

Pioneering Innovations in Electricity-free Cooling Technology



Cutting-Edge Materials for Net-Zero Cooling
Driving Innovation in Green Energy Solutions



Surface Temperature
Reduction up to
42 °C



Energy Saving
Rate up to
40 %



Optimal
Payback Period
1-3 Years

LHS, innovating with integrity

At LHS, we lead the way in infrastructure innovation—delivering sustainable, green solutions that transform energy efficiency and resource optimization across the United Arab Emirates and beyond. With a deep commitment to sustainability, technology, and operational excellence, LHS partners with industry leaders to tackle the UAE’s most pressing challenges in climate control, energy management, and resource conservation—supporting the nation’s bold vision for a greener, more resilient future. long-term sustainability for businesses across diverse industries.



Our vision

LHS strives to be the global leader in innovative, sustainable solutions, delivering measurable value to businesses while positively impacting the environment and communities around the world.



Our mission

LHS provides turnkey, sustainable solutions that optimize resources and reduce environmental impact. We offer comprehensive solutions that enable businesses to conserve energy, minimize their carbon footprint, and contribute to a sustainable future.



Our purpose

To redefine facility management by implementing green building practices and cutting-edge technologies. We aim to future-proof facilities by reducing energy consumption and promoting long-term sustainability for businesses across diverse industries.

Strategic partnerships

LHS’s commitment to sustainability is reinforced by partnerships with global innovators. These partnerships allow us to offer sustainable, resource-efficient solutions that lower operational costs and enhance overall performance.

