Shepherd

The Shepherd Color Company

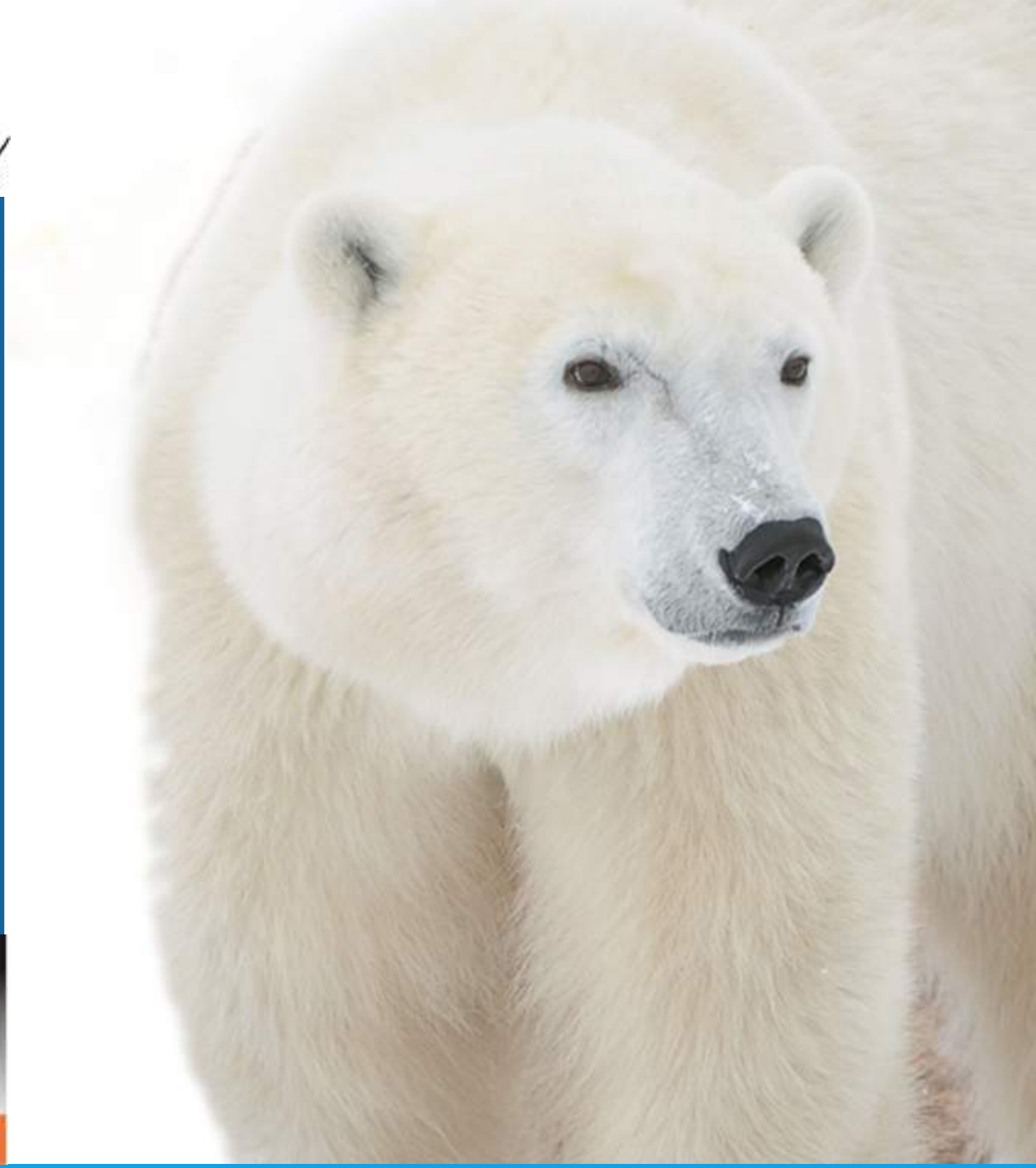
We Brighten Lives

Are Your Colors Cool Enough?

SHOW & CONFERENCE

ramspec

raw materials specialties chemicals



The Shepherd Color Company

100+ years experience

Shepherd Chemicals established by Lee Shepherd in 1916 in Cincinnati, OH, USA

1930's - Color department coloring oxides for porcelain enamel

1960's - Pennwalt PVDF

1980 : new facility, stand alone as **The Shepherd Color Company**

Largest producer of CICP pigments

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

The Shepherd Color Company

100+ years experience

4th Generation, family-owned

Investing in the future

- R&D capability
- Production methods and capacity
- Distribution and Support
- Global presence in all regions

We work for long-term impact

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE


WHAT IF?


IF YOU DON'T
WANT THIS...


IF YOU DON'T WANT THIS...
USE THIS
SUN
SCREEN
SPF
30
SUN PROTECTION LOTION


IF YOU DON'T
WANT THIS...

IF YOU DON'T WANT THIS...

USE THIS

ARCTIC

Infrared Reflective Pigments


BETTER
PERFORMANCE

30 YEARS

IR REFLECTIVE PIGMENTS ARE USED IN COMMERCIAL COATINGS SYSTEMS THAT ARE WARRANTED FOR 30+ YEARS.

