

Precautions for construction

- Keep the surface clean! Remove all dirt, fungus, moss, oil, and blot, as well as flaking residual paint from the surface before applying OPTIMUS.
 - The curing period for concrete or mortar should be at least 3 weeks; ensure that the water content is 10% or below and pH 9.5 or below before applying OPTIMUS.
 - Do not apply OPTIMUS if the outside temperature or skeleton temperature is 5°C or colder, or the humidity is 85% or higher; which may cause a defective paint film or an adhesion problem.
 - A dewfall could cause bleaching or bristletail on the pain surface if it occurs before the paint film is completely dried. Keep a good airflow while applying OPTIMUS.
 - The paint film may not fully provide its intended effect if the amount of paint or the painting interval in each relevant process is not in compliance with the standard instruction. Also, be noted that OPTIMUS used in combination with materials made by other company could cause defects such as an adhesion problem, or may not fully provide its intended effect.
 - Ensure to have the room well-ventilated during and after the painting process. Painting in an ill-ventilated room will delay the drying process, or may cause a dewfall, which could result in adhesion problem, bleaching or bristletail.
 - If you are applying OPTIMUS on a layer of other painting pertinent to remodeling, ensure to check in advance the affinity of OPTIMUS to the base painting (i.e., conduct a test by actually applying OPTIMUS INTERIOR PRIMER on a part of the base painting)
 - If you apply OPTIMUS on a vinyl cloth, ensure to conduct a test paint with a primer to check the stickiness and adhesive properties.
 - OPTIMUS cannot be used on a wall with a fibrous or otherwise fragile surface, or to which a fireproof coating is applied.
 - A lack of recoating time (painting interval) following primer painting can cause a defective problem such as crinkle or cracking of final coating; for the prevention of which, please comply with the specified recoating time (painting interval).
 - The primer and paint for the final coating are not facilitated with a rust-proof function; therefore, if the foundation is metallic, the rusted portion should be cleansed and painted with a rust-proof primer before OPTIMUS is applied.
 - Do not use OPTIMUS on a surface with poor adhesive properties (iron, nonferrous metals, PE, PP, etc.).
 - Dirt tainted on the dried surface of OPTIMUS should be washed with a neutral detergent. Do not wipe it off with a paint thinner or any other materials.
 - Use a roller brush or other painting equipment designed for aqueous use for applying OPTIMUS. After use, OPTIMUS on the painting equipment or hands should be cleansed off with water as soon as possible.
- ☆ Stirring method: Use an electric agitator to stir until all the paint is evenly mixed (mixing time: 2 to 3 minutes). If an electric agitator is not available, stir with a stick until all the paint to the bottom is evenly mixed (to evenly spread the microcapsules).
- ☆ Store OPTIMUS in a cold and dark place with protection from direct sunlight. OPTIMUS is an aqueous paint; thus, DO NOT store it in a place where the temperature is 0°C or colder (Storage temperature: 10 to 40°C)



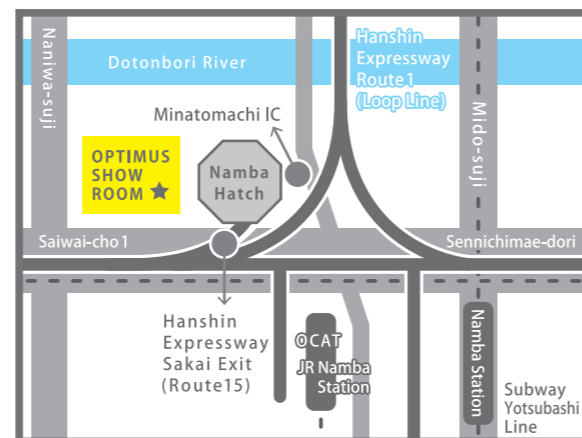
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TEL: 06-6562-1151 FAX: 06-6562-3111 www.optimus.jp

Marketed by:



For a living room, office, or shop! - Gives you comfort with Zero VOC and low odor.



