Waterborn pure Inorganic Coating Agent

AD-Tech COAT

JPN, USA Patent filed

Aimed at Only-One product with the original technology, this is the new material that respects human and the earth, and active by being environmentally friendly, safe, energy-saving, and by recycling – which has been developed due to strain of the real-life orientation over the Water-born Pure Inorganic.

Hard to get dirty, Easy to remove dirty.

Trade Service Corporation

Thinking of the Earth's future with the Carbon-free Nano-technology

Patent filed Water-born pure Inorganic Coating Agent

AD-Tech COAT

Patent filed in Japan and the United States

High level of antifouling, eco-friendliness and durability has been found by Pure Inorganic material that has Silicon dioxide and water as the base.
It is the method of coating that started from Japan, where there is a safety of [carbon-free] that doesn't include organics (oil-related substance), the [VOC Free (volatile compounds)], and the incombustibility (proved from the Japan railcar combustion test).

Water-born pure Inorganic Coating Agent	Solvent by water (VOC Free)
Nano-membrane	Approx. more less 50nm Ultra-thin, hundreds of textures in 1μm2
Carbon-free	There is no degradation, discoloration, or fading of the liquid -applied membrane caused by UV rays.
Super-hydrophilic, high transparency	Anti-fouling prevention, simple detergency, improvement of transparency
Environment, conversing resources, safety	Because VOC is not included, there is a reduction of water and detergent usage.

~5 points of AD-Tech COAT~

- The hydrophilism's detergency that eliminates pollution with water
- Phenomenal durability
- Simple construction with no waiting time
- Responsiveness that does not choose materials
- Ensuring transparency

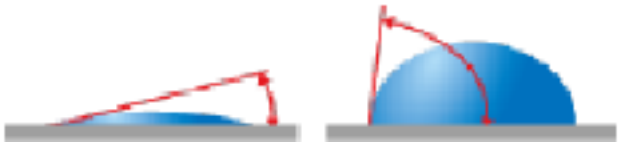
The hydrophilism's detergency that eliminates pollution with water

Antifouling Hydrophilic Energy-saving

What is hydrophilism?

Generally, when the contact angle of the water and the substrate is less than 50 degrees, we call it as hydrophilic. If less than 10 degrees, we call it as super-hydrophilic.

*The contact angle changes depending on the condition of substrate's surface.



Hydrophilic

[The contact angle of the water and the substrate]
- Less than 40~50 degrees is hydrophilic
- Less than 10 degrees is hydrophilic

Repellency

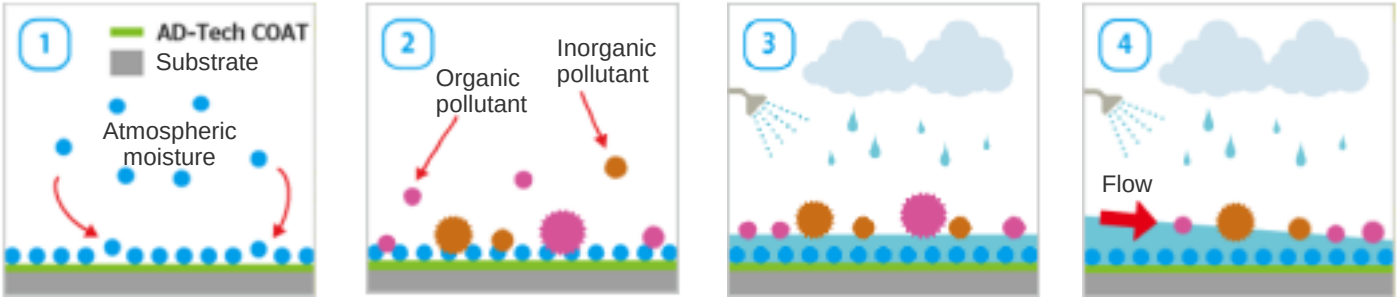
[The contact angle of the water and the substrate]
- Less than 90~110 degrees is repellency
- More than 150 degrees is super-repellency

Advantages of hydrophilic

- We can earn self-cleaning effect by eliminating the pollution through rain or showers.
- Water drops are not left on the surface; therefore we can prevent the water-spot that has been caused by the lens effect.
- The grease can be washed away with water.

The mechanism of anti-fouling

There are very tiny texture on the surface of membrane after coating is done , and this membrane has a function of moisture absorption from atmosphere.
The pollution sticks onto the convex of the texture.
the concave parts have membranes that contain atmospheric moisture.
If water is poured at that part, the pollution on the membrane flow out due to the added water. The pollution on the convex parts will be cleaned.
In addition, the membranes has an anti-static effect because membrane has always wet by moisture.