50 years South Florida Weathering

CI PY 53

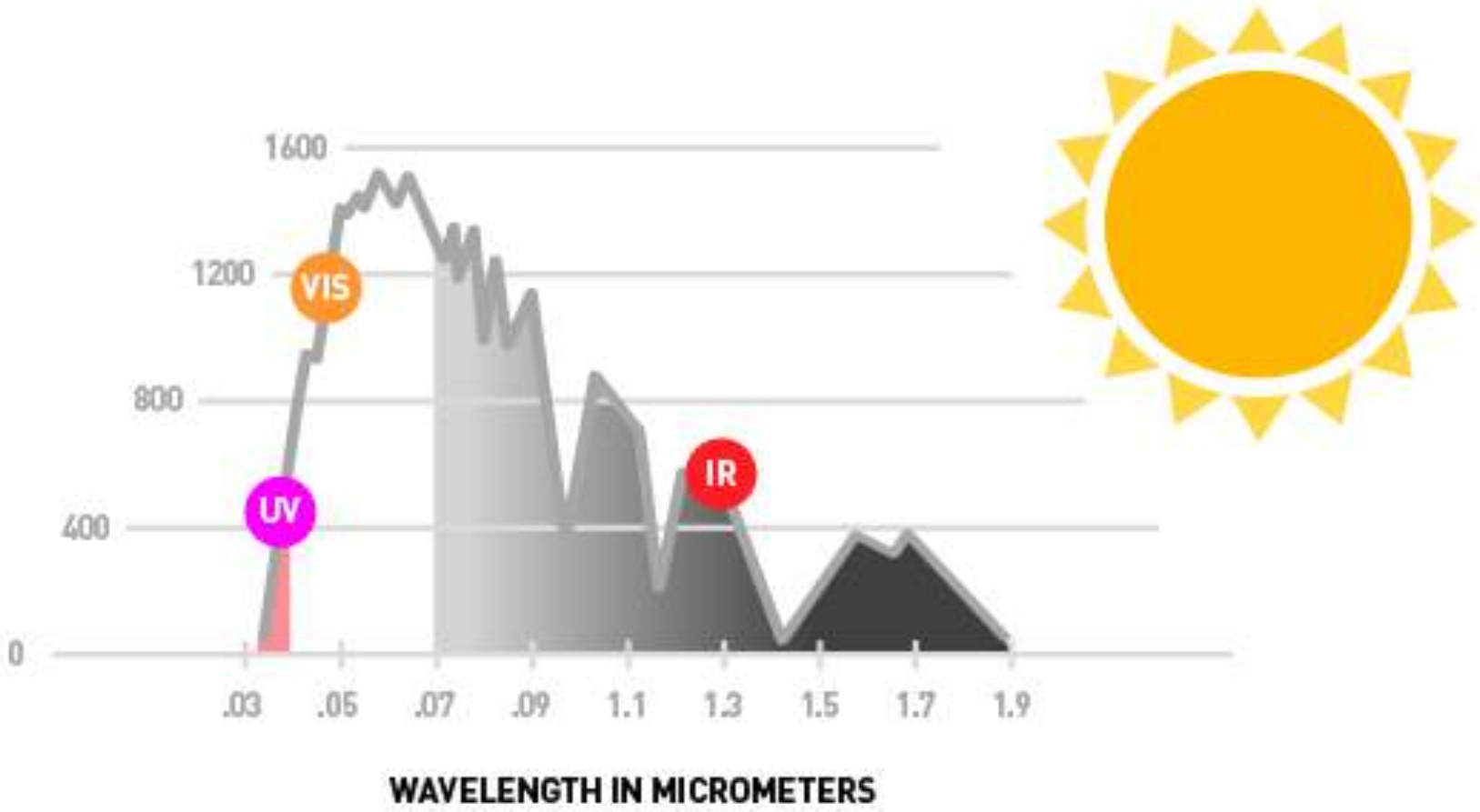
CI PBR24

CI PBL36

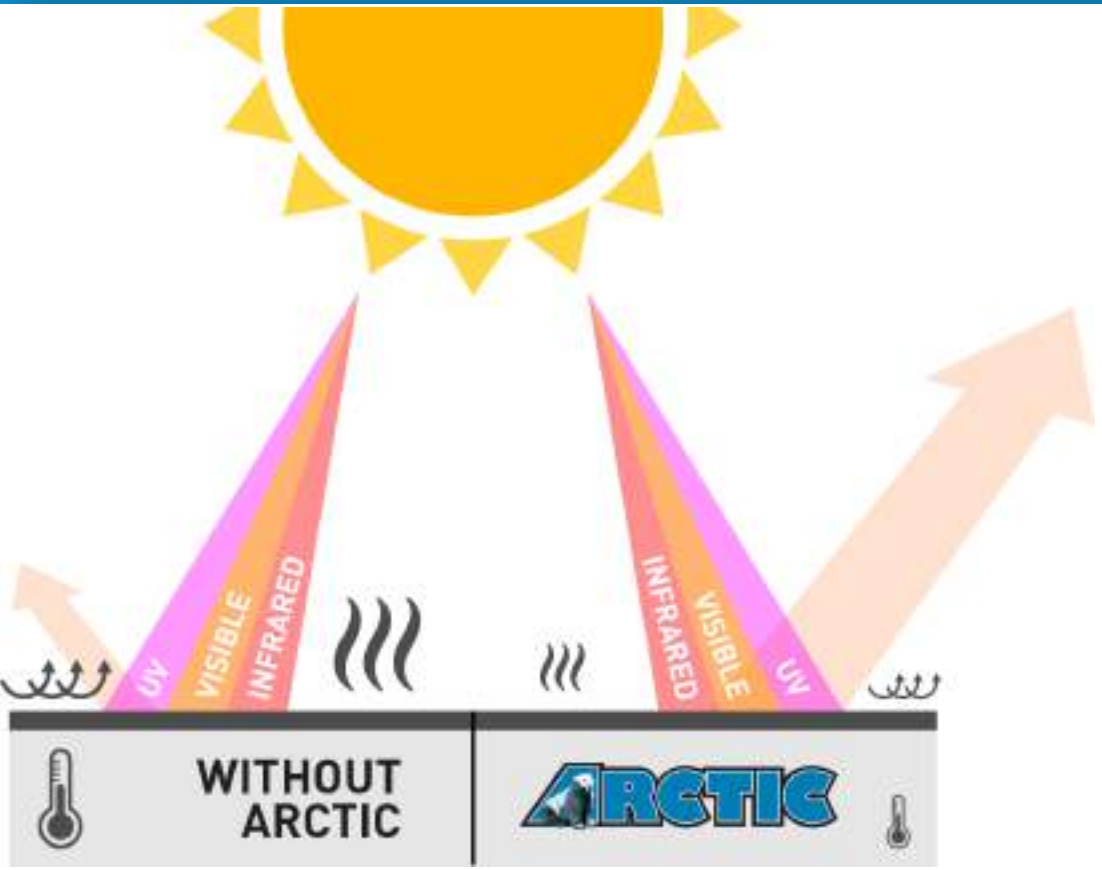
CI PGR50

CI PBR29

WHAT WE DO


1600
1200
800
400
0
VIS
UV
IR
.03
.05
.07
.09
1.1
1.3
1.5
1.7
1.9
WAVELENGTH IN MICROMETERS

WHAT WE DO



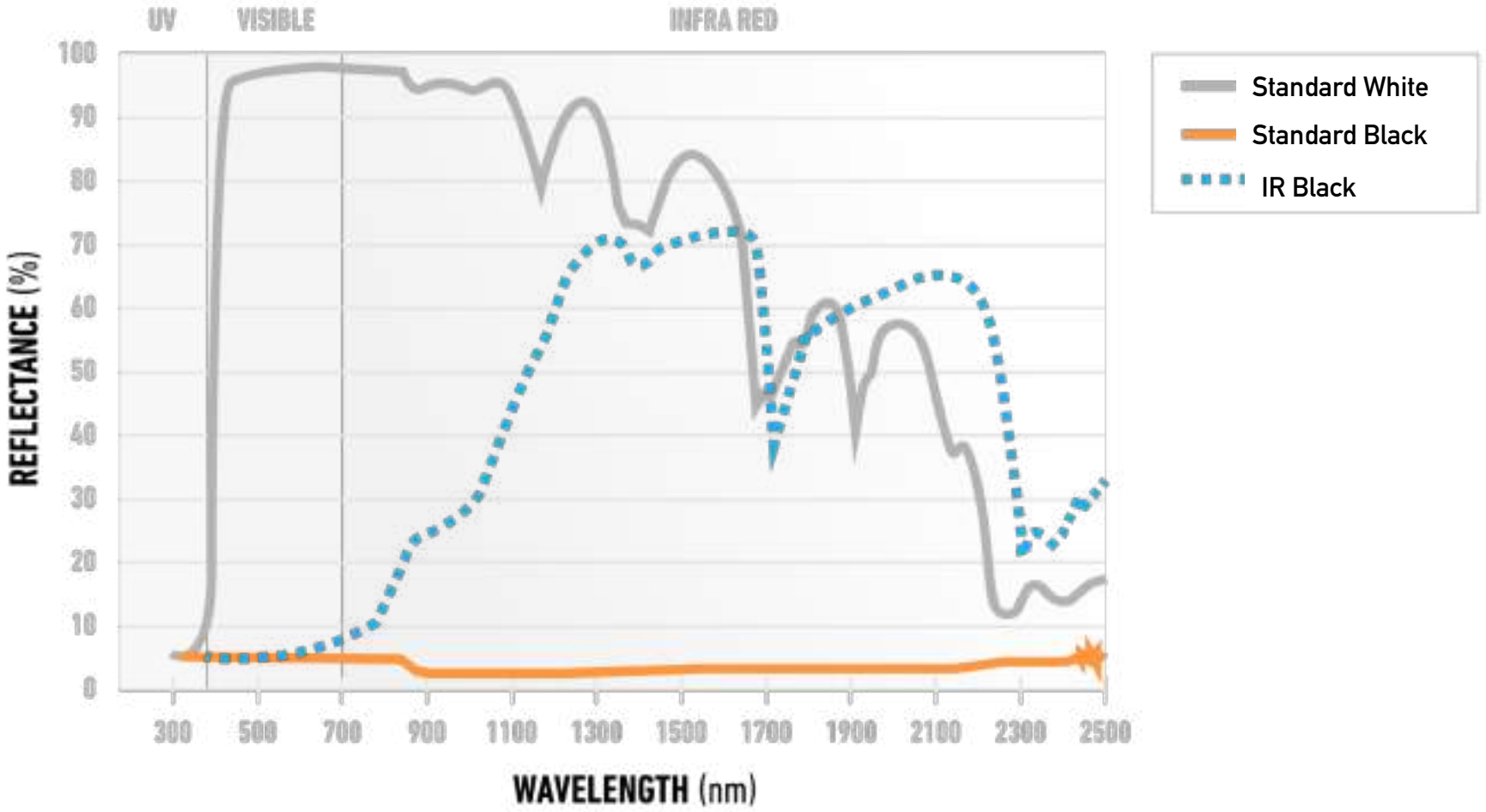
The more energy is reflected:
- Less is conducted into building
- Less is convected into air
- Less is emitted as black body radiation

More sustainable building products by reducing potential energy usage for cooling

Reducing Urban Heat-Island Effect

WHAT WE DO

UV-VISIBLE-IR REFLECTANCE CURVES



6x

INCREASE IN TSR

Cool Roof Comparison

- Two prepainted metal roofs with and without IR Reflective pigment coatings (south face - Sacramento, CA)
- Measure energy savings of cool pigmented roof materials over three years

