

Standard Hard-coated film



This is a **Standard hard-coated film** in which a protective hard coating layer is applied to PET film.
It features oleophilic properties and chemical resistance.

Feature

- Surface Protection
- Oleophilic Property
- Chemical Resistance

Application Example

- Whiteboard

Structure

Hard-coated layer

50 μ m PET film

Others

- Existing product available

Structure	50 μ m PET/HC
Total Light Transmittance (%)	90% or more
Haze (%)	1% or less
Pencil Hardness (100g load)	H
Suitability for whiteboard applications	Appropriate
Sample (A4 size)	Please contact us if needed.

*The above values are typical properties and not guaranteed specifications.



Standard hard-coated film

Anti-Glare type

A hard-coated film that **suppresses reflections** on displays and enables **frosted-glass effects** by adjusting haze levels. It also offers **scratch-resistant properties**.

Feature

- Surface Protection
- Reflection Control (Haze Adjustable)
- Frosted-glass effects

Application Example

- Displays (Smartphones, Tablets, PCs, etc.)
- Window glass (Frosted finish)

Structure

Hard-coated layer

PET film

Others

Existing product available
(Haze 5%・Haze 30%)

Structure	PET/HC
Total Light Transmittance (%)	90% or more
Haze (%)	5–80% (adjustable)
Pencil Hardness (750g load)	H
Scratch resistance ^{a)}	No visible scratches
Sample (A4 size)	Available

a) Tested with 200g load / 100 reciprocations using steel wool #0000.

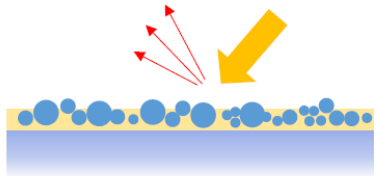
*The above values are typical properties and not guaranteed specifications.



Hard-Coated Film [UnderDevelopment] Anti-glare (non-filler) type

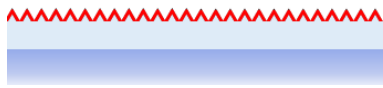
This AG (Anti-Glare) hard coated film is designed to **reduce reflections** from external light sources on displays. Utilizing a **non-filler manufacturing method (without using particles)**, it **effectively suppresses screen "Sparkling."** The uniformly shaped surface also provides **smooth finger glide** for enhanced usability.

Filler Dispersion
(General Anti-Glare Film)



The uneven surface scatters reflected light, providing anti-glare performance.

Non-Filler Anti-Glare Film



Forms a uniform surface

Feature

- Surface Protection
- Reduce reflections (Haze level can be adjusted)
- Suppresses screen "Sparkling"
- Smooth finger glide

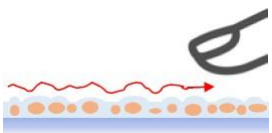


Screen "Sparkling" **Appears**

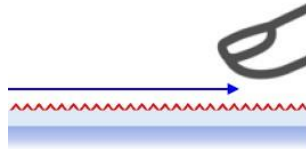


Screen "Sparkling" **Not Appears**

Smooth finger glide:
Poor



Smooth finger glide:
Excellent



Structure	125·188 μ m PET/HC
Haze (%)	7%
Suppresses screen "sparkling."	Excellent
Pencil Hardness (750g load)	2H
Scratch resistance a)	Good
Smooth finger glide	Excellent
Sample (A4 size)	Available

a) Tested with 1kg load / 1000 reciprocations using steel wool #0000
*The above values are typical properties and not guaranteed specifications

