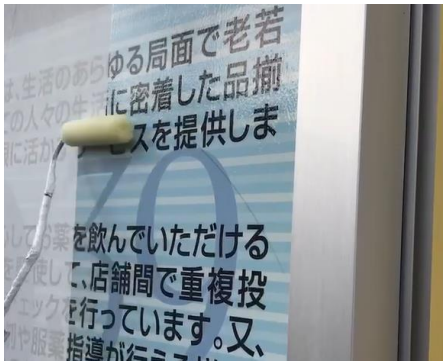
Initiatives for SDGs
Sustainable environment Energy saving measures by Nano-tech Coating

IRUV Cut Coat H-SC for window Glass



UV Shield pu for signboard

Thermo ECO Shield for outdoor unit

Heat Shield pu For roof-top

Sketch Nano.Ph
Thermal Paint | Heat & UV Cut Coat | Anti-fouling Coat

Product ①： IRUV Cut Coat H-SC

IRUV Cut Coat H-SC is a coating product that improves the heat shielding of glass windows. The coating leads to 20~30% of Energy Savings on air-conditioning energy consumption cost.

【 5mm thick single glass 】

【Before Coating】

UV rays Cut Ratio = 18%

Visible Light Transmittance =88%

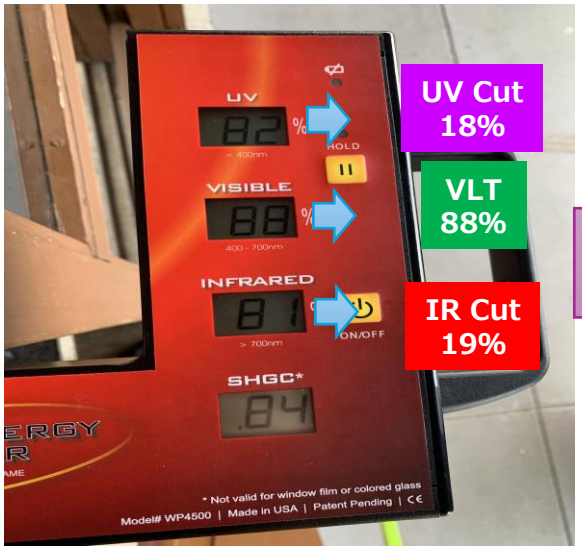
Near Infrared rays Cut Ratio= 19%

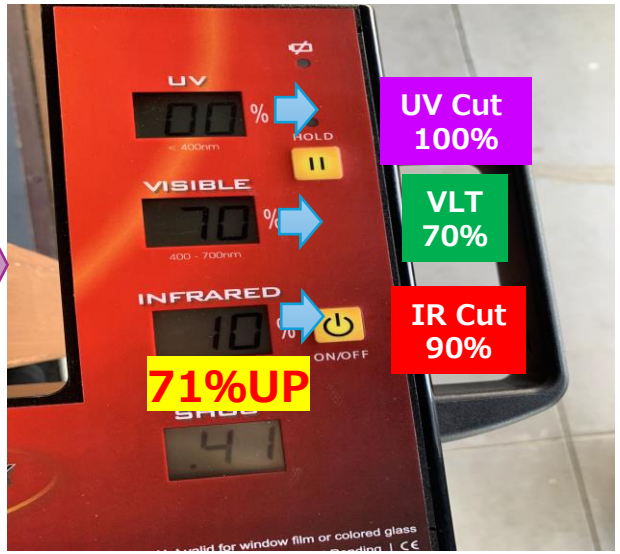
【After Coating】

・UV rays Cut Ratio = 100%)

・Visible Light Transmittance ratio =70%

・Near Infrared rays Cut Ratio = 90%





IRUV Cut Coat H-SC Advantages on Glass Windows

Heat-blocking effect:

Increases near-infrared cut rate by approximately 90% or more.
Near-infrared cut of 90% or more is achieved
Reduces direct solar heat during summer by approximately 8℃ to 15℃.

Ultraviolet Rays blocking effect:

99% UV-Rays blocked
Prevents fading of merchandise, flooring etc.
Deters flying insects with compound eyes

Condensation reduction:

50% condensation reduction
Minimizes water dripping

15-year weather resistance with a 10-year reinstallation guarantee.
2 times more durable and longer-lasting than regular window films.
* Reduces air conditioning load, resulting in energy savings of 25-30%.

Depreciation within 5 years (theoretical value).

Application Movie

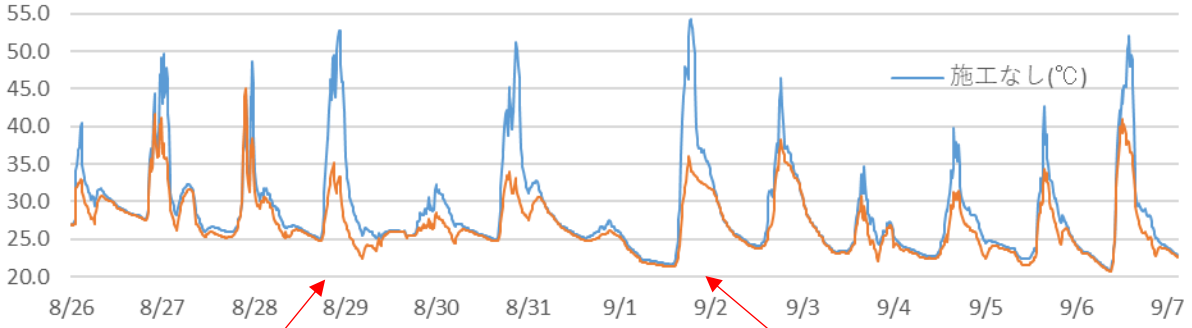
**Note: The energy savings percentage may vary depending on specific conditions and factors. From the test results of the Ministry of the Environment demonstration certification project ETV.*
https://www.env.go.jp/policy/etv/pdf/list/h25/051-1313a.pdf

Temperature comparison between Showroom's Coated and Uncoated area.