FOOD WORKER FUNAKI / OSAKA
arbol YOUSAKU TSUTSUMI / ARCHITECT
YOHEI SASAKURA / PHOTO



An aqueous emulsion paint compatible for indoor use

OPTIMUS[®] INTERIOR PAINT

<For interior use>

A high-performance, ecologically-conscious, photocatalytic paint containing visible-light-responsive photocatalysts



OPTIMUS® × ECO?

How does OPTIMUS keep the room temperature warm?

OPTIMUS INTERIOR PAINT is jam-packed with a heat insulation layer of microcapsules of 20 to 40 μm. When OPTIMUS is applied and dried, the microcapsules cloak the surface to which the paint is applied, and obstruct the heat from passing through the wall to the other side, enabling to lessen energies required for heating in the winter and cooling in the summer, and at the same time, blocking off the air from the outside, and therefore, shutting off the cold air in the winter, and hot air in the summer, enabling an eco-friendly lifestyle in tune with seasonal changes.

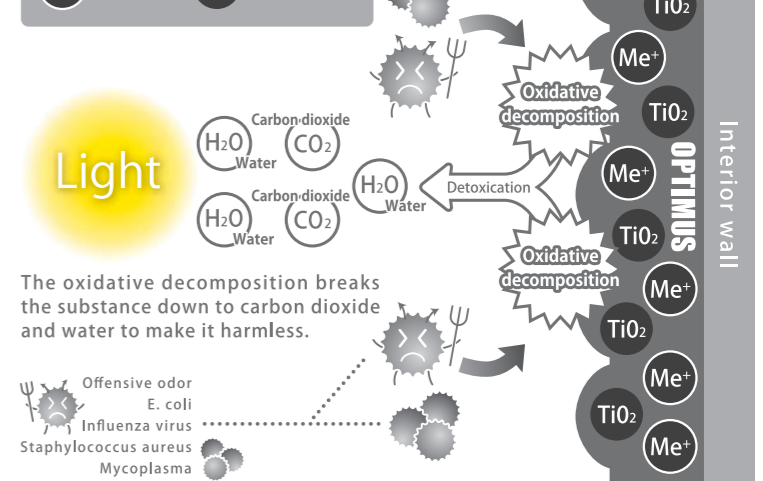
How does OPTIMUS keep the air clean?

Environment-friendly OPTIMUS INTERIOR PAINT What is a photocatalyst?

Photocatalyst is made of titanium oxide, which acts as an "environmental clean-up material", generating on its surface a strong active oxygen called the oxide radicals when exposed to ultraviolet rays from sunlight or a fluorescent lamp. The oxide radicals generated from such process are of "degradative" and "hydrophilic" properties, which keep the air clean by breaking down toxic chemicals that could cause sick house syndrome and degrading ammonia and other substances that can cause offensive odor (see the figure on the right). Moreover, the photocatalyst survives almost permanently, and thus, its effect is ever lasting.

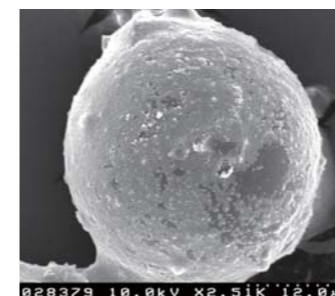
OPTIMUS INTERIOR PAINT

Me⁺ Metallic ion TiO₂ Titanium oxide

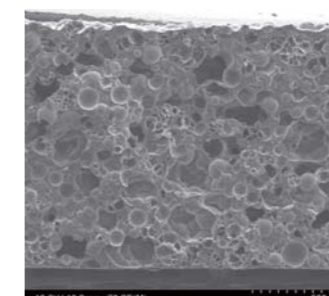


The oxidative decomposition breaks the substance down to carbon dioxide and water to make it harmless.