Application Example

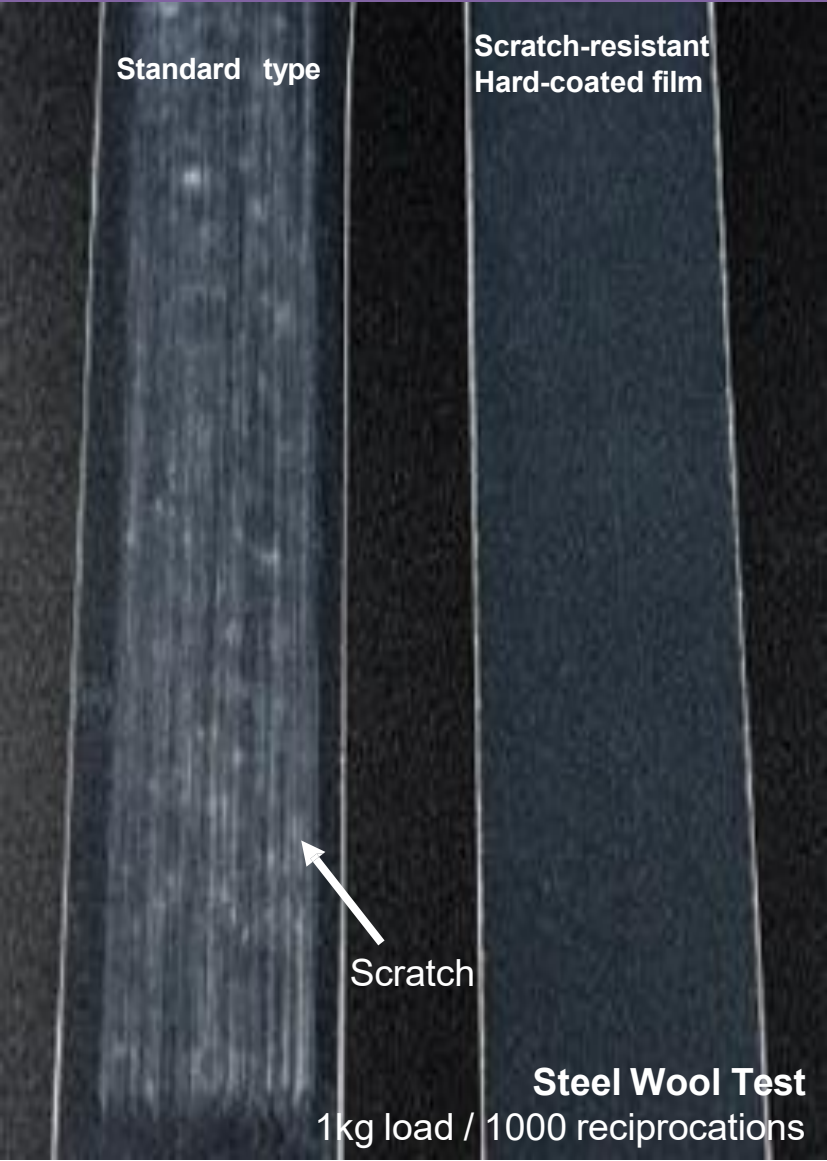
- Automotive Display
- Smartphones, Tablets, PCs, etc.
- Touchscreen devices

Structure

Hard-coated layer
125 μ m · 188 μ m PET film

Scratch-resistant Hard-coated film

This is a **Scratch-resistant hard-coated film** designed to minimize surface abrasions. It features **anti-fingerprint** and **water-repellent properties**, providing excellent surface protection.



Feature

- Surface Protection
- Scratch-Resistant
- Anti-fingerprint
- Water-Repellent Properties
- Anti-curl

Application Example

- Automotive Display
- Other Displays
(Smartphones, Tablets, PCs, etc.)

Structure

Hard-coated layer

PET film

Others

Existing product available (100 μm)
(Thickness options: 75μm, 125μm, and 188μm available)

Structure	PET/HC
Total Light Transmittance (%)	90% or more
Haze (%)	0.3%
Pencil Hardness (750g load)	3H
Scratch resistance a)	No visible scratches
Water contact angle	110°
Sample (A4 size)	Available

a) Tested with 1kg load / 1000 reciprocations using steel wool #0000.
*The above values are typical properties and not guaranteed specifications.



High Hardness+ Scratch Resistance+ Flexibility

Hard-Coated Film

- High hardness, Scratch resistance, and Excellent flexibility.
- High fingertip glide and water contact angle
- Our unique hard-coating technology achieves low curl even with single-sided coating..
- Excellent flexibility also ensures superior post-processing performance.

Feature

- High Hardness
- Scratch Resistance
- Low Curl
- Single-Side HC Type

Application Example

- Automotive Displays
- Smartphones
- Tablets & PCs
- Touch Panels & Home Appliances

Structure

Hard-coated layer

100 μ m
PET film

Structure	50~188 μ mPET/HC
Total Light Transmittance (%)	90% or more
Haze(%)	Approx.0.3%
Pencil Hardness (750g load)	8H
Scratch resistance a)	20,000 cycles
Water contact angle (°)	108
Sample (A4 size)	Available (100 μ mPET/3H or 8H)

a) Load: 1 kg, Steel Wool #0000

*The above values are typical properties and not guaranteed specifications.

This product can be customized.
Please see the next page for details.



High Hardness+ Scratch Resistance + Flexibility

Hard coated film

Customization

By adjusting the PET film thickness and hard-coating conditions, the pencil hardness can be customized to meet your requirements. This Hard coated film offers high flexibility to accommodate a wide range of applications.

		The pencil hardness (750g weight)					
		4H	5H	6H	7H	8H	9H
PET thickness	50μm	Available	Available	Available	Available	Available	N/A
	100μm	Available	Available	Available	Available	Available	Available
	188μm	Available	Available	Available	Available	Available	Available

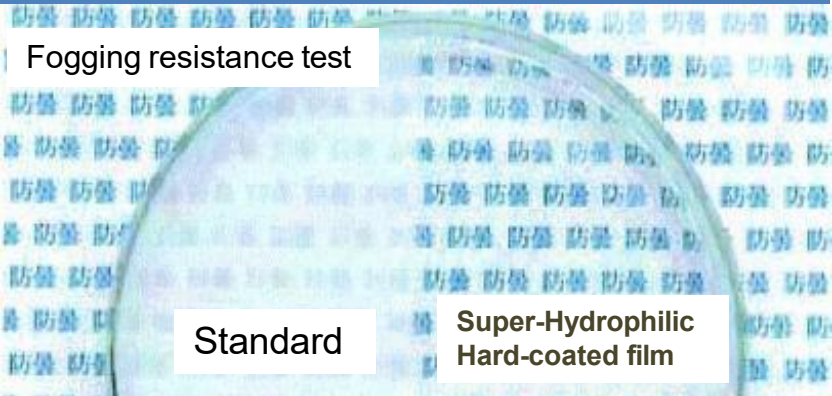


Super-Hydrophilic Hard-coated film

This is a hard-coated film with a **Super-Hydrophilic** surface.

