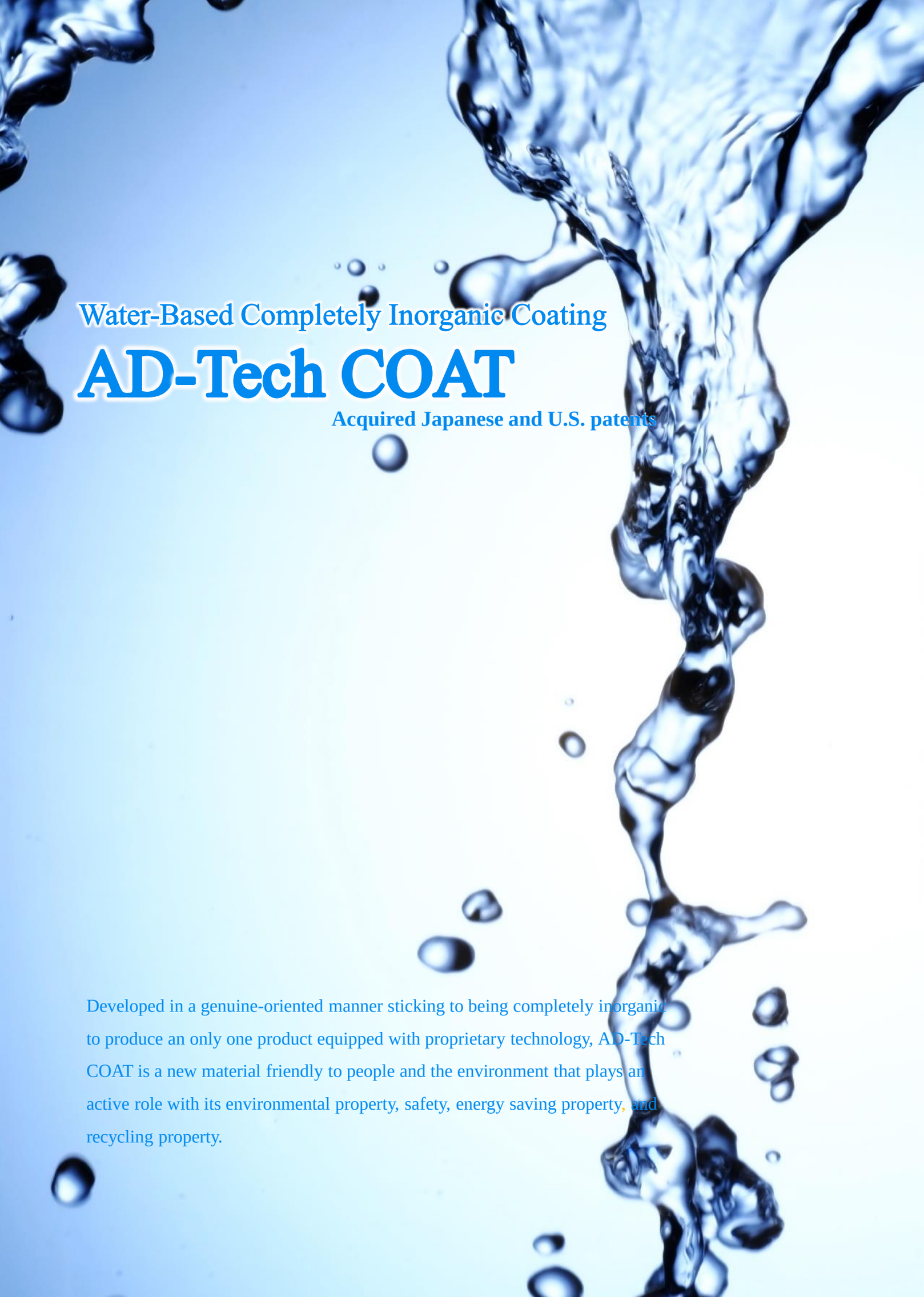


Water-Based Completely Inorganic Coating

AD-Tech COAT

Acquired Japanese and U.S. patents

Developed in a genuine-oriented manner sticking to being completely inorganic to produce an only one product equipped with proprietary technology, AD-Tech COAT is a new material friendly to people and the environment that plays an active role with its environmental property, safety, energy saving property, and recycling property.

