IR Cool Colors

Powder Coatings

Element cool colors by IR technology

ELEMENT Infrared reflecting powder coatings for cool colorful surfaces

- A cool roof could reduce average cooling energy
- Our IR reflection coating technology could increase infrared reflectance on surfaces by over 300%
- Longer life-cycle due to less polymer degradation and thermal expansion due to lower temperature
- Improved system durability and less thermal degradation
- Less heat to transfer into buldings
- Reduce "Urban heat island effect"
- Low enegy demand for air conditioning
- Reduction in air pollution due to low energy usage

ELEMENT
New way in Powder Coating

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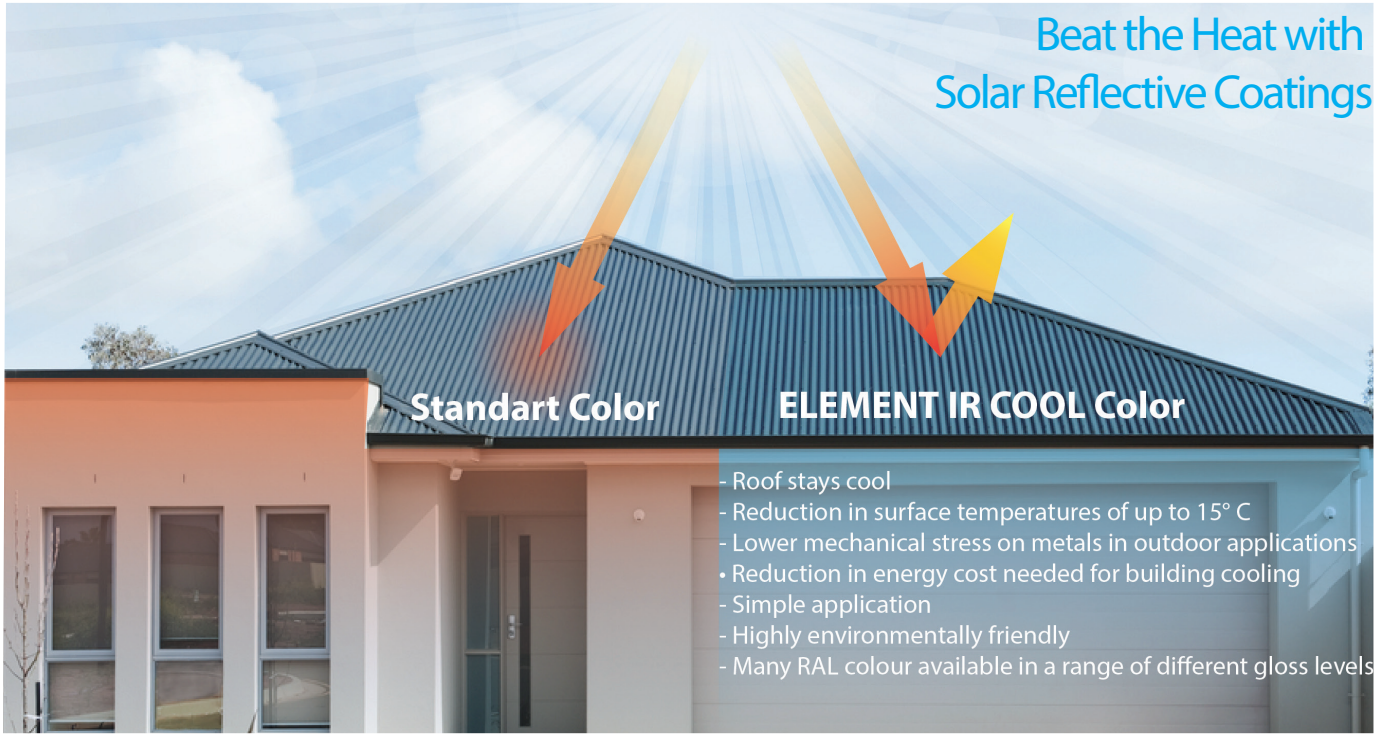
Element IR Cool Colors that can help keep your buldings cooler

By reflecting more of the sun's energy, Element IR Cool Colors can keep surfaces cooler to help reduce heat build up on outdoor surfaces that can filter interior spaces

Radiation and reflection are pivotal to the manner in which solar energy warms up buildings and objects. Invisible infrared radiation is a huge contributor to object warming. If this radiation hits a light-coloured surface, a high proportion is reflected and the extent to which the object is warmed turns out to be rather slight. However, the darker a surface colour is, the less it reflects leading to a significant increase in object warmth.

The darker the facade of a building is, the more energy is required to actually cool the building. And the object temperature does not just play a role in determining the temperature of the building's interior spaces – it also affects building components and joints that are exposed to mechanical stress and strain caused by temperature.