Unique Technology



A supported photocatalyst / A photo taken with an SEM at Osaka Prefecture University



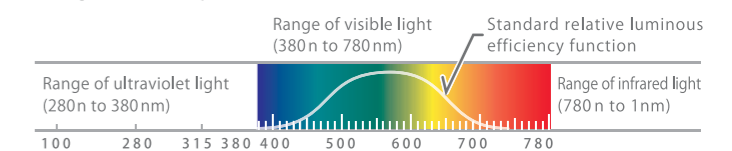
Cross-sectional drawing of coated OPTIMUS / Standard coating thickness: 0.25 mm

There are various photocatalysts with various characteristics; from which, 2 types of photocatalysts were selected; these substances provide a synergy effect with an optimal combination to absorb and degrade a wide variety of noxious air pollutants.

Why do the photocatalysts of OPTIMUS INTERIOR PAINT react to the visible light, and LED?

Photocatalysts that normally respond only the ultraviolet range are doped with a metallic ion so that they also react to visible light of a range 400nm or greater; by which, the photocatalysts of OPTIMUS react to the visible light. That means any time an interior light is turned on, OPTIMUS will decompose the noxious air pollutants

● Light wave spectrum



OPTIMUS® INTERIOR PAINT

Air purification, deodorant, heat insulation, antibacterial, mildewproofing, safety, and staining-resistance



OPTIMUS INTERIOR PAINT, with its 6 features, creates the perfect condition suitable for the life environment of today.

