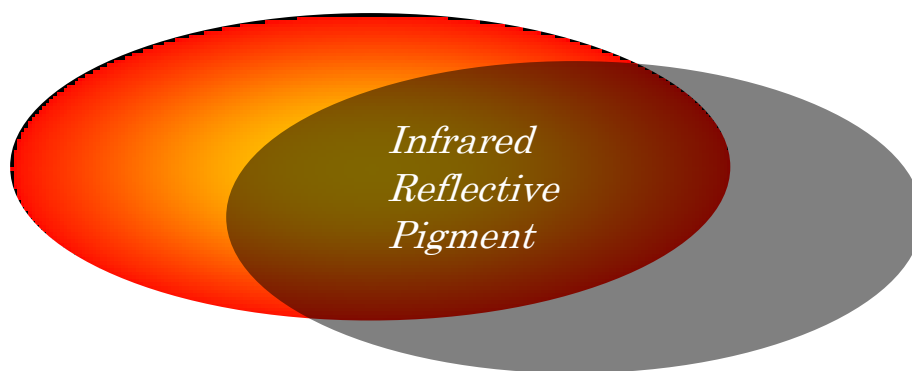


ASAHI Complex Inorganic Colored Pigment
TECHNICAL DATA SHEET

IRR Pigment

- BLACK -



What is IRR pigment?

ASAHI Complex Inorganic Colored Pigment

TECHNICAL DATA

IRR pigment is the functional colorant which has Infrared reflection performance.

Radiation energy at each wavelength is shown on Fig.1. Energy amount is divided into UV range, Visible range and Infrared range as follows ;

UV range (below 400nm) approx 5%
 Visible range (400nm~750nm) approx 46%
 Infrared range (750nm up) approx 49%

It is so called heat build-up with absorbing the energy at IR range. As we feel in our life, in general, black material is easy to get hot than white one when we receive sunlight.

In case of pigments, TiO₂ looks white by reflecting the energy in visible range, it has a characteristic to reflect easily to the energy in IR range, too. Due to this fact, this white pigment hardly buildup heat .

Also, Titanium Yellow and Iron Brown have relatively high IRR performance . However, Carbon Black it is known as typical black pigment and Cu-Cr Black as a popular CICIP Black absorbs most amount of energy in visible range and IR range.

Low spectral reflectance of black pigments in visible range obtains jetness and general black pigments have low reflectance at IR range as well as visible range. Therefore, paints and plastics colored with general black pigment absorb light energy when receive radiation, due to the result of this fact, general black pigments induce heat build-up.

IRR black is a functional pigment which reduces heat build-up with its higher reflection compared with general black pigment at IR range.

図1. 太陽光の分光放射

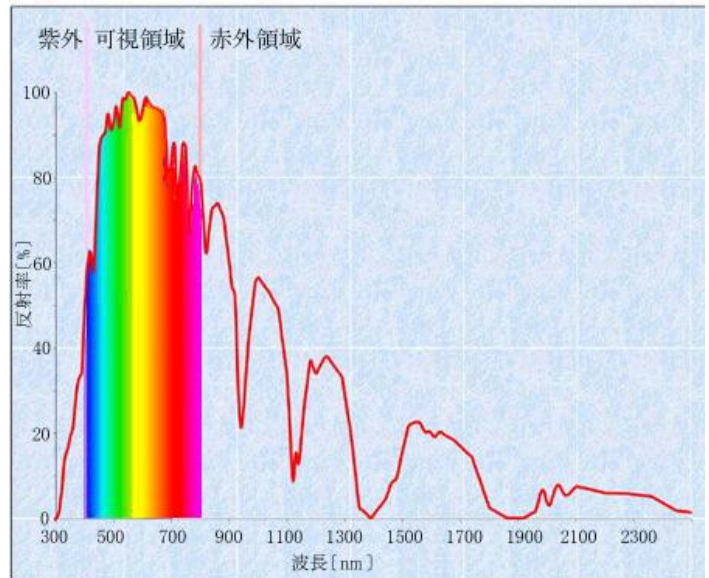
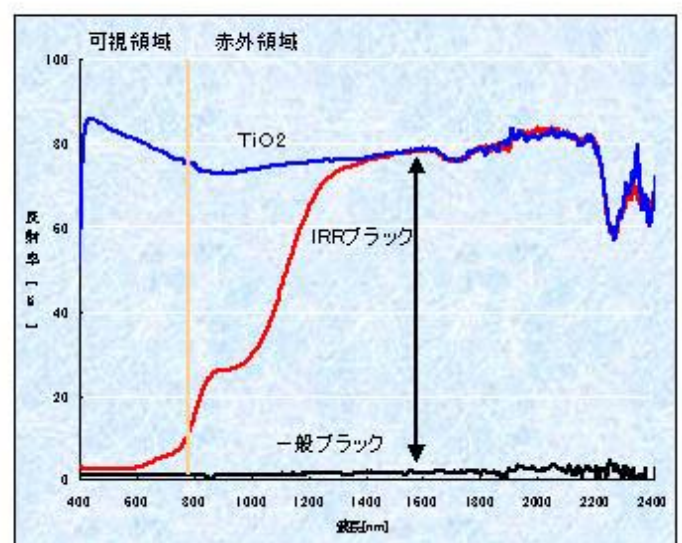