House-2 4983 Mariah Place

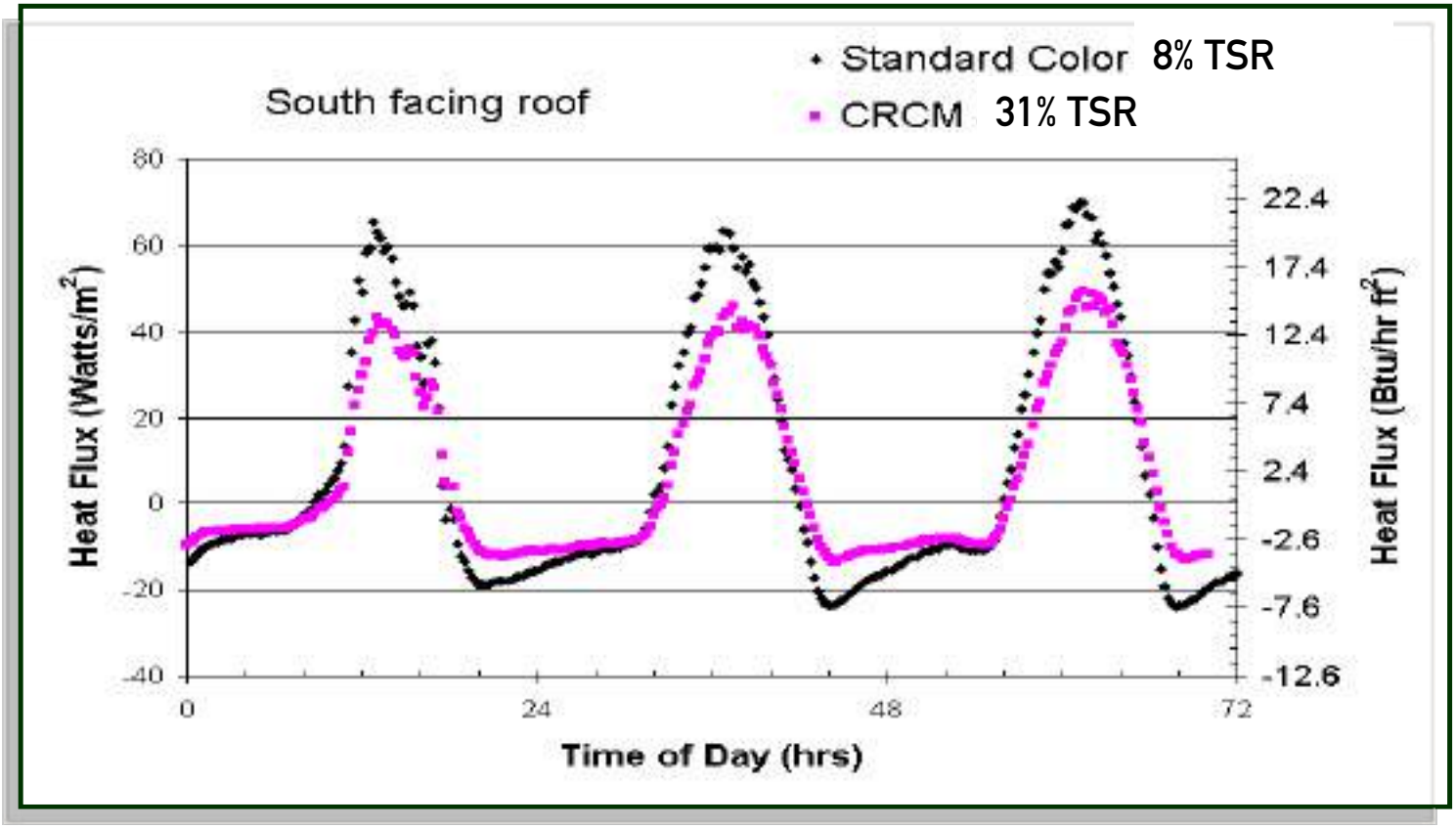
House-4 4991 Mariah Place

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

Cool Roof Comparison



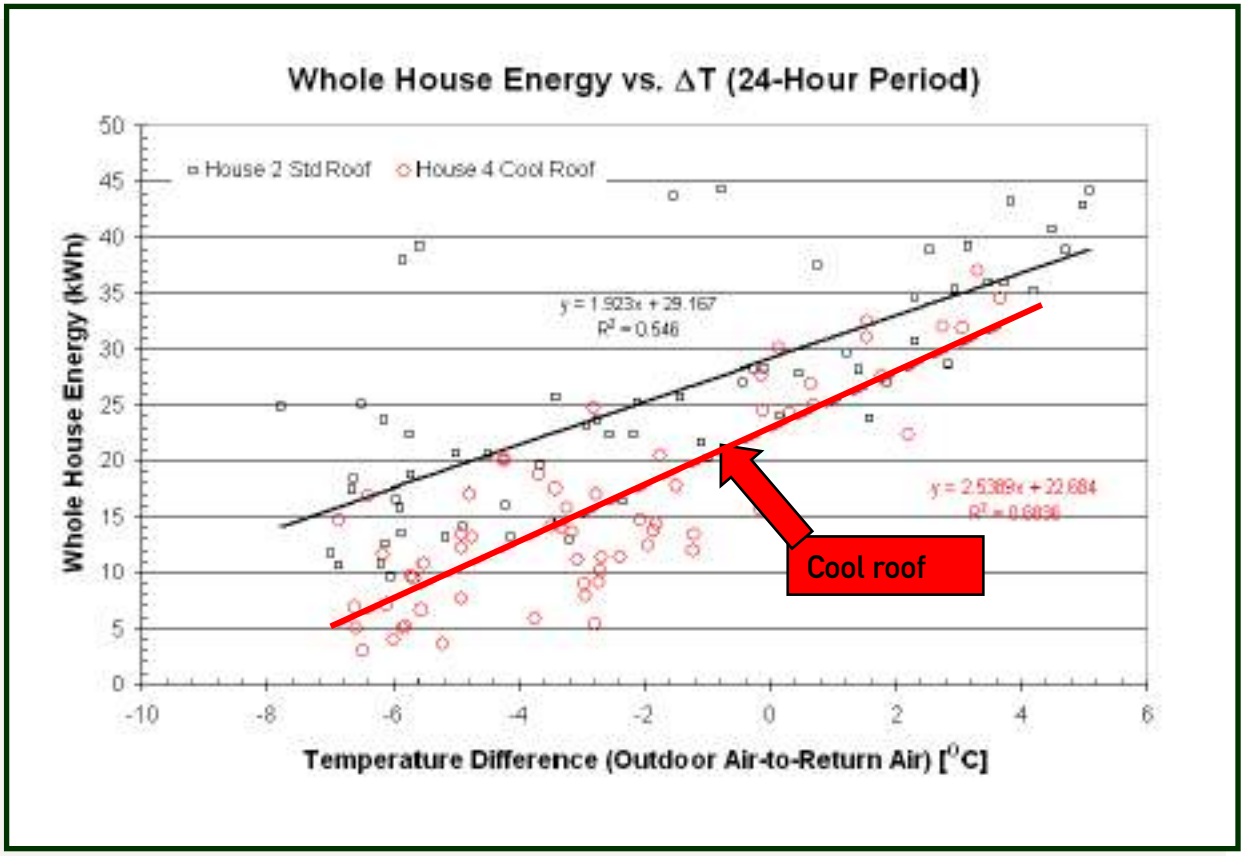
Cool coating reduces the heat flux through roof deck

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

Cool Roof Comparison



Cool pigmented colors reduce air-conditioner power by about 10%

MORE EXPERTISE

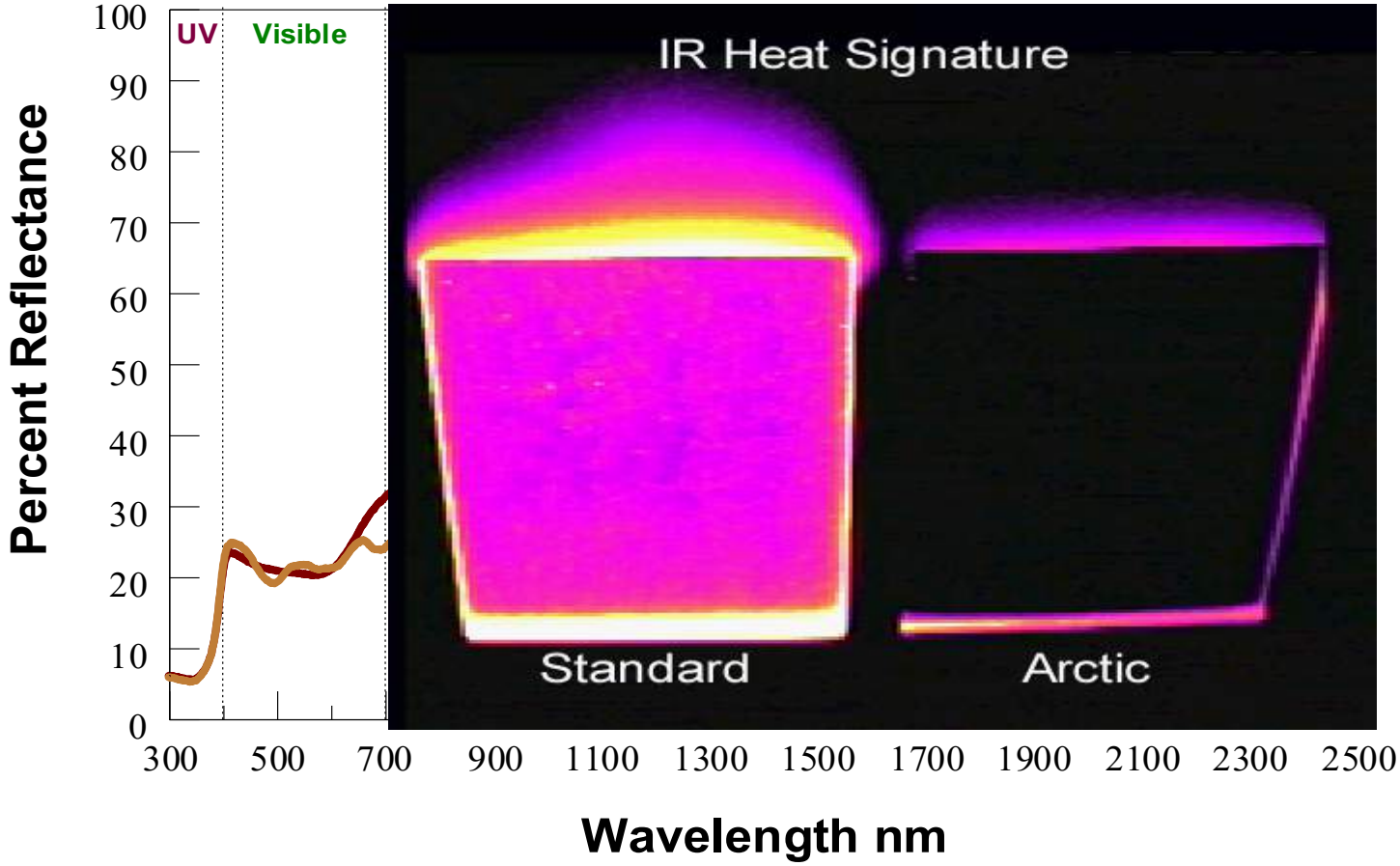
BETTER PERFORMANCE

BEST VALUE

Reflectance Spectra Gray Colors

Shepherd
The Shepherd Color Company
We Brighten Lives

Reflectance Spectra of Gray Colors made with Organic and IR Reflective Inorganic Pigment Packages