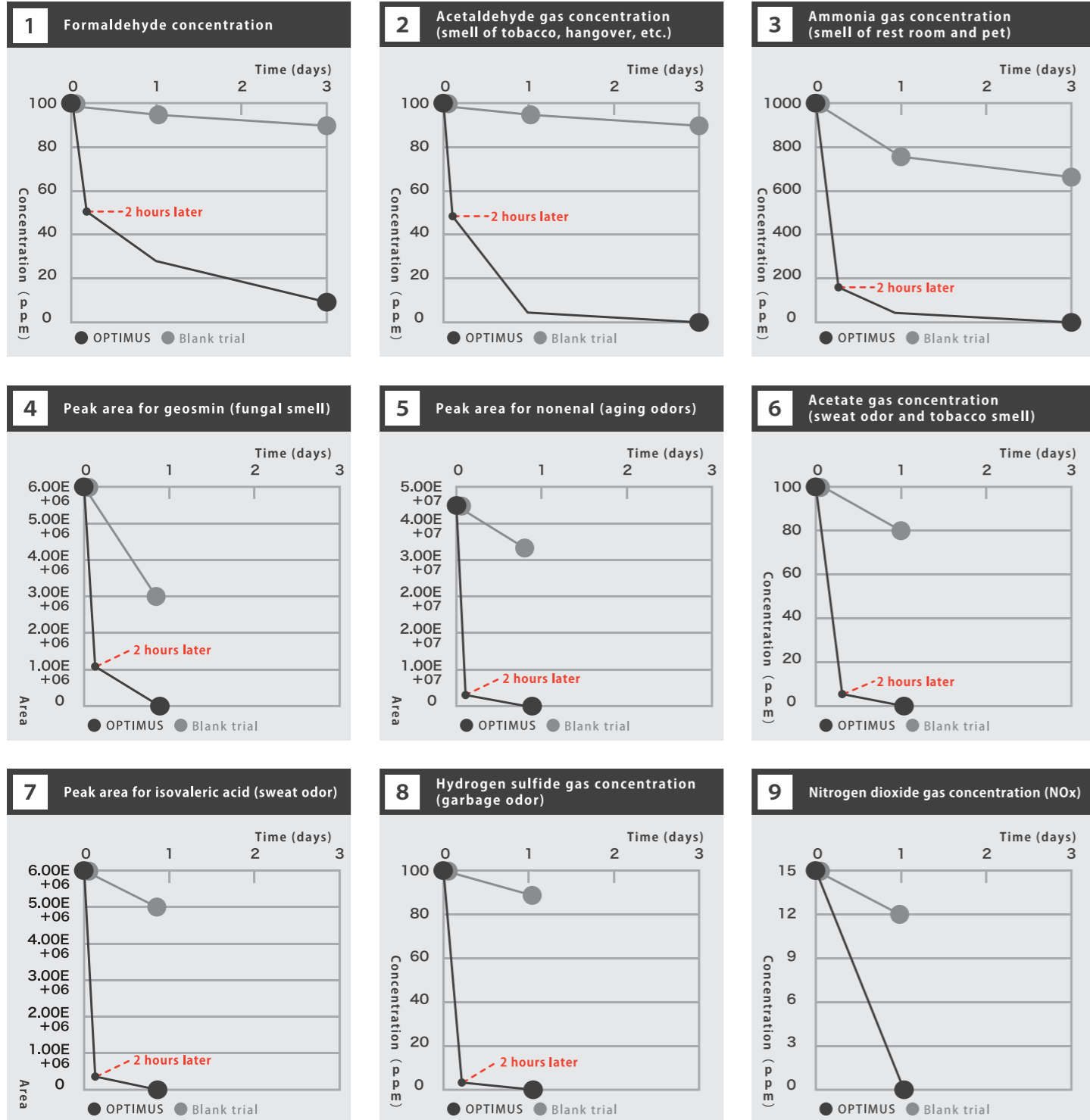
1 Air purification and deodorant

Air purification: The photocatalyst contained OPTIMUS breaks down undesirable substances such as nitrogen oxide in the air. It also breaks down volatile organic compounds such as formaldehyde and acetaldehyde, that could cause sick house syndrome.

Deodorant: OPTIMUS with the photocatalysts contained therein also absorbs and degrades ammonia (e.g., smell of rest room and pets), nonenal (aging odors), acetaldehyde, and other undesirable substances that cause offensive odors.

Adsorption and degradability of undesirable substances

*Based on the results of studies conducted by Osaka Prefectural Institute of Advanced Industrial Science and Technology, a Local Independent Administrative Agency.



2 Heat insulation

The microcapsules contained in OPTIMUS INTERIOR PAINT obstruct the heat from passing through the wall to the other side, keeping the room temperature warm in the winter, and cold in the summer, and by stabilizing the room temperatures, OPTIMUS saves the electricity by about 10% to 15%, contributing to the reduction of CO² emissions.

“ OPTIMUS INTERIOR PAINT applied on the wall would keep the room temperature by 2°C ”.

Winter Set the air conditioner at 18°C; you will get a room temperature of 20°C.

Summer Set the air conditioner at 28°C; you will get a room temperature of 26°C.



*It has been demonstrated that setting the air conditioner at 2°C or higher in the summer would save electricity by 20% or higher. <Source: Daikin Industries, Ltd.>

3 Antibacterial

OPTIMUS provides a coating with a good antibacterial effect. The photocatalyst in action kills E. coli, Staphylococcus aureus, and other undesirable bacteria that may be present on the coating surface.

OPTIMUS INTERIOR PAINT excels in degrading and killing undesirable substances and bacteria, keeping indoor space clean at medical institutions, schools, and other public facilities, to provide a safety-conscious environment.

Antibacterial study

Study site: Osaka Prefectural Institute of Advanced Industrial Science and Technology

