



COLORS &
EFFECTS

BASF
We create chemistry

Mastering the challenge: Keep colored surfaces cool in the heat

Pigment preparations
for solar heat management

Cool pigment preparations

In architectural coatings, using cool pigments in colored roofing and facade applications helps:

- To reduce energy costs
- To increase the durability of the coating
- To avoid cracking and deforming of insulation materials
- To expand color design to dark

Key pigment preparations

Main components for heat management are Luconyl® NG Black 0095 and Xfast® Black 0095.

BASF offers a complete range of organic and inorganic grades.

TSR values of our pigments constitute an established benchmark.

Our concept for mixing systems with Luconyl® NG and Xfast® requires only one additional colorant to enable darker shades while keeping the thermal load constant.



Only **ONE** additional colorant needed

Dark shades are no longer a limitation!

High total solar reflectance (TSR) values mean cool pigment preparations

Dark surfaces can get extremely hot under solar irradiation. This effect increases energy consumption to keep your house cool and is a challenge for the durability of the coating 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.

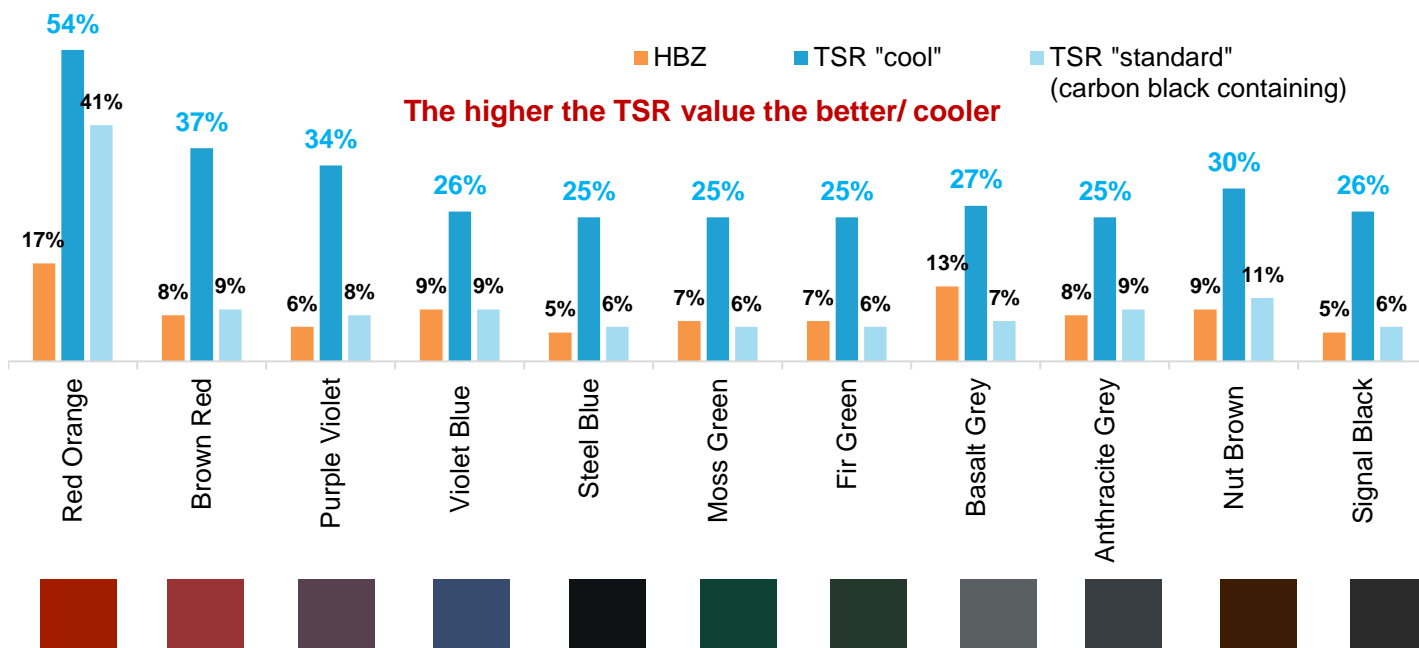
Conventionally for exterior insulation finishing systems a relative luminance (HBZ) of > 20% was requested which only considers the visible portion of the solar energy. In order to overcome this limitation, the total solar reflectance TSR > 25% is considered as the new key value.

Utilizing **Luconyl® NG Black 0095** and **Xfast® Black 0095** as a replacement for conventional black (carbon black, iron oxide black) within your formulations, heat and total solar reflectance (TSR) can be significantly improved.

We recommend to use **Luconyl® NG Black 0095** and **Xfast® Black 0095** either alone or in combination with suitable colored pigment preparations in order to yield the optimum in heat management capabilities

With BASF's calculating tool **CoolSim**, the TSR values can be optimized regarding pigment load, film thickness and influence of the substrate.

Color matching with Luconyl® NG Black 0095 or Xfast® Black 0095 allow significantly improved TSR-values



(5 % Luconyl® NG, 100 µm dry film over white)

At BASF, we offer the following service packages:

Calculating TSR-values for given color formulas

Measuring heating curve and TSR for given samples

Measuring TSR-values of draw-downs

Sample preparation for given Color formulas incl. TSR measurements and heating curves



Dark shades are no longer a limitation!

A broad portfolio of pigment preparations for heat management

BASF offers a broad portfolio of pigment preparations for heat management, which covers the full color space.

The choice of suitable pigmentation for a cool color is based on the Total Solar Reflectance (TSR). The major rule is to avoid Carbon Black (PBk 7) and Iron Oxide Black (PBk 11) pigments, which have low TSR values.

Our heat management pigment preparation grades

Xfast®

	Xfast®	C.I	Xfast® content (%)	TSR (%)*
	White 0025	PW 6	1	84
	Black 0095	PBr 29	1	32
	Yellow 1102	PY 184	1	73
	Yellow 1990	PY 42	1	70
	Brown 2915	PR 101	1	50
	Red 3395	PR 101	1	41
	Red 3860	PR 254	1	59
	Red 4790	PR 122	1	55
	Blue 6310	PBI 28	1	58
	Blue 7080	PBI 15:3	1	34
	Green 8730	PG 7	1	30
	Green 9990	PG 17	1	49
	Black 0050	PBk 11	0,1	4
	Black 0063	PBk 7	0,1	4

Luconyl® NG

	Luconyl® NG	C.I	Luconyl® NG content	TSR (%)*
	White 0025	PW 6	2,5	84
	Black 0095	PBr 29	2,5	28
	Yellow 1102	PY 184	2,5	73
	Yellow 1260	PY 154	1	71
	Yellow 1990	PY 42	2,5	49
	Yellow 2350	PY 110	1	66
	Orange 2400	PY 42	2,5	53
	Orange 2430	PO 82	2,5	65
	Brown 2915	PR 101	2,5	46
	Red 3395	PR 101	2,5	36
	Red 3750	PR 168	1	61
	Red 3860	PR 254	1	59
	Red 4790	PR 122	1	57
	Violet 5300	PV 15	2,5	66
	Blue 6310	PBI 28	2,5	53
	Blue 6900	PBI 15:2	1	34
	Blue 7080	PBI 15:3	1	38
	Green 8730	PG 7	1	33
	Green 9110	PG 50	2,5	55
	Green 9990	PG 17	2,5	42
	Black 0050	PBk 11	0,1	4
	Black 0066	PBk 7	0,1	4

*100 µm dry film over white

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