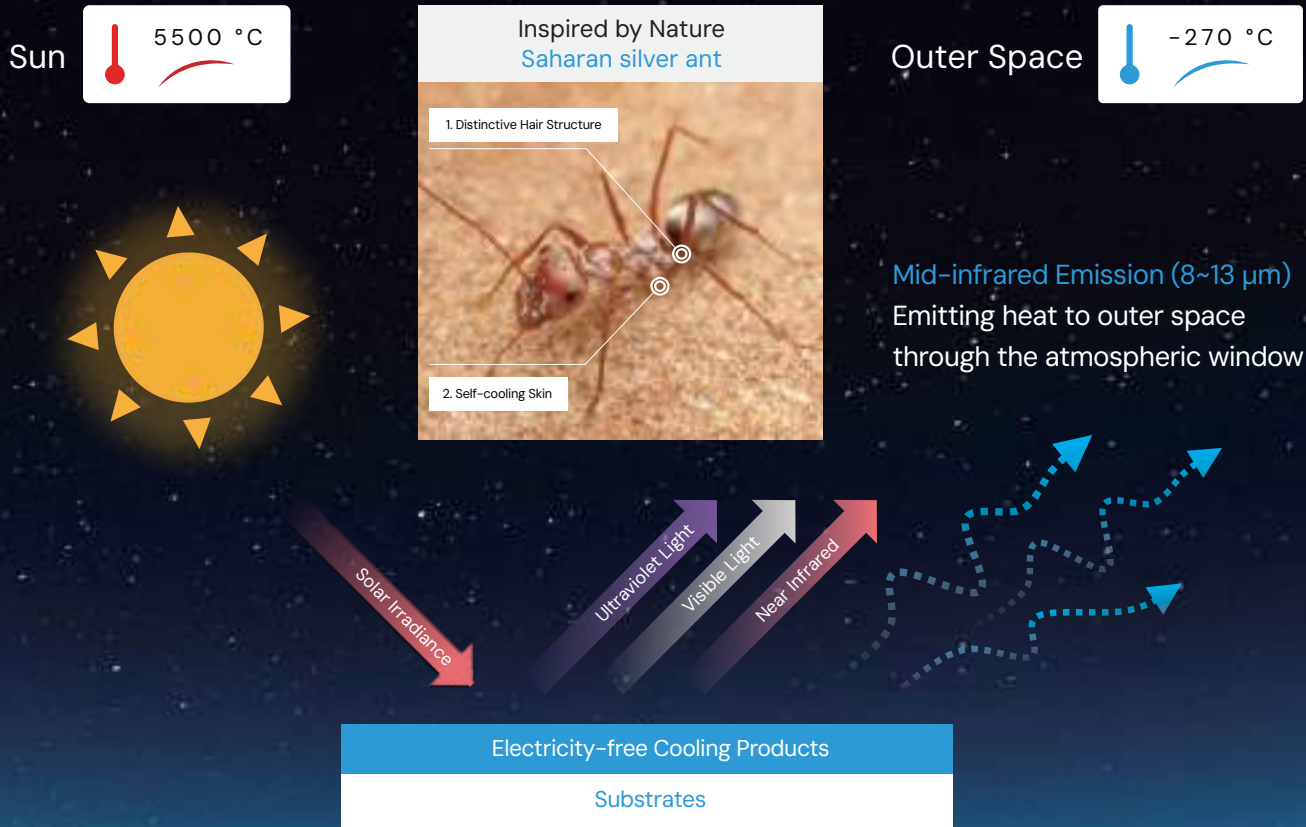
Towards sustainable efficiency

By embedding sustainability into every solution, LHS continues to innovate and lead the way in providing eco-friendly, resource-optimized environments for businesses. Together with our partners, we ensure our clients benefit from long-term, future-focused solutions that drive green development.



i2Cool, the Pioneer of Electricity-free Cooling Technology

Inspired by the distinctive hair structure of the Saharan Silver Ant, i2Cool has integrated material sciences, optics, and heat transfer principles to develop multi-component and multi-scale nanoparticle materials, boasting an impressive 95% solar reflectivity and mid-infrared emissivity. This solution effectively reduces heat absorption and promotes heat dissipation, achieving cooling without electricity and refrigerants. This breakthrough surpasses the 90% reflectivity limit of previous thermal insulation coatings.



Using outer space as the cooling source, electricity-free cooling technology requires no power supply and refrigerants. It achieves cooling effect below ambient temperatures through efficient solar reflection and mid-infrared emission. Our solutions deliver effective, eco-friendly cooling and temperature control for diverse applications, from green architecture to industry and everyday use.



The i2COOL product range

i2Coating

The paint's core component consists of multi-component and multi-scale nanoparticle materials, with solar reflectivity and mid-infrared emissivity up to 95%. After being applied to the surface of buildings or equipment, it can reduce heat absorption and promote heat dissipation, achieving cooling without electricity and refrigerants.



Maximum Solar Reflectivity

95 %

Maximum Mid-infrared Emissivity

95 %


-  Safe and Eco-Friendly
-  Convenient and Affordable
-  Comprehensive Mechanical Performance
-  Pantone Color Customization

Provide comprehensive electricity-free cooling solutions for diverse scenarios

<div>Architecture</div> <div><div>01</div><div>↓42 °C</div><div>Intensive Cooling Power Enhanced Weather Resistance Enhanced Fire Resistance</div></div> <div><div>02</div><div>↓32 °C</div><div>Value- Focused</div></div>	<div>Telecom&Power</div> <div><div>01</div><div>↓38 °C</div><div>Enhanced Thermal Insulation</div></div> <div><div>02</div><div>↓38 °C</div><div>Enhanced Corrosion Resistance Enhanced Thermal Insulation</div></div>	<div>New Energy</div> <div><div>01</div><div>↓40 °C</div><div>Value- Focused</div></div> <div><div>02</div><div>↓40 °C</div><div>Enhanced Corrosion Resistance</div></div>	<div>Logistics</div> <div><div>01</div><div>↓40 °C</div><div>Enhanced Corrosion Resistance</div></div>
<div>Grain Storage</div> <div><div>01</div><div>↓36 °C</div><div>Enhanced Corrosion Resistance Enhanced Weather Resistance</div></div> <div><div>02</div><div>↓40 °C</div><div>Value- Focused Greener Alternative</div></div>	<div>Photovoltaic</div> <div><div>01</div><div>↓36 °C</div><div>Enhanced Weather Resistance</div></div> <div><div>02</div><div>↓40 °C</div><div>Value- Focused</div></div>	<div>Chemical Industry</div> <div><div>01</div><div>↓36 °C</div><div>Enhanced Corrosion Resistance Enhanced Weather Resistance Greener Alternative</div></div>	

i2Film

The PET optical film used in iFilm has a high mid-infrared emissivity of up to 94%. By efficiently reflecting and refracting light and heat, the film reduces thermal gain and indoor temperatures, while still allowing high visible light transmission and blocking ultraviolet rays. This balanced approach provides both effective thermal insulation and high light transmittance. The film can be used on interior or exterior glass surfaces to significantly lower cooling needs and energy consumption.



