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# Introduction of Silicone OCA MGSi

**KGK Chemical Corporation**  
**Technical section**



**KGK Chemical Corp.**

# Construction and Features



Construction

Separator	Light release liner
Special silicone adhesive layer	0.15~1.0mm
Separator	Heavy release liner

"MGSi" is a silicone gel with adhesiveness.

we prepare adhesive layer of various thicknesses of this product.

## 【Feature】

### ① Material

- A highly transparent OCA made of silicone adhesive, Excellent in low and high temperature characteristics.

### ② Adhesive properties

- This product is superior in rework characteristics by the light adhesion, and holding force is high.
- Low separator peeling force and excellent workability.

### ③ Optical properties

- High total light transmittance and excellent optical properties

[Application ideas]

①OCA applications for smartphones and automobiles

②Cushion material for building materials

# MGSi Properties ( I )

**Confidential**

Tab.1 MGSi (0.5mm) and general purpose acrylic OCA (0.5mm)  
properties comparison

Properties		Unit	MGSi	General purpose acrylic OCA
Peel strength	SUS	N/25mm	0.2	13.0
	Acrylic		0.1	8.5
	PC		0.1	10.2
	Glass		0.1	9.3
	PET		0.1	11.0
Holding force	SUS	Gap distance mm	0.0	0.0
Separator peeling force	Light release surface	N/50mm	0.08	0.20
	Heavy release surface		0.12	0.90
Optical properties	Total light transmittance	%	93	92
	Haze	%	0.5	0.3
	L*	—	97.1	96.9
	a*	—	0.0	0.0
	b*	—	0.3	0.2
	Refractive index	—	1.41	1.47

Features: MGSi is the light adhesion, and there is not the selectivity of the adherend, and the optical characteristic is equal than acrylic OCA .



# MGSi Propaerties (Ⅱ)

Tab.2 MGSi (0.5mm) and general purpose acrylic OCA (0.5mm)  
propaerties comparison

	Properties	Unit	MGSi	General purpose acrylic OCA
Mechanical property	Breaking strength	N/10mm	0.8	1.3
	Growth rate	%	282	721
Thermal property	Specific heat	J/g·K	1.69	1.83
	Thermal conductivity	W/m·K	0.17	0.19
	Glass transition temperature	°C	-40	-55
	Linear expansion rate	K <sup>-1</sup>	-2.4E-04	5.5E-04
Electrical property	Dielectric breakdown voltage	KV/mm	2<	
	Dielectric constant (1kHz)	—	2.32E-11	4.15E-11
	Dielectric constant (1MHz)	—	2.31E-11	3.42E-11

\* The dielectric constant is the value measured by sandwiching the tape with metal foil.

Features:

Electric characteristic: MGSi ≐ acrylic OCA

Thermal characteristics : MGSi ≐ acrylic OCA

Machine properties: MGSi < acrylic OCA (Breaking strength)



# MGSi Viscoelastic properties

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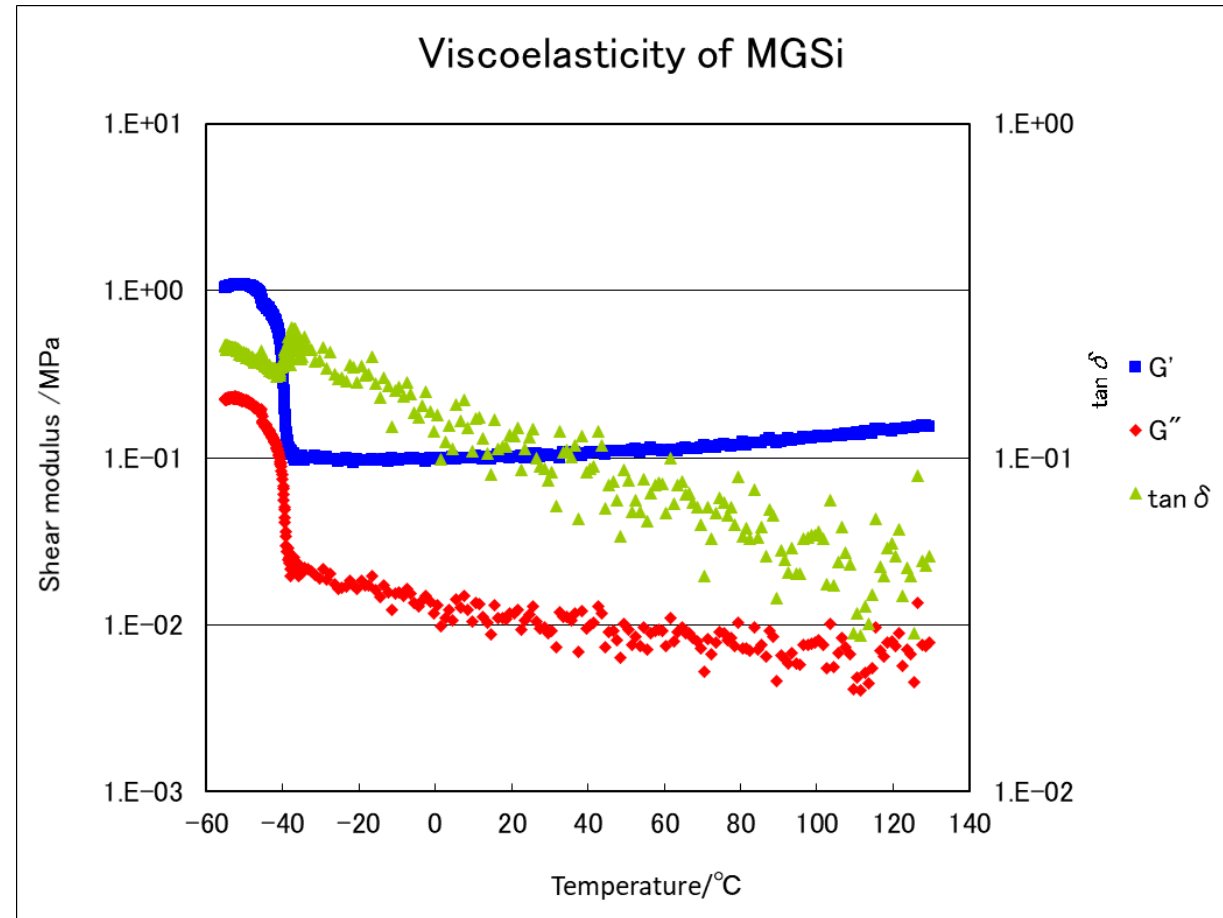