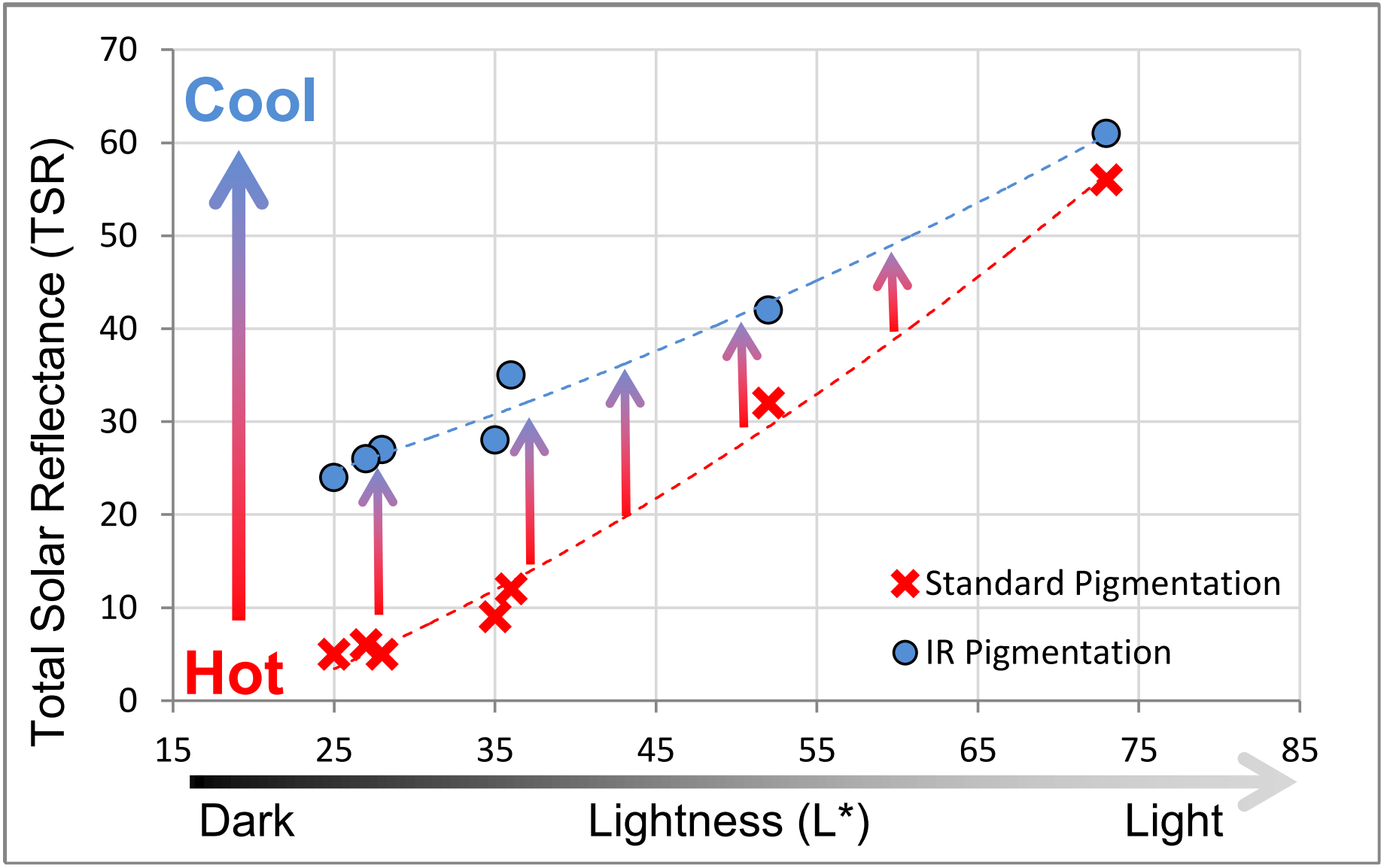


MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

IR Reflective Pigments Advantage



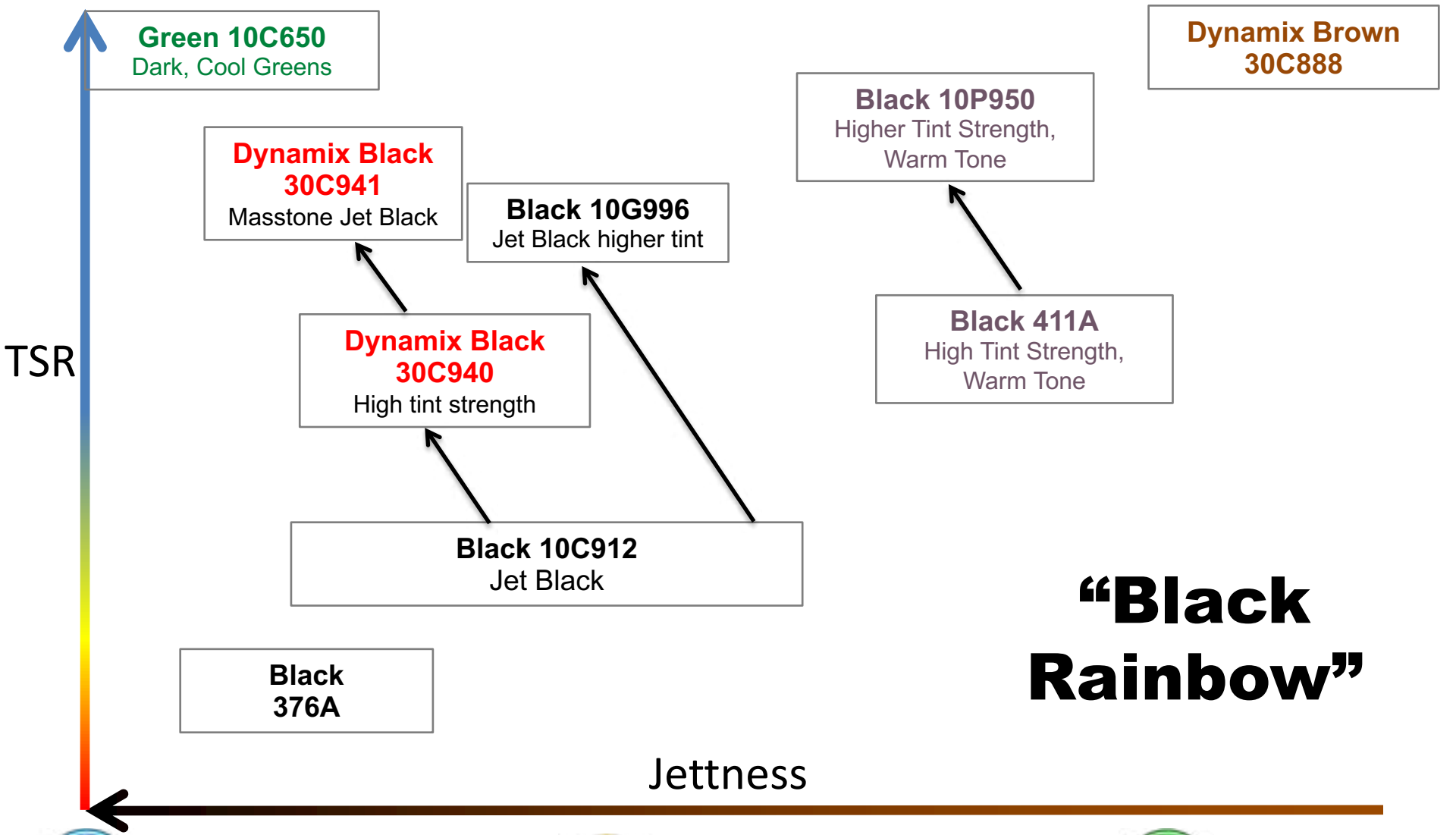

MORE
EXPERTISE


1
HOUR
TO LEARN WHAT TAKES
2,000
HOURS
OF LAB TIME
"Black Rainbow"
40 YEARS
INFRARED REFLECTIVE PIGMENTS ARE USED IN COMMERCIAL COATINGS SYSTEMS THAT ARE WARRANTED FOR LONG LIVES

SPEED TO MARKET

- ✓ Pigment Selection
- ✓ Pigment Interaction
- ✓ Application Variables
- ✓ Contamination Issues
- ✓ Instrument Measurement