1. The function starts to work right after the application on the target substrate, and forms water membrane by applying atmospheric moisture onto the surface.
2. The surface of the substrate is covered with the water membrane, so even if the pollutants come across, they will be floating on the water membranes.
3. If the water reaches the surface, it will stay with the pollutants below, and the water will become excited.
4. If the water reaches the surface, the pollutants will wash down together with the water.

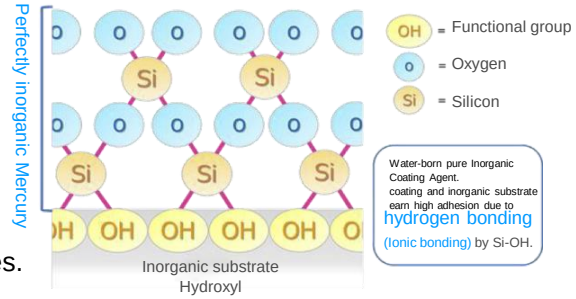
(If there is more slope on the substrate, better results will be earned)

Phenomenal Durability

Antifouling Energy-saving

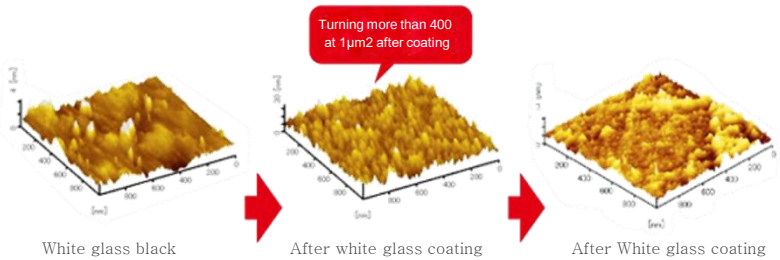
Because the Water-born pure Inorganic Coating Agent AD-Tech COAT that is based on water and Silicon dioxide never includes compounds that cause degradation due to the UV rays, unless the foundation becomes deterioration, the coating will be maintained.
Also, because it is firmly cohered through the bondng of inorganic substrate and hydrogen, the coating will not be hardened, but will show excellent flexibility due to the Siloxane bond. It will also become strong for the friction caused by the washings, and the membrane will not come off when there are brushings done by car wash machines.
Not only this, but it will become stronger in delamination, because the moistures are held and the coefficient of friction reduces.

Siloxane bond
The SiO2 covers the entire inorganic substrate with the porous shape.



Exposure test

Measured at Osaka University Nano-Foundry
Scanning probe microscope (S II system, SP I 13800N)



White glass black
The surface of the blank glass has a flexion of level 4nm.

After white glass coating
(Practiced in October, 2009)
If coated, the coating liquid-applied membrane will become 50nm. (Bending 15-30nm)

After White glass coating
(4 years later)
The remained texture of 4 years after the outdoor exposure

Membrane sliding & friction test

Substrate: AGC made glass50mm x 50mm x 5t
Device: KATOHTEK product
Wear & Friction testing: DHK-SL16

- Weight 300g
- Rev count 60.0r/min
- Retrieval 1000 round trip (sliding 2000 times)
- Sliding width 40mm
- Friction materials - non-woven fabric
- Non-woven fabric surface 6 cm2
- Friction surface 10m2

Simple work with no waiting time

Safety Workability

Skills and equipment

After applying, you only wipe it out.
No other special techniques are needed. Anyone can make it easily.
No special machineries or equipment are needed as well.
You can do it with the tools you have.

Time

Because it is a one-component liquid, no preparations are needed.
You can start right away.
Also, you can do it in short time with ultra-thinness.
Moreover, since it is based on room temperature and is quick drying, you don't have to wait for it to dry after work.

Smell

There are no volatiles; therefore it is odorless and non-toxic.
You can relieve and work.

Responsiveness that does not choose materials

Workability

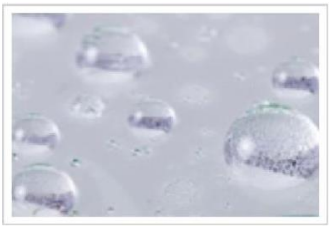
AD-Tech COAT is Water-born pure Inorganic Coating Agent,
so the solvent only needs water (VOC Free).
It can be applied to any materials that do not choose any substrate.
(Except paper .cloth, green wood and concrete structure))

Metal-based substrate	Stainless, Aluminum, Magnesium, etc.
Resin-based substrate	Plastic, Film surface, FRP, etc.
Organic substrate	Painted surface, Lacquer surface finish, etc.
Inorganic substrate	Glass, marble, pottery like tile, sanitary ware etc.