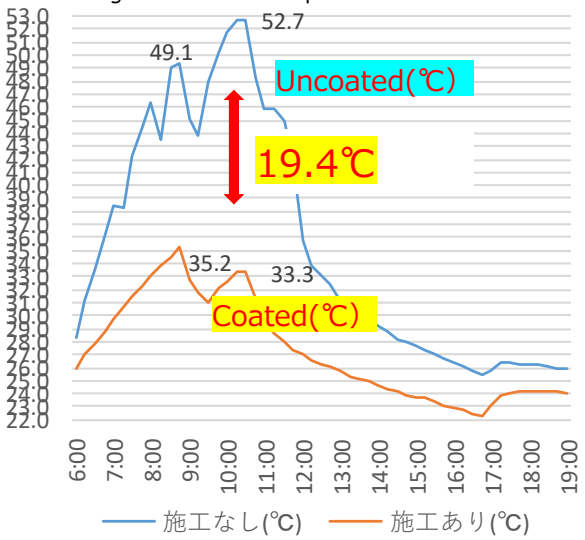
Temperature measurement period:
August 26, 2021 to September 7, 2021

<Coated area> <Uncoated area>

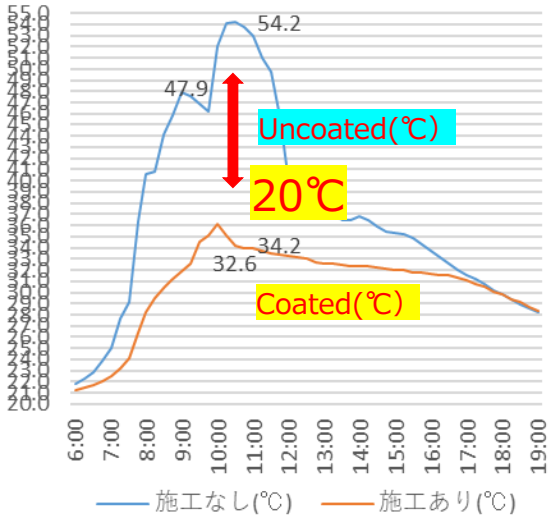
Maximum temperature difference: 19.4℃ ~20℃



■ Aug 29 Outside Temperature 21.0～29.7℃



■ Sep 2 Outside Temperature 17.9～26.2℃

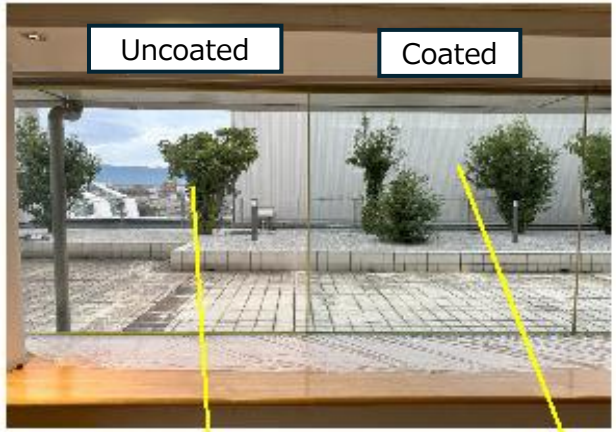


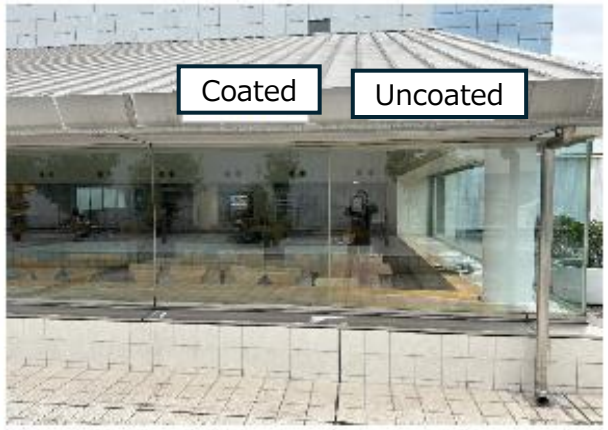
Because the building faces southeast, the temperature difference begins to appear at around 7:00 a.m. The amount of sunlight reaches its peak at around 10:30 a.m., when the temperature difference is greatest. "Until now, we couldn't use the showroom in the mornings because of the heat, but after the installation, we were able to block out a lot of heat."

Comparison of surface temperatures of coated glass surfaces in winter (without direct sunlight)

Minami Ward, Kyoto City, November 11, 2023, 10:00, facing south

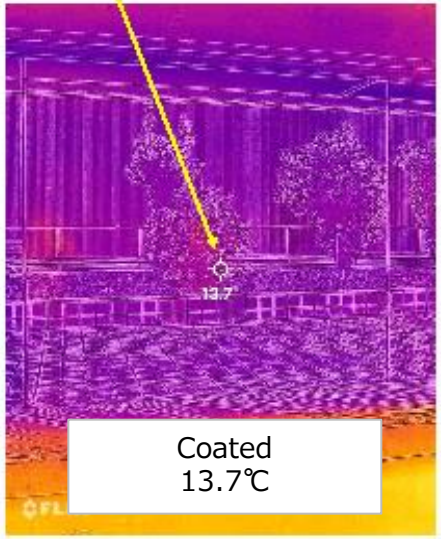
appearance

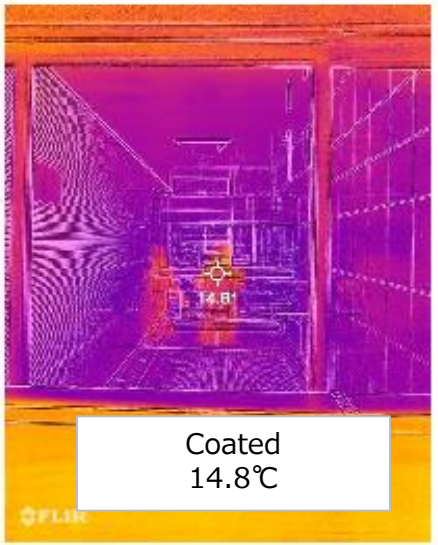




Uncoated glass 10.9℃
Coated glass next to it 13.7℃
Coated glass in the same room 14.8℃

The surface temperature of the uncoated and coated window glass surfaces next to each other is 13.7℃ due to the heat being pulled between them. The coated glass surfaces in the same room are 14.8℃.