図2. IRRブラックと一般ブラックの分光反射

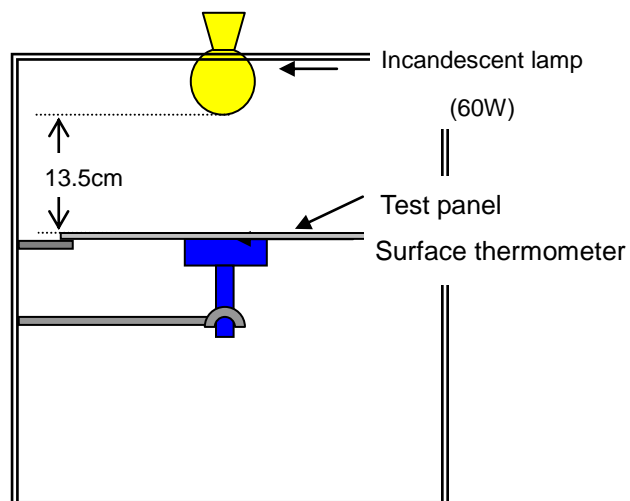


IRR Black - Heat build-up

ASAHI Complex Inorganic Colored Pigment TECHNICAL DATA

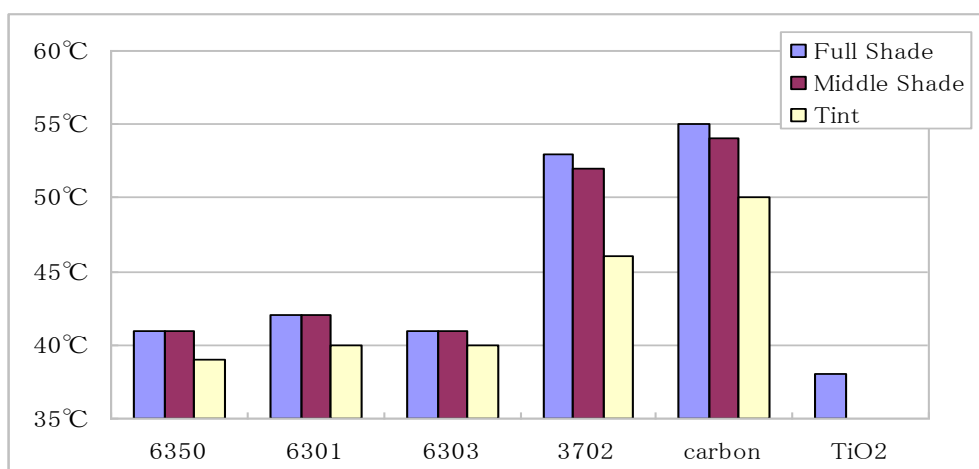
Test Method

Place a test panel at 13.5cm away from 60W incandescent lamp. After 20 minutes radiation, measure surface temperature at backside of test panel by surface thermometer.



Test result

PVDF	Temperature (°C)		
	Full Shade	Middle Shade	Tinted
Black 6350	41	41	39
Black 6301	42	42	40
Black 6303	41	41	40
Black 3702	53	52	46
Carbon Black	55	54	50
TiO ₂	38	-	-



This data sheet measurement result is based on the random samples but it does not guarantee the data of lot products offered.

IRR Black - Color-

ASAHI Complex Inorganic Colored Pigment
TECHNICAL DATA

PVDF (Polyvinylidene fluoride)

Paint formulation

	CICP Black			Carbon Black		
	Full Shade	Middleshade	Tint	Full Shade	Middleshade	Tint
NV	48	46	42	42	46	42
Color PWC	30	30	30	10	30	30
Pigment/TiO ₂	100/0	50/50	10/90	100/0	10/90	1/99

Color value

	Full Shade				Middle Shade				Tint			
	L*	a*	b*	gloss	L*	a*	b*	gloss	L*	a*	b*	gloss
6350	17.45	1.95	1.75	45.20	47.36	-0.04	-3.60	48.20	73.17	-0.48	-2.56	50.30
6301	15.44	0.73	0.46	50.20	46.12	-1.02	-4.87	50.30	72.92	-1.23	-3.33	49.50
6303	17.83	-4.42	-9.13	54.40	46.32	-6.03	-8.29	52.80	72.39	-4.54	-5.19	50.10
3702	12.92	-0.16	-2.20	52.90	42.39	-1.98	-5.92	52.80	69.61	-1.98	-4.15	50.90
carbon	18.69	-0.19	-0.89	11.40	28.80	-0.67	-3.12	19.90	60.88	-1.04	-2.16	44.70

CIE 1976 (L* a* b*) D65/10° /SCE

This data sheet measurement result is based on the random samples but it does not guarantee the data of lot products offered.

NV : Non-Volatile Content

PWC : Pigment Weight Content