

UNHEAT®

Thermal insulating coating

UP TO Δ10°C ON SURFACE

Thermal equilibrium

IDEAL FOR

Residential envelope · Industrial roofs · Metal ducts

Thermal insulation

Ultra-low thickness · water-based acrylic dispersion · matte white finish

Functional thickness 1–3 mm

- Water-based
- Low VOC · <5 g/L
- Class A fire rating
- Antimicrobial >99.99%

Ultra-low thickness water-based thermal insulating coating, designed to reduce heat transfer across the architectural envelope without sacrificing interior space or altering the project's aesthetics.

PRODUCT DESCRIPTION

Formulated with water-based acrylic dispersion, **Unheat®** is applied directly onto the surface like a paint, forming a functional film of 1–3 mm dry thickness with thermophysical properties equivalent to a rigid insulator (λ = 0.0456 W/mK). Its low infrared emissivity (ε = 0.30, ASTM E408) additionally increases the interior surface thermal resistance of the wall assembly. The product cures with a smooth, uniform matte white paint appearance, valid as a final interior finish without additional layers.

KEY BENEFITS

- λ=0.0456 W/mK in 1–3 mm, equivalent to 25–100 mm of rigid insulation
- Matte white final finish: washable and resistant to wet abrasion
- Direct application by brush, roller, or airless — no process change
- Only Class A fire coating in its category (FSI=25, SDI=0 · ASTM E84)
- Biological protection >99.99% (E. coli & S. aureus · JIS Z 2801)
- Ecological formulation: water-based, free of relevant heavy metals

The smartest way to stay cool *(or warm)*.

UNHEAT® · Thermal equilibrium for your space

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OUTSTANDING PROPERTIES

CONDUCTIVITY λ	EMISSIVITY ε	FIRE CLASS	ANTIMICROBIAL
0.0456	**0.30**	**Class A**	**>99.99%**
W/m·K · ASTM C518	Dimensionless · ASTM E408	FSI=25 · ASTM E84	JIS Z 2801

VOC CONTENT	APPEARANCE	WASHABILITY	WET ABRASION
<5 g/L	**Matte white**	**Compliant**	**Compliant**
Water-based	Final finish	NTC 799	NTC 966

APPLICATION SURFACES AND TYPICAL CONFIGURATIONS

Residential & institutional envelope

Exterior and interior walls of cast concrete, masonry, and block in new housing, VIS/VIP, and institutional buildings under Decree 582/2023.

Industrial & commercial

Fiber cement, metal, and tile roofs; containers, mobile structures, and warehouses exposed to direct solar radiation.

Metal ducts & elements

Interior metal ducts per Decree 099/2024. Non-combustible, no smoke generation (Class A · ASTM E84).

Interior final finish

Over interior walls; cures as matte white paint and can be specified as the final layer, preserving ε=0.30.

Renovation & retrofitting

Thermal upgrade of existing buildings without sacrificing interior space, over previously painted surfaces in good adhesion condition.

High-humidity areas

Allows wall breathing (WVTR = 9.245 g/m²·day, ASTM F1249), preventing condensation and mold growth.

Ultra-low thickness, maximum efficiency per mm. A dry film of 1–3 mm replaces 25–100 mm of conventional rigid insulators, without adhesives, support structure, or joints — applied with the same process as a paint.

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TECHNICAL SPECIFICATIONS

THERMOPHYSICAL PROPERTIES OF THE CURED FILM

PROPERTY	VALUE	UNIT	STANDARD / LABORATORY
Thermal conductivity λ (25°C)	**0.0456**	W/m·K	ASTM C518 · C-Therm, Canada
Thermal conductivity λ (50°C)	**0.0508**	W/m·K	ASTM C518 · C-Therm, Canada
Total infrared emissivity ε	**0.30**	—	ASTM E408
Thermal resistance R per mm	**0.0219**	m²K/W·mm	Calculated R = e/λ
Density ρ (dry / wet film)	**600 / 620**	kg/m³	—
Specific heat Cp (dry / wet)	**1,418 / 2,804**	J/kg·K	—
Thermal diffusivity α	**5.36×10^{-8}**	m²/s	—

APPLIED AND CURED FILM PROPERTIES

Solids by volume	**70 ± 5 %**	Application temperature	**10 – 40 °C**
Solids by weight	**45.2 %**	Minimum dry thickness	**1,000 µm**
VOC content	**<5 g/L**	Wet / dry thickness per coat	**762 / 547 µm**
Touch-dry time (25°C / 50% RH)	**30 min**	Coverage @1 mm dry	**1.1 m²/kg**
Time to overcoat	**2 h**	Pull-off adhesion (concrete)	**0.41 MPa**
Full cure time	**48 h**	Heavy metals Pb/Cr/Hg/Cd	**≈1/<1/ND/ND**

CERTIFICATIONS AND PERFORMANCE TESTS

TEST	RESULT	STANDARD · LABORATORY · DATE
Surface fire class	**Class A · FSI=25 · SDI=0**	ASTM E84-23a · QAI Labs, USA · Dec 2024
Antimicrobial activity	**>99.99% reduction**	JIS Z 2801:2010 · Mérieux · Dec 2025
Water vapor permeability (WVTR)	**9.245 g/m²·day**	ASTM F1249-13 · ICIPC · Dec 2025
Washability / wet abrasion	**Compliant**	NTC 799 · NTC 966 · Glasst · Mar 2026
Saudi market certification	**Approved**	SASO · Saudi Standards Authority

R UNHEAT® BY THICKNESS (λ=0.0456)

1 mm	**0.0219 m²K/W**
2 mm	**0.0454 m²K/W**
3 mm	**0.0667 m²K/W**

ε=0.30 EFFECT ON INTERIOR Rsi · ISO 6946 §6.9.2

Parameter	ε=0.90	ε=0.30
hr (W/m²K)	4.833	**1.611**
Rsi (m²K/W)	0.1364	**0.2433**
Rsi gain	—	**+0.1069**

The Rsi benefit with ε=0.30 applies only when Unheat® is exposed to interior air as the final finish. hr = 4·ε·σ·Tm³ · hc=2.5 W/m²K · Rse=0.04 m²K/W.

