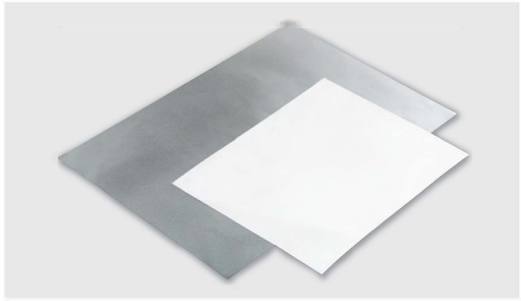
Radiative Cooling Film

Silver Arrow®

Product name	Silver	SA-FS
	White	SA-FW
Size (width x length)	1,200mm × 20/10m	
	600mm × 20/10m	
Thickness (representative value)	110 μm (including adhesive)	
Adhesive strength (to SUS/after 24 hours)	Approximately 17N/25mm	
Weather resistance	Equivalent to about 7 years	



・The physical property values listed are representative values and not standard values. ・Weather resistance is stated based on in-house accelerated testing, but is not a guaranteed value.

Applications

Transportation Logistics

Reducing cooling fuel costs

Suppressing temperature rises inside the cargo

Outdoor Equipment

Suppressing failures

Reducing cooling equipment, etc.

Simple Houses

Reducing cooling electricity expenses

Suppressing temperature rises inside rooms

Roofs

Reducing cooling electricity expenses

Suppressing temperature rises inside rooms

Precautions for Use

◆ Precautions for use
- When starting installation, be sure to refer to the attached "Installation Instructions."
- Thoroughly clean the installation surface to remove moisture, dust, etc. before starting work.
- The film is made of polyester material and does not stretch. Installation on curved surfaces is not recommended.
- Since air-free adhesives are used, it is strictly forbidden to apply the film with water.
- The film cannot be installed on the following base materials.
  (polycarbonate PC, polyethylene PE, polypropylene PP, silicon, rubber, surfaces coated with petroleum or organic solvents, etc.)
- If you bend or fold the film too hard, it may wrinkle. Please handle with care to avoid wrinkles.

◆ About weather resistance
- Future weather resistance cannot be guaranteed. Regular cleaning, maintenance and replacement are recommended.
- Weather resistance is based on our own testing (accelerated test), but is not a guaranteed value.

◆ About disposal
- Dispose of waste materials as "industrial waste."

◆ About storage
- Store in a cool, dark, well-ventilated place away from direct sunlight and high temperatures and humidity, in the original packaging.

◆ Others
- We take every precaution to ensure quality, but in the unlikely event of a product defect, only our products are available for returns and exchanges.
- Please note that we assume no responsibility to pay for other expenses.

Manufacturer

BANDO CHEMICAL INDUSTRIES, LTD.

DISTRIBUTED BY

CHAIN & DRIVES®

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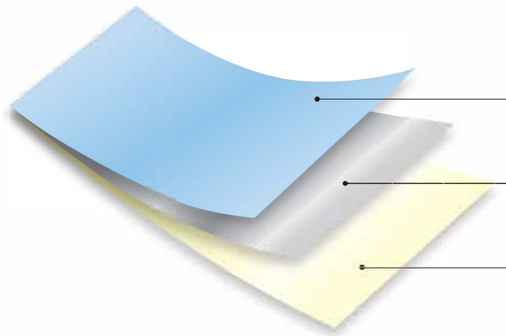
BANDO

Radiative Cooling Film **Outdoor**

Silver Arrow® Patented

With excellent heat shielding

Innovative Energy-Saving Film



[Product Structure]

Top Layer	**Unique structure** providing anti-glare properties while maintaining heat shielding
Reflective Layer	High reflecting near infrared rays due to **silver nano layer**
Adhesive Layer	**Unique adhesive layer** that allows air to escape easily

Value of the Product

"Super" Heat Shielding

Reflecting near-infrared rays from the sun to suppress the rise in internal temperature