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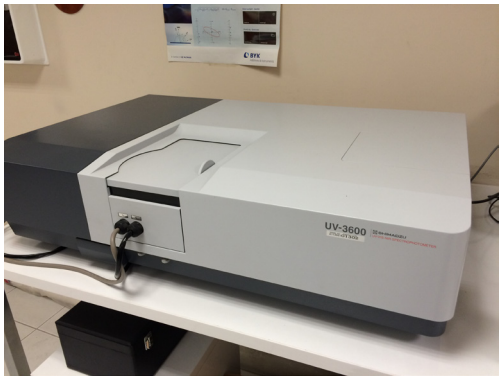
Solar heat reflective powder coatings

Energy use in the building sector represents about one third of the total energy consumption.

The extensive use of air-conditioning is an economic concern. Increasing electricity demand for cooling increases peak electricity loads which leads to burn more fossil, increasing energy costs and pollution levels. In addition, problems with indoor air quality related to the use of air-conditioners are of serious concern.

To decrease the demand for air-conditioning use, heat reflective coatings have gained a lot of interest during the past few years. Heat reflective coatings are characterized by high solar reflectance (SR) and high emittance values in the thermal infrared region



UV/VIS/NIR Spectrophotometer, Element research laboratory Istanbul

Total Solar Reflectance TSR

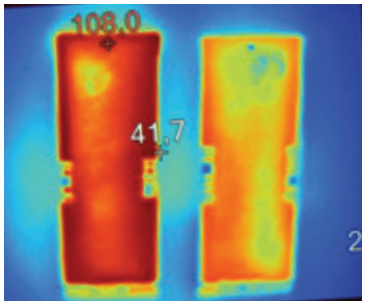
Solar reflectance is the percentage of solar energy reflected by a surface, expressed in terms of % or decimal (i.e., 68% or 0.68). We are measuring the total solar reflectance of painted panels using UV/VIS/NIR Spectrophotometers in our research laboratory.

Traditional RAL 9005 black powder coatings have low solar reflectance of 1-5 percent, which means they absorb 95 to 99 percent of the energy reaching them instead of reflecting the energy back out to the atmosphere. Our new the coolest IR reflecting RAL 9005 powder coating have a high solar reflectance of more than 18 percent, absorbing and transferring to the building 82 percent or less of the energy that reaches them.

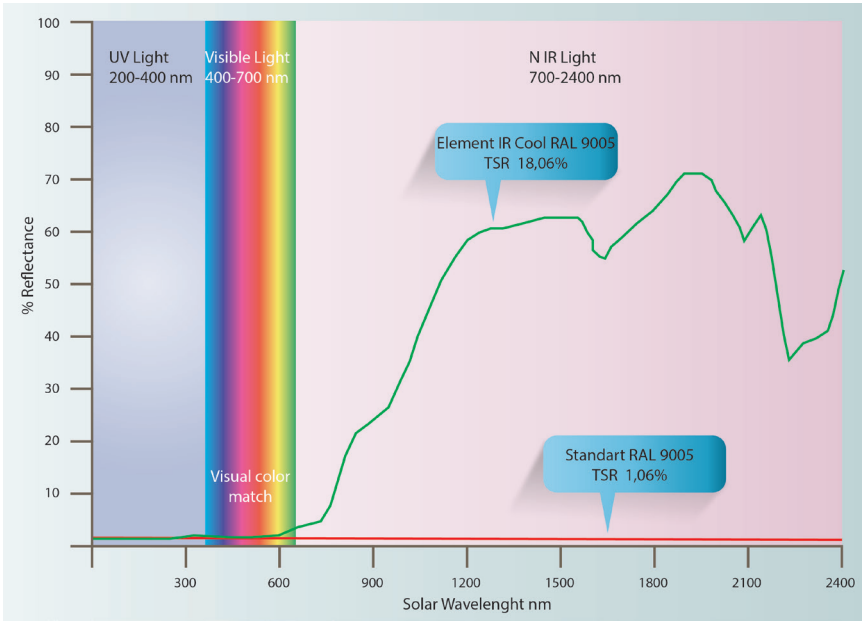
Applications

- commercial and residential roofs
- outdoor electric cabinets
- wall facade coating
- automotives

T_{ort}: 60,9 °C T_{ort}: 51,5 °C



Thermal picture of Element IR Cool RAL 9005 (right) and Standard RAL 9005 (left) painted back panels, using Fluke Ti29 Thermal camera.



Reflectance spectra of Element IR Cool RAL 9005 (green) and Standard RAL 9005 (red) painted panels (measured using Shimadzu UV 3600 UV/VIS/NIR spectrophotometer).

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