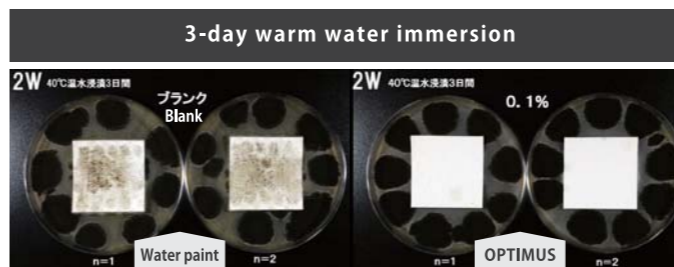
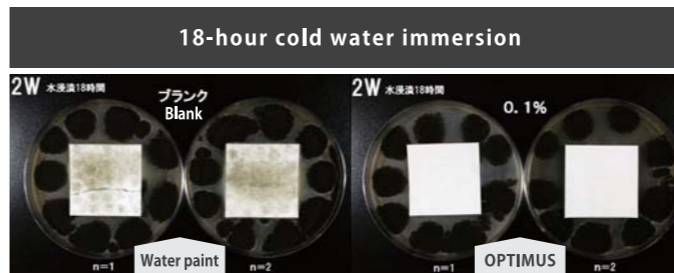
Bacteria	Viable count	Optical irradiation (irradiation intensity 0.25 mW/cm ²)	
		Blank	OPTIMUS
Results in 8 hours			
E. coli	1.0 × 10 ⁵	8.5 × 10 ⁴	<10
Staphylococcus aureus	1.4 × 10 ⁵	2.3 × 10 ⁴	<10

Bacteria placed on the coating of OPTIMUS stop multiplying and die off within 8 hours.

4 Anti-Mold

The photocatalytic effect of OPTIMUS inhibits fungal growth. OPTIMUS keeps rooms clean even a highly humid place like a bathroom.

Test results



Sample: Images on the left (water paint) / Images on the right (OPTIMUS)
 Study method: A JIS-Z-2911 fungus resistance test and paint studies
 Preprocessing: 18-hour cold water immersion followed by 3-day warm water immersion
 Assessment endpoint: Fungal count on the specimen

5 Safety



Zero VOC: OPTIMUS is not only toluene- and xylene-free, but also its contents of volatile organic compounds (VOC) are all below 1% in terms of indoor concentration standard set out by the Ministry of Health, Labour and Welfare. Also, the surface of OPTIMUS coating qualifies all of the tests set out by the Food Sanitation Law, demonstrating a high level of safety. Formaldehyde radiation grade: F☆☆☆☆ MLIT Non-flammable Test NM-3651

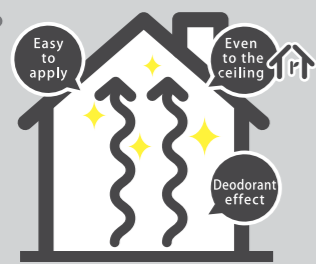
6 Staining-resistance



The photocatalyst also breaks down oil and tar that cause staining!

OPTIMUS has a surface electrical resistance of not greater than 10⁸Ω, preventing electrification, and also highly resistant to dust and dirt. In addition, the photocatalyst breaks down the oil and tar that cause staining, and keeping the wall clean.

TIPS Odor tends to ascend.



OPTIMUS applied on the ceiling deodorizes odor that ascends with steam in the air. OPTIMUS is relatively high in viscosity, and thus, easy to apply on the ceiling.

Can be applied on top of wallpaper



OPTIMUS may be applied on top of, and requires no peeling off of wallpaper, making it optimal for remodeling.

While OPTIMUS is a high-spec paint with a state-of-the-art technology, it is also of high-spec design made for sophisticated interior designs. OPTIMUS may be directly applied on top of wallpaper, making it optimal for remodeling.



BEFORE



AFTER

VV004 Sunny Yellow, NC003 Beach Sand, NC006 White

A matte texture!



This is a printing of the roller paint surface scanned so you can get the feeling of the profound texture specific to OPTIMUS.

FC004 Renoir Blue

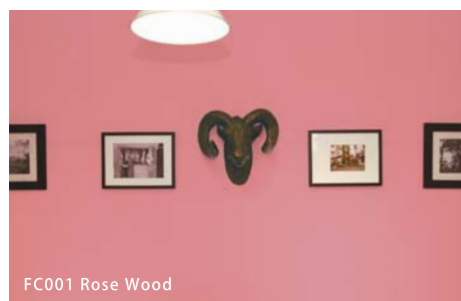
COLOR GUIDE OPTIMUS gives you a matte finish.