Maximum Infrared Blocking Rate

94 %

Maximum Mid-infrared Emissivity

99.9 %

Maximum UV Blocking Rate

99.9 %

Maximum Visible Light Transmittance

85 %

-  PET Non-metal Materials
-  High Transmittance for Clear Visibility
-  Comprehensive Mechanical Performance
-  Diverse Color Options Available





Various light transmission levels meet diverse scenarios

<div>DS Trans. Blue V70</div> <div>INNER</div> <div>Total solar energy rejection</div> <div>63.5 %</div>	<div>DS Trans. Blue V65</div> <div>INNER</div> <div>Total solar energy rejection</div> <div>62.8 %</div>	<div>DS Trans. Green V55</div> <div>INNER</div> <div>Total solar energy rejection</div> <div>63.3 %</div>	<div>DS Trans. Grey V35</div> <div>INNER</div> <div>Total solar energy rejection</div> <div>76.9 %</div>	<div>Mir. Blue V23</div> <div>INNER</div> <div>Total solar energy rejection</div> <div>81.2 %</div>
<div>Mir. Grey V08</div> <div>INNER</div> <div>Total solar energy rejection</div> <div>93.7 %</div>	<div>DS Trans. Green K75</div> <div>INNER/EXTERNAL</div> <div>Total solar energy rejection</div> <div>55.9 %</div>	<div>DS Trans. Blue JP70</div> <div>INNER/EXTERNAL</div> <div>Total solar energy rejection</div> <div>59.8 %</div>	<div>DS Trans. Green JP85</div> <div>INNER/EXTERNAL</div> <div>Total solar energy rejection</div> <div>35.8 %</div>	<div>DS Trans. Blue K80</div> <div>INNER/EXTERNAL</div> <div>Total solar energy rejection</div> <div>39.4 %</div>

i2Membrane

The nano-ceramic membrane is crafted from non-metallic PET material, delivering improved air tightness and thermal stability. It is resistant to high temperatures, humidity, and UV aging. The adhesive-backed design ensures easier and more efficient installation.



-  Long-lasting Durability
-  Stable Performance
-  Easy to Install
-  Recyclable

i2Ceramic · Exterior Tile

Made of inorganic materials to create hierarchical porous structure, its outstanding optical properties contribute to mitigating the urban heat island effect.



i2Ceramic · Pavement


Made of high band gap inorganic nanoparticles with mechanical strength and water permeability, it helps mitigate urban waterlogging and supports the development of sponge cities.



i2Textile

Made of cooling materials with efficient heat transfer properties, the product excels in sunlight reflection and dissipating human body heat.



-  Soft and Breathable Fabric
-  Efficient Cooling
-  High UV Protection

Cooling Solutions for Automobiles

i2Coating Auto and i2Film Auto address key thermal challenges in automobiles, providing cutting-edge optical and thermal management. These solutions help reduce interior and exterior vehicle temperatures, enhancing comfort, efficiency, and eco-friendliness.



-  Interior Temperature Control
-  Comfortable Driving Experience
-  Stable Mechanical Performance

