BLESS CO.,LTD

Titan Water Base Ceramic Coat “All-Titanium AT254”

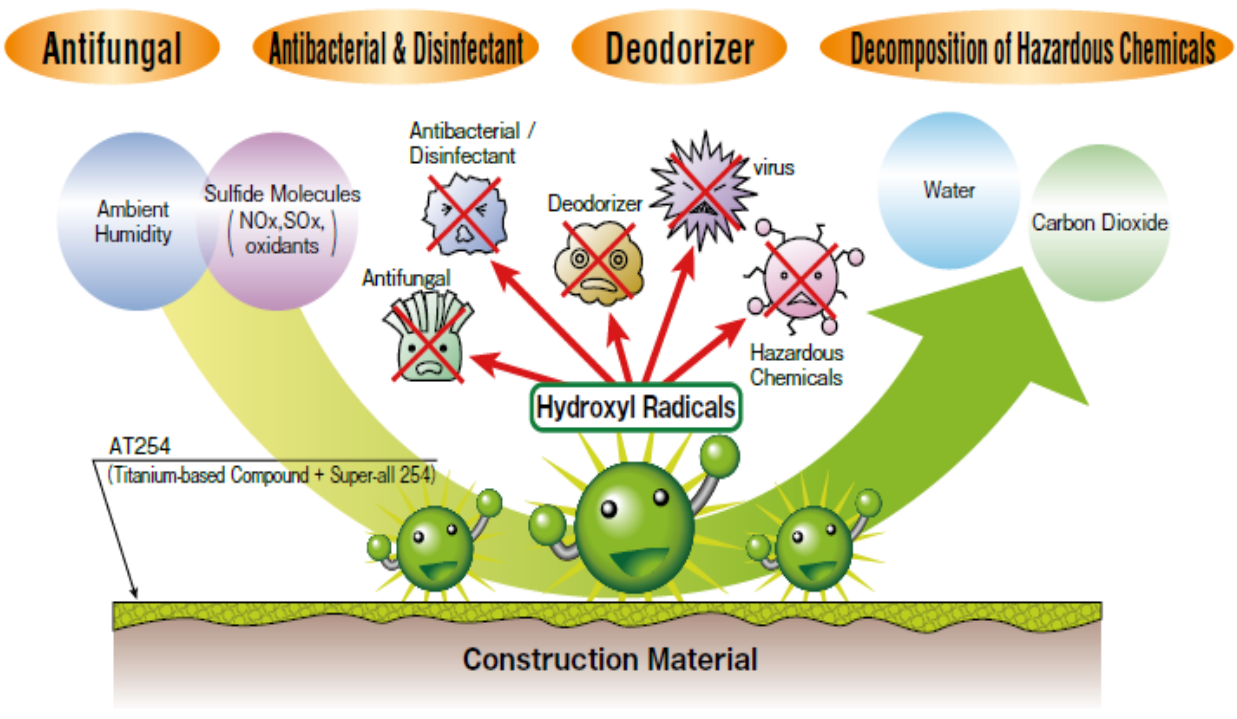
Mold-Proof, Antibacterial, Deodorizing Coating Agent Safe for People And the Environment

Features

Safety ··· It is an inorganic coating, It is harmless to the human body and to the environment.
Durability··· Long-term durability because there is little destruction or deterioration of the coating film to friction and wear.
Workability···Treatment work is easy using a spray gun. It is colorless and transparent, so anything can be coated.

“All-Titan AT254”forms a thin-film porous coating on various base materials by bonding together macromolecules of inorganic ions and ceramifying due to the condensation reaction in the aqueous solution. The ceramifying film formation reaction of “All-Titan” is due to the aqueous solution, so energy consumption for prosesses such as high temperature heating is completely unnecessary. There is also no release of CO2 or similar in the manufacturing process, so it can be described as an environmentally friendly coating material.

Overview (Technical principles, actions, etc.)



Introductory Track Record

■ Hospital

■ Business hotel

■ Public housing

■ Bedrock bathing house

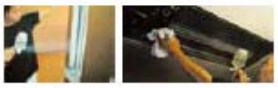
■ Staff cafeteria

■ Foodstuffs plant

■ Buses

■ Taxis and nursing care vehicles

■ Air conditioners



■ Funeral hall

Effects

All-Titan AT254 Proven effective against a total of 254 organisms – 70 bacteria, 159 fungi and 25 algae –

In general, antibacterial effects are achieved by controlling condensates of solid acid (OH^- ion adsorption properties) and solid bases (H^+ ion adsorption properties). However, adding antifungal properties with just inorganic matter is difficult. With All-Titan AT254, biguanide related composite antifungal constituents, which have established safety testing, are dispersed in the aqueous solution. Their molecular dispersion and fixing within the condensates then results in a highly reliable antifungal performance. The coated film is extremely resistant to wear and the antifungal effect was found to remain after a test of rubbing it 10,000 times.