It offers **self-cleaning** properties such as **anti-fogging**, **anti-fouling**, and **condensation prevention**.

The hard coating also provides **excellent durability**.



Feature

- Anti-Fogging
- Anti-Fouling
- Condensation Prevention
- Self-Cleaning

Application Example

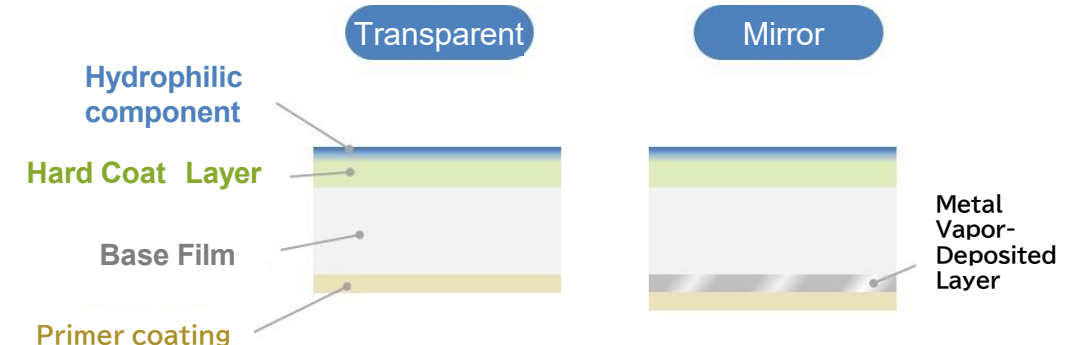
- Bathroom Mirror
- Automotive Side Mirrors

Others

Existing product available (50 μm)
(Thickness can be customized upon request.)

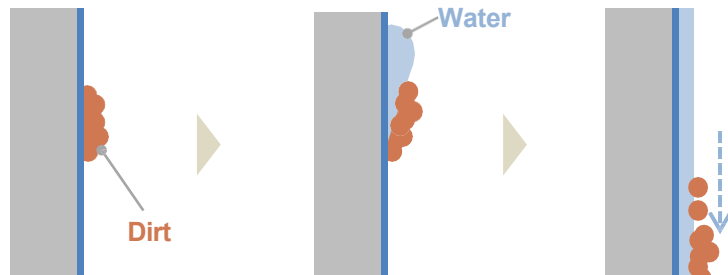
	Transparent type	Mirror-like (Metallic Gloss)
Total Light Transmittance (%)	91% or more	—
Haze (%)	0.7% or less	—
Reflectance (%)	—	75% or more
Scratch resistance	Good	Good
Pencil Hardness (750g load)	F	F
Sample (A4 size)	Available	Please contact us if needed.
Water contact angle	$\approx 5^\circ$	$\approx 5^\circ$

*The above values are typical properties and not guaranteed specifications.



What is Super-Hydrophilicity?

Due to its **extremely low water contact angle**, water spreads easily across the surface.



Water penetrates between the dirt and the hydrophilic surface layer, lifting the dirt away — enabling a self-cleaning effect.

Mirror type Hard-coated film



This is a silver-colored film with **mirror-like reflectivity**.
It features surface protection, scratch resistance, anti-fingerprint,
and water-repellent properties.

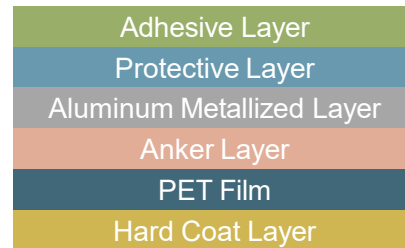
Feature

- Surface Protection
- Anti-fingerprint
- Water-Repellent Properties

Application Example

- **Mirror alternative**
- Entrance areas
- Behind doors Washstands

Structure



Others

- Existing product available
- The Hard Coat Layer can be customized.
(e.g., Anti-fog coating, etc.)

Structure	Adhesive / Protective Layer / Al / AC / PET / HC (VHC-4)
Gloss Level (at 60°)	750
Pencil Hardness (750g load)	H
Scratch resistance a)	No visible scratches
Anti-fouling	GOOD
Sample (A4 size)	Available

a) Tested with 200g load / 100 reciprocations using steel wool #0000

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