Applications

Solutions to Various Scenarios

Architecture

Improving Indoor Thermal Comfort While Reducing Energy Usage



Residential Buildings



Office Buildings



Factories



Shopping Malls



Data Centers



Public Buildings

Logistics

Improving Transportation Quality and Optimizing Cold Chain Performance



Containers



Refrigerated Truck Compartments




Tank Trucks




Ships

Power & Telecom


Improving Operational Efficiency of Equipment While Reducing Cooling Costs




Outdoor Equipment Cabinets




Transformers




Transformer Boxes



Base Stations




Control Cabinets




Data Center Cooling Towers

Grain Storage


Preserving Grain Quality and Reducing Cooling Cost



Grain and Oil Storages




Silos




Flat Roof Sheds

Chemical Industry


Enhancing Storage Safety and Improving Equipment Reliability




Oil and Gas Storage Tanks




Chemical Storage Tanks



Oil Pipelines



Gas Pipelines




Tanker Trucks

Photovoltaic

Improving Energy Conversion and Mitigating Heat Gain



Backplanes



Rackings




Frames




Grounds

New Energy


Improving Equipment Stability and Reducing O&M Costs



Energy Storage Containers




Charging Stations




Wind Farms

More Applications


Reducing Urban Energy Consumption and Developing Sustainable, Eco-friendly Communities




Automobiles



Driveways/Sidewalks



Textiles



Ceramics

i2Coating Applications

Selected Cases

1–3 years
Optimal Payback Period

Real estate



Manar Mall Location: UAE	
Maximum temperature difference	↓ 24.5°C
Minimum temperature difference	↓ 18°C

(Temperature measured in March 2025)

Industrial



Reliance Bedding Industry Location: UAE	
Surface Temperature	↓ 25.7°C
Internal Temperature	↓ 7.6°C

(Temperature measured in October 2024)

Real estate



Fairways Vistas Location: UAE	
Maximum Surface temperature	↓ 17°C
Minimum Surface temperature	↓ 11°C

(Temperature measured in March 2025)

Logistics



Shipping containers Location: UAE	
Surface Temperature	↓ 29.9°C
Internal Temperature	↓ 6.8°C

(Temperature measured in July 2023)

Factory



Asian Paints Location: India	
Energy Savings per year	313,500 Kwh
ROI	1.8 years

(Temperature measured in May 2025)

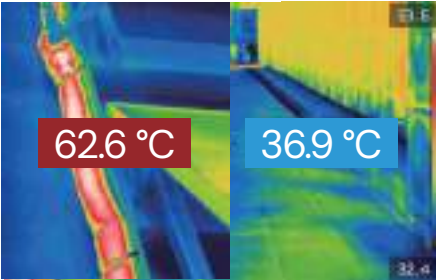
Pharma



Kusum Location: India	
Energy Savings per year	78,210 Kwh
ROI	1.5 years

(Temperature measured in May 2025)

Photovoltaic



PV panels of Citibank Location: Hong Kong, China	
Surface Temperature	↓ 25.7 °C
Power Efficiency	↑ 8 %

(Temperature measured in June 2023)

Chemical Industry



Storage tanks of Towngas Location: Hong Kong, China	
Chemical Fluid Temperature	↓ 9 °C
Cooling Costs	↓ 60 %

(Temperature measured in July 2023)

i2Film Applications

Selected Cases

Real estate

Vision Tower
Location: UAE

Total heat gain reduction
↓332.0229 w / m²

(Temperature measurement time: May 2024)

Hospitality

Sontaya, St. Regis
Location: UAE

Annual energy saving
72,542 kwh

Freezone

SRTIP
Location: UAE

Annual energy saving
229,750 kwh

Carbon emission savings
92,129 kg

(Temperature measurement time: March 2025)

Hospitality

W Hotel Palm
Location: UAE

Annual energy saving
57,100 kwh

ROI
7 Months

(Temperature measurement time: March 2025)

i2Film Applications

Selected Cases

Healthcare

Sheikh Khalifa Hospital
Location: UAE

Annual energy saving
104,244 kwh

ROI
2.8 years

(Temperature measurement time: September 2024)

Medical

Pure Lab
Location: UAE

Annual energy saving
319,000 kwh

Electricity cost of HVAC system savings per year per piece
AED 149K

(Temperature measurement time: December 2024)

Hospitality

Majestic City Retreat Hotel
Location: UAE

Annual energy saving
782,355 kwh

ROI
2 years

(Temperature measurement time: October 2024)

Hospitality

Jumeirah Residence
Location: UAE

Annual energy saving
573,833 kwh

Electricity cost savings per year
AED 40K

(Temperature measurement time: April 2025)

i2Film Applications

Selected Cases

Real estate



Emaar Residence
Location: UAE

Annual energy saving229,750 Kwh

Electricity cost savings per yearAED 9,200

(Temperature measurement time: April 2025)

