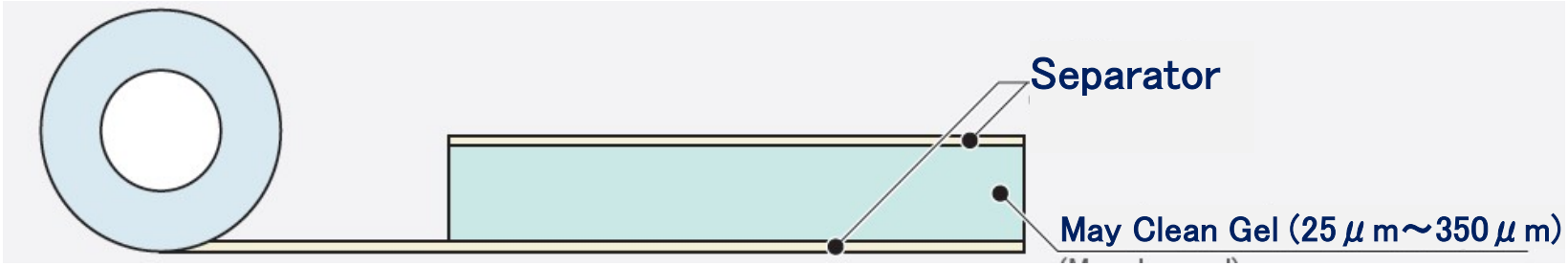
ORGANIC GLASS 

Ma y Clean Gel Data

What is May Clean Gel

＜Summary＞

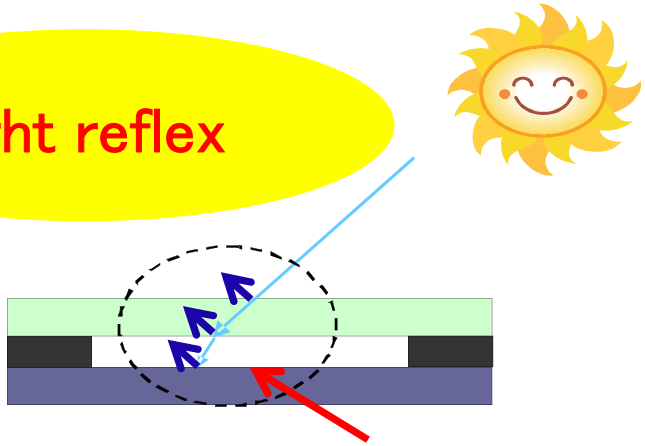
Acrylic bonding tape for optical gel technology are making our own.
High transparency, high cohesive strength, adhesive tape.



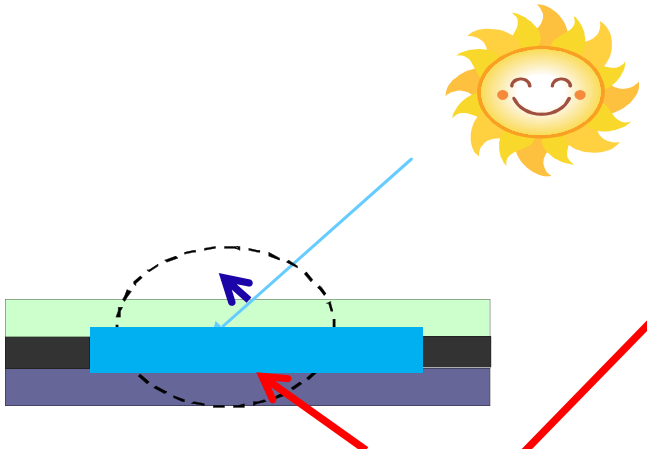
The effect of May Clean Gel

When light invades the atmospheric layer from Panel,
Loss of the light by the light reflex occurs.