Solar Heat Build-Up Management



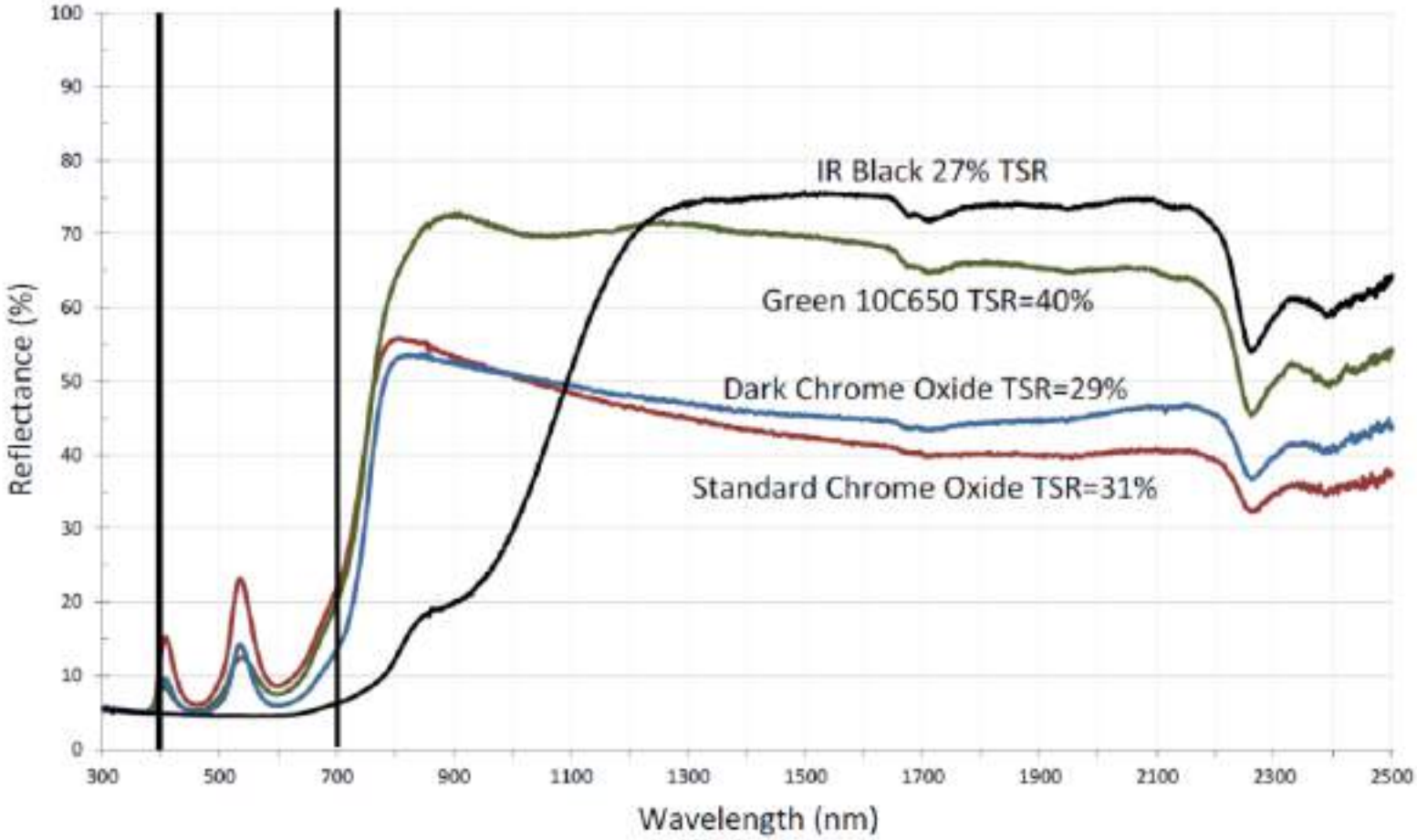
"Black Rainbow"

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

High Performance NIR Reflective Green 10C650

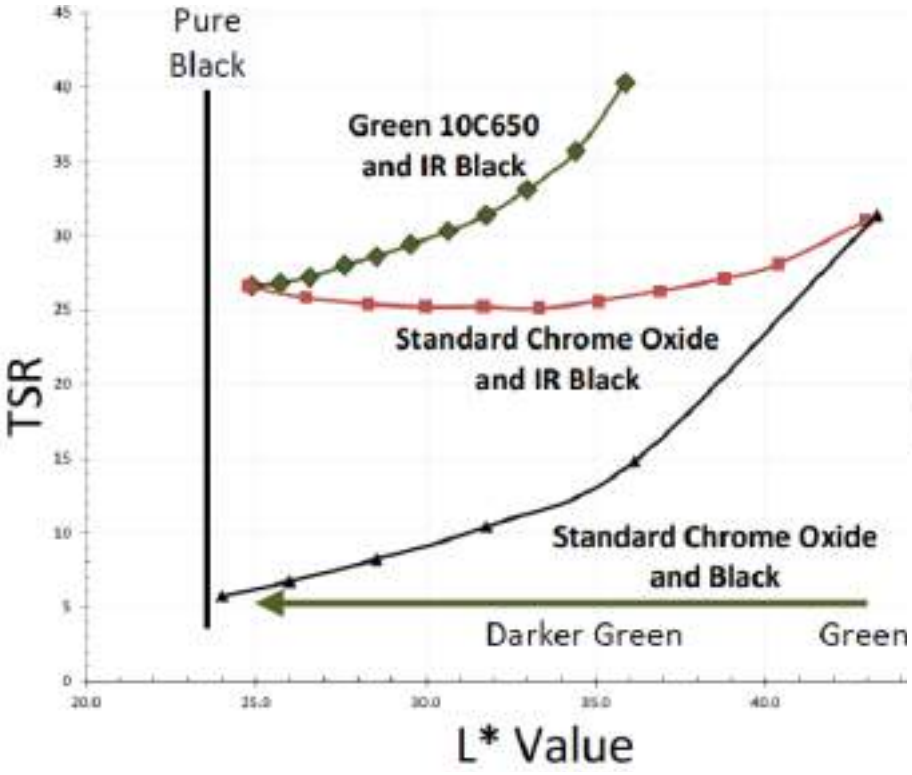


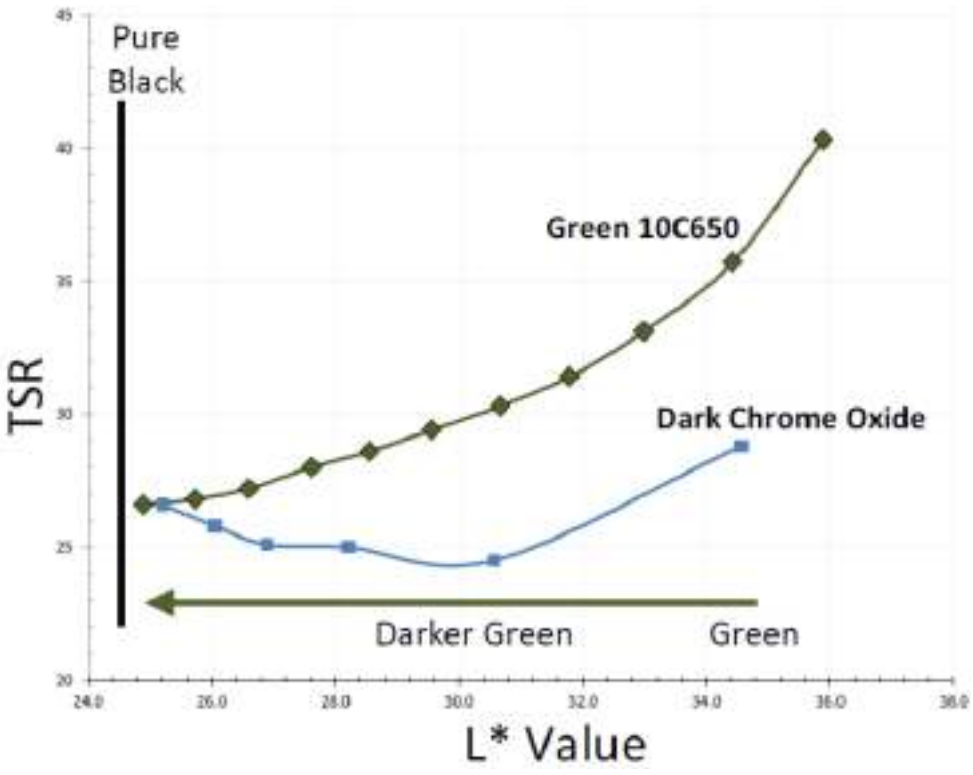
MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

