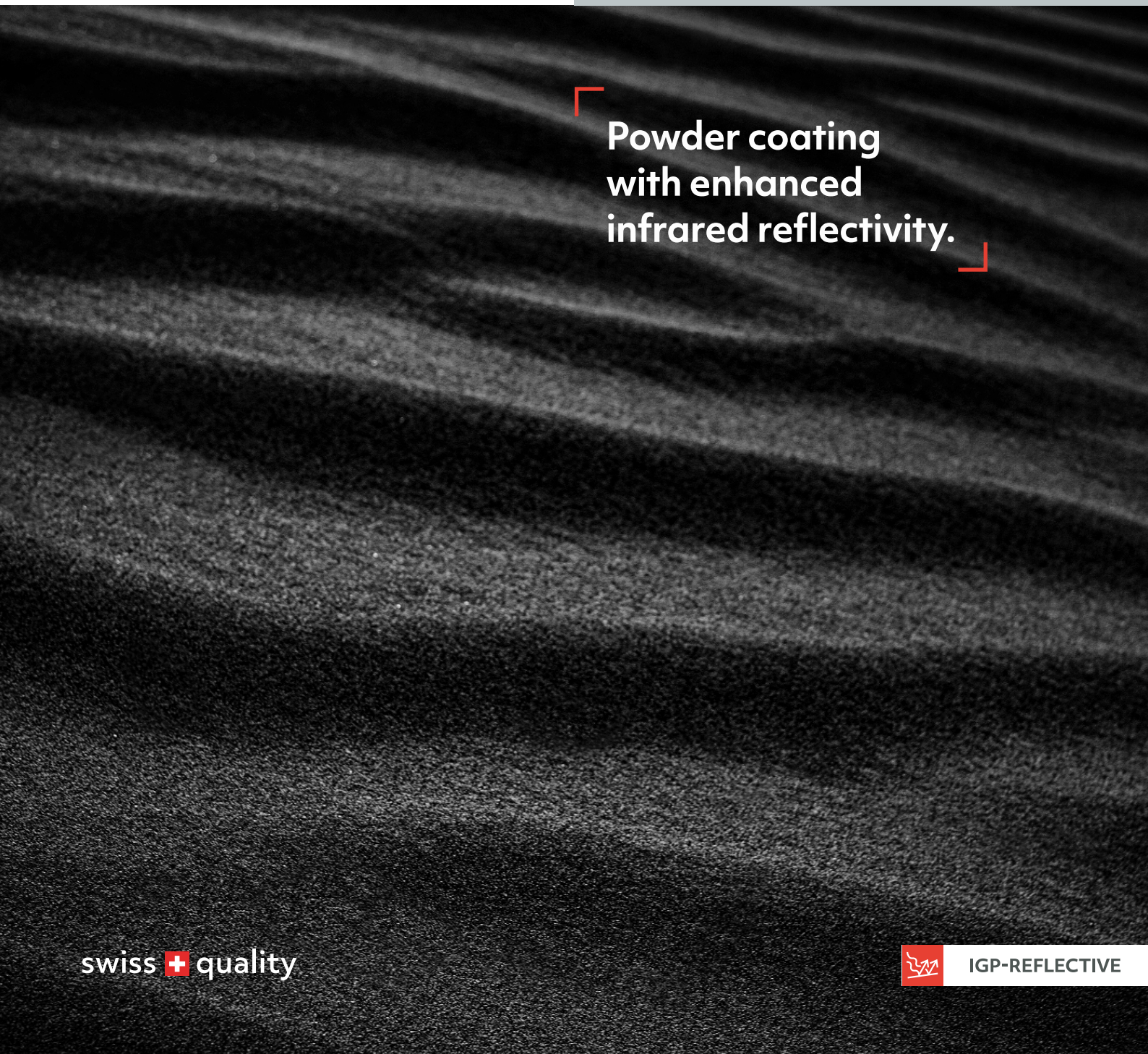
IGP POWDER COATINGS

IGP-HWF*classic* 59 Reflect

Super durable, infrared-optimized powder coatings reduce surface heating due to solar radiation by up to 20%.



Powder coating with enhanced infrared reflectivity.

swiss quality

IGP-REFLECTIVE

Durable protection with lasting visual appeal.