light reflex



Without May Clean Gel

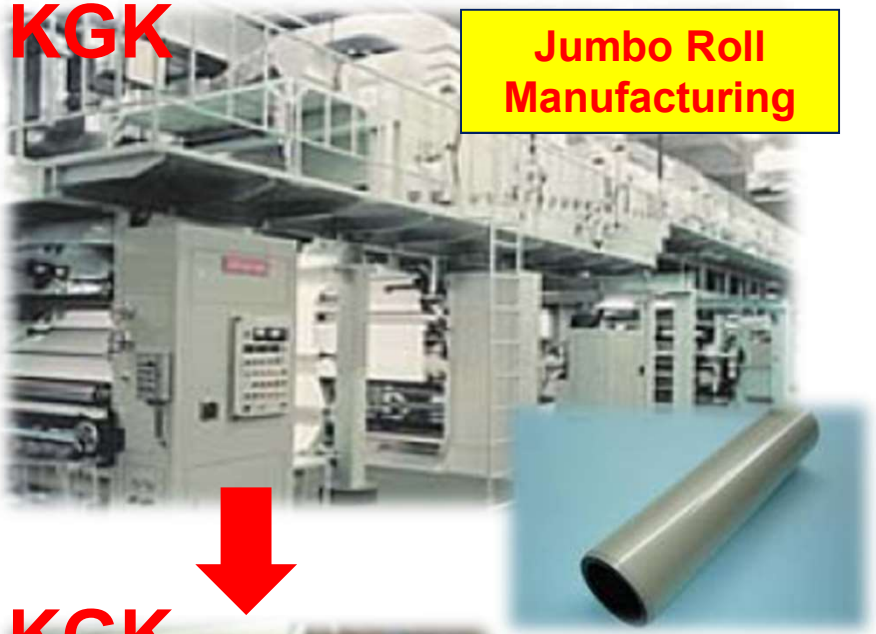


With May Clean Gel

May Clean Gel →
Improvement of the visibility

Supply chain

KGK



Jumbo Roll Manufacturing

KGK Partner

Slitting Die cut

Provide for Set Maker Module Maker

MGCS Series (General purpose type)

Product	Thickness (mm)	Peel strength (N/25mm Glass)	PET Liner Release force (N/50mm)	Optical properties				
				Total light transmittance (%)	Haze (%)	a*	b*	Refractive index
MGCS2.5	0.025	7	Low peel strength 0.3 High peel strength 0.7	92(※99) ※( )Calculated value without interface reflection loss	0.3	0.5	0.5	1.47
MGCS5	0.05	8						
MGCS7.5	0.075	9.5						
MGCS10	0.1	11						
MGCS12.5	0.125	14						
MGCS15	0.15	20						
MGCS17.5	0.175	25						
MGCS20	0.2	27.5						
MGCS25	0.25	30.5						
MGCS30	0.3	31						
MGCS35	0.35	32.5						

MGSF Series （Acid free, High Grade, Reliability）

Product	Thickness (mm)	Peel strength (Glass)	PET Liner Release force (N/50mm)	Optical properties				
				Total light transmittance (%)	Haze (%)	a*	b*	Refractive index
MGSF2.5	0.025	11	Low peel strength 0.3 High peel strength 0.7	92(※99) ※( )Calculated value without interface reflection loss	0.3	0	0.7	1.47
MGSF5	0.05	13						
MGSF7.5	0.075	15						
MGSF10	0.1	20						
MGSF12.5	0.125	21						
MGSF15	0.15	21						
MGSF17.5	0.175	22						
MGSF20	0.2	22.5						
MGSF25	0.25	23						
MGSF30	0.3	26						
MGSF35	0.35	30						

MGSR Series （OCA for Automotive and Resin plate）

Product	Thickness (mm)	Peel strength (Glass)	PET Liner Release force (N/50mm)	Optical properties				
				Total light transmittance (%)	Haze (%)	a*	b*	Refractive index
MGSR2.5	0.025	7	Low peel strength 0.3 High peel strength 0.7	92(※99) ※( )Calculated value without interface reflection loss	0.3	0	0.68	1.47
MGSR5	0.05	8						
MGSR7.5	0.075	9						
MGSR10	0.1	10						
MGSR12.5	0.125	14						
MGSR15	0.15	19						
MGSR17.5	0.175	23						
MGSR20	0.2	23.5						
MGSR25	0.25	24						
MGSR30	0.3	28						
MGSR35	0.35	29						

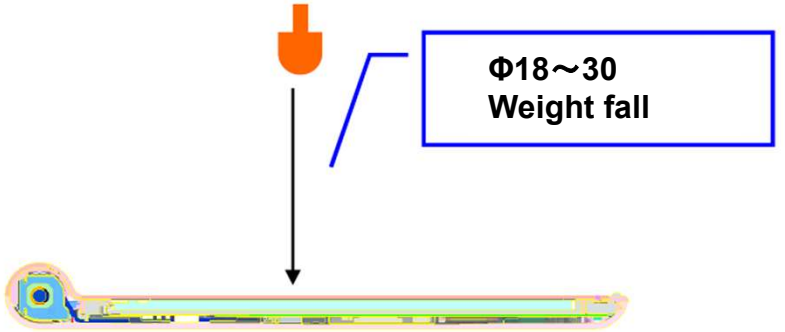
Reliability Data

Item		Optical properties		
		85℃×240h	70℃×90%RH ×240h	−40℃⇔85℃ 50Cycle
Optical properties	TT	92.7	92.2	92.5
	Haze	1.67	1.17	1.49
	a*	−0.53	−0.51	0.45
	b*	0.5	−0.52	0.53
Peel strength (Glass)	N/25mm MGCS17.5 (Glass)	23.9	16.2	18.7
Change in ITO resistance value	85℃×85%RH×120h		MGCS	≦15%
			MGSF	≦5%
			MGSR	≦15%

