

Functional hard coated film

HA series (with adhesive) · H series

Various functions can be added by thin film wet coating technology. Wide variety of coating formulations are available for various applications. In addition to the clear type, low reflection type and anti-glare type, we also have a lineup of special grades that improve the writing quality of the touch pen.

Composition

HA series (with adhesive)

H series

We are able to support a variety of applications by combining our core technologies of "Surface Modification Technology," "Adhesive Technology," and "Release liner Technology." Various films such as stretched plastic films and cast films are used as base film.

Various technologies for functional hard coated films

Clear/Anti-glare/Anti-reflective type
 Suppresses the decrease in visibility from the reflection of outside light on the screen.
 For anti-glare type, we offer a line-up of high anti-glare and high-definition grades.

Clear type

Anti-glare type (High anti-glare type)

Anti-glare type (High definition anti-glare type)

Anti-sparkling type
 Applying to high-definition displays enables suppression of dazzle.

Fingerprint-resistant type (Fingerprint removability type and visual noticeability type)
 We have two approaches as below for fingerprint-resistant films which are applied to the surface layer of displays.

Water-repellent type (Fingerprint removability type)

Before wiping

After wiping

Water contact angle

Contact angle Water: 105.6°, Oleic acid: 68.4°

Lipophilic type (Visual noticeability type)

Fingerprint on normal hard coat

Fingerprint on lipophilic hard coat

Oleic acid contact angle

Contact angle Water: 60.6°, Oleic acid: 20.8°

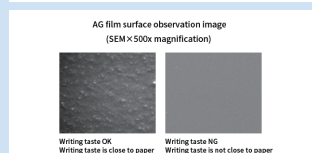
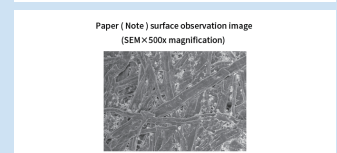
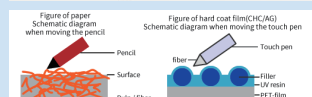
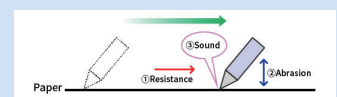
Anti-water marking and anti-Newton ring type

Water marks that occur in air gap-type touch panel devices lead to a drop in the visibility. In our coating products, the material designs take into account of the suppression of interference fringes.



High writability type

Tablet PCs for educational purposes and other devices that allow writing on the screen with a touch pen have become widespread. In order to make writing on them feel natural, we focused on the resistance and vibration when writing with a pencil on paper.



Antibacterial·Anti virus type

Test item	Result	Test method	SIAA Certification number
Antibacterial	Staphylococcus aureus Over 99% reduction	JIS Z 2801	<p>Based on the result of tests conducted in accordance with the ISO 22196 international standard, SIAA marks can only be used for products which conform the guideline formulated by the Society of International sustaining growth for Antimicrobial Articles (SIAA).</p>
	Escherichia coli Over 99% reduction		
Anti virus	Specific Over 99% reduction	ISO 21702	<p>Based on the result of tests conducted in accordance with the ISO 21702 international standard, SIAA marks can only be used for products which conform the guideline formulated by the Society of International sustaining growth for Antimicrobial Articles (SIAA).</p>

※Notes (1)Anti virus coating is not intended to treat or prevent disease. (2)Meets SIAA safety standards. The values reported in the data are actual measured values and not guaranteed.

Product Line-up

Type	Product name	Haze[%] ⁽¹⁾	Total Transmittance[%] ⁽²⁾	Reflectance[%] ⁽³⁾	Pencil hardness ⁽⁴⁾	Scratch resistance ⁽⁵⁾	備考
Anti-Glare Type	(Low definition / high anti-glare)	HA203	9.3	90	-	2H	○
	(High definition / low anti-glare)	HA239	5.5	90.5	-	3H	○ Improved fingerprint removability
	(High definition / low anti-glare)	HA239LR	8.2	94	0.9	3H	○ Low-Reflection Improved fingerprint removability
Clear	HA149	0.8	91.2	-	2H	○	Improved fingerprint removability
	HA137	0.3	91	-	H	○	Anti-water marking
Improved writability type	HA245	19.7	89.1	-	2H	○	High writability type

(1) Measuring method : JIS K 7136 (2) Measuring method : JIS K7361-1 (3) Measure the reflectance of the visible light spectrum with a spectrophotometer, and took the lowest value as reflectance. (4) Measuring method : JIS K5600-5-4(750g load), Film only (5) Measuring method : SW#0000, 250g/cm2, load 10 round trips The values reported in the data are actual measured values and not guaranteed.