and rubber (CR) after 3 months soaking.

▶ **High-impact-resistance**

10 times high-impact-resistance than normal instant adhesives.

● **Heat aging (steel plate)**



● **Water resistance (resin / rubber)**

Measured tensile shear strength after 3 months soaking in room temperature water.

Adherend	Initial (N/mm ²)	After 3 months soaking (N/mm ²)
ABS	5 (Material failure)	5 (Material failure)
CR (Chloroprene rubber)	0.4 (Material failure)	0.4 (Material failure)



Property and Performances

Product Code	GH300	H13 *1	EE *2
Set time (sec)	30	30	15
Viscosity (mPa·s)	300	300	3
Tensile strength (N/mm ²)	25	25	15
Tensile strength (N/mm ²) under 120°C	18	11	3
T-type peeling Strength	65	65	20
Hardness (mJ/mm ²)	20	20	2

*1 : ALTECO heat resistance type

*2 : ALTECO general type

Heat Resistance Epoxy Adhesive

ALTECO3900

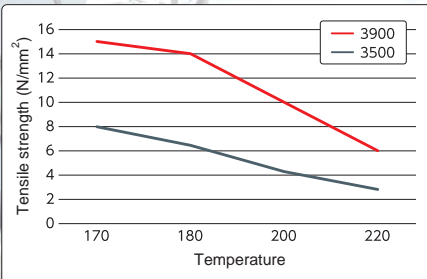
**2 component type epoxy adhesive
which keeps strength under high temperature for long hours.**

Keeping adhesion under 200°C without heat processing.

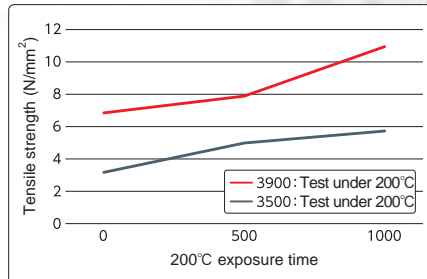
Product Features

- ▶ Keeping strength under 200°C for long hours.
- ▶ Cures at room temperature without heat processing and facilities.
- ▶ Shrink less, it does not contain volatile solvent.

● Heat strength



● Heat aging



● Thermal shock test

	Test environment	3900	3500 *1
Tensile strength (N/mm ²)	Test under normal temperature	14	12
	Test under 200°C	7	4

10 cycles of +200°C-14h↔-30°C-8h
*1: ALTECO heat resistance type

Property and Performances

▶ General properties

	3900	
	Resin	Hardener
Main component	Modified epoxy resin	Modified polyamide amine
Mixing ratio (weight ratio)	100	25
Appearance	Yellow clear	Brown clear
Viscosity (25°C) (mPa·s)	31000	3100
Specific gravity (25°C)	1.2	1.0
Pot life (25°C) (min/100g)	100	
Cure time (25°C) (h)	24	
Cure time (80°C) (h)	1	

▶ Cured Materials Properties

	3900
Tensile strength (N/mm ²)	3 (25°C-24h) / 15 (80°C-1h)
Hardness	80 (25°C-24h) / 85 (80°C-1h)
Tg (°C)	170~180
Td3 (°C)	325