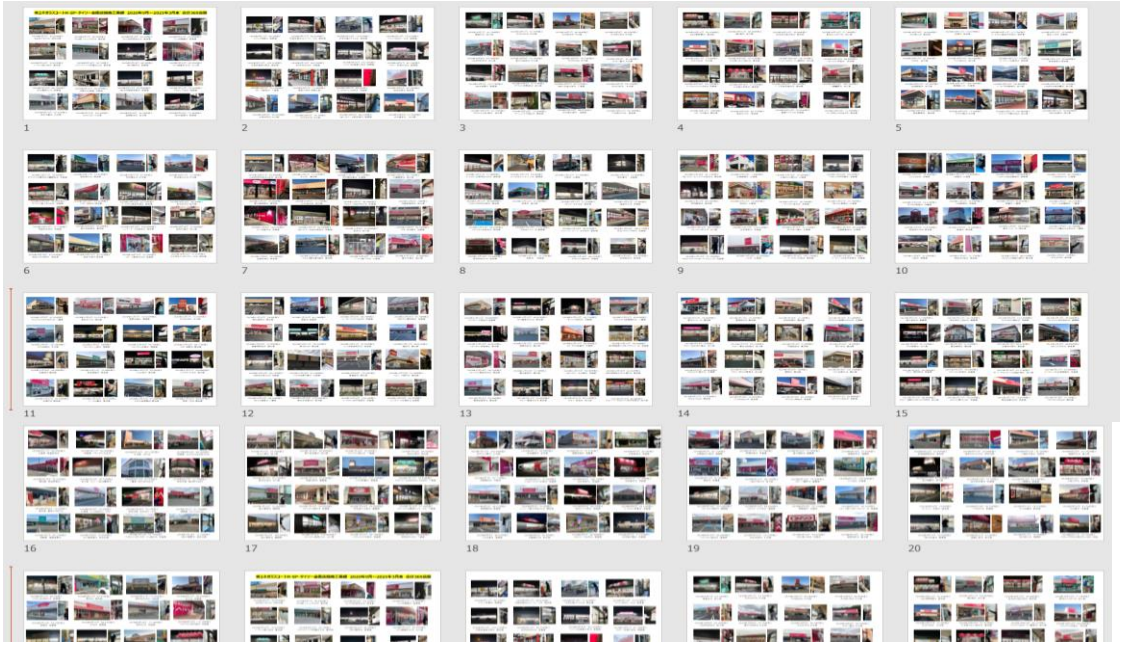


It has been demonstrated that by absorbing heat from inside the room and raising the surface temperature of the window glass, it reduces the loss of heat through the window (insulating effect), prevents the window from getting cold, and inhibits condensation.

Installation Track Record with National Chain Stores

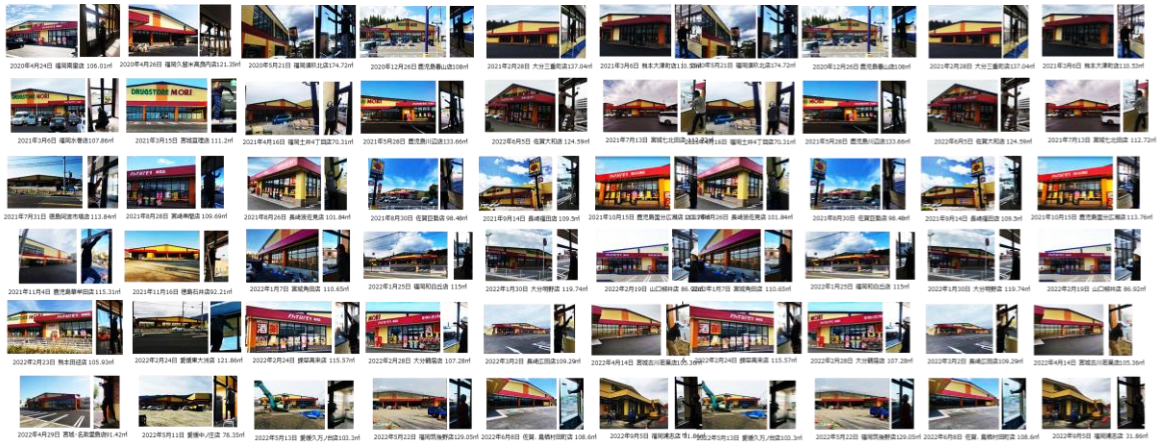
DAISO SHOP: Over 1,200 Stores Serviced Nationwide from 2020 to 2023