High Performance NIR Reflective Green 10C650





For any given L* value the IR pigments blends has an advantage in TSR

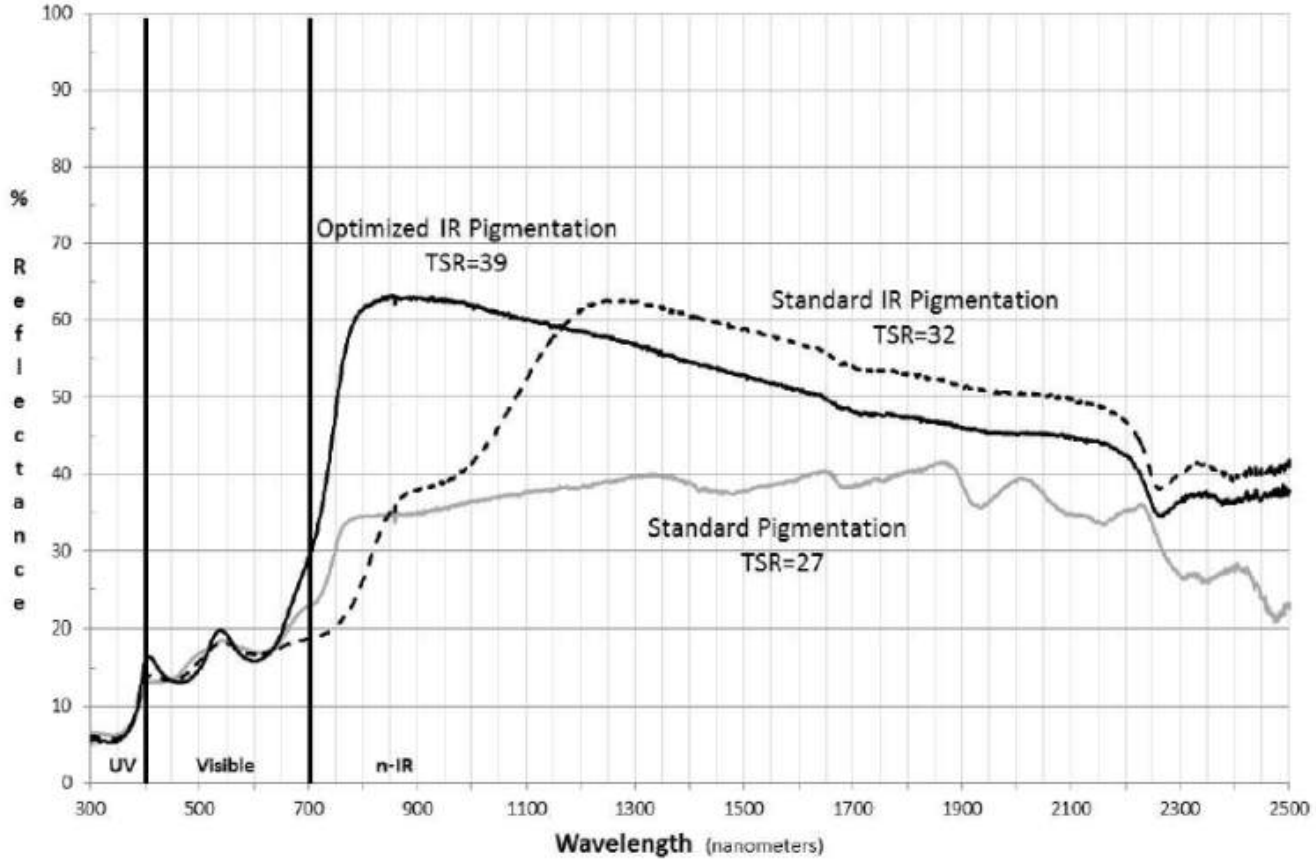
Formulation of dark green colors at significant higher TSR

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

TSR improvements



Dark Green

Total Solar Reflectance

Standard	Arctic Match	Optimized Arctic Match
27	32	38

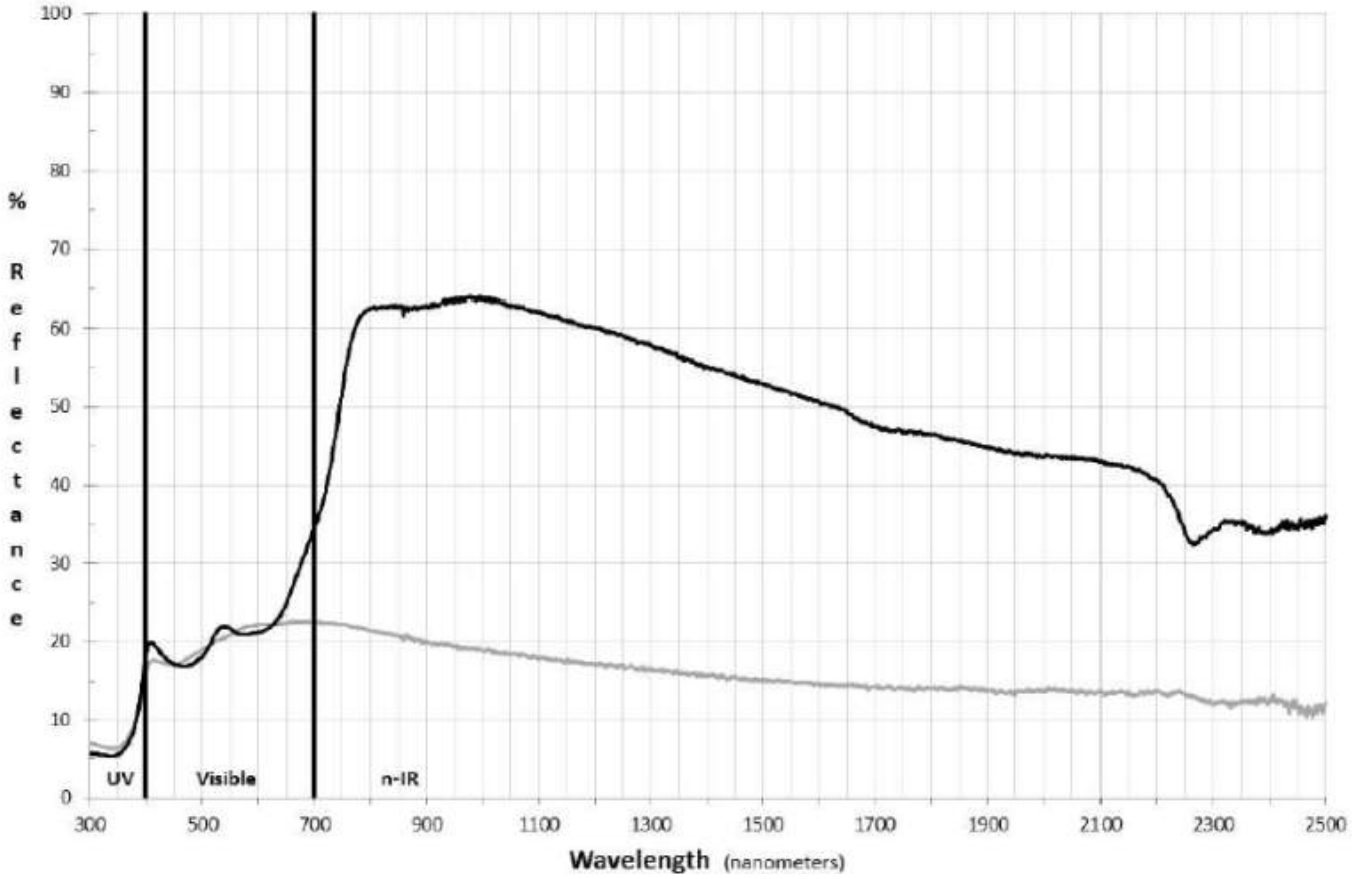
11 TSR Improvement!!!