Aspiring to make contributions to the future of the Earth with our carbon-free nano-technology

By means of a completely inorganic material based on silica and water that constitute the Earth's crust, we have achieved high antifouling property.

Patent acquired Water-based completely inorganic coating

AD-Tech COAT

Patent acquired both in Japan and the U.S.

(Trade Service Corporation)

Because of a completely inorganic material based on water and silica, we have achieved high antifouling property, environmental property and durability. It is carbon free and VOC (volatile organic compound) free containing no organic substance (petrol based material). It is a Japan-developed coating material excellent in safety with non-combustibility (verified through train car combustion test).

Water-based completely inorganic	Binder is water only. VOC free
Nano fim	Ultra thin film of approx. 50 nm thick or less, several hundred textures in 1 μm^2
Carbon free	Coating film does not deteriorate due to ultraviolet ray, discolor or fade.
Super hydrophilicity, high transparency	Improved antifouling property, facility to wash, and transparency
Environment, resource saving, safety	Free of VOC, reduced use of water and detergent

- Five points of AD-Tech COAT -

- Hydrophilic detergency to remove contamination with water
- Remarkable durability
- Simple work with no waiting time
- Applicable to wide variety of materials
- Securing of transparency

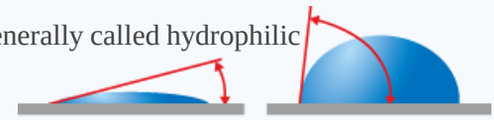
Hydrophilic detergency to remove contamination with water

Antifouling property | Hydrophilicity | Energy saving

What is hydrophilicity?

The contact angle of water with base material of 50 degrees or less is generally called hydrophilic and 10 degrees or less is called super hydrophilic.

* The contact angle varies depending on the surface condition of the base material.



Hydrophilicity

[Contact angle of water with base material]
- 40 to 50 degrees or less hydrophilic
- 10 degrees or less: superhydrophilic

Hydrofuge

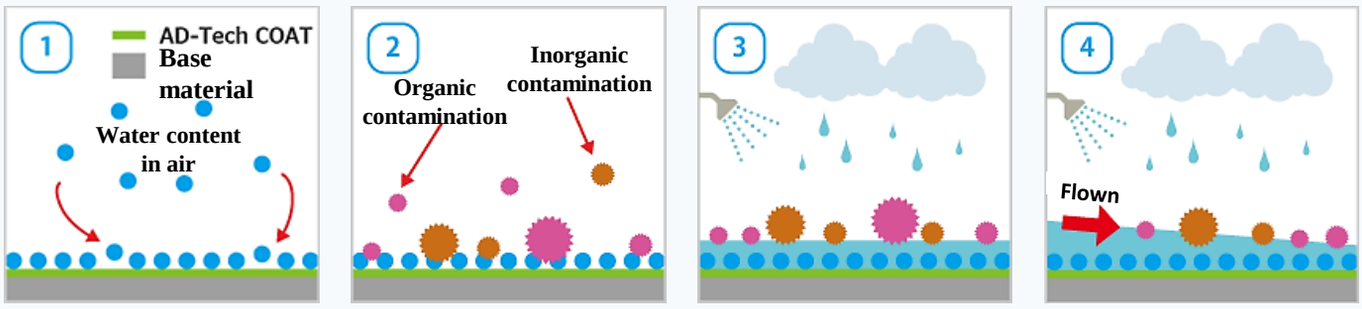
[Contact angle of water with base material]
- 90 to 110 degrees or less: hydrofuge
- 150 degrees or more: super hydrofuge

Advantages of hydrophilicity

- It is possible to obtain a self-cleaning effect in which contamination can be removed by rain or showers.
- Water droplets do not remain on the surface, enabling prevention of annular stains due to the lens effect.
- It is possible to wash away oil stains with water.