Approximately 40 to 100 sqm of Window Glass per Store



Drug Store Mori: Over 100 New Stores Serviced Nationwide from 2020 to 2025

Approximately 100 to 120 sqm of Window Glass per Store



Satisfied Customers across Japan


【Amazon Odawara warehouse】


【HOTEL in Hokkaidou】


【KEWPIE Mayonnaise headquarters 】


【 Kawasaki Heavy Industries Technical Development Division 】


【Tokyu hospital】


【 Kagoshima District Legal Affairs Bureau Kirishima Branch 】


【 Ministry of Internal Affairs and Communications 】


【 Hotel Japan Shimoda 】


【 Sapporo Beer Chiba Factory 】

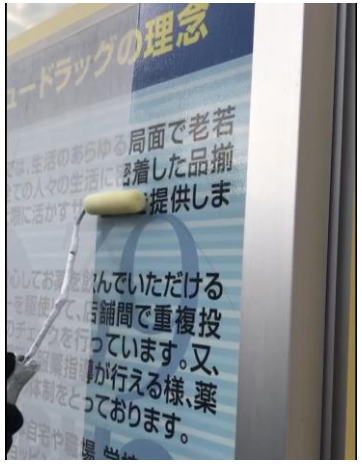

【 Tokyo Gakukan Niigata High School 】

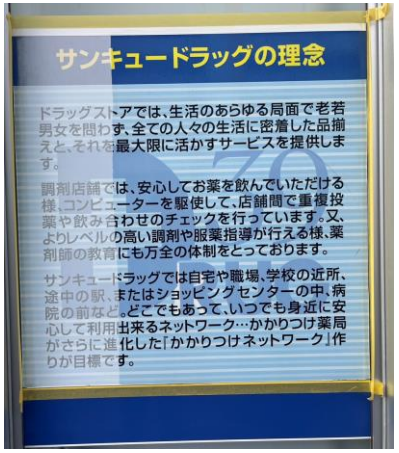

【 Edogawa City Hall 】

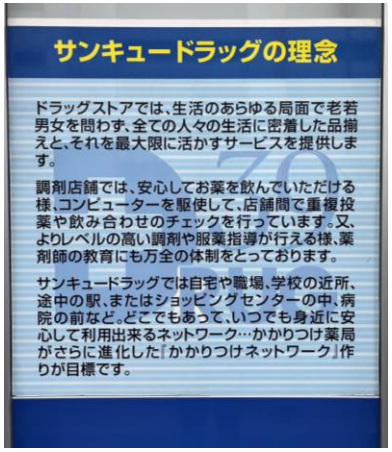

【 Japan Atomic Energy Agency 】

Product ② : UV Shield pu

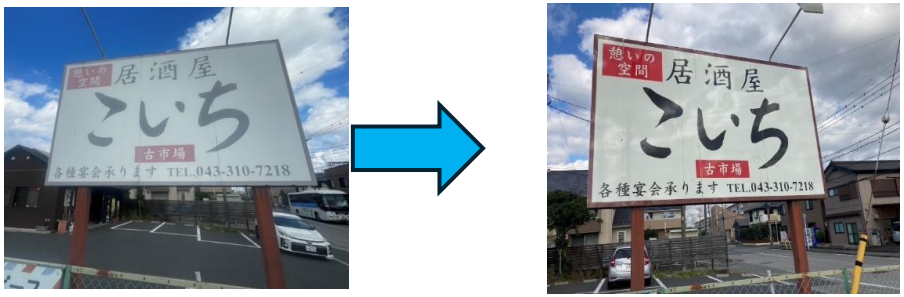
"UV Shield PU" is a new UV-cut coating that combines the UV-blocking base coat used in IRUV Cut Coat with transparent aliphatic polyurea. It can be applied transparently to signs, exterior surfaces, glass, PET film, acrylic, polycarbonate (PC), and wood.
When applied to faded signs, it restores their original color and appearance, maintaining that condition for over 15 years. This extends the durability of signs—previously replaced every 5 to 7 years—to more than double, contributing to significant cost savings.







Example Application of UV Shield PU — Ultra-Weather-Resistant Polyurea for Signboards



Application Movie

Signboard Replacement Cycle and Costs in Japan

Conventional Method

VS

New Method

Before After

Traditional Method

【Signboard Sheet Replacement Work】

Installation Area :46sqm

Unit Price per sqm: 12,000JPY/sqm

Total Cost: 552,000JPY

Replacement Period: Once every 5 to 7 years

VS

Future Method

【**UV Shield pu installation**】

Installation Area :46sqm

Unit Price per sqm: 8,000JPY/sqm

Total Cost: 368,000JPY

Replacement Period: Once every 15 years

Installation Cost Comparison Over a 15-Year Period

1,656,000JPY(3 times replacement) ⟷ 368,000JPY(only 1time)

4.5 Times Difference

Product ③: Thermo ECO Shield with Anti-Rust & Anti-fouling

Thermo ECO Shield application system achieves Rust prevention, heat insulation and antifouling shield.
As a result, the load on the compressor is reduced leading to **energy savings of 15% or more. .**

THERMAL PAINT for outdoor unit

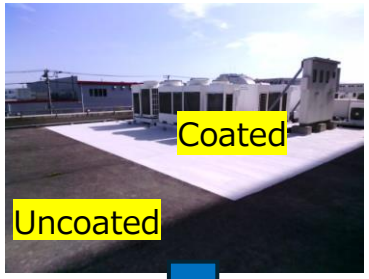
waterproof auxiliary
& rust-proof coating
「**Rust Shield**」

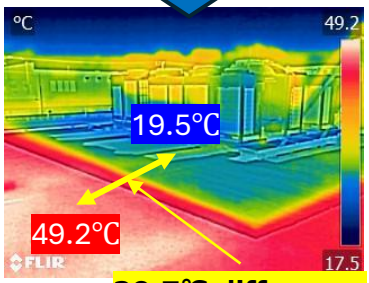
＋

Heat Reflection
& Thermal insulation Paint
「**Thermo ECO Shield**」

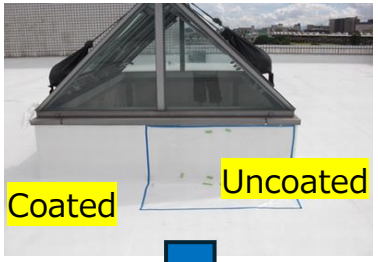
＋

Anti-Static, Super Hydrophilic
Antifouling Coat
& maintaining reflectance
「**Super Glass Barrier**」





29.7℃ difference



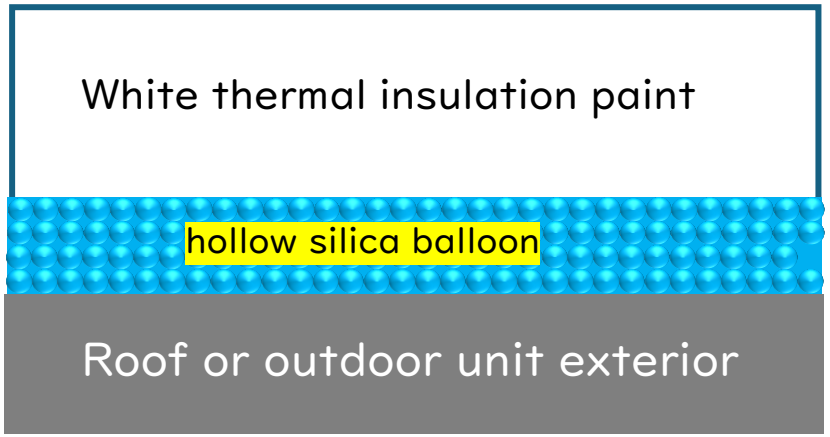
1 year later

2 reasons why the heat shield and insulation performance is superior to other products

●Reason 1：The higher the hollow bead content, the higher the insulation performance.