Facade surfaces are increasingly subject to stress due to extreme cyclical fluctuations in solar radiation and steadily rising average temperatures – a trend that has accelerated since the 1970s. This is a key factor when choosing modern coating systems for architecture and infrastructure. With the super durable powder coating IGP-HWF*classic* 59 Reflect, both long-term protection and lasting aesthetics are guaranteed.

The impact of infrared radiation on surfaces
Roughly half of the solar energy that reaches the Earth's surface is infrared radiation, which plays a major role in heating objects. The rate at which an object heats up depends on how much radiation it absorbs or reflects. Light-colored surfaces reflect a high proportion of infrared radiation, helping to keep temperatures down. Dark surfaces, by contrast, absorb more radiation, resulting in significantly higher surface temperatures – which in turn increases the cooling energy demand in buildings. Object temperature also affects material stability, as thermal expansion increases mechanical stress on joints and components (bimetal effect).

Urban heat islands
Prolonged periods of intense summer sunlight cause certain areas of towns and cities to heat up significantly – a phenomenon known as the urban heat island (UHI) effect.

Decreased energy absorption in dark colors – without compromising color quality.

Super durable and heat-reflective.

IGP-HWF*classic* 59 Reflect combines the benefits of super durable coatings with the advantages of IR-reflective surfaces. These characteristics make this product an ideal choice for dark façades exposed to intense sunlight. Using Reflect results in less heat buildup on dark surfaces, reduces the radiator effect, and minimizes mechanical stress on the underlying material.

Your benefits at a glance

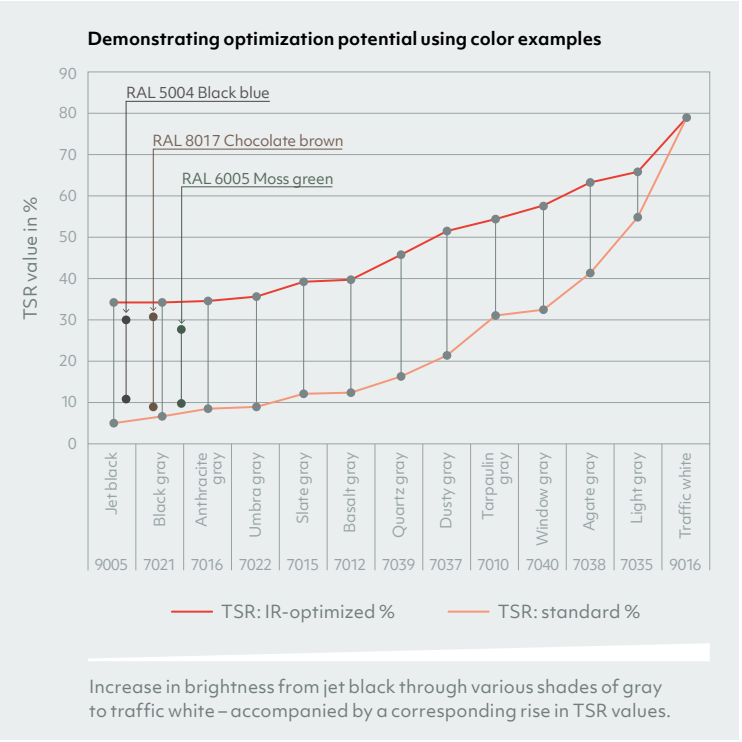
+ Cooler surfaces
+ Reduced radiant heat under intense sunlight
+ Reduced building cooling loads
+ Matches RAL and other color standards
+ Reduced urban heat island effect
+ Robust, super durable façade product
+ Cost-effective application with efficient use of materials
+ Energy-efficient curing from 170 °C

The advantages of IR-reflective surfaces.

IR-reflective surfaces keep building exteriors cooler, reduce discoloration, and extend the lifespan of coatings. They help save energy, reduce heat stress in the surrounding area, and improve the indoor climate – delivering long-term benefits for both buildings and the environment.

