

THERMAL INSULATION SOLUTIONS

Industrial Motors

Commercial & Appliance
Motors

Automation

Digital & Systems

Energy

Transmission &
Distribution

Coatings

Personnel protection against
burns, energy efficiency
enhancement, and prevention
of corrosion under insulation.



Driving efficiency and sustainability



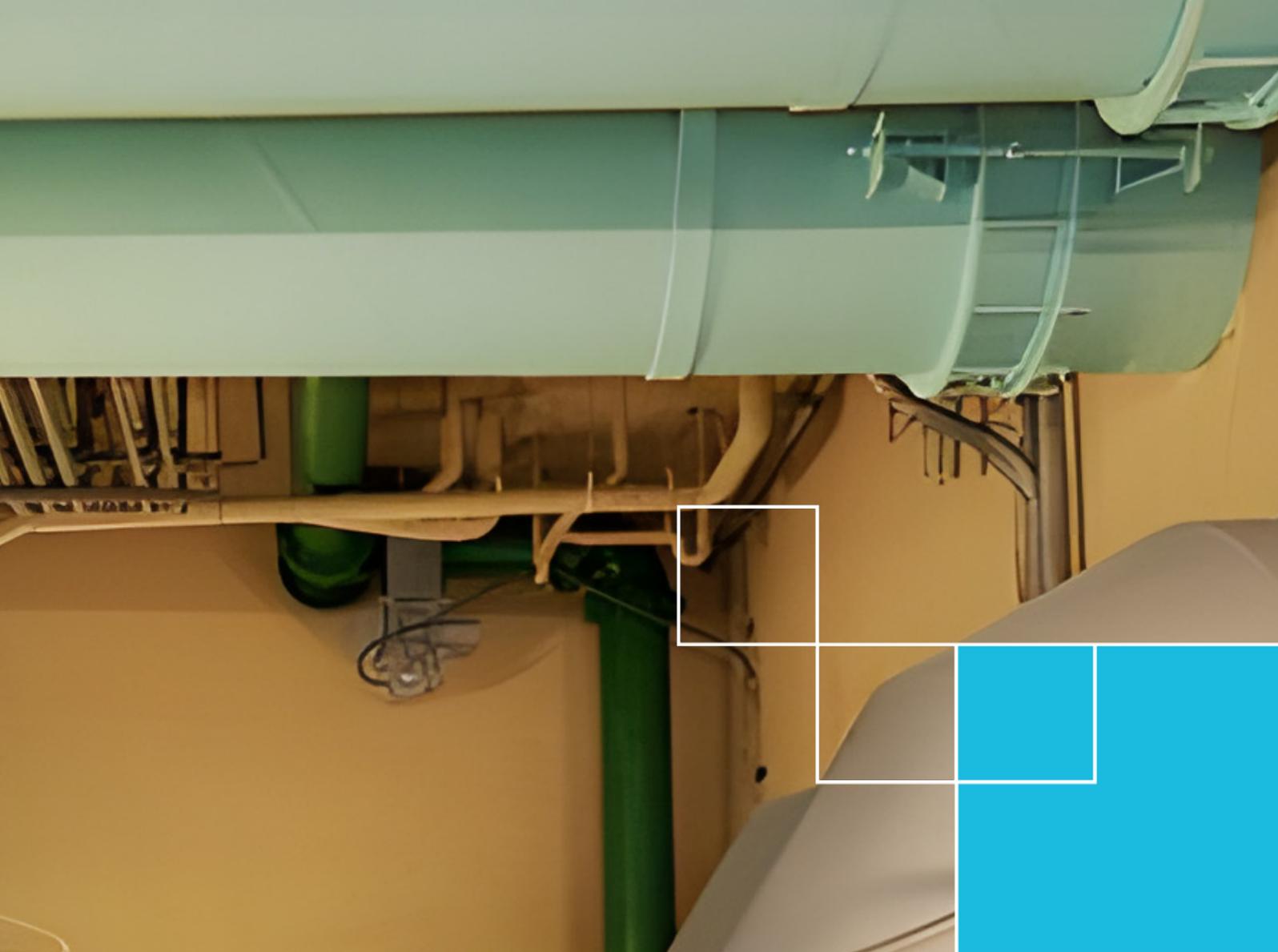
Aerolon 971

Single-component thermal insulating coating with Aerogel

A solution for a wide range of situations

WEG, as the official technology distributor in Brazil, offers a complete coating system. Ideal for coating pipelines, valves, tanks, and structural steel, the system delivers thermal performance superior to other insulating coatings and is comparable to—or even better than—traditional materials such as polyurethane foam and mineral wool.





AEROLON 971 THERMAL INSULATION COATING

The combination of Themec's coating technology, extensively tested in industrial applications, with the world's best insulating solid—aerogel—resulted in the advanced Aerolon system: a high-performance, fluid-applied thermal insulating coating.