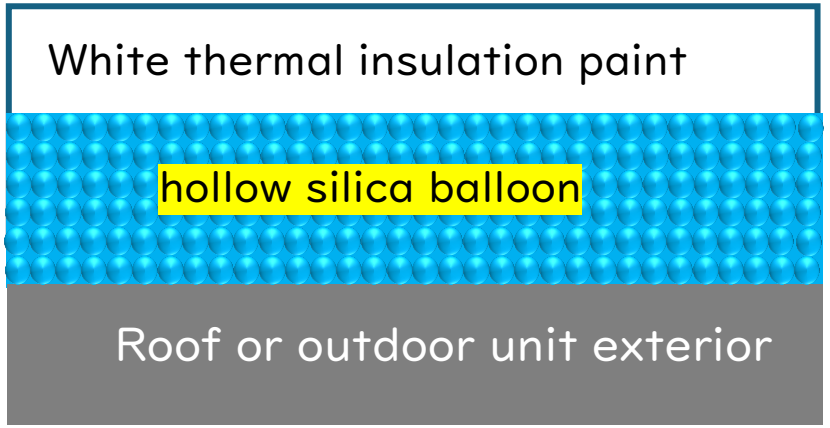
Thermo Eco Shield contains 12% hollow beads in the paint (60% in the paint film after application), which is more than twice that of other companies.

Competitor's thermal insulation paint



Assuming that the film thickness of the entire coating film is 300μm,
The film thickness of the hollow beads is 90-120μm.(30-40% of total ratio)

Thermo ECO Shield



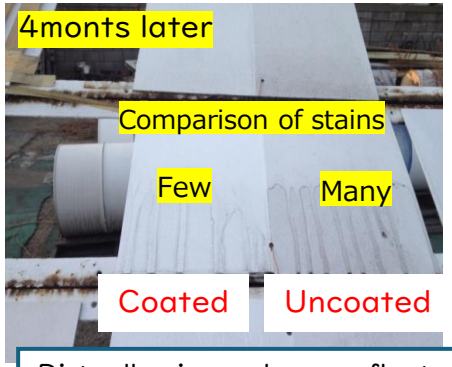
In a film thickness of 300μm,
Hollow bead film thickness 180μm
(60% of total ratio)

2 reasons why the heat shield and insulation performance is superior to other products

●Reason2: The most important point in maintaining the heat shielding performance is not to reduce the infrared reflectance.

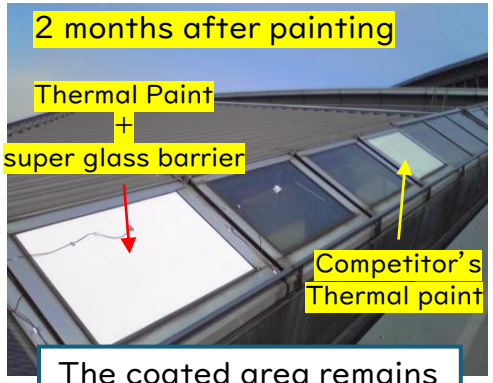
Reflectance is maintained by applying antistatic super hydrophilic antifouling coating "Super Glass Barrier".

Test in Korea



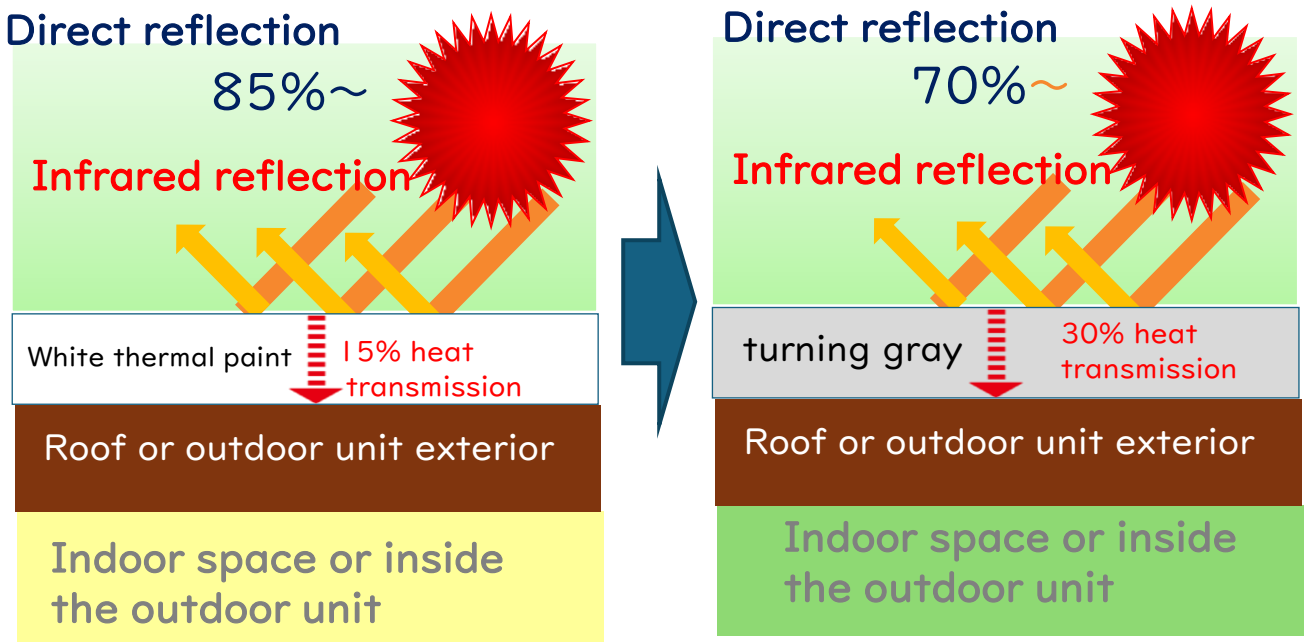
Dirt adhesion reduces reflectance

Tokyo Big Sight West Building



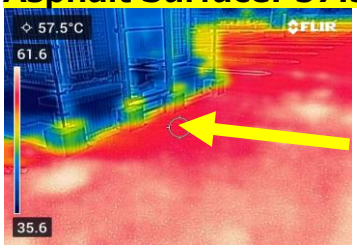
The coated area remains white and clean.