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

TSR improvements



Mid-Gray

Total Solar Reflectance

Standard	Arctic Match
19	→ 41

22 TSR Improvement!!!

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

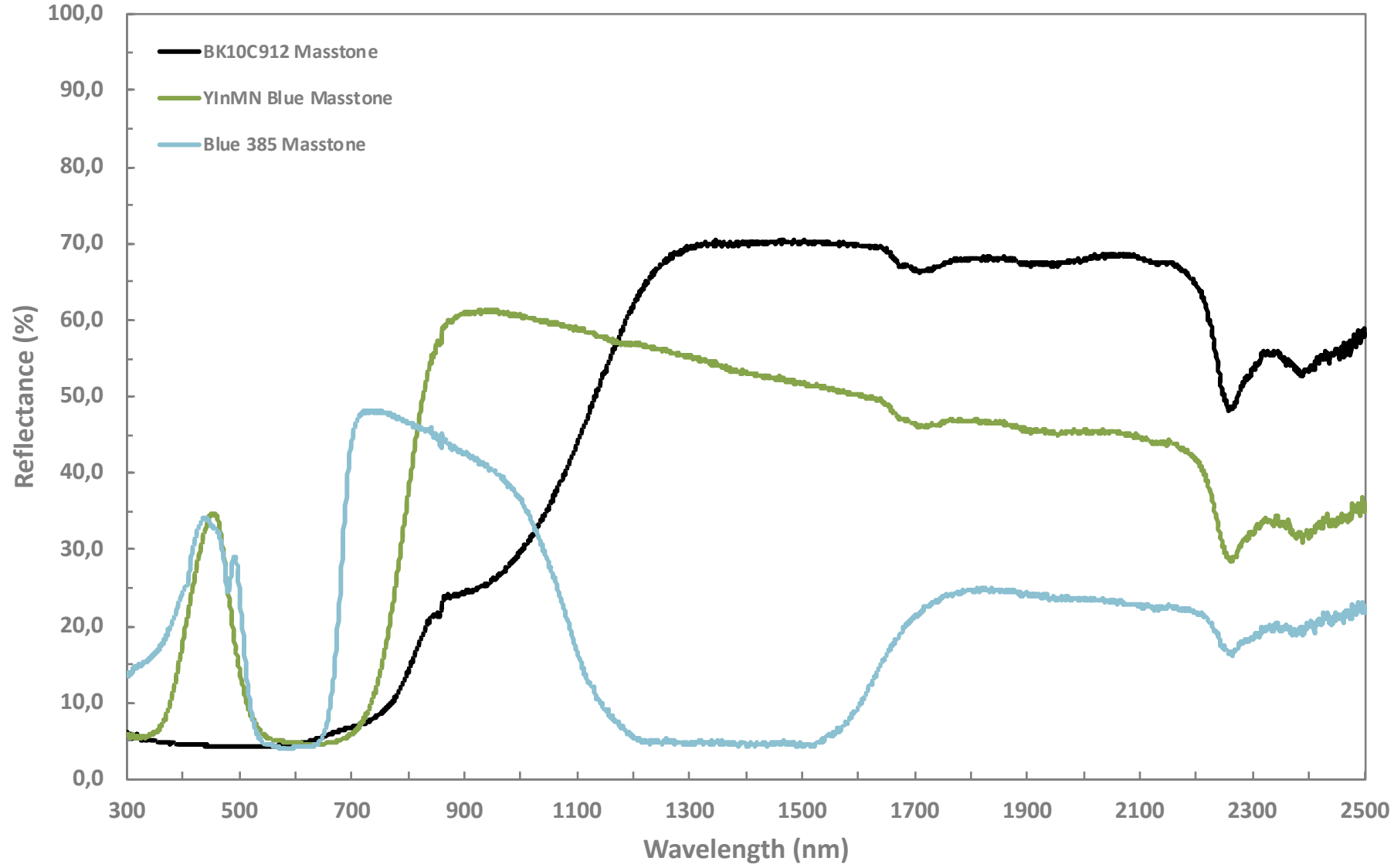
Pigment combinations

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

Pigment combinations

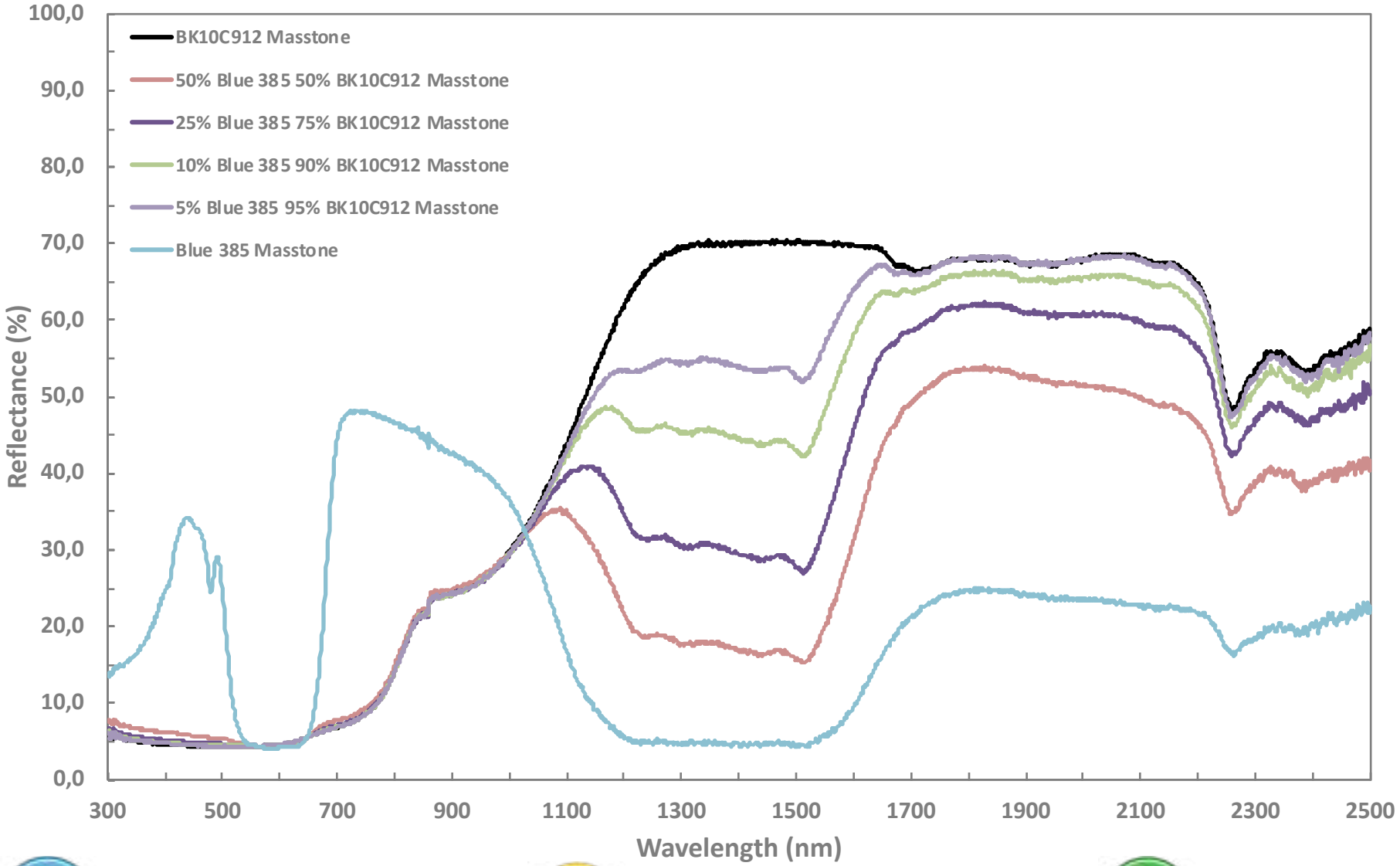


MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

IR black with CoAl blue



MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

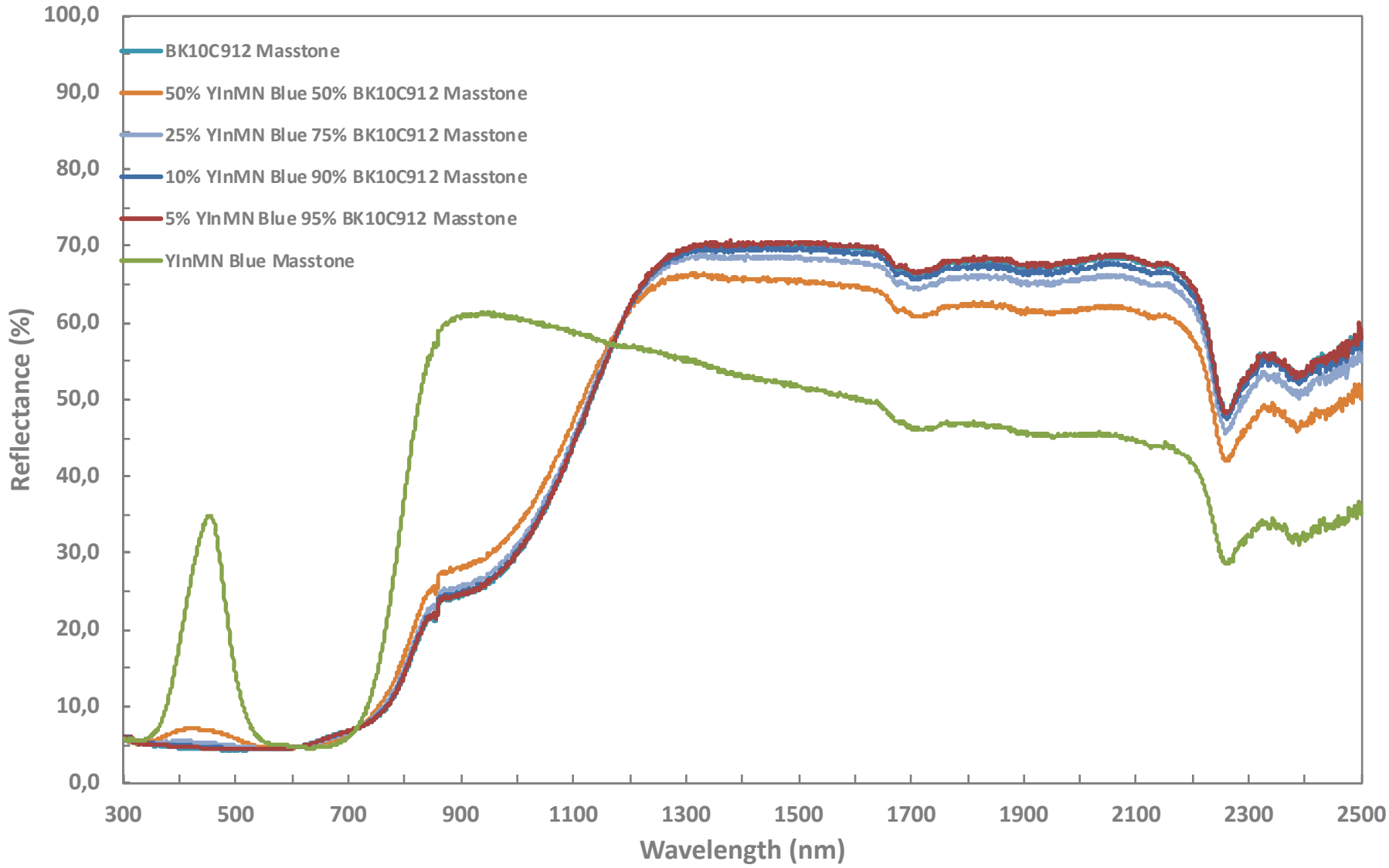
New Blue Pigment CI PBL86

MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