IR-optimized powder coatings help keep building surfaces cooler by significantly reducing heat buildup. The result is not only reduced thermal degradation and color fading, but also improved overall energy efficiency. With less IR absorption and heat transfer, cooling costs decrease and ambient heating is reduced – helping to mitigate the urban heat island (UHI) effect. IR coatings also contribute to a more dimensionally stable façade by minimizing deformation caused by the bimetal effect, reducing thermal stress on the façade, and preventing a radiator effect. The result is less maintenance, lower cooling requirements, and a longer service life for the coated components.

Reduced heat transfer to the interior
Even with modern thermally broken profiles, IR-optimized powder coatings can significantly reduce heat absorption by the outer shell – and in turn, lower the heat radiation emitted by the interior side of the profile. For example, if an aluminum shell covering 15 % of the façade surface is coated with an IGP-HWF*classic* 59 Reflect powder coating, thereby reducing the summertime temperature difference between inside and outside (ΔT = 40 °C) by 12 Kelvin, then the heat transfer from the frame to the interior can be reduced by approximately 30 % per m² of façade area (assuming a frame profile U_f-value of 2.0 W/(m²·K)).



Increase in brightness from jet black through various shades of gray to traffic white – accompanied by a corresponding rise in TSR values.

Measurement method details:
Standard: ASTM G197-14 | Instrument: 410-solar by Surface Optics
Air mass: 1.5 (Central Europe) | Substrate: aluminum alloy EN AW-5005 | Powder coating thickness: approx. 80 µm (standard)
The percentage value shown here is the average of three individual measurements and refers to IGP-HWF*classic* 59 series products with and without IR optimization.

If IGP's IR-optimized powder coatings are applied with different coating thicknesses or on alternative substrates, the values may vary slightly.

Lower IR absorption on the facade means reduced cooling costs.

Energy efficiency with true color accuracy.

The IGP-HWF*classic* 59 Reflect series contains specially developed pigments to reduce surface heating. Thanks to the color-neutral formulation of these IR-optimized surfaces, partial areas can be seamlessly integrated into existing façades – making them ideal for infrastructure projects and buildings with a high percentage of metal cladding.

The products in the IGP-HWF*classic* 59 Reflect series incorporate special pigments that increase the Total Solar Reflectance (TSR) of the coating, reducing surface temperatures by up to 20%*, depending on the location and orientation. This technology is ideal for façades on industrial and infrastructure buildings, contributing to reduced thermal stress and enhanced energy efficiency. The pigments can be flexibly integrated into any IGP-HWF*classic* 59 coating – delivering sustainable protection and optimized building performance.

Conforms to the RAL color chart
Thanks to its color-neutral formulation and outstanding conformity with RAL and other color systems, IGP-HWF*classic* 59 Reflect allows selective coating of façade areas with no visible differences to standard finishes. This means that the shaded side of a building can be coated with IGP-HWF*classic* 59, while the side exposed to the sun can be protected with the IR-optimized IGP-HWF*classic* 59 Reflect powder coating – with no perceptible color variation.

Tailored to the substrate
IGP-HWF*classic* 59 Reflect is the ideal choice for steel and aluminum substrates. A special component mix significantly increases the reflection of long-wave radiation at the surface, resulting in noticeably cooler surfaces. This helps minimize material warping and heat transfer into the building's interior, ultimately decreasing the cooling requirements. The product's performance is precisely matched to the substrate, ensuring optimal reflection via both the coating layer and the underlying material.

*Measured under Central European solar radiation conditions.

