

# Taica

<http://www.taica.co.jp/gel-english/>

**αGEL<sup>®</sup>**  
*Discover Softness.*  
**Thermal Conductive GEL**

## Taica Corporation

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ISO9001



## Excellent Cushioning and Vibration Damping Performance

### Shock Absorption & Vibration Damping

*Alpha GEL*'s (Alpha GEL) softness allows for deflection required for shock absorption and vibration damping, providing excellent cushioning and vibration damping performance.

## Superior Durability

### Durability

*Alpha GEL* is highly resistant to ozone, UV rays and chemicals, making it possible to use in a variety of locations. In addition, its performance is maintained even after repeated compression.

## Stable Performance Even In a Harsh Environment

### Stability

*Alpha GEL*'s properties show little change in the -40°C (-40 °F) to 200°C (392 °F) range, providing stable performance.

## Outstanding Platform for Additional Functions and Enhanced Performance

### Function

On top of the unique combination of excellent features, *Alpha GEL* also works as a reliable foundation for additional functions and for enhancing performance without compromising the merits softness brings.

## Extremely High Safety

### Safety

*Alpha GEL*'s composition makes it harmless to the human body and to the environment, causing no allergies when touched, and emitting no harmful gases when burned.



## Taica's Know-how

### Engineering & Know-How

You can count on us for enhanced cushioning, vibration damping, tender feel, and more.

Years of accumulated expertise and know-how, mastery of fine-tuning softness, designing and making optimum gel parts --- together all of these help cope with a variety of changing environments and needs of customers around the globe.

A raw egg dropped from a height of 18m (60') — equivalent to the sixth floor of a building — remains unbroken when caught by a sheet of *Alpha GEL* only 2 cm (0.8") thick.

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# Sheet-type Thermal Conductive GEL λGEL™ COH

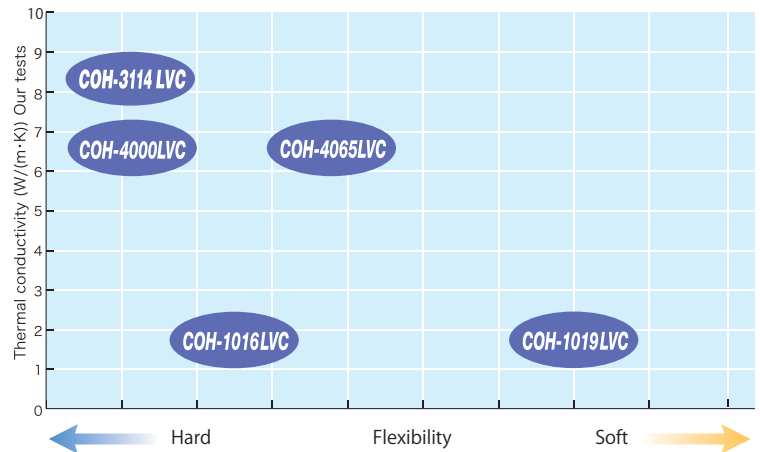
◆ Lambda GEL/COH



## Features

- Offers outstanding thermal conductivity and excellent heat dissipation.
- Adhere to rough surfaces and push out all air gaps.
- Good electrical insulators and flame retardant.

[Thermal Conductivity and Flexibility]



## General Properties

Item		Grade	COH-1016LVC	COH-1019LVC	COH-4000LVC	COH-4065LVC	COH-3114LVC	Remark
Characteristics			Few low molecular weight Siloxane	High damping	Few low molecular weight Siloxane	High thermal conductivity+High damping	High thermal conductivity	
Thermal conductivity (W/(m·K))	Our tests		1.9	1.9	6.5	6.5	8.2	—
	Hot Wire <sup>(※1)</sup> Method		1.2	1.2	2.1	2.1	3.1	JIS R 2616
Hardness	Needle penetration (1/10mm)		60	90	45	65	—	JIS K 2207
	Asker C		—	—	—	—	40	JIS K 7312
Appearance			White	Blue	Gray	Reddish brown	Gray	—
Specific gravity			1.7	1.7	2.9	2.8	3.0	JIS K 6249
Tensile strength (MPa)			0.21	0.14	0.35	0.10	0.69	JIS K 6249
Volume resistivity (Ω·cm)			6.1×10 <sup>13</sup>	3.1×10 <sup>13</sup>	7.1×10 <sup>13</sup>	4.4×10 <sup>12</sup>	1.2×10 <sup>12</sup>	JIS K 6249
Dielectric breakdown strength (kV/mm)			18.8	16.5	12.5	13.6	11.3	JIS K 6249
Elongation (%)			205	480	68	132	35	JIS K 6249
Compression set (%)			15	51	72	75	63	JIS K 6249
Dielectric constant	<50Hz		4.8	4.6	5.6	6.8	8.4	JIS K 6249
	<1kHz		4.3	4.2	5.0	6.5	7.3	JIS K 6249
	<1MHz		4.0	3.9	5.5	6.0	6.5	JIS K 6249
Dielectric dissipation factor	<50Hz		0.071	0.055	0.006	0.058	0.171	JIS K 6249
	<1kHz		0.046	0.034	0.002	0.041	0.060	JIS K 6249
	<1MHz		0.007	0.006	0.0004	0.011	0.0151	JIS K 6249
RoHS controlled substances <sup>(※2)</sup>			Not detected	Not detected	Not detected	Not detected	Not detected	—
Temperature range (°C)			-40~150	-40~150	-40~150	-40~150	-40~150	—
One side non tacky type			○	○	○	○	○	