Fig.1 Viscoelastic property of MGSi (0.5mm)

Features : MGSi has a glass transition temperature of  $-40^{\circ}\text{C}$ .

The elastic modulus ( $G'$ ,  $G''$ ) also shows a stable value within the range of  $-40^{\circ}\text{C}$  to  $140^{\circ}\text{C}$ .



## MGSi Weather resistance

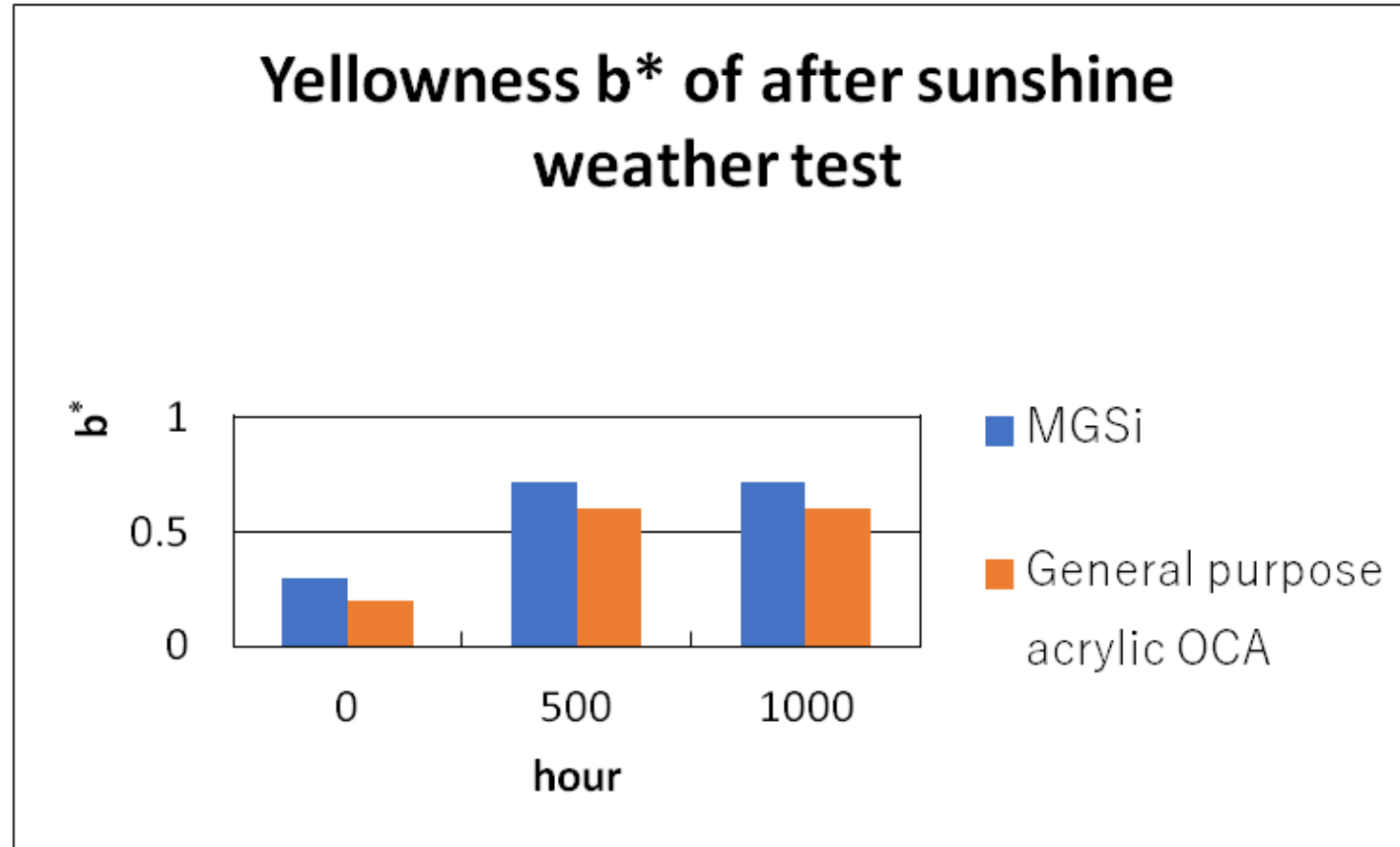


Fig.2 Yellowness  $b^*$  of MGSi and General purpose acrylic OCA after sunshine weather test

\*The measured value is 0.5 mm thick. \*Sunshine weather test is based on KGK method.

Features: MGSi shows equal yellowness  $b^*$  in comparison with acrylic OCA.

(MGSi  $b^*=0.7$ , General purpose acrylic OCA  $b^*=0.6$ )

And yellowness  $b^*$  of MGSi after 500 hours and General purpose acrylic OCA showed a tendency not to change.

# The appearance after the sunshine weather examination

MGSi



General purpose acrylic OCA

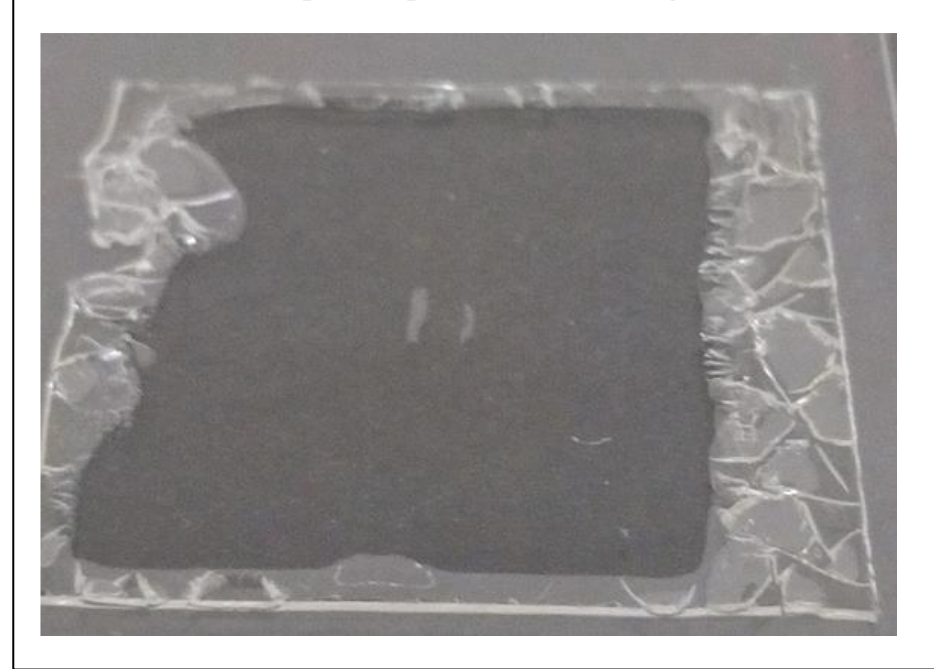


Fig.3 1000 hours after the sunshine weather examination of MGSi and General purpose acrylic OCA

Features: MGSi has fewer changes of the edge than acrylic OCA and is superior in weatherability.

## Conclusion

- MGSi is superior to General purpose acrylic OCA in rework characteristics and is superior in a low and high temperature characteristic.
- In addition, the weather resistance to heat and UV rays is superior to General purpose acrylic OCA with less change in appearance.

From the above ,  
Can be used at low to high temperatures for applications requiring weather resistance.



# End of presentation

User is responsible for determining whether the KGK product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a KGK product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a KGK product. Given the variety of factors that can affect the use and performance of a KGK product, some of which are uniquely within the user's knowledge and control,

It is essential that the user evaluate the KGK product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

KGK make no warranties on above data.

KGK Chemical Corp.  
940 Minaminagai Tokorozawa-City saitama-Pref  
359-0011 Japan  
Tel : +81 4 2944 5151  
Mail : [postbox@kgk-tape.co.jp](mailto:postbox@kgk-tape.co.jp)  
URL : <http://www.kgk-tape.co.jp/>