IR black with new IR optimized blue

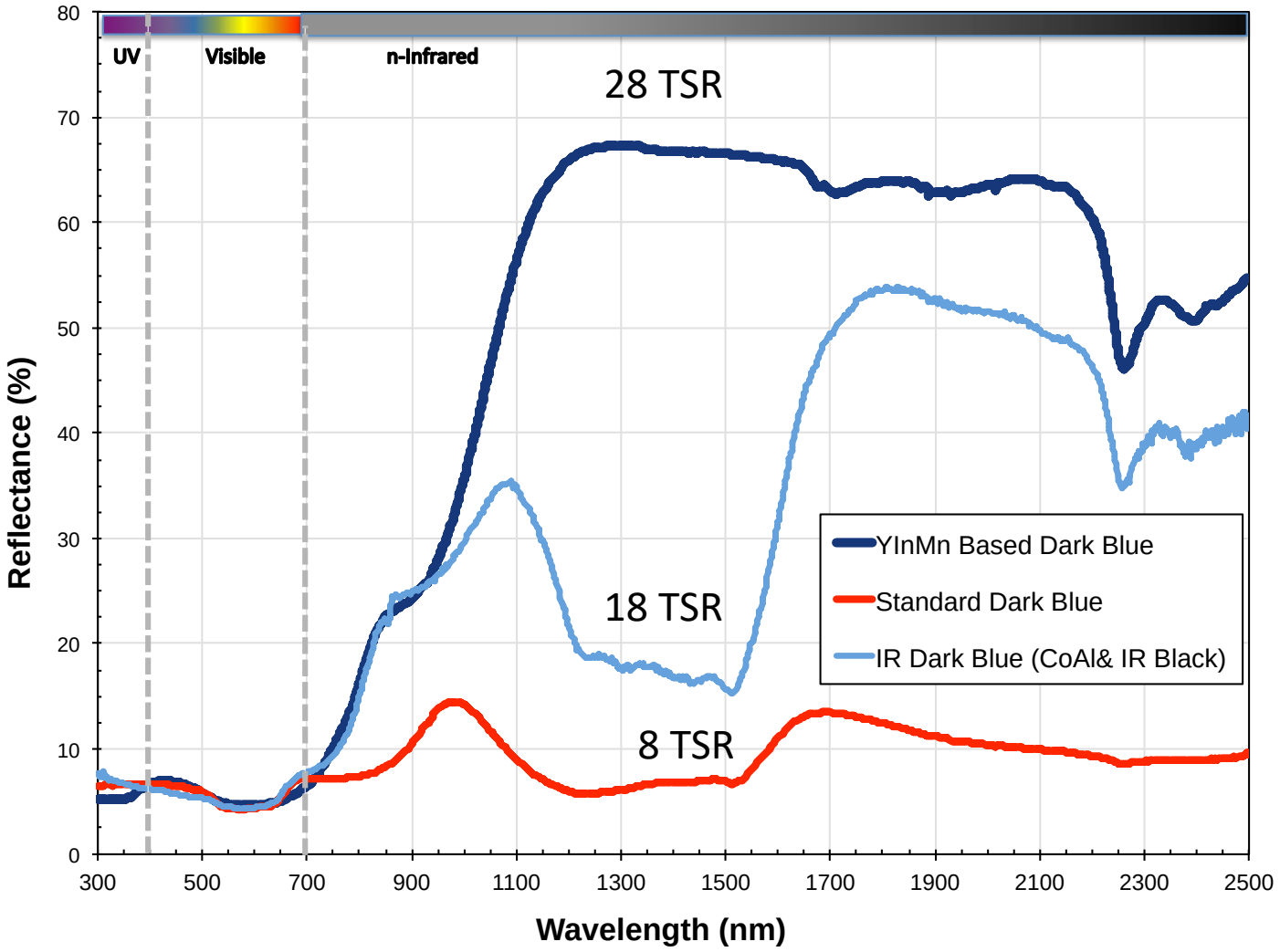


MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

Pigment combinations

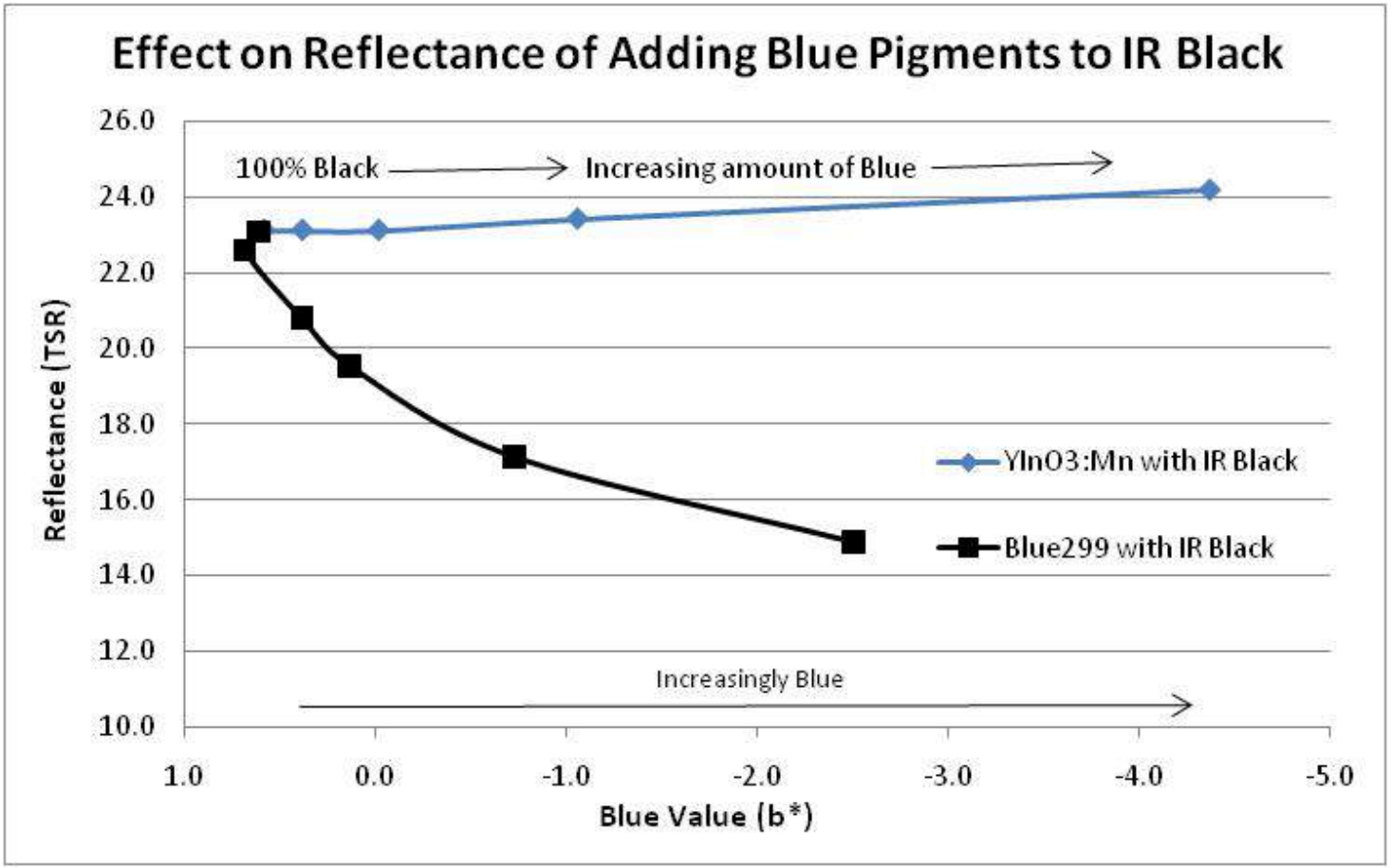


MORE EXPERTISE

BETTER PERFORMANCE

BEST VALUE

Pigment combinations TSR




BEST
VALUE
ARCTIC

100%

ARCTIC PIGMENTS ADDRESS ALL
OF YOUR DURABLE COOL COLOR NEEDS

ONLY

ARCTIC

MORE OPPORTUNITIES

REGULATORY COMPLIANCE

USGBC LEED
ENERGY STAR
CALIFORNIA TITLE 24

LOWER LIFECYCLE COSTS

INCREASED SUSTAINABILITY

BETTER PRODUCTS

REDUCED THERMAL EXPANSION AND DEGRATION


ARCTIC
THANKS!
Yves Christiaens
WWW.ARCTICPIGMENTS.COM