

# 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 $\mu$ m PET film

## Others

- Existing product available

<b>Structure</b>	50 $\mu$ m PET/HC
<b>Total Light Transmittance (%)</b>	90% or more
<b>Haze (%)</b>	1% or less
<b>Pencil Hardness (100g load)</b>	H
<b>Suitability for whiteboard applications</b>	Appropriate
<b>Sample (A4 size)</b>	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%)

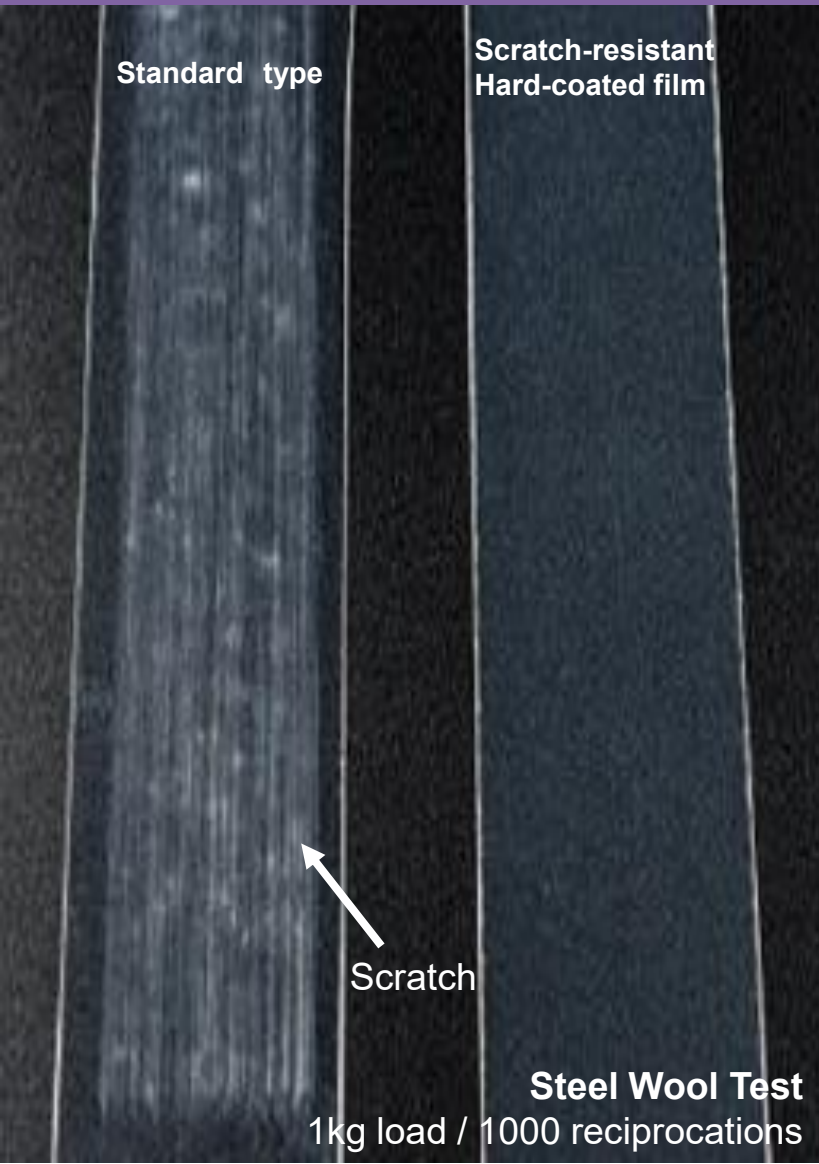
<b>Structure</b>	PET/HC
<b>Total Light Transmittance (%)</b>	90% or more
<b>Haze (%)</b>	5–80% (adjustable)
<b>Pencil Hardness (750g load)</b>	H
<b>Scratch resistance <sup>a)</sup></b>	No visible scratches
<b>Sample (A4 size)</b>	Available

