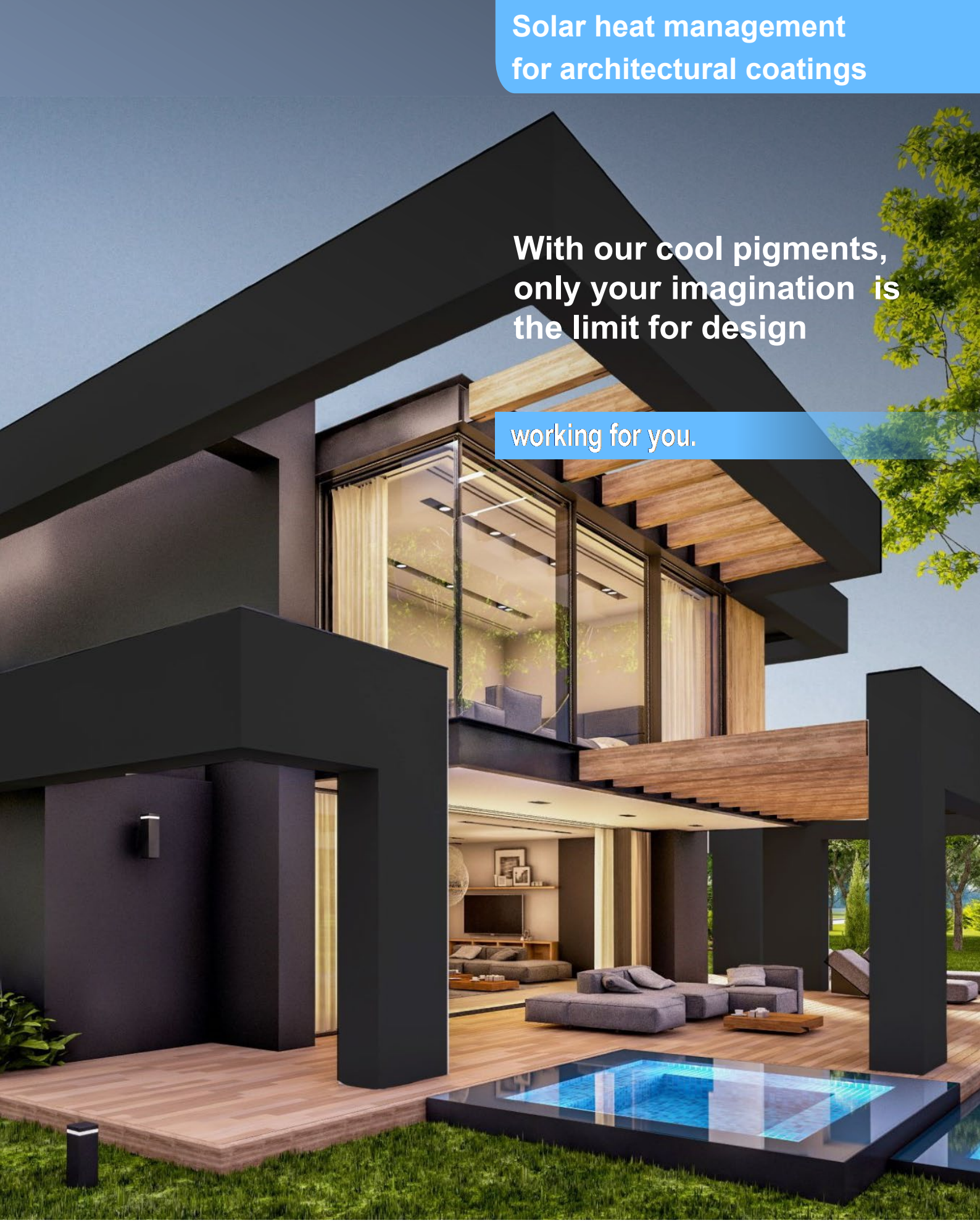
# Solar heat management for architectural coatings



## With our cool pigments, only your imagination is the limit for design

working for you.

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# Solar heat management for architectural coatings

**Key benefits**

- Allows flexibility in color design while reducing thermal load
- Reduces energy costs
- Enhances the personal thermal comfort feeling
- Increases lifetime of coated surfaces
- Maintains constructional strength under solar irradiation

**Key Pigments**

- Spectrasense™ Black L 0086 organic, NIR transparent
- Sicopal® Black L 0095, Luconyl® NG Black 0095 , XFast® Black 0095 inorganic, NIR reflective
- Less energy absorbance in the near infrared spectrum of the sun-light in comparison to other blacks

With our broad portfolio of organic and inorganic pigments, every cool color is possible, even black!