(※1) Hot Wire Method : Using the QTM-500 Quick Thermal Conductivity Meter, from Kyoto Electronics Manufacturing Co.,LTD.

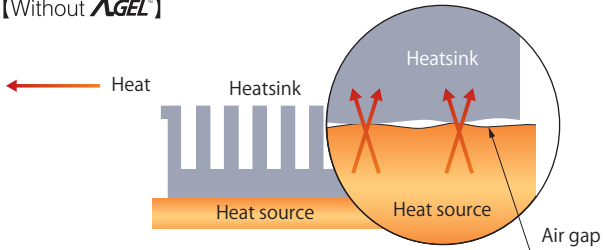
(※2) Temperature Range of Use: Range of measured stable thermal conductivity and hardness properties.

Please conduct appropriate reliability testing under actual usage conditions.

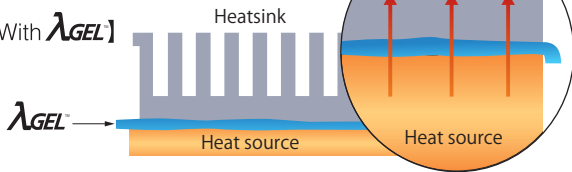
※Not Specified Values

## The flow of heat

【Without  $\lambda$ GEL】



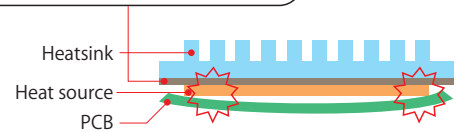
【With  $\lambda$ GEL】



## $\lambda$ GEL benefits

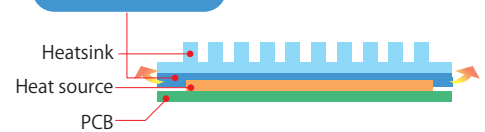
✗ Hard thermal conductive sheet stresses IC and PCB.

Hard thermal conductive sheet



● Softness of  $\lambda$ GEL™ releases stress and absorbs tolerance.

COH-1019LVC



## Directions

- ◆ Slowly peel off one side of the protective film of  $\lambda$ GEL™.
- ◆ Carefully place  $\lambda$ GEL™ sheet on the heat source or heatsink without air gap.
- ◆ Peel off the remaining layer from  $\lambda$ GEL™ with no air gap in between the sheet and heat dissipating device or heat generating device.



## Delivery Format

### 【Basic Specifications】

Sheet size	400×400mm
Sheet thickness	0.5、1.0、2.0、3.0mm

※ COH-4065LVC, COH3114LVC 1.0、2.0、3.0mm

## Notes

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- It is highly recommended that users would not use the products shown in the brochure in medical applications, particularly for implantation use.
- The users shall be aware of the fact that silicone oil could bleed from silicone-gel. It is therefore that any user should be responsible for conducting reliability test in advance before delivering the products in the market.
- The silicone-gel contains low molecular siloxane, which could be volatile.
- The seller or manufacturer shall not be responsible for any defects to the supplied product, unless it is proven that the supplied product has defects attributed to the intent or negligence of the manufacturer. If that is the case a replacement product shall be provided.
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# Paste-type (Grease) Thermal Conductive GEL **λGEL™ DP**

◆ Lambda GEL/DP

Fill gaps around the heat source for improving heat dissipation.  
Eliminate running and vaporization problems.  
Easily spreads over heat generating devices.

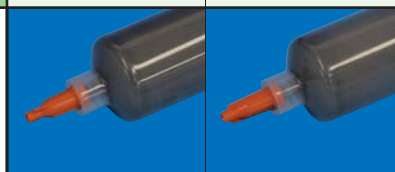


## Features

- Very soft paste-type (grease)GEL with thermal conducting properties.
- Cross-linked particles of **λGEL™ DP** eliminate running and vaporization problems seen with traditional grease and phase change materials.
- Good electrical insulators.