Degradation of white color due to adhesion of dirt



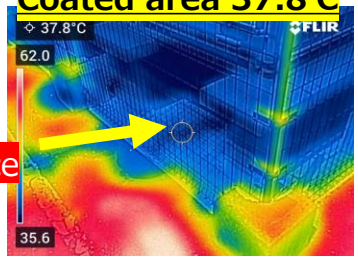
Outdoor Unit and Surrounding Area Coating Only — For Structural Protection and HVAC Energy Efficiency

Asphalt Surface: 57.5℃



19.7℃ Difference

Coated area 37.8℃



① Reduces thermal load on the interior of outdoor units to prevent high-pressure cutoffs

② ¥8,800/sqm (in Japan), with 3-year depreciation and 10-year weather resistance

③ 10–15% Energy Savings – 3-Year Payback, 7 Years of Profit

④ Heat shielding in summer, insulation in winter for energy savings on cooling and heating

⑤ Protects the housing of air conditioning and refrigeration units, extending their lifespan

⑥ 10-year anti-rust warranty for metal roofs and outdoor units

⑦ Unique anti-stain coating maintains high reflectivity of white surfaces

⑧ Installation without disassembly; power consumption is monitored and verified

⑨ Quality assurance through film thickness and coating management

⑩ Maintenance-free after application

When only outdoor units on the ground are coated: Approx. 10% energy savings.
For refrigeration/freezer units: approx. 5% energy savings

※ In some cases (such as with reach-in or demand-controlled units), energy savings may not be realized depending on equipment conditions.

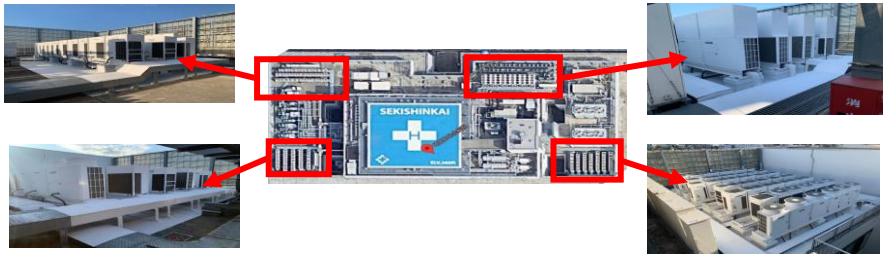
Application Movie

Installation Completed for More Than 5,000 Outdoor AC Units

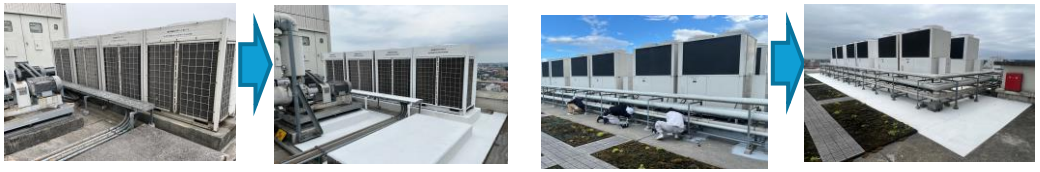
Hospital in Saitama

Japanese No,1 hospital group

A Total of 1,586 m² Coated from October 12 to November 5, 2022



A Total of 538.88 m² Coated from August 3 to 25, 2022



Coating Applied to Rooftop Outdoor AC Units at Over 200 Drugstore Mori Stores — Totaling More Than 65,000 m² (Ongoing)

2023年5月20日 大村溝陸店
（長崎県）163.58㎡

2023年5月4日 羽屋店
（大分県）194.85㎡

2023年5月4日 高城店 （大分県）249.15㎡

2023年5月9日 上野口店（大分県）227.64㎡

2023年5月9日 西大在店

2023年5月9日 明野店
（大分県）286.44㎡

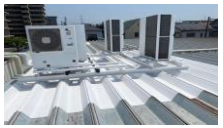
2023年5月9日 鹿児島駅前店（鹿児島県）313.36㎡

2023年5月11日 日向財光寺店（宮崎県）213.25㎡

2023年5月13日 子平町店
（宮城県）230㎡

2023年5月15日 祓川店
（愛媛県）300.5㎡

2023年5月15日 宮之城店（鹿児島県）336.68㎡



2023年5月16日 戸島店（熊本県）301.23㎡

2023年5月17日 田迎店（熊本県）383㎡

2023年5月17日 京町店
（熊本県）152.5㎡

2023年5月17日 高鍋東店
（宮崎県）303.55㎡

2023年5月15日 串木野店
（鹿児島県）206.94㎡

2023年5月20日 大村松並店
（長崎県）256.55㎡

（大分県）248.81㎡

Product ④ : Heat Shield pu(Aliphatic polyurea) with Anti-rust & Anti-stain

Long-Life Coating (20-Year Weather Resistance, 3rd-Generation Aliphatic Polyurea)

「Rust Shield」

1. Anti-Rust
2. Auxiliary waterproof

For corrugated metal roofs, a 10-year anti-corrosion warranty is provided.

＋

「Heat Shield Pu」

3. Heat reflection
4. Ultra Weather Resistance

:A heat-reflective coating with 20-year weather resistance based on aliphatic polyurea.