## Solar heat management for architectural coatings – Applications

Dark surfaces can get extremely hot under solar irradiation. This effect is a question of energy consumption for cooling, durability of the coatings, and constructional integrity of the material. So is white the only solution? Not with our functional heat management pigments. They allow the design of black and other colored surfaces while reducing thermal load.

In architectural coatings, common uses for cool pigments are in colored roofing and facade applications to reduce energy costs or to increase the durability of the coating. For applications like EIFS (Exterior Insulation Finishing Systems), surface temperatures can be reduced.



A **Roof tiles:** Functional roof tiles reflect more infrared light than traditional roof tiles. The roof stays cooler and also cools the surrounding air, which leads to an improvement of the air in the living space and increases the lifetime of the tiles.

B **EIFS (Exterior Insulation Finishing Systems):** Especially for darker surface colors, surface temperatures can be reduced to avoid any cracking of the plaster and deformation of insulation materials.

C **Window frames:** For bigger sized windows with dark coated window frames it is beneficial to reduce the surface temperature to achieve a better structural integrity.

D **Entrance door:** Coatings of entrance doors with functional pigments may reduce the temperature of the entrance hall, help to maintain structural integrity, and increase the durability of the door material.

E **Garage door:** Cool pigments reduce the heat absorption, may prevent warping and breaking, and extend the durability of the garage doors.



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# Solar heat management for industrial coatings

## Cool pigments make dark surfaces love the sun

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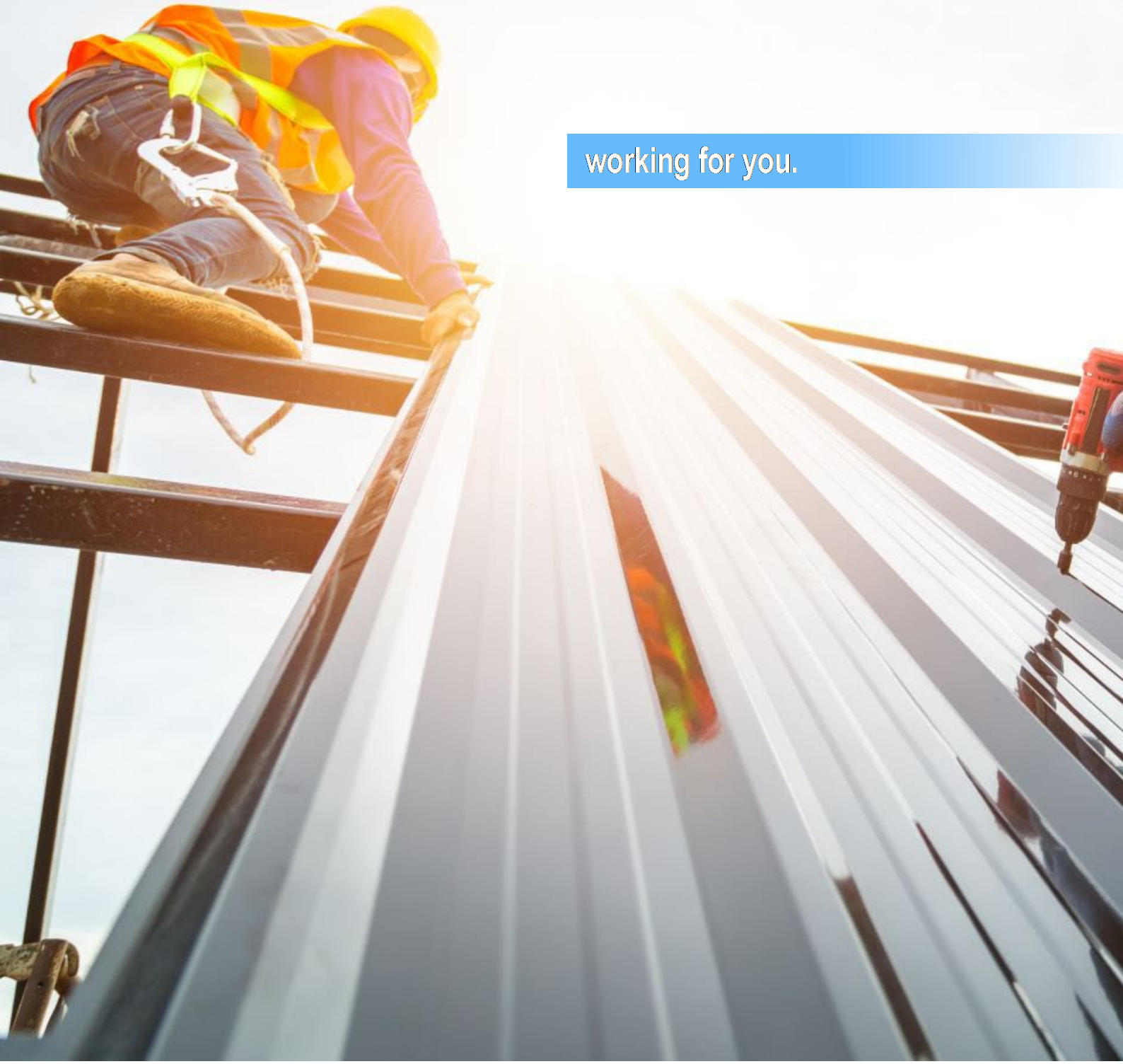