Antifouling mechanism

When a coating is applied, extremely fine irregularities are formed on the surface of the film and they absorb the water in the atmosphere. Contamination attaches to the convexities of the irregularities, and film containing water from the atmosphere is fit in the concavities. When water is poured over the surface, the water in the film swells due to the added water, and the contamination flows out from the convexities. In addition, film containing water makes dust unlikely to attach due to its antistatic effect.



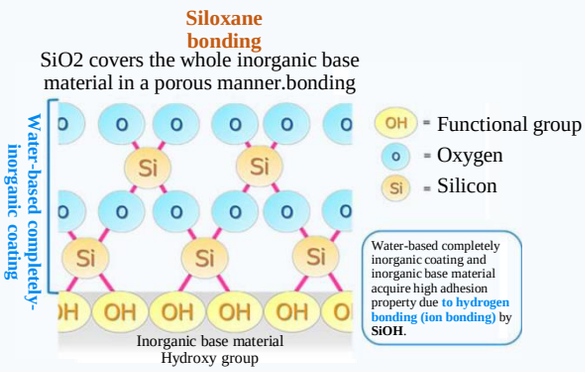
1. AD-Tech COAT exhibits its effect immediately after its application to the target base material, and absorbs water from the air onto the coating surface forming the water film.
2. As the surface of the base material is covered with a water film, attached contamination floats on the water film.
3. When rain or showers are poured over the coating surface, it exhibits an affinity to the water below and the contamination further floats.
4. When rain or showers are is further poured over the coating surface, the contamination floats away with the water. (If the base material is inclined, a better result is obtained.)

Remarkable durability

Antifouling property

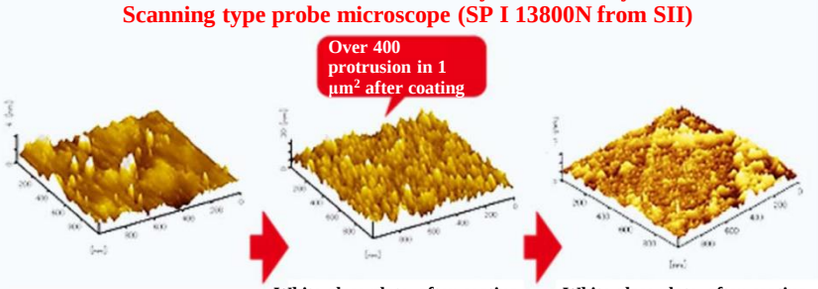
Energy saving

The completely inorganic AD-Tech COAT, which is based on water and silica, contains no chemical compound that causes deterioration by ultraviolet ray. Therefore, the film remains unless the base ages. Also, it tightly adheres to inorganic base material due to hydrogen bonding, and its film does not harden and is highly flexible due to siloxane bonding and resistant to friction, such as cleaning. The film will not be detached even by brushing of train car washing machine. Furthermore, due to water content in the film, its coefficient of friction is low and it is resistant to detachment.



Exposure test

Measured at Osaka University Nanofoundry
Scanning type probe microscope (SP I 13800N from SII)



White glass plate, blank	White glass plate, after coating (Implemented in October 2009)	White glass plate, after coating (four years later)
Surface of blank glass has 4 nm level convexities and concavities.	After coating, the coating film will be 50 nm thick (15 to 30 nm thick at convexities and concavities)	Texture remaining condition after four years of outdoor exposure

Film sliding/friction test

Base material: glass from AGC, 50 mm x 50 mm x 5 t
Device: friction/wear tester DHK-SL16 from Kato Tech

- Load: 300 g
- Rotation speed: 60.0 r/min
- No. of reciprocations: 1,000 (2,000 times of sliding)
- Sliding width: 40 mm
- Friction target material: nonwoven cloth
- Area of nonwoven cloth: 6 cm^2
- Friction area: 10 m^2

Simple work with no waiting time

Safety

Workability

Skill / equipment

Apply and wipe off.

No special skills are required. Anyone can simply work.

No special machine or equipment is required. You can work with tools you already have.

Time

As this product is one-pack type, preparation is unnecessary and work can be immediately started.

Ultrathin film allows wok in short time. As this product quickly dries at room temperature, no waiting time for drying after work is required.