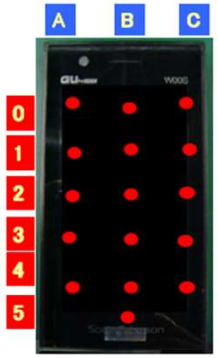
※Please refer to P8 for Test method (Increase of ITO Film impedance value)

Shock absorption properties

●Test method



・Evaluation parts



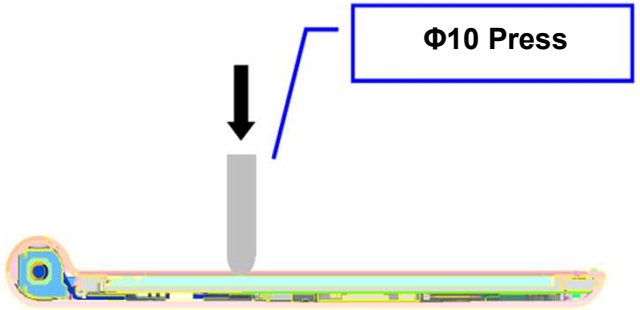
●Test results（n=2）

		With out May Clean Gel	With May clean Gel
Destruction parts			
Value	1	55cm	95cm
	2	55cm	95cm

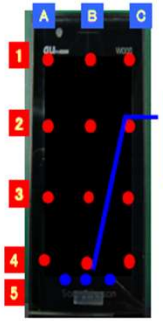
2 times as many improvement

Anti static load properties

●Test method



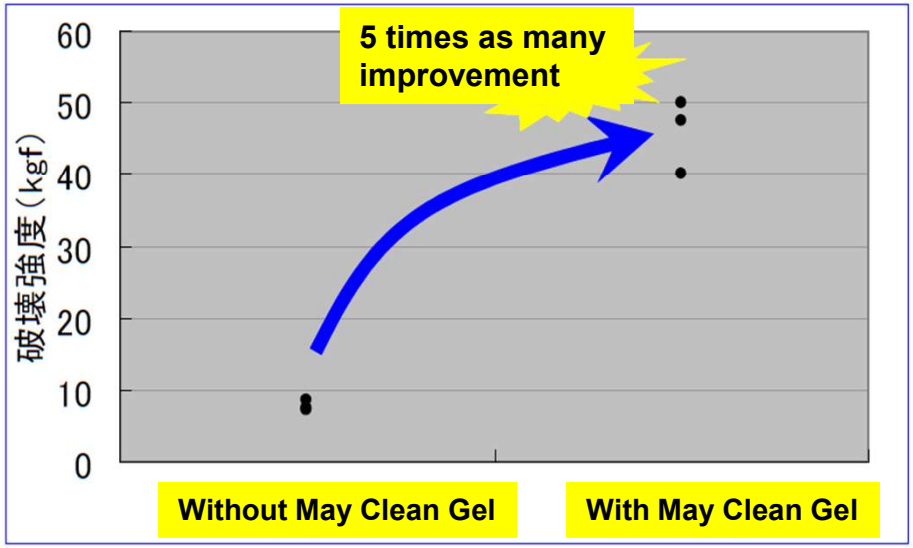
・Evaluation parts



Prevention of the LCD destruction by the strong shock to a screen

●Test results（n=3）

加工有無によらず、基準をクリア ⇒ 実力値の確認を実施



General physical properties

Property		Test method	Value	Unit
Physical property	Specific gravity	JIS K 6911	0.92	-
	Percentage of absorption	-	0.20	%
Mechanical property	Tensile Strength	JIS K 7162	0.44	MPa
	Pupture elongation percentage	JIS K 7162	230	%
	Compression coefficient of elasticity	JIS K 6254	10	MPa
	Hardness	JIS K 6253	E25	°
Thermal property	Thermal conductivity	Katharometer	0.19	W/m・K
	Specific heat	JIS K 7123	1.83	J/g・K
	Tg	Rheovibron	-40	℃
	Coefficient of thermal expansion	ASTM D696	5.5×10^{-4}	K^{-1}
Electric property	Electrical resistivity	ASTM D 257	2.85×10^{12}	Ω・cm
	Breakdown strength	JIS C 2110	28	KV/mm
	Permittivit(kHz)	JIS C 2131	4.6	1kHz
	Specific gravity	JIS C 2131	2.7	1MHz