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# Solar heat management for industrial coatings

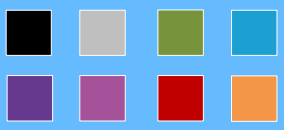
## Key benefits

- Allows flexibility in color design while reducing thermal load
- Reduces energy costs
- Enhances the personal thermal comfort feeling
- Increases lifetime of coated surfaces
- Maintains constructional strength under solar irradiation

## Key Pigments

- Spectrasense™ Black L 0086 organic, NIR transparent
- Sicopal® Black L 0095 inorganic, NIR reflective
- Liquid and powder coatings
- Less energy absorbance in the near-infrared spectrum of the sunlight in comparison to other blacks

With our broad portfolio of organic and inorganic pigments, every cool color is possible, even black!



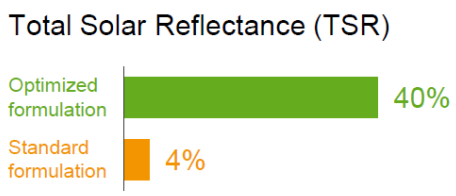
## Solar heat management for industrial coatings – Shade examples

Dark surfaces can get extremely hot under solar irradiation. This effect is a question of energy consumption for cooling, durability of the coatings, and constructional integrity of the material. So is white the only solution? Not with our functional heat management pigments. They allow the design of black and other colored surfaces while reducing thermal load.

In industrial coatings, common uses for cool pigments are in colored roofings, containers, marine applications, and dark-coated window frames to reduce energy costs or increase the durability of the coating. The choice of suitable pigmentation for a cool color is based on the Total Solar Reflectance (TSR).

### RAL 9005 Jet Black: Standard black absorbs almost all of the sunlight's energy

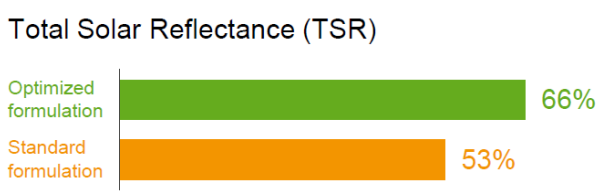
| | |
|---|---|
| 97.3 pts | Spectrasense™ Black L 0086 |
| 2.7 pts | Cromophtal® Violet D 5800 |




Optimized formulation: 50 µm film thickness, 8 wt% pigment concentration in dry film, on white substrate

### RAL 7035 Light Grey: Also lighter shades benefit from heat management

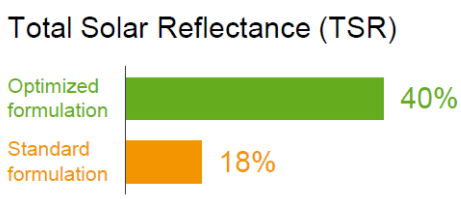
| | |
|---|---|
| 93.4 pts | Kronos® 2310 |
| 2.3 pts | Sicopal® Black L 0095 |
| 2.4 pts | Sicotan® Yellow L 1010 |
| 1.9 pts | Sicotan® Yellow L 2110 |




Optimized formulation: 40 µm film thickness, 20 wt% pigment concentration in dry film, on white substrate

### RAL 3009 Oxide Red: Cool pigments reduce thermal stress for all shades

| | |
|---|---|
| 15.5 pts | Sicotan® Yellow L 1010 |
| 13.0 pts | Sicopal® Black L 0095 |
| 2 pts | Sicotan® Yellow L 2110 |
| 10.5 pts | Paliogen® Red K 4180 |




Optimized formulation for powder coatings: 80 µm film thickness, 10 wt% pigment weight concentration in dry film, on aluminum panel



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