Odor

This product is odor free due to lack of volatile substances and harmless. You can work safely.

Applicable to wide range of materials

Workability

In the water-based completely inorganic AD-Tech COAT, binder is water only (VOC free).
It is applicable to a wide variety of materials.

Metallic base material	Aluminum, magnesium, etc. (stainless steel)
Organic base material	Paint, lacquer-finish surface, etc.
Inorganic base material	Glass, mirror, tile, sanitary pottery, enamel, etc.

Securing of transparency

Transparency

The light refractive index of silica (1.45 to 1.47), which are fine particles, is less than that of glass (1.50). Therefore, light transparency will not drop and is expected to improve.

Reason why AD-Tech COAT is chosen

Quick dry at room temperature	No waiting time for drying after coating! Effect is immediately exerted.
One-pack type	No preparation for coating! You can use it immediately.
No need to care about weather during work	No influence of air humidity and temperature! * Avoid work in the burning sun and sub-zero conditions.
Odor-free and safe work	No volatile substances! You can work safely.
No problem with work suspension	No coating unevenness! You can continue work without worrying about unevenness.
No need of special machine	No capital investment required! You can apply this product with tools you already have.
Anyone can simply work	No special skills! Anyone can easily apply this product.
Ultrathin film improves work efficiency	No need for coating in multiple layers! Work time can be shortened.
Extremely high safety	No organic components! Genuine completely inorganic material mainly consists of silica and water.

Introduction case examples

Solar panel


Antifouling measure (prevention of decrease of power generation efficiency) for solar panel

Automobile


Measure against contamination and water spots on automobile

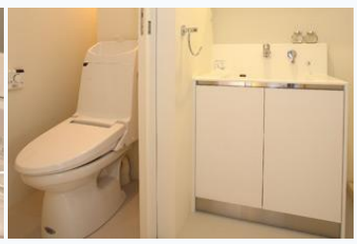
Public transport vehicle


Simplification of washing of transportation vehicle including train car and bus

Stainless steel


Measure against fingerprint and contamination of stainless steel elevator parts and kitchen utensils

Water area

Measure against contamination and odor in toilet and washroom

Exterior wall, glass


Measure against contamination of exterior wall of residence, building and store

Widely used in various locations

- Simplification of washing and measure against contamination and odor at hotel's smoking room
- Shortening of cleaning time at residence, restaurant, convenience store, fast food store, etc.
- Shortening of cleaning time of building maintenance, glass showcase, etc.


In addition to above, our product is used in a wide variety of fields.

Product List

AD-Tech COAT K-1006v

Type: liquid

Application: glass, mirror, cover glass for solar panel, etc.

AD-Tech COAT K-1006CP05

High durability model (K-1006UV05) is available.

Type: liquid containing compound (contamination removal + coating)

Application: glass, mirror, cover glass for solar panel, anti-fogging of bathroom mirror, bath tub, wash bowl (pottery), kitchen sink, artificial marble, IH glass top, gas cooker tray, tile wall, (stainless steel)

AD-Tech COAT K-1006KP50

Type: gel

Application: organic paint (body, etc.), organic base material, paint surface on ALC, siding board, paint surface on concrete, tent fabric, artificial leather, furniture, piano, glass, toilet bowl, etc.

AD-Tech COAT K-504PAK50

Type: gel

Application: automobile, train car, glass, mirror, eye glasses

AD-Tech COAT DC-2202UV73

Type: liquid

Application: Overcoat agent for automobiles *Two-pack type

AD-Tech COAT K-15CPV3

Household type with improved cleaning effect

Type: liquid containing compound (contamination removal + coating)

Application: glass, mirror, bathroom mirror, bath tub, wash bowl, kitchen sink, artificial marble, IH glass top, gas cooker tray, pottery, (stainless steel), etc.

Liquid type

Compound-contained type

Gel type

Other than above, we will offer the optimum type according to the purpose and base material.

AD-Tech GUARD SAP-101

This is an agent to be applied to combustible materials, such as plastic, rubber, fabric, paper, and wood, so that they will become fireproof or flame does not spread.
It has records of application to sleepers for subway and others .

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