Ensuring Transparency

Transparency

The silica's(Silicon dioxide) light refractive index (1.45) is lower than the glass's light refractive index (1.52), the light's transparency does not degrade, but may be expected to be improved.



~The reason why AD-Tech COAT was CHOSEN~

Room temperature / Quick-drying	After applying, there is no need for drying time! The effect will be seen right after.
One-component liquid	No need to prepare for applying! You can use it right away.
Needless consideration during processingclimate	No effects of humidity and temperature! *Please avoid sultriness and temperature below 0 degrees.
Can relieve and process because there are no odors	No volatile compounds! You can relieve and work.
No problem in case of interruption during the process	No marks after application! You don't have to care about it.
No need for special machines	No capital investment! You can apply by using existing tools.
Anyone can easily process	No special skills needed! You can apply very easily.
Improve work efficiency with ultra-thinness	No need for overlapping! You can shorten the work time.
High safety	No organic components! Silica and water are the main components that are perfectly inorganic.

Case Studies

Solar Panels


Measures to the pollution on the solar panels
(Prevention of reduction of generating efficiency)…

Cars


Measures to the water spot and the pollution of the cars…

Public Vehicles


To make the cleaning process of the public vehicles
(railcars, buses) easier…

Stainless


Measures to the fingerprints and pollutions on the stainless
of elevators and kitchens…

Bathrooms & Kitchens


Measures to the odors and pollutions
of the toilet and the washstand…

Outer walls and Glasses


Measures to the pollutions of the outer walls such
as general houses, buildings, shops, etc…

It is active in many different places.

- Measures to the electrostatic charge of the office equipment (scanner, computer, fax, etc.)
- Measures to the fingerprints and pollutions of the small products such as cellphones, game equipment, tablet PC, etc.
- Measures to the odors and pollutions of the hotels' smoking rooms.
- Shorter cleaning time for restaurants, convenience stores and snacks.
- Shorter cleaning time for building maintenances, glass showcases, etc.


You can use it in wide range of sectors.

Product List

AD-Tech COAT K-1006v,D-1308v2,K504PA

Type; Liquid-Type

Purpose :For Inorganic substance such as Stainless, Glass, Pottery and base medicine for hydrophilization of organic substance etc.

AD-Tech COAT K-1006CP06(PV.Under coat),K-504UVC25(for general glass High duraility)

Type : A liquid with abrasive (remove dirt and coating)

Purpose : PV cover glass and under coat for Stainless, bathroom mirrors, bath tubs, toiletries (Pottery), kitchen sinks, artificial marbles, IH glass top, gas appliances, toilet, tiles etc.

AD-Tech COAT K-504UV73,DC-2202UV73

Type : A liquid 2types mixed type(Main medicine · hardener 2type)

Purpose : for Room temperature curing for Stainless(HL,Vib), earthenware surface,

AD-Tech COAT K-504PKG2(Super high concentration SiO2)

Type : Gel (Viscosity: rather hard)

Purpose : For Organic surface coating (High hardness surface organic), Glass surface FRP Hard opacity film, Organic paint on concrete, Tent cloth, Polycarbonate roof, Artificial leather, Furniture etc

AD-Tech COAT K-504PAK50(Standard gel type)

Type : Gel(Viscosity; Soft)

Purpose :For Organic surface coating (Low hardness surface organic), Oeganic substance, Opaque resin plate, Polycarbonate roof, Artificial leather, Furniture ,Piano, Lacquerware etc.

AD-Tech COAT CARPAL,CARPAL-L

Type : Gel Type(CARPAL), Liquid Type(CARPAL-L)

Purpose :. :For exclusively Car body Model (For Pro. Use, for Easy coating type)

AD-Tech COAT K-15CPV3

Type : Liquid with abrasive ((remove dirt and coating)

Purpose :For **aftermarket specification** for Glass, mirror, bathroom mirror, kitchen sink IH glass top etc.

Liquid type

Liquid with abrasive

Gel type

For others, we suggest and provide the best type based on the objectives and the substrates.

AD-Tech GUARD SAP-101

A chemical that keeps the flames from spreading onto combustible materials such as plastic, rubber, fiber, paper, and wood.

This chemical was used once on the subway sleeper sand etc.

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