VV001 Ocean Blue

• OPTIMUS VIVID COLORS

	VV001 Ocean Blue		VV002 Bold Pink		VV003 Turquoise Blue
	VV004 Sunny Yellow		VV005 Charcoal Gray		



FC001 Rose Wood

• FRENCH CHIC COLORS

	FC001 Rose Wood		FC002 Antique Blue		FC003 Bourgogne
	FC004 Renoir Blue		FC005 Mulberry Pink		FC006 Blue de Royal



NC006 White

• OPTIMUS NATURAL COLORS

	NC001 Egg Shell		NC002 Urban Gray		NC003 Beach Sand
	NC004 Walnut		NC005 Espresso Brown		NC006 White
	NC007 Light Gray		NC008 Linen Ivory		

POINT OPTIMUS has a matte surface with fine irregularities made possible by the effect of the material, which gives you different feeling of textures depending on the angle of light that comes in, so that you can enjoy a thick finish, rich in expression in the room that changes throughout a day by the sunlight and a night by lighting fixtures.

WORK STEP Specifications for roller paint

Process	Materials	Dilution rate	Standard amount of paint	Painting interval (drying time)	Painting area (15kg can)
Groundwork	Before applying OPTIMUS, ensure that the concrete or mortar be adequately dried until the water content is 10% or below, and pH is 9.5 or below. When repainting, ensure to keep the surface clean by using a sander, scraper, wire brush, and other necessary tools to remove the fragile old paints, dirt, fungus, chalking, and other unnecessary materials. The joints between boards should be filled with oil cement, and likewise, irregularities, burrows, and other uneven portions should be leveled with emulsion cement.				
Primer	OPTIMUS INTERIOR PRIMER OPTIMUS PP PRIMER (For wallpaper)	Clean water: 0% to 10%	0.15kg / m ² / layer 0.1kg / m ² / layer	1 hour	100 to 110 m ²
Final coating 1	OPTIMUS INTERIOR PAINT	Clean water: 0% to 5%	0.15 to 0.18kg / m ² / layer	≥ 2 hours	40 to 50 m ²
Final coating 2	OPTIMUS INTERIOR PAINT	Clean water: 0% to 5%	0.15 to 0.18kg / m ² / layer	≥ 2 hours	

TECHNICAL DATA

Test parameters	Study results	Study method
Dry to the touch (25°C)	30minutes	By touching
Hardness	HB	Pencil hardness
Cracks following the initial drying process	W/o abnormality	JIS-A-6909
Adhesiveness	1.2N / mm ²	JIS-A-6909
Detergent resistance	W/o abnormality	JIS-A-6909
Shock resistance	W/o abnormality	JIS-A-6909
Discoloration resistance	W/o abnormality	JIS-A-6909
Water resistance	W/o abnormality	7-day immersion in tap water
Acid resistance	W/o abnormality	Spot test using a 2% sulphuric acid solution
Alkaline resistance	W/o abnormality	JIS-K-5675
Electrification	≤10 ⁸ Ω	Surface resistance meter
Thermal conductivity	0.08	

Items	Description
Material	Acrylic emulsion resin
Appearance	Pigmented paste liquid
Viscosity	18 ± 3 Pa · s
Specific gravity	1.00 ± 0.05
Solid content	60 ± 5%
Low temperature stability	No compositional separation or cohesion: Compliant with JIS-A 6909

Registered under the Japan Paint Industry Association:
Registration No.: H11002
Formaldehyde emission grade: F☆☆☆☆
Not applicable to any of the 13 products specified by the Ministry of Health, Labour and Welfare
MLIT Non-combustibility Test NM-3651

OPTIMUS is an eco-product.
FOR BETTER AND GREENER LIVING

