New

Water-Repellent Coating

Tentative Name:

Dev-02-003

(*The name is subject to change before mass production)

～ 100% Fluorine-Free ～

Designed to Meet Your Application Needs

- **Excellent Initial Performance**
- **Quite Good Durability : >4x vs. Previous Product**
- **Built for a PFAS-regulated Future**

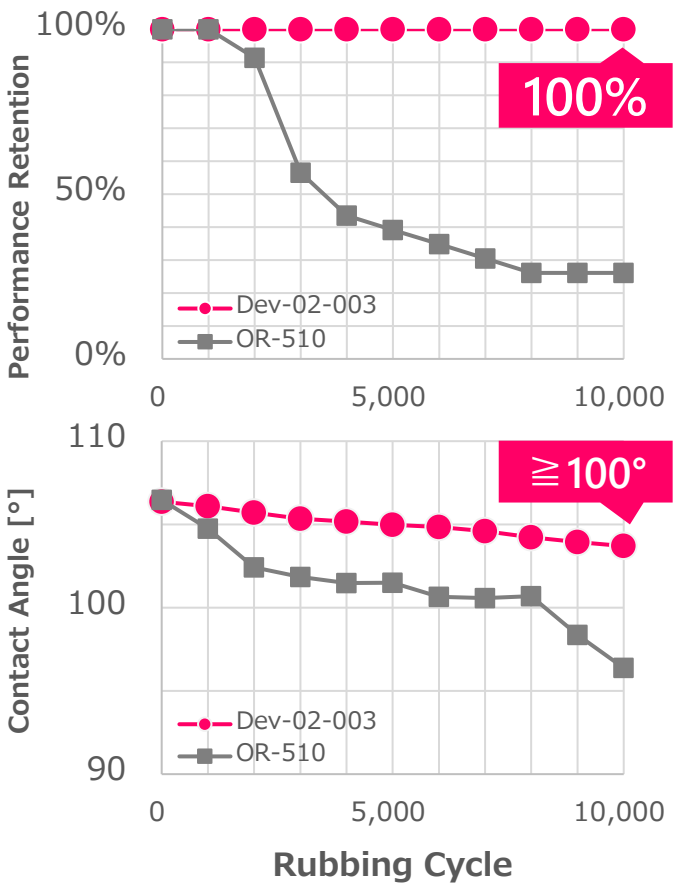
supplied in φ18mm
Cu-cup form

Features

Fluorine-free with Fluorine-like functionality

- **Abrasion Resistance** :Enhanced durability against friction
- **Water Repellent** :Prevents water droplets from adhering
- **Antifouling** :Improved removal of fingerprints and sebum
- **Water Sliding** :Smooth water run-off

Comparison of Performance Retention over Rubbing Cycles (New vs. Previous)



Test Item		Dev-02-003	OR-510
C.A. (2.5μL)	Water	109°	108°
	Hexadecane	37°	37°
S.A.	Water (30μL)	1°	1°
Dynamic friction coefficient A)		0.10	0.10
Performance Retention B) after 10,000 cycles		**100%**	23%
Solvent resistance C)		107°	108°

Data obtained from deposition on a BK7 glass substrate.

A) Measured at 2.5 mm/sec under a 50 g load using nonwoven fabric as the friction material.

B) Percentage of nonwoven samples that retained a water contact angle of ≧ 80° under 1kgf/cm² pressure.

C) Contact angle after wiping the membrane surface 100 times with ethanol-soaked nonwoven fabric.

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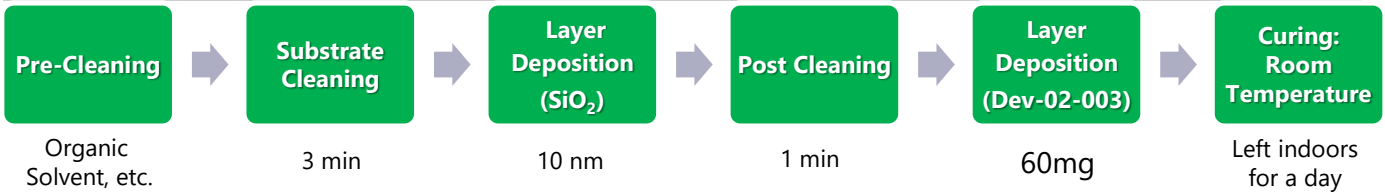
Our Best Practice

To maximize the performance of Dev-02-003

Film Deposition Method



Film Deposition Conditions

Material	
Antifouling layer	Dev-02-003 (60mg)
Conditions	
Method	Vacuum evaporation
Chamber diameter (mm)	1300
Evaporating distance (mm)	1080
Evaporation source	Dev-02-003: Resistance heating
Substrate for deposition	Lens or substrate formed with SiO_2 film, followed by deposition of Dev-02-003 layer
Post Cleaning (after SiO_2 layer deposition)	Ion beam cleaning Beam Voltage: 500 V Beam Current: 500 mA Oxygen gas flow: 40 sccm Argon gas flow: 10 sccm Duration: 1 min
Starting vacuum level (Pa)	$\leq 7.0 \times 10^{-4}$
Oxygen introduction (Pa)	None
Ion assist	None
Substrate heating temperature (°C)	Room temperature
Deposited physical thickness	Until the target thickness is reached (as set)

Resistance heating conditions (Dev-02-003)		
	Current (A)	Time
Evaporation	200	Until all components evaporate

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