

High Sunlight-Reflective and Heat-Shield Coating
太陽光高反射・遮熱塗料

Adgreencoat® EX

アドグリーンコートEX

■ **Adgreencoat EX - Novel Coating Material**

Adgreencoat® EX is a highly functional coating material, with the unique dual function of not only efficiently shielding solar heat but also exhausting heat without trapping the absorbed heat in the coating

■ **Applications**

Measures against Global Warming or Heat Island and for Energy Saving

This product improves indoor environments by controlling the temperature increases of the building itself with its high solar heat shielding effect. As a result, it alleviates global warming through energy saving and lowering CO2 emissions by reducing air-conditioning loads and operating time. It also mitigates the heat island phenomenon as it does not trap heat due to its fast heat-exhausting function, thus eliminating nighttime heat release.

■ **Features and Advantages**

Conventional heat shield coating contains porous ceramics with particles ranging in size from 50 μ to 300μ. It has many air voids which trap the absorbed heat in the coating layers, thus reducing indoor temperature increases. Although this effect works in the daytime, it does not mitigate the heat island phenomenon because the heat is released in the nighttime. Further, this heat trapping effect is not sustainable. This is because the material is so brittle that it is damaged with rapid temperature changes in daytime squalls and because its material nonuniformity and surface roughness cause it to get dirty easily. Adgreencoat EX was developed in the pursuit of a heat exhaust effect, and it is the only coating material that contains nonporous ceramics with 0.5μ-sized spherical ultra-fine particles and which has many functions such as high heat conductivity, low thermal expansion, enhanced heat resistance. It is also used worldwide to eliminate heat accumulation in precision apparatus, electronic devices, and semi-conductors.

Because of the nature of nonporous ceramics, heat is not trapped in the coating layers. Moreover, its functions are long-lasting because nonporous ceramics are difficult to damage due to their amorphous structure and rarely get dirty due to their smooth coating surface, attributable to ultra-fine particles.

■ **Performance Data**

Test method: JIS K 5663 (Synthetic emulsion paint: class 1)

Test Item	Test result	Acceptance Criteria / Testing Conditions
Physical state in a container	Pass	In a uniform phase without hard lumps after stirring
Appearance of coated film	Pass	No abnormalities in the appearance of coated film
Viscosity (mPa ·s)	2,000 - 7,000	With BH8-type rotation viscometer, at 20 rpm, at 23°C
Density (g/ml)	1.2 - 1.5	With a specific gravity cup at 23°C
Heating residue (%)	5.70 - 67.0	After heating for 3 hours at 105°C
Coating performance	Pass	No problems in coating work for two coats
Low-temperature stability	Pass	No deterioration at - 5°C

Drying time (hours)	20°C	1	2 or less
	5°C	2	4 or less
Contrast ratio (white and tint color)		97	93 or higher
Water resistance		Pass	No abnormalities after soaking for 96 hours in water
Alkaline resistance		Pass	No abnormalities after soaking for 48 hours in alkaline solution
Accelerated weathering resistance		Pass	Chalk resistance of 1 or less; no bulges, detaching, or cracks;

Data on Physical Conditions, Compositions, Components

Physical Conditions

State: Liquid
Color: White
Odor: Slightly acrylic odor
pH: 7.8 - 8.8
Specific gravity: 1.30 - 1.45
Single component or mixture: Mixture

Component Data

Component: Amorphous Silica	Component: Titanium Oxide (IV)	Component: Aluminum Oxide
Content (%): 5.0 - 15	Content (%): 5.0 - 15	Content (%): < 2.0
CAS No.: 7631-86-9	CAS No.: 13463-67-7	CAS No.: 1344-28-1
METI No.: -	METI No.: (1)-558	METI No.: (1)-23
Component: Zirconium Oxide	Component: Ferric Hydroxide	
Content (%): < 2.0	Content (%): < 5.0	
CAS No.: 1314-23-4	CAS No.: 20344-49-4	
METI No.: (1)-563	METI No.: -	

Note: The data here are not product specifications

Considerations in Application

- (1) In coating work, surface preparation is outside of the scope of responsibility.
- (2) Do not apply this product at a temperature of -5° or lower, or at a humidity of 85% or higher.
- (3) Do not apply this product in the rain, snow, or strong winds.
Provide covering from weather in the case that rainfall or snowfall is likely after the coating work.
When nighttime temperatures will fall below freezing, do not start the coating work in the afternoon.
- (4) When there is rain or dew condensation within 24 hours after the coating work, uneven coloration may appear due to the influence of water.
- (5) As this product is a water-based coating, it takes time to dry. In the case that high humidity, night dew, morning dew, dew condensation, squalls, etc. are likely to occur, stop the coating work early in the day and dry the coated layer before sunset.
Perform the coating work with proper care, as insufficient drying may lead to dripping-off, uneven coloration, or detachment of the coating.
- (6) Do not apply this product in the places or during the seasons where there is always dew condensation.
- (7) Do not apply a thick coat of the base material at once as the coated layer may crack.
- (8) Once this product freezes, it is no longer usable. Take proper care when transporting it in the winter.
- (9) Apply the standard amount of coating. A thick coating may result in cracks or detachment.

(10) Keep this product indoors, away from direct sunlight, at a temperature between 0 °C and 40 °C.
(Ensure an appropriate storage area during the coating work.
Cover this product with a sheet or something similar if a proper storage area is not available.)

Safety Precautions for Handling and Storage

Precautionary Safety Measures

Technical Measures

(Human Exposure Prevention)

Do not inhale powder dusts, fume, gas, mists, vapor, or spray generated from the coating material.

Wear the necessary PPE (Personal Protective Equipment).

Precautions for Safe Handling

Make the users' manual available before use.

Read and understand all safety precautions before handling.

Use only outdoors or in well-ventilated places.

Wear safety goggles or a safety face-shield.

Safe Storage Requirements, Incompatibility

Proper Storage Requirements

Keep this product under lock and key.

Keep this product in a well-ventilated place. Seal the containers tightly.

Storage Environment to be Avoided

Direct sunlight

* Refer to Material Safety Data Sheet (MSDS), when detailed product safety information is necessary.