Dielectric constant properties

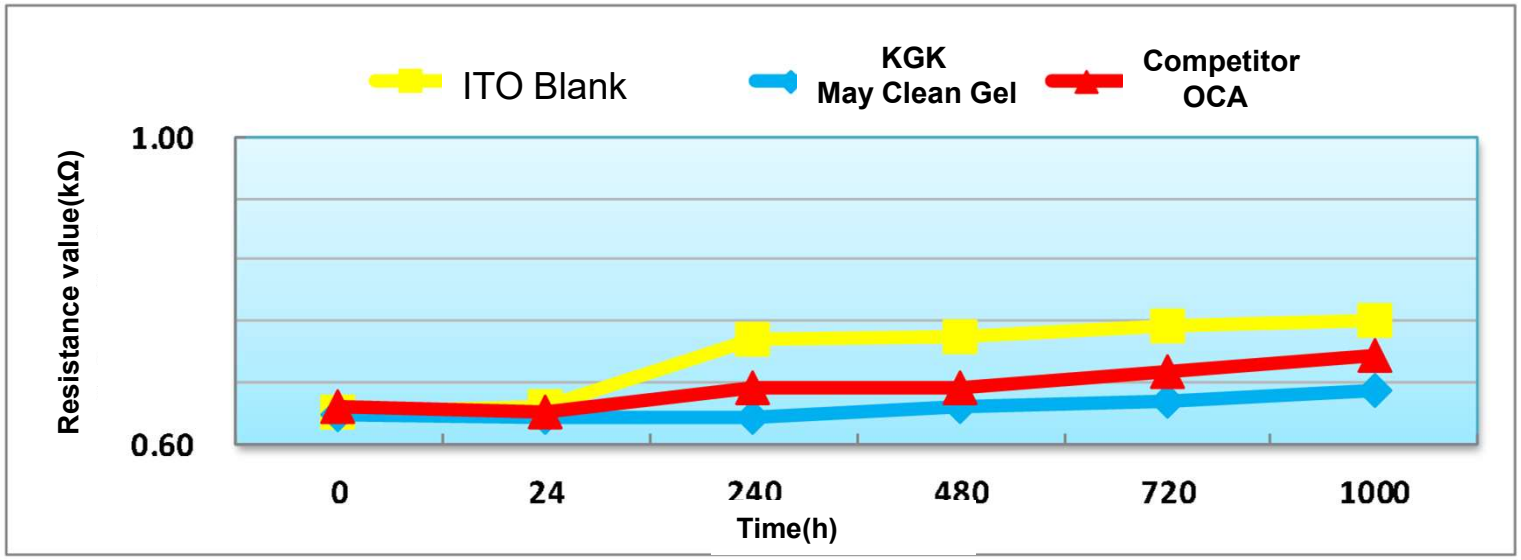
The dielectric constant of KGK products is superior to the product of the other company.

Product		Test method	Value
KGK May Clean Gel	Dielectric constant 23℃ 100kHz	JIS C 2131	2.9
Competitor OCA			4.5

Measuring method: contact electrode method
Measuring divice : Agilent 4294A(4284)

Low dielectric constant properties

Resistance deterioration test on ITO film



Product	n	Time(h) 0	24	240	480	720	1000
ITO Blank	①	0.62	0.62	0.78	0.76	0.76	0.76
	②	0.66	0.67	0.70	0.72	0.75	0.76
	Av.	*0.64*	*0.65*	*0.74*	*0.74*	*0.76*	*0.76*
KGK May Clean Gel	①	0.64	0.62	0.63	0.65	0.65	0.66
	②	0.64	0.65	0.64	0.65	0.66	0.68
	Av.	*0.64*	*0.63*	*0.64*	*0.65*	*0.66*	*0.67*
Competitor OCA	①	0.65	0.65	0.68	0.68	0.71	0.71
	②	0.64	0.63	0.67	0.67	0.68	0.72
	Av.	*0.65*	*0.64*	*0.67*	*0.67*	*0.70*	*0.72*