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PRODUCT PRESENTATION AND WALL PERFORMANCE



Standard pail
11 kg · 4.2 gal
Ready to use · no site mixing required

DECREE 582/2023 COMPLIANCE — U max. 2.50 W/m²K · Bogotá (Tm=14°C)

Wall · concrete λ=1.40	U without UNHEAT®	Min. thickness	U with UNHEAT®
10 cm	4.142	2.07 mm	2.500 ✓
12 cm	3.911	1.42 mm	2.500 ✓
15 cm	3.608	0.44 mm	2.500 ✓

Wall · concrete λ=2.00	U without UNHEAT®	Min. thickness	U with UNHEAT®
10 cm	4.545	3.04 mm	2.500 ✓
12 cm	4.348	2.59 mm	2.500 ✓
15 cm	4.082	1.90 mm	2.500 ✓

ENERGY MODELING DATA

EnergyPlus · OpenStudio · DesignBuilder

Material type	StandardOpaqueMaterial
Conductivity	0.0456 W/m·K
Density	600 kg/m³
Specific heat	1,418 J/kg·K
Emissivity ε	0.30

TRNSYS · IDA ICE · Revit gbXML

Thermal conductivity	0.0456 W/(m·K)
Specific heat	1,418 J/(kg·K)
Density	600 kg/m³
Emissivity ε	0.30
10 cm wall (λ=1.40/2.00)	0.00207 / 0.00304 m

Input parameters for energy simulation software. U-values reported correspond to cast concrete walls under Bogotá climate scenario.

USE AND APPLICATION INSTRUCTIONS

1. **Inspect the surface**
   Must be clean, dry, and free of dust, grease, or contaminants. Do not apply over wet surfaces or when rain is imminent.

2. **Prepare the product**
   Homogenize with a ½" reversible drill and steel paddle for a minimum of 3 minutes. Do not mix with additives other than water.

3. **Apply first coat**
   Brush, roller, or airless sprayer. Uniform layer of 500–760 µm wet. Measure wet film thickness with a paint gauge and avoid excessive back-rolling.

4. **Time between coats: 2–3 h**
   Wait until touch-dry. Under high humidity (>85% RH) or low temperature (<15°C), drying time may be extended.

5. **Apply 2–3 coats to reach target thickness**
   Minimum dry thickness 1,000 µm; verify with a dry film gauge. Full thermophysical curing is achieved at 48 hours.

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AIRLESS SPRAY APPLICATION

Pump	**35:1 to 50:1**
Gun	**High-flow / Mastic**
Pressure	**1,800–2,500 psi**
Tip	**0.027"–0.035"**
Flow · Hose	**>2 GPM · 3/8"**
Max. dilution	**15% water**

THEORETICAL COVERAGE BY DRY THICKNESS

Dry thickness	m²/kg	m²/L
1 mm	**1.10**	**0.72**
2 mm	**0.55**	**0.36**
3 mm	**0.37**	**0.24**

ENVIRONMENTAL CONDITIONS

Temp. 10–40 °C **Max. RH** 85%

Dilution max. 15% water **Cleanup** with water

Theoretical yield values. Actual yield depends on surface porosity and texture, application method, and site losses.

PRODUCT STABILITY AND STORAGE

SHELF LIFE

24 months

From manufacturing, in original sealed container.

TEMPERATURE

5 – 45 °C

Protect from direct sunlight · dry place · avoid freezing.

IF PASTY

Stir + up to 15% water

Does not affect the properties of the cured product.

HEALTH, SAFETY AND HANDLING

- Protect eyes, skin, and clothing with safety goggles and waterproof suit.
- Do not eat, drink, or smoke while handling the product.
- Keep away from heat, flames, and ignition sources.
- Keep the original container closed and protected from foreign elements.
- In case of contact with eyes or skin, rinse with plenty of water for at least 15 minutes.
- Keep out of reach of children.
- Do not mix with products other than potable water.
- Ensure adequate ventilation during application in enclosed spaces.

Safety Data Sheet (SDS). For complete information on transport, handling, storage, and disposal, consult the SDS available at www.glasst.co or request it from the technical team: ventas@glasst.co

LEGAL NOTES

All information in this data sheet is provided in good faith, based on Glasst's current knowledge and experience of products when properly stored, handled, and applied under normal conditions in accordance with Glasst's recommendations. It does not constitute an express or implied warranty regarding product performance, as the conditions of use, surface preparation, application, and storage are beyond our control. Use of this product in applications and/or conditions other than those stated is at the risk of the buyer, applicator, and/or user.

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CERTIFICATIONS

ASTM C518 · E84-23a · E408
ASTM D7234-22 · F1249-13
JIS Z 2801:2010 · SASO
NTC 799 · NTC 966

REFERENCES

ISO 6946:2017
Decree 582 of 2023
Decree 099 of 2024

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