＋

「Super Glass Barrier」

5. Anti-Static
6. Super-hydrophilic
7. Maintain infrared reflectance

: Maintains high reflectivity with excellent anti-stain performance.

VS

"Other Companies' Heat Insulation Paint - 2 Steps."

General Primer Sealer

× No anti-corrosion or waterproofing performance.

＋

3. Heat reflection
4. Heat Insulation

× Significant Difference in Weather Resistance.

With over 20 years of weather resistance, it is possible to reduce the cost of one repainting cycle.

VS

Acrylic and urethane require repainting every 10 years, while fluorine coatings require repainting every 15 years.

× Significant Difference in Heat Reflective Performance

Infrared reflectivity decreases due to dirt, reducing heat reflective performance.

Comparative Analysis of Coating Performance

Advantages of Aliphatic Polyurea

・Polyurea contains C-N bonds, which are stronger than the C-O bonds found in polyurethane. This results in superior heat resistance, thermal deformation resistance, and elasticity, allowing it to better follow substrate movement and cracks. Being 100% hydrophobic, it is highly resistant to hydrolysis caused by moisture and does not lose strength over time.

・It offers ultra-high weather resistance for over 20 years, with minimal degradation, discoloration, or yellowing, making it ideal for waterproofing and extending the lifespan of exterior materials.

・Once cured, it is highly resistant to water and UV exposure, maintaining coating performance for over 20 years. Its ultimate weather durability can exceed 50 years.

・Compared to polyurethane, it has significantly higher abrasion resistance, corrosion resistance, and anti-rust properties, with dramatically enhanced weather resistance.

Comparison Item	Aliphatic Polyurea (Roller / Simple Spray)	Aromatic Polyurea (Heated Spray)	Silicone / Urethane Paint	Fluorine Paint
Weather Resistance	◎ Over 20 years	◎ Over 20 years	△ ~10 years	○ ~15 years
Initial Cost	○ Slightly High	△ High	◎ Standard	○ Slightly High
Running Cost	◎ Low	◎ Low	△ High	○ Slightly High
Maintenance Frequency	◎ Low	◎ Low	△ High	○ Slightly Low
Long-Term Waterproofing	◎ High	◎ High	△ Low / Hydrolysis	○ Average
Quick Crack Following	◎ Yes	◎ Yes	△ None	△ None
UV Resistance	◎ Strong	△ Normal / Yellows	△ Normal	○ Slightly Strong
Cost per sqm	Approx. ¥8,000	Approx. ¥25,000	Approx. ¥5,000	Approx. ¥7,000

The Difference Between 1st Generation Aromatic Polyurea and 3rd Generation Aliphatic Polyurea

【 1st Generation Aromatic Polyurea 】

Coating for Waterproofing and Abrasion Resistance

■Feature

① **2 liquid type, Dry within 10 sec.**

② **Weak UV resistance;**
one of the following countermeasures is required

- Topcoat application is required as a UV protective layer.
  → Repainting Required Every 10 Years
- Apply a blended product with polyurethane to prevent UV degradation.
  → Some products are marketed as polyurea even with only 70% purity. The lower the purity, the more the performance of polyurea declines.

■Application

① Applied using RIM spray costing around 10 million yen;
thickness: 2 mm or more
(Only contractors with the equipment can apply it)

② Cures in 10 seconds using a two-component system
at approximately 60℃ ※ Fast drying shortens Application time
→ Mainly used for large-scale projects

③ Darker colors are preferred for UV protection
(White and other light colors yellow easily from UV.).

■Cost ① Material cost is lower than aliphatic type — about half the cost

② Due to thick-film application, construction cost is high

③ As a highly weather-resistant waterproofing solution:
from 25,000 JPY/sqm

VS

【 3rd Generation Aliphatic Polyurea 】 Sketch

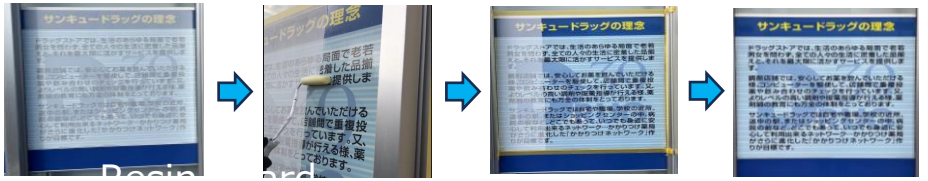
Mainly for Extending Building Life & Energy Efficiency

■Feature ①**2 liquid type ※ Room-temperature curing in 1 hour**

② **Highly UV-resistant and can be applied as a topcoat**

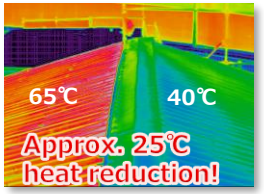
【Only 1 Strategy of Sketch BM】

①Focused on ultra-weather resistance, not just waterproofing
②Targeting repair and caulking markets with 20-year durability
③UV-fade prevention for 20 years
④20-year heat-shielding coat for energy and rust protection
⑤Specialized in non-yellowing aliphatic polyurea



■Application ①Simple application by roller or brush

②Standard painting work with a thin film of 200–300μm



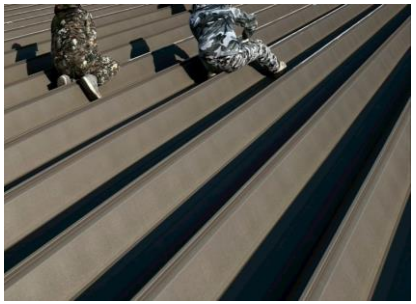
■Cost

①Material cost is higher than aromatic types

②Thin-film application makes the construction cost relatively low

③Signboard coating: up to ¥12,000/sqm
Roof coating: ¥10,000–¥12,000/sqm

Aliphatic Polyurea / Long-Life Coating Implementation Examples



Corrugated metal roof coating of 3,228 m² completed
in March 2025 at a warehouse in Kagoshima Prefecture

Heat-shielding coating applied to a shutter
at a drugstore in Osaka – May 2025

In June 2025, a sign pole at a drugstore in Hiroshima Prefecture
was coated for rust prevention.