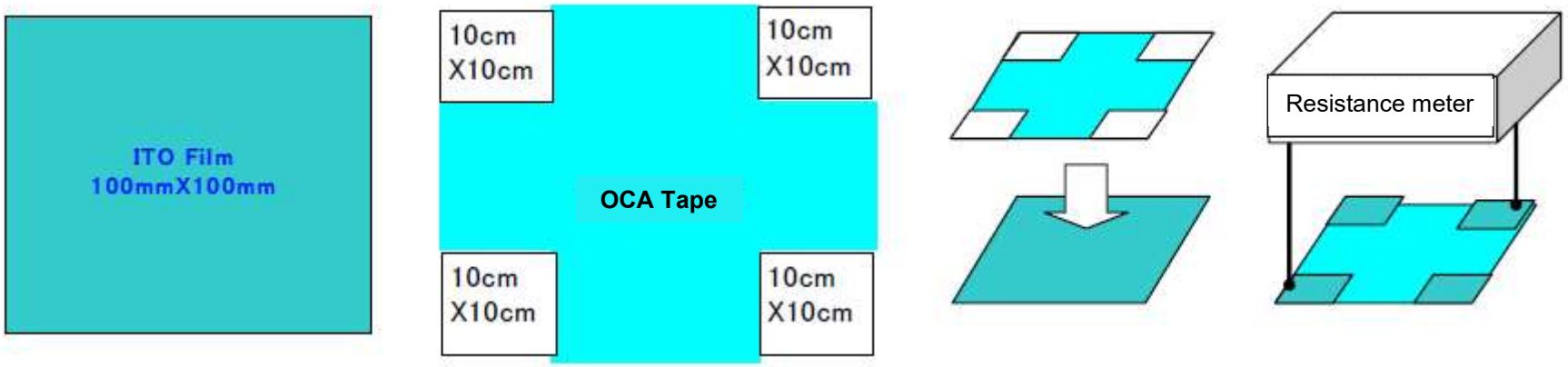
Low resistance value compared with competitors

Test method
(Resistance deterioration test on ITO film)

Resistance of I TO surface by fitting May Clean Gel

Test condition：85℃×85%RH×1000h

Test ITO film
SV-pITO (product from sanyo shinku)
Thickness 188 μm



Condition of resistance test
After ITO-film fit to MGSF, measure the resistance of surface on ITO

The definition of non-acid Gel (OCA) products
be less than 10% of a surface resistance value rate of change

Ink step absorption properties

Step of ink								
Product	Thickness(t)	10 μm	20 μm	30 μm	40 μm	50 μm	60 μm	70 μm
MGCS10	0.1t	○	○	×	×	×	×	×
MGCS12.5	0.125	○	○	○	×	×	×	×
MGCS17.5	0.175t	○	○	○	○	×	×	×
MGCS20	0.2t	○	○	○	○	○	×	×
MGCS25	0.25t	○	○	○	○	○	○	×
MGCS35	0.35t	○	○	○	○	○	○	○
MGSF10	0.1t	○	○	×	×	×	×	×
MGSF12.5	0.125	○	○	○	×	×	×	×
MGSF17.5	0.175t	○	○	○	○	×	×	×
MGSF20	0.2t	○	○	○	○	○	×	×
MGSF25	0.25t	○	○	○	○	○	○	×
MGSF35	0.35t	○	○	○	○	○	○	○

Step of ink								
Product	Thickness(t)	10 μm	20 μm	30 μm	40 μm	50 μm	60 μm	70 μm
MGSRT10	0.1t	○	×	×	×	×	×	×
MGSRT12.5	0.125	○	○	×	×	×	×	×
MGSRT17.5	0.175t	○	○	○	×	×	×	×
MGSRT20	0.2t	○	○	○	○	×	×	×
MGSRT25	0.25t	○	○	○	○	○	×	×
MGSRT35	0.35t	○	○	○	○	○	○	×
MGSFN10	0.1t	○	○	○	×	×	×	×
MGSFN12.5	0.125	○	○	○	○	×	×	×
MGSFN17.5	0.175t	○	○	○	○	○	×	×
MGSFN20	0.2t	○	○	○	○	○	○	×
MGSFN25	0.25t	○	○	○	○	○	○	○
MGSFN35	0.35t	○	○	○	○	○	○	○

Recommended laminate condition

Degree of vacuum 100pa × Pressure 0.3Mpa × Time 7sec

【Postwork : Recommended autoclave condition）】

Temperature × Pressure）× Time ： 40℃ × 0.5Mpa × 30min

Rework Condition

70℃ Hotplate × 2min × wire

Track record to Automotive display

FCA
FIAT CHRYSLER AUTOMOBILES

NISSAN

TOYOTA

mazda

JAGUAR

Track record to Automotive display

Lamination of touch sensor

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.

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