Antibacterial 70 bacteria Verified

Bacteria

Antibacterial spectrum	Locations where occurrence (detection) is common: A	B	C	D	E	F	G	H	I	J	(Notes)		Effective use	JIS specified bacteria
1 Bacillus mycoides						○								
2 Bacillus subtilis						○					Hay fever	Water-based coating deterioration disease		
3 Bacillus megaterium						○								

※ A portion of the bacterial spectrum tested

■Antibacterial performance tests (JIS L1902) Boken Quality Evaluation Institute, Test No. 008318

Test bacteria name	No. of bacteria logC	Bacteriocidal activity	Bacteriostatic activity
Staphylococcus aureus	1.3 or below	2.8 or above	5.4 or above
Klebsiella pneumoniae	1.3 or below	2.8 or above	6.1 or above
M.R.S.A (Methicillin-resistant Staphylococcus aureus)	1.3 or below	2.8 or above	5.4 or above
Ea coli	1.3 or below	2.8 or above	6.1 or above
Pseudomonas aeruginosa	1.3 or below	3.0 or above	6.1 or above

An antibacterial and deodorant effect exists with a bacteriocidal activity value of 0 or above and a bacteriostatic activity value of 2 or above.

Antifungal 159 fungi Verified

Fungi (mold)

Antibacterial spectrum	Locations where occurrence (detection) is common: A	B	C	D	E	F	G	H	I	J	(Notes)		Effective use	JIS specified bacteria
1 Alternaria tenuis		○		○	○	○	○		○	○	Phytopathogenic fungi	Kawasaki disease		
2 Alternaria brassicicola		○		○	○	○		○	○		Phytopathogenic fungi	Alternaria disease		
3 Alternaria alternata		○		○	○	○	○		○	○	Allergy causing fungi	Asthma, skin		
4 Alternaria candidus		○		○	○	○					Grain contaminant			
5 Aspergillus niger				○	○	○	○	○	○	○	Phytopathogenic fungi	Bronchopulmonary aspergillosis	Biotin Organic acid	○

※ A portion of the bacterial spectrum tested

■Fungus resistance tests (JIS Z2911) Boken Quality Evaluation Institute, Test No. 014287

Fungal growth				Fungus resistance indication
7 days	14 days	21 days	28 days	
—	—	—	—	0

A mixed spore solution with 5 fungi is sprayed on and cultivated for 4 weeks at 28℃, 80% RH or above.

Anti-algae 25 algae Verified

Algae

Antibacterial spectrum	Locations where occurrence (detection) is common: A	B	C	D	E	F	G	H	I	J	(Notes)		Effective use	JIS specified bacteria
1 Chlorococcum sp.														
2 Scytonima hofmannii														

※ A portion of the algae spectrum tested

Locations where occurrence (detection) is common:
A: Society problematic bacteria and fungi
B: Medical institutions
C: Veterinary and stockbreeding
D: Fermentation and brewing plants
E: Foodstuff plants
F: Kitchens, cooking areas and meal provision plants
G: Typical housing
H: Materials and construction materials
I: Leisure industry
J: Inns and hotels

The boxes represent the 57 bacteria and fungi announced by the International Bio Deterioration Symposium as being frequently detected from typical buildings

Excellent deodorizing power and long-lasting effects

With the All-Titan AT254 condensates, moisture evaporates off due to drying and leaves a porous structure. This has a large internal surface area, to which many molecules attach.
This adsorption is determined by the specific surface area, the pore size, the electronic state of the internal surface (the electric potential distribution of the surface, which produces the solid acid and solid base characteristics) and other factors.
With All-Titan AT254, the coated film becomes a porous structure with a specific surface area of around 300 m2/g or more.
We chose the composition to enable the adsorption of many odor molecules.

Deodorizing performance tests

Gas name	Reduction rate (%)
Formaldehyde	99.00
Hydrogen sulfide	98.75
Acetic acid	99.00
Nonenal	98.00
Isovaleric acid	89.00
Ammonia	83.00

Boken Quality Evaluation Institute, Test No. 013241
Deodorant processed textiles certification criteria applied mutatis mutandis

Decomposition and removal of hazardous chemical substances

Hazardous chemical substances such as formaldehyde which exist sparsely in the air are adsorbed and concentrated in the porous spaces of the All-Titan AT254 coat and the oxidation-reduction reaction is promoted to repeatedly decompose them.

Guideline values for chemical substance concentrations indoors, set by the Ministry of Health, Labour and Welfare

Volatile organic compounds	Guideline value for concentrations indoors
Formaldehyde	0.08 ppm (100μg/m³)
Toluene	0.07 ppm (260μg/m³)
Xylene	0.20 ppm (870μg/m³)
Paradichlorobenzene	0.04 ppm (240μg/m³)
Ethylbenzene	0.88 ppm (3.8mg/m³)
Styrene	0.05 ppm (0.22mg/m³)
Di-n-butyl phthalate	0.02 ppm (0.22mg/m³)
Chlorpyrifos	0.07 ppb (0.001mg/m³)
Tetradecane	0.04 ppm (330μg/m³)
Di-2-ethylhexyl phthalate	7.80 ppb (120μg/m³)
Diazinon	0.02 ppb (0.29μg/m³)
Acetaldehyde	0.03 ppm (48μg/m³)
Fenobucarb	3.80 ppb (33μg/m³)
TVOC	Provisional target (400μg/m³)

Inquiries

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