AEROLON PROVIDES PROTECTION THAT OVERCOMES THE LIMITATIONS OF CONVENTIONAL INSULATION AND CAN BE APPLIED IN AREAS WHERE TRADITIONAL SYSTEMS FACE INSTALLATION OR MAINTENANCE CHALLENGES.

In head-to-head comparisons, Aerolon's protective characteristics prove more effective. When applied in industrial facilities, process plants, water treatment plants, or storage tanks, Aerolon offers an extensive list of benefits, including:

- Ultra-low heat transfer;
- Resistance to corrosion under insulation;
- Enhanced workplace safety and protection;
- Thermal bridge and condensation control;
- Faster application.

WHAT MAKES AEROLON DIFFERENT?

The thermal performance of Aerolon is built on a nanoscale using aerogel, which makes particle breakage irrelevant to its insulating properties. The nanoporous microstructure of each aerogel particle makes the material extremely lightweight—about 20 times lighter than sand—efficiently reducing thermal energy transfer.

Thanks to these features, aerogel particles exhibit ultra-low thermal conductivity, around **12 mW/mK** (compared to **50 - 200 mW/mK** for ceramic spheres), ensuring stable performance in long-term applications.



ULTRA-LOW HEAT TRANSFER

When seeking to reduce heat transfer and minimize energy losses, various insulation solutions can be considered. **Aerolon 971** offers superior thermal efficiency compared to conventional insulation and can be applied to equipment with high heat loss, reducing energy waste.

LABORATORY PROVEN PERFORMANCE

Two tanks were prepared to simulate a typical hot process. In both tanks, the water was kept at 54 °C (130 °F) using submersible heaters. After several hours, both tanks were exposed to airflow, simulating wind under real-world conditions.

Continuous testing, conducted over several days, showed that the **tank with Aerolon** provided average savings of **45% energy**. With the introduction of wind (air movement), energy savings surpassed **60%**.

CORROSION UNDER INSULATION (CUI) RESISTANCE

In addition to the excellent thermal efficiency, Aerolon adheres tightly to the substrate, forming a durable, water-resistant barrier that drastically reduces the risk of CUI—one of the most critical and costly issues in industrial infrastructure.

The main factor in the development of CUI is the intrusion of moisture into the insulation system, whether due to improper installation, mechanical damage, or degradation over time. Water can accumulate inside the insulation and remain trapped between the substrate and insulation, creating corrosion cells that develop covertly for years.



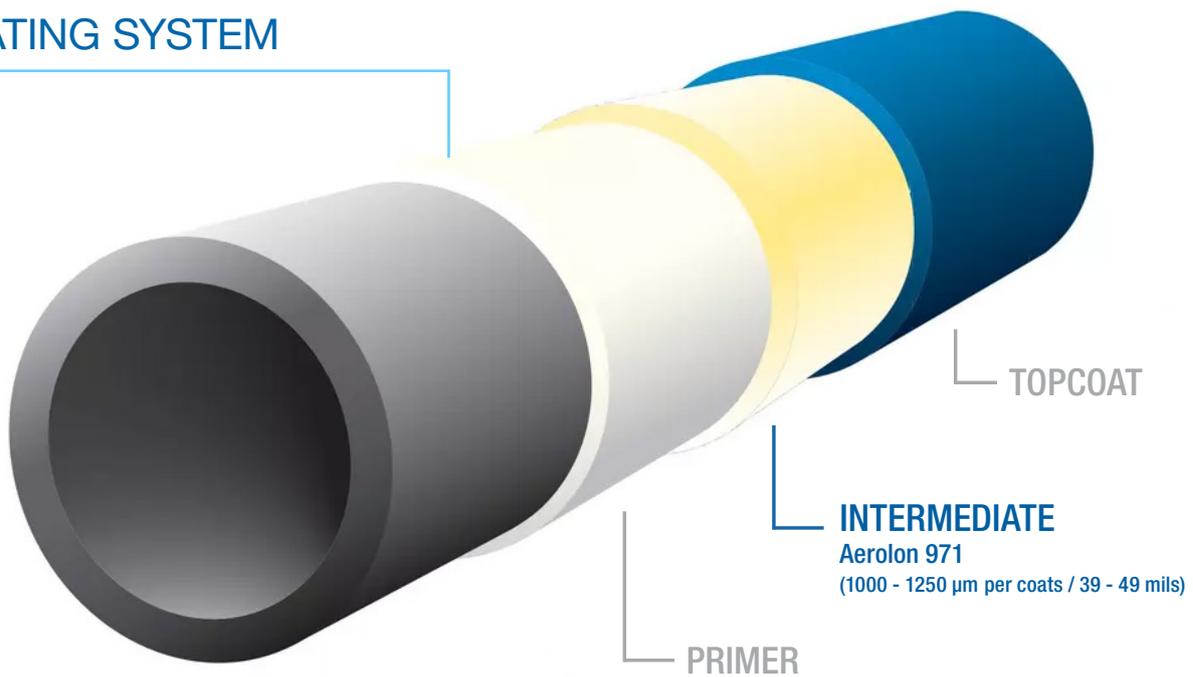
Substrate without Aerolon protection.

