



KEIM COOLIT®

IR-REFLECTIVE SOL-SILICATE FACADE PAINT

DESIGN MEETS HEAT PROTECTION COOL FACADES. EVEN IN HOT CLIMATES.

Paint is an essential architectural design feature and can also protect buildings from external influences such as rain, heat, or cold. KEIM Coolit features special pigmentation and therefore absorbs significantly less solar radiant energy, especially in dark shades. This reduces the heat uptake of the façade surface. More protection. Less heat. KEIM Coolit.



PROTECTION – IN DARK COLOURS.



THE URBAN HEAT ISLAND – HOW CITIES HEAT UP.



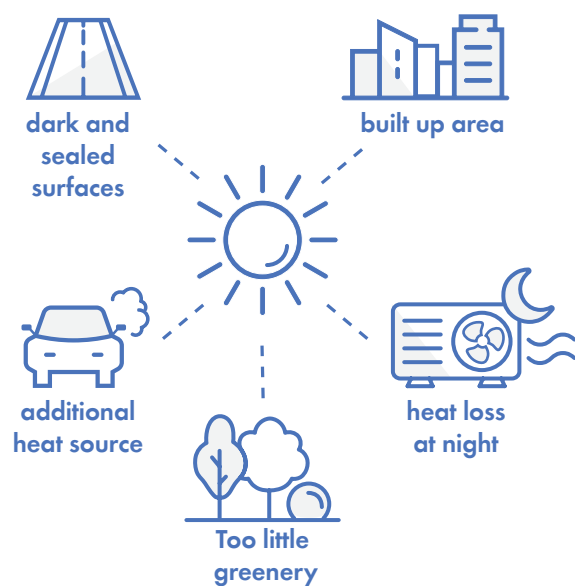
Extreme heat in urban areas: In densely built-up zones, rising temperatures caused by climate change pose a risk to health and quality of life.

THE CITY AS A HEAT STORE

Climate change is no longer a future scenario. Rising temperatures and extreme weather events such as severe storms or flooding are already reality. Urban areas and their residents are affected particularly strongly. Where asphalt, concrete, and glass dominate, surfaces store heat. Natural shade from trees is often lacking, and sealed surfaces prevent the cooling effect of evaporation. As a result, heat can build up in densely built neighborhoods. This phenomenon is called the Urban Heat Island (UHI).

Another reason lies in how building materials absorb solar energy: stone, asphalt, and concrete have a high heat-storage capacity and good thermal conductivity. The heat absorbed during the day is released back into the environment at night like a radiator, meaning the air in cities often cannot cool down sufficiently. In addition, heat uptake via building envelopes intensifies this effect: façades absorb solar energy, part of which is conducted through the exterior or wall structure into the building interior and can lead to warming of indoor spaces.

KEY FACTORS INFLUENCING THE UHI EFFECT



URBAN PLANNING IN A CHANGING CLIMATE.

PROMOTING URBAN RESILIENCE

What options are there for making urban areas more resilient to a changing climate reality? What matters is a combination of nature-based solutions such as urban greening, climate-adapted urban planning, and structural/building measures.

An effective approach to reducing the Urban Heat Island effect is a three-part set of coordinated measures:

1. Urban Greening

Vegetation, green roofs and facades, and water surfaces create natural cooling effects. Evaporative cooling and shading of public spaces in particular help to noticeably reduce ambient temperatures.

2. Climate-adapted urban planning

By reducing sealed surfaces, adopting climate-conscious building layouts, and promoting air circulation and shading, heat in densely built neighbourhoods can be effectively reduced.

3. Structural/building measures

Reducing heat uptake by façades, optimised building envelopes, and IR-reflective coating systems lower surface temperatures and can reduce overheating of interiors.

KEIM Coolit combines the mineral benefits of silicate technology with a special pigment formulation to reduce heat build-up on facades.



IR-reflective façade paints help reduce the heating of building surfaces.

THE SILICATE BONUS

IR-reflective materials reduce the absorption of solar energy and thus the heating of buildings and neighborhoods.

One example of such material-technology solutions are mineral façade paints with reflective properties. KEIM Coolit combines the mineral advantages of silicate technology with special pigmentation to reduce façade heating. The principle of silicate technology is based on silicification: the binder (water glass / potassium water glass) reacts chemically with the mineral substrate. This creates a firm, insoluble bond between the mineral paint and the substrate (render, natural stone, concrete, etc.). This chemical bond ensures particularly high durability and a significantly longer coating life cycle.



KEIM COOLIT – LESS HEAT. MORE PROTECTION.

THE KEIM COOLIT TECHNOLOGY

The sol-silicate paint KEIM Coolit features special pigmentation that absorbs less solar radiation. As a result, façades heat up significantly less. The heat absorbed by the building surface is reduced, creating cooler surfaces. The reduced warming of the façade lowers thermal stress. Temperature-related stresses in render or in external thermal insulation composite systems (ETICS) can thus be avoided.

KEIM Coolit protects façades from thermal stress and thereby ensures a significantly longer service life – especially with dark and intense shades.

PROVEN THERMAL SAFETY

About half of the solar energy that reaches the Earth's surface consists of infrared radiation and contributes significantly to the warming of buildings. How strongly a building material heats up depends on how much radiation it absorbs or reflects. The decisive factor for the proportion of solar radiant energy reflected from a surface is the TSR value (Total Solar Reflectance).

The TSR value describes the solar reflectance of a pigmented surface. The higher this value, the more strongly solar radiation is reflected. Therefore, the temperature increase above ambient temperature that can be measured on a coated surface after solar exposure is correspondingly lower. If the TSR value is ≥ 25 , the coating is considered thermally safe.¹

KEIM Coolit has demonstrated a TSR value of ≥ 30 for all shades and is therefore well above the required value.



KEIM COOLIT – BENEFITS

- Reduces heat uptake of façade surfaces, especially with dark shades
- Reduces thermal stresses and helps prevent cracking in the facade
- Minimised risk of damage
- Wide colour selection, especially for dark shades on ETICS
- Moisture-regulating
- Shade-stable and weather-resistant

CERTIFIED SUSTAINABLE

KEIM Coolit has been awarded Cradle to Cradle Certified® certification in Silver and the C2C Material Health Certificate™ at Gold level, and it also meets the requirements for the QNG (Sustainable Building Quality Seal).

For more information, scan the QR code or visit www.keim.com.

¹ Cf. German Association for Insulation Systems, Render and Mortar (VDPM), leaflet "Total Solar Reflectance / Totale solare Reflexion und Hellbezugswert", issue 04/2021.





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