Hospitality



Five Palm Jumeirah Hotel
Location: UAE

Annual energy saving207,320 Kwh

ROI1.4 years

(Temperature measurement time: October 2024)

Hospitality



Jumeirah Residence
Location: UAE

Annual energy saving573,833 Kwh

Electricity cost savings per yearAED 40K

(Temperature measurement time: April 2025)

Gym



WTC Residence Gym
Location: UAE

Solar Heat Gain savings35%

Cooling load savings15%

(Temperature measurement time: February 2025)

i2Film Applications

Selected Cases

Hospitality



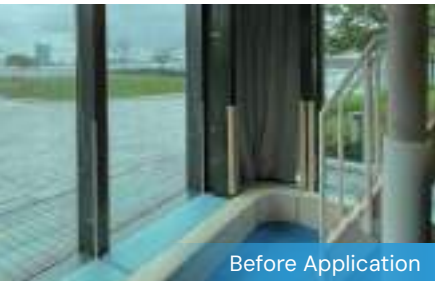
Crowne Plaza
Location: Hong Kong, China

Maximum temperature drop↓4.5 °C

Average temperature drop↓1.8 °C

(Temperature measured in July 2023)

Cruise terminal

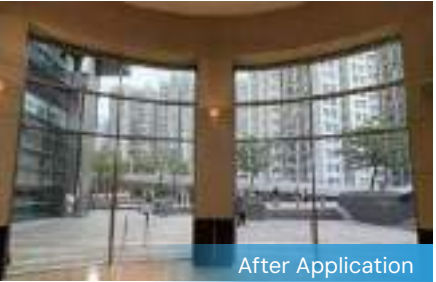
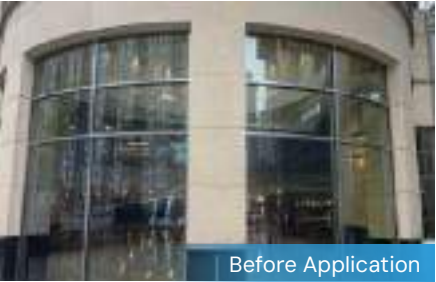


Kai Tak Cruise Terminal
Location: Hong Kong, China

Maximum temperature drop↓5.87 °C

(Temperature measurement time: May, 2023)

Mall



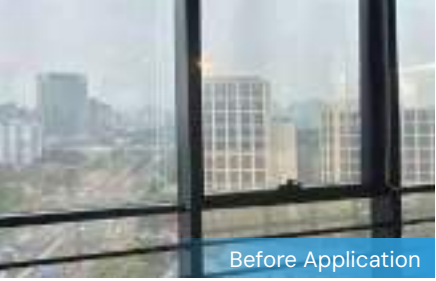
City Plaza
Location: Hong Kong, China

Maximum temperature drop↓21.2 °C

IndoorTemperature Reduction↓7.27 °C

(Temperature measurement time: August, 2024)

Real estate



Cultural Building
Location: Beijing, China

Maximum temperature drop↓15.4 °C

Average temperature drop↓2.34 °C

(Temperature measurement time: July, 2024)

LHS and EmiratesGBC—partnering for a greener tomorrow.



Leading Hospitality Services (LHS) is now a proud corporate member of the Emirates Green Building Council, aligning with national efforts to create a more sustainable built environment.

LHS delivers innovative, energy-efficient solutions that reduce consumption, improve air quality, and enhance overall well-being. From retrofitting existing infrastructure to enabling future-ready developments, LHS helps transform buildings into

Organizations that implement our solutions



Leading Hospitality Services

PO Box 51586

Emirates Palace

Abu Dhabi,

United Arab Emirates

Tel. +971 2 671 1320

Fax. +971 2 671 1325

info@leadinghospitality.ae

www.leadinghospitality.ae

* This introductory brochure provides general information about i2Cool products and is intended for reference purposes only.
It should not be construed as constituting any form of contract, warranty, or assuming any legal liability. (VM18)