Rust prevention coating inside a cubicle
at a seaside supermarket in Nagasaki – June 2025

Application Movie

Application Price List by Roof Material Type

Roof Substrate	Coating Materials
Corrugated Metal Roof Heat-shielding & Anti-rust	**10-Year Anti-Rust Warranty / 20-Year Durable Heat-Shielding Coating** Rust Shield(75μm) + White Heat Shield pu(150μm) + Super Glass Barrier（200nm)=225μm～
Corrugated Metal Roof Heat-shielding & Thermal Insulation, Anti-rust & Waterproofing	**10-Year Anti-Rust Warranty / 20-Year Durable Heat-Shielding & Thermal Insulation Coating** Rust Shield(75μm) +Thermo ECO Shield(150μm) + White Heat Shield Pu (150μm) +Super Glass Barrier(200nm)=375μm～
Slate Roof Heat-shielding, Waterproofing & Reinforcement	**10-Year Waterproof Warranty / 20-Year Durable Heat-Shielding Coating** Slate Primer(200~400μm) +Water proof & Reinforcement Polyurea(400μm) +White Heat Shield pu（80μm) +Super Glass Barrier(200nm)=880μm～
Slate Roof Heat-shielding/Thermal Insulation, Waterproofing & Reinforcement	**10-Year Waterproof Warranty / 20-Year Durable Heat-Shielding & Thermal Insulation Coating** Slate Primer(200~400μm) + Water proof & Reinforcement Polyurea(400μm) +Thermo ECO Shield(150μ) +White Heat Shield pu（80μ) +Super Glass Barrier(200nm)=1030μm～
Concrete Roof Heat-shielding & Waterproofing	**10-Year Waterproof Warranty / 20-Year Durable Heat-Shielding Coating** Penetration blocking-primer(200~400μm) + Water proof & Reinforced Polyurea(400μm) + White Heat Shield pu（80μm) +Super Glass Barrier(200nm)=880μm~
Concrete Roof Heat-shielding/Thermal Insulation, Waterproofing	**10-Year Waterproof Warranty / 20-Year Durable Heat-Shielding & Thermal Insulation Coating** Penetration blocking-primer(200~400μm) +Water proof & Reinforced Polyurea(400μm) +Thermo ECO Shield(150μ) + White Heat Shield pu（80μ) +Super Glass Barrier(200nm)=1030μm～

※Additional costs such as general expenses, safety measures, and welfare charges will be added separately.

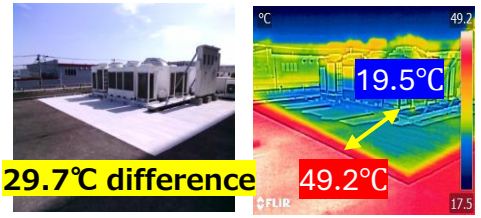
Perfect coating system: ③Thermo ECO Shield + ④Heat Shield pu

This is a high-performance coating system for metal roofs and nearby outdoor HVAC units.
①**Rust Shield**: A rust-preventive base coat with 10-year weather resistance
②**Thermo ECO Shield:** Uses 12% of special hollow silica beads, the highest in the industry.
Significantly improved heat insulation in summer and winter.
③**Heat Shield PU**: A white aliphatic polyurea heat-shield coating with 20-year durability
④**Super Glass Barrier**: A self-cleaning, anti-static, super-hydrophilic layer that maintains high reflectivity.
The system provides approximately 15% energy savings for outdoor units and over 10% for entire roofs. With a return on investment in 5–6 years and durability of over 15 years, it delivers significant long-term cost savings.

Waterproofing Auxiliary,
Anti-rust paint
「Rust Shield」

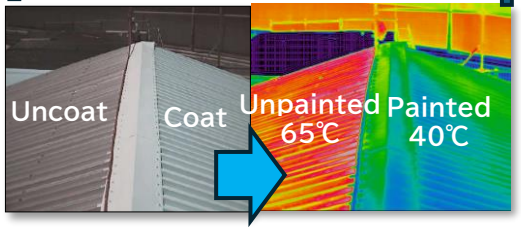
10-year rust prevention effect

Thermal Insulation &
Heat Reflection Paint
「Thermo ECO Shield」



Suitable not only for Summer
But also, for Winter

Waterproofing &
Heat Reflection Polyurea
「Heat Shield pu」



Extremely weather
resistant for 20 years

Maintains Anti-fouling &
Anti-heat Nano Coating
「Super Glass Barrier」

Weather Resistance
for Over 10 Years

Official Website & YouTube Channel (Sketch Nano Philippines)

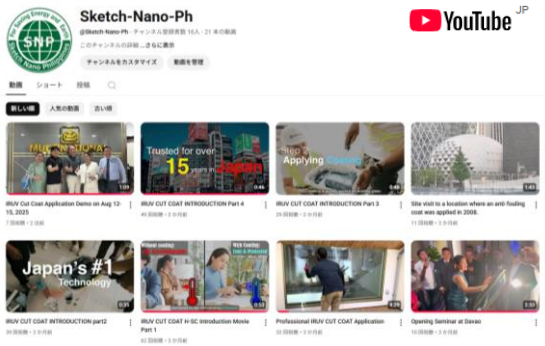
【Website】

https://sketch-nanocoating.ph/

【Facebook】

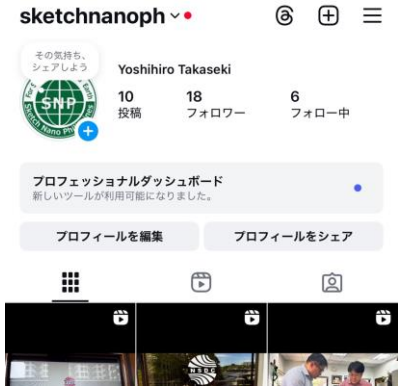
https://www.facebook.com/profile.php?id=61566420118883

【Youtube】



https://www.youtube.com/@Sketch-Nano-Ph

【Instagram】



https://www.instagram.com/sketchnanoph/