## General Properties

Item		Grade	DP-100	DP-200	Remark
Thermal conductivity (W/(m·K))	Our tests		6.5	4.8	—
	Hot Wire Method <sup>(※1)</sup>		2.0	1.6	JIS R 2616
Hardness (Cone penetration 1/10mm, not mixed)			51	55	JIS K 6249(1/4cone)
Appearance			Gray	Gray	—
Specific gravity			2.8	2.6	JIS K 6249
Volume resistivity (Ω·cm)			5.9×10 <sup>13</sup>	7.2×10 <sup>14</sup>	JIS K 6249
Dielectric breakdown strength (kV/mm)			5.0	5.6	JIS K 6249
Dielectric constant	<50Hz>		8.9	7.6	JIS K 6249
	<1kHz>		7.8	6.7	JIS K 6249
	<1MHz>		7.0	6.6	JIS K 6249
Dielectric dissipation factor	<50Hz>		0.234	0.017	JIS K 6249
	<1kHz>		0.061	0.007	JIS K 6249
	<1MHz>		0.015	0.005	JIS K 6249
Low molecular weight Siloxane level Σ D4-10 (ppm)	Solvent Extraction Method		Less than 700	Less than 900	—
	Head Space Method <sup>(※2)</sup>		Less than 1	Less than 3	—
RoHS controlled substances			Not detected	Not detected	—
Temperature range (°C)			-40~200	-40~150	—

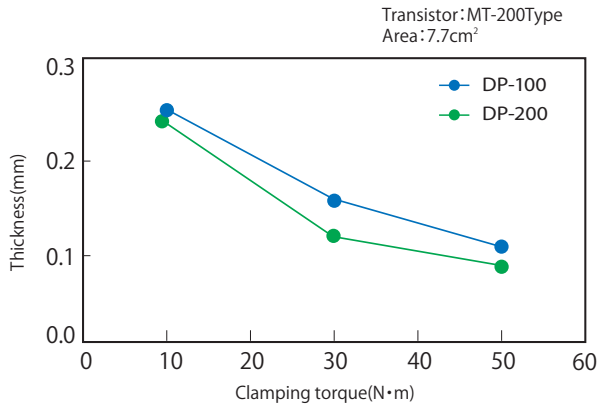


(※1) Hot Wire Method : Using the QTM-500 Quick Thermal Conductivity Meter, from Kyoto Electronics Manufacturing Co.,LTD.

(※2) Head Space Method : at 70°C

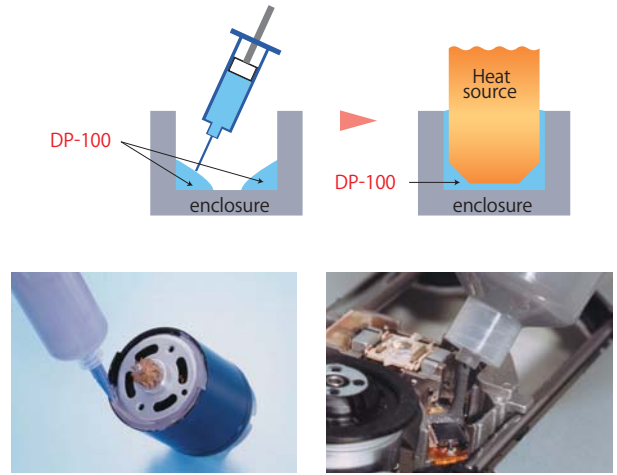
※Not Specified Values

## 【Clamping Torque Dependency】



## 【Filling Example】

DP-100



## 【Thermal Resistance】

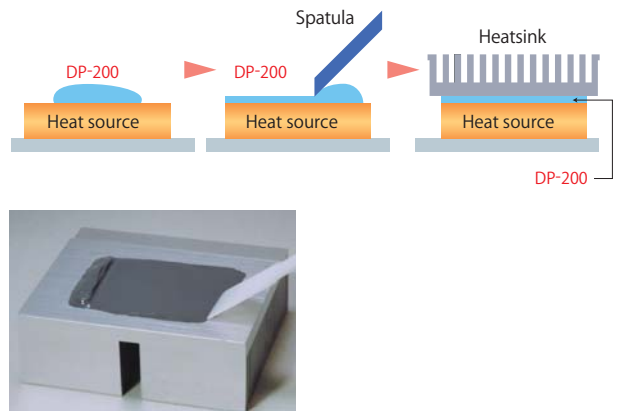
Transistor: MT-200 type  
Heat input: 20W

Thickness (mm)	0.10	0.15	0.20	0.30
DP-100	—	0.13	0.15	0.18
DP-200	0.13	—	0.17	0.22

(°C/W)

## 【Coating Example】

DP-200



Delivery Format

## 【Basic Specifications】

DP-100/DP-200

Syringe 30mL

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