SIMPLIFIED INSTALLATION, HIGH THICKNESS PER COAT, AND UNIFORM COVERAGE.

Areas previously considered challenging, requiring complex insulation systems, can now be easily protected. Aerolon is ideal for:

- Complex pipelines and tubing;
- Valves and flanges;
- Tanks, vessels and metal structures that are difficult to reach.

AEROLON COATING SYSTEM



WORKPLACE SAFETY AND PROTECTION

With the appropriate coating, Aerolon can raise the level of operational safety, far exceeding the temperature limits defined for accidental contact. By reducing heat transfer between surfaces, Aerolon acts as a shield against contact burns, directly contributing to the prevention of workplace accidents.

The **ASTM C1055** standard defines, for industrial environments, a maximum surface temperature of **60 °C (140 °F)** for a 5-second skin exposure without risk of thermal burns. For a surface to meet this criterion, the temperature of the skin in contact with it cannot exceed this limit during the specified period.

AEROLON THICKNESS REQUIRED FOR PERSONNEL PROTECTION.

(According to ASTM C1057)

Surface temperature	65 °C (150 °F)	93 °C (200 °F)	121 °C (250 °F)	148 °C (300 °F)
<i>Aerolon thickness</i>	40 mils / 1016 µm	50 mils / 1270 µm	60 mils / 1524 µm	80 mils / 2032 µm

Aerolon coating can meet this requirement by adjusting the application thickness according to the operating temperature. Such flexibility allows the system to be adapted to the specific conditions of each process, ensuring safety and thermal comfort for operating and maintenance personnel.

COMPLIANCE WITH
ASTM C1055

CONDENSATION CONTROL

Although traditional insulation is designed to prevent condensation, its performance can degrade over time due to CUI and moisture absorption. Aerolon, in turn, provides proven control by isolating cold metallic surfaces from warm, humid air.

Condensation occurs when the temperature of a surface falls below the air dew point. When humid air comes into contact with this cold surface, the water vapor condenses, forming droplets.

Conventional insulation systems, if not perfectly adhered, create small air gaps or voids at the insulation-substrate interface. These voids trap moisture, establishing conditions conducive to corrosion under insulation (CUI). Failures or discontinuities in protective metallic coatings further worsen the issue, hastening thermal and mechanical breakdown.



RECOMMENDED FOR INSULATING METALLIC SURFACES FROM HOT AND HUMID AIR

In contrast, the Aerolon system bonds directly to the substrate over a corrosion-resistant primer, delivering a seamless, void-free barrier that completely envelops condensation-susceptible areas. This:

- Minimizes the formation of moisture pockets;
- Significantly reduces the risk of corrosion;
- Maintains thermal performance for longer periods.

FASTER AND MORE EFFICIENT APPLICATION

Although Aerolon allows for high thickness per coat, the total volume required is lower due to its low thermal conductivity. The result is a system with faster application, earlier return to service, and reduced total labor costs.

Conventional insulation systems require:

- Significant time for cutting, shaping, and assembly;
- Prolonged operational interruptions;
- Specialized labor for mechanical insulation installation.

In contrast, the Aerolon system, being a spray-applied coating, simplifies the entire process: no need for cutting blankets, field adjustments, or protective metallic claddings, accelerating preparation and installation. While most acrylic ceramic coatings achieve a maximum of **20 mils (500 µm) DFT** in a single coat, Aerolon allows:

- **Up to 50 mils (1,250 z) DFT per coat;**
- Drastically reducing the number of coats required.

SIGNIFICANTLY REDUCES PRODUCTION DOWNTIME

In practice, where a conventional ceramic coating would require multiple coats to reach the design thickness, the Aerolon system achieves the same performance in **3 coats**. Another key advantage is the ability to apply it on equipment in operation: Aerolon can be applied to substrates with surface temperatures from 7 °C to 93 °C / 44,6 °F to 199,4 °F.

TOTAL AND LASTING PROTECTION FOR INDUSTRIAL ASSETS



EASE OF HANDLING AND APPLICATION EQUIPMENT

Aerolon is a **one-component** coating, eliminating the need to mix multiple parts, reducing preparation errors, and simplifying on-site logistics.

The product can be applied with various types of texture sprayers; for smaller applications, even a simple hopper gun can be used. For larger areas, recommended equipment ensures higher productivity and uniform finish.

Recommended application methods:

- Textured spray gun;
- Thick-film / mortar pump.



This type of equipment is readily available in the market and can be used without special modifications, facilitating adoption of the technology in new constructions and retrofit projects.

ONE-COMPONENT
PRODUCT

The scope of WEG Group solutions is not limited to the products and solutions presented in this brochure.

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