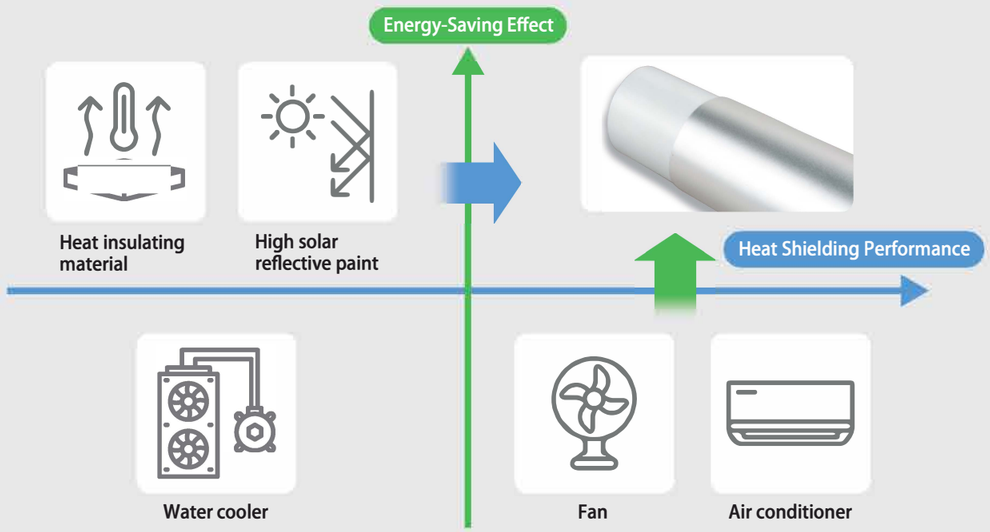
Realizing Energy Savings

Reducing energy consumed for cooling

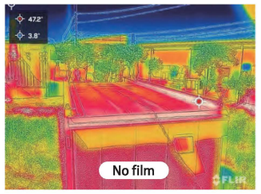
Easy Installation

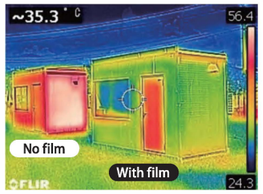
- Air-free adhesive used
- Can be applied to a variety of base materials

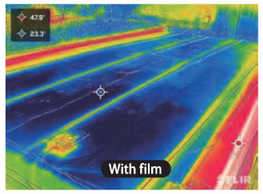
Comparison with Conventional Technology

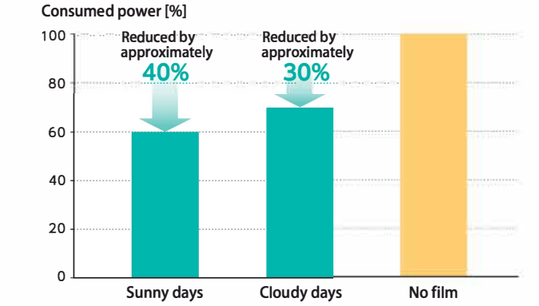


Demonstration Cases and Effectiveness Examples







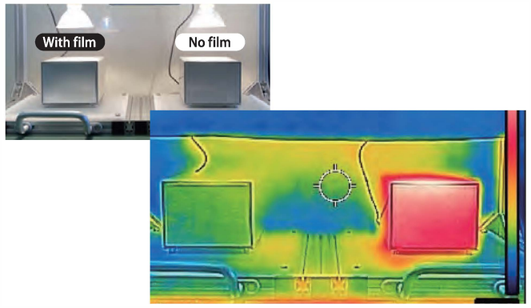


Period: August 2023 Location: Our Wakayama Plant
Conditions: Installing the film other than on windows and doors and setting the air conditioning temperature to 25°C in cooling

Effects Realizing a reduction in power consumption by approximately **40%** on sunny days and by approximately **30%** on cloudy days

Period: August to September 2024 Location: Tokyo
Conditions: Measuring fuel efficiency of a light refrigerated vehicle (dedicated refrigeration unit runs directly on the engine)

Effects Improved fuel efficiency by approximately **20%** (reduced fuel costs)



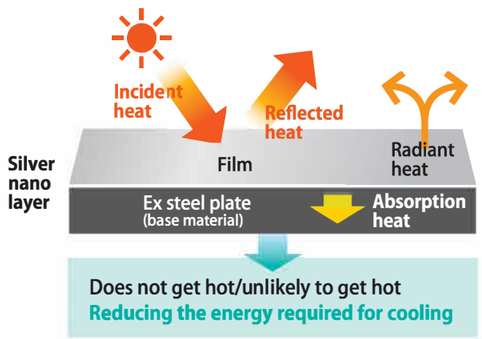
Conditions: Measuring the saturation temperature inside the box using a tabletop evaluation device

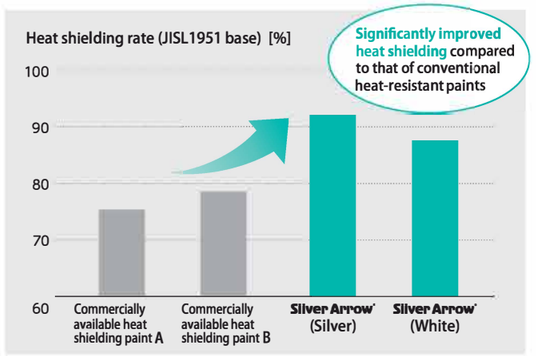
Effects Temperature difference of **just under 25°C** inside the box

Mechanism and Effects

By using "silver" in the reflective layer, **near-infrared energy from the sun is highly reflected.**

It is also called a "radiative cooling material*" because the film efficiently radiates any heat that cannot be reflected, thereby suppressing the rise in internal temperature.





*Since there are no evaluation standards for "radiative cooling materials," we use the "heat shielding rate" as an evaluation index based on our own unique evaluation method that applies the JIS-L1951 "heat shielding rate" measurement.