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

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

# 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



## Others

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

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

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

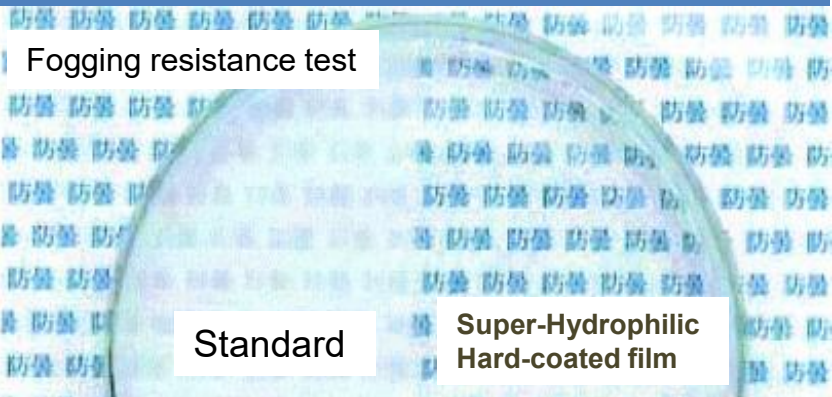


# Super-Hydrophilic Hard-coated film

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

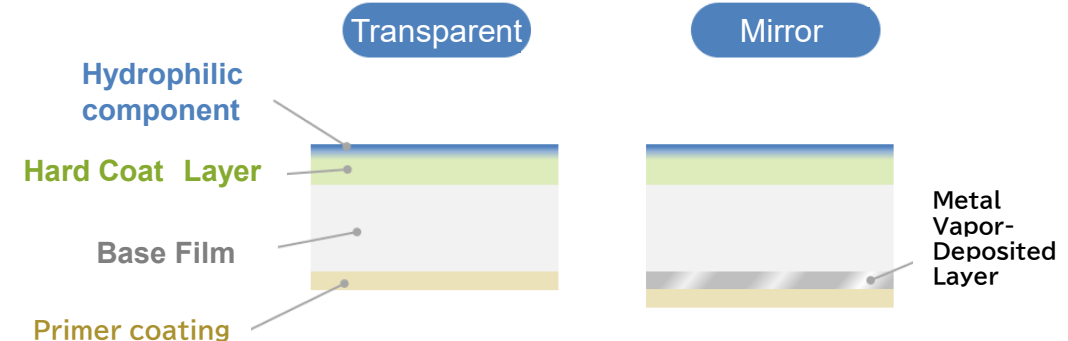
- Bathroom Mirror
- Automotive Side Mirrors

## Others

Existing product available (50  $\mu\text{m}$ )  
(Thickness can be customized upon request.)

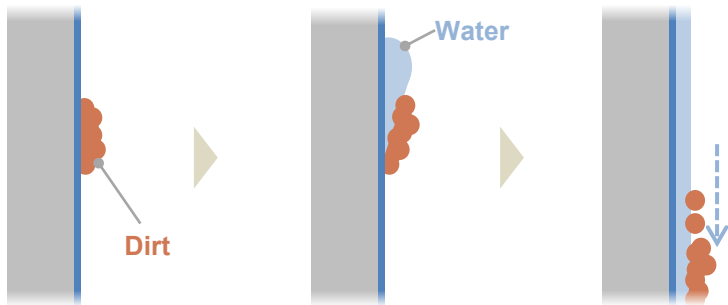
	Transparent type	Mirror-like (Metallic Gloss)
<b>Total Light Transmittance (%)</b>	91% or more	—
<b>Haze (%)</b>	0.7% or less	—
<b>Reflectance (%)</b>	—	75% or more
<b>Scratch resistance</b>	Good	Good
<b>Pencil Hardness (750g load)</b>	F	F
<b>Sample (A4 size)</b>	Available	Please contact us if needed.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

\*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 Film

## XXX(VHC-MR (Mirror))

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

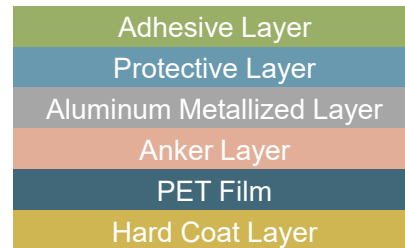
### Feature

- 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.)

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

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

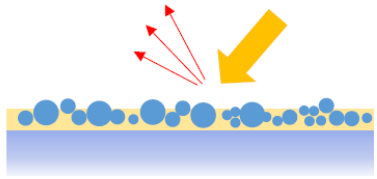
\*The above values are typical properties and not guaranteed specifications



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

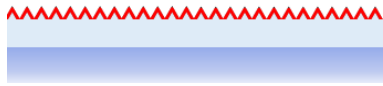
This AG (Anti-Glare) hard coated film is designed to **reduce reflections** from external light sources on displays. Utilizing a **non-filler manufacturing method (without using particles)**, it **effectively suppresses screen "Sparkling."** The uniformly shaped surface also provides **smooth finger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

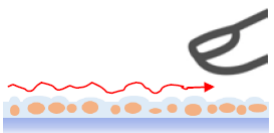


Screen "Sparkling" **Appears**

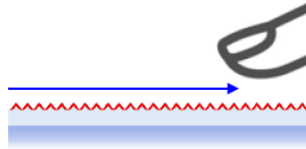


Screen "Sparkling" **Not Appears**

Smooth finger glide:  
**Poor**



Smooth finger glide:  
**Excellent**



Structure	125·188 $\mu$ mPET/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

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## Application Example

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

## Structure

Hard-coated layer

125 $\mu$ m · 188 $\mu$ m PET film