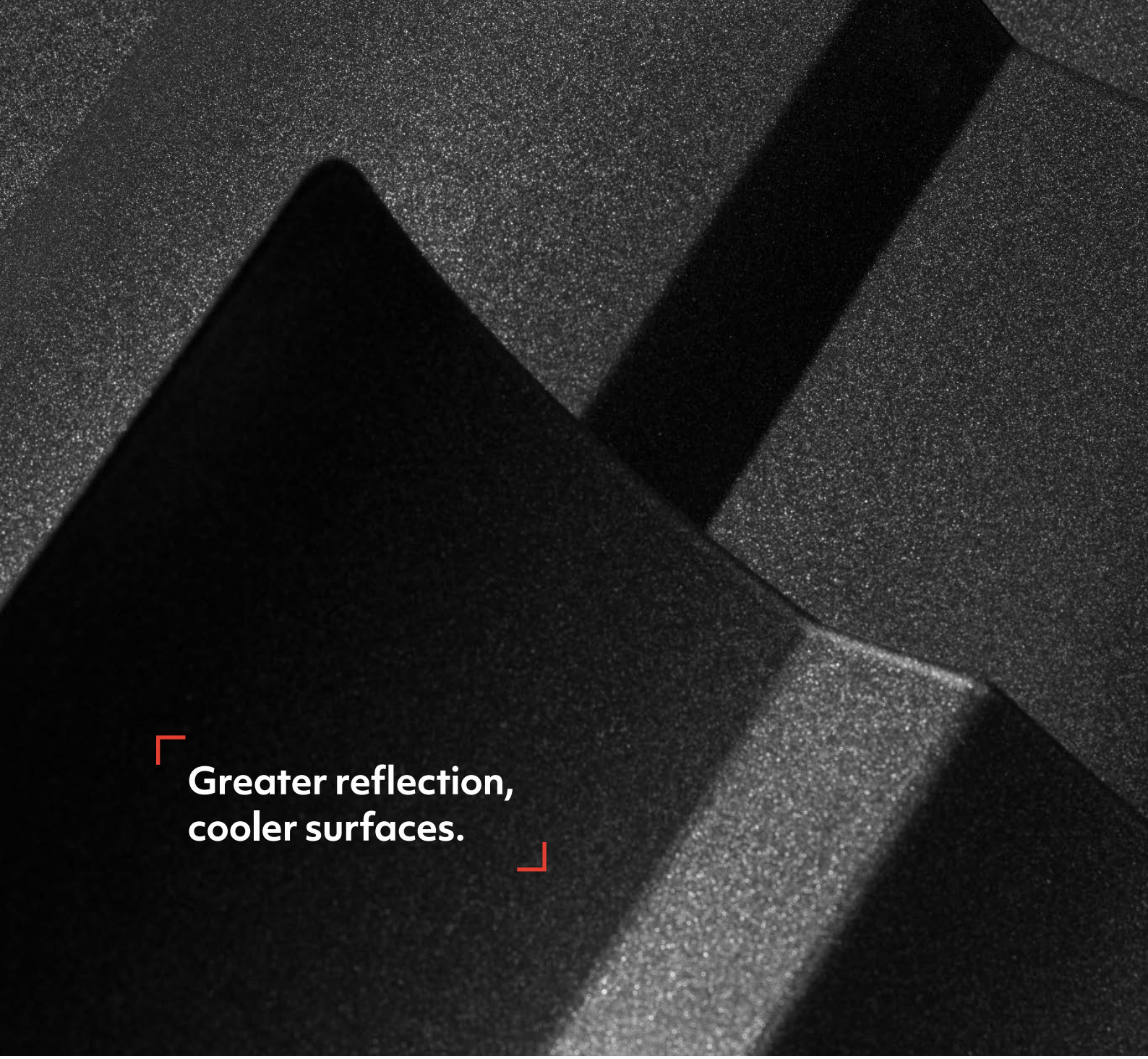
Measured values for standard and IR-optimized surfaces using IGP-HWF*classic* 59 Reflect (RAL 7016 shade) as an example

Shade and surface	TSR [%] Standard	TSR [%] IR-optimized	Conforms to the RAL color chart
RAL 7016, smooth, silk gloss	8	31	very good
RAL 7016, smooth, matte	8	31	very good
RAL 7016, fine structure, deep matte	9	32	very good
Competitor product (similar to RAL 7016, smooth, matte)	not available	31	no match

TSR
The TSR value (Total Solar Reflectance) represents the percentage of sunlight reflected across the visible, UV, and infrared spectrum. Specifically, a TSR of 100% means complete reflectance – all incoming radiation is bounced back, and no energy is absorbed by the surface. A TSR of 0% means zero reflectance – the surface absorbs all incoming energy.

Increased reflection of long-wave radiation

- Higher TSR value
- Decreased surface temperatures by up to 20%
- Reduced bimetal effect
- Extended lifespan of coated components
- Reduced heat transfer to the building interior
- Reduction of the building cooling load



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to every surface.
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