

IR - Reject coating

Solution for film

(Thermal and UV curing)

**CS IRC 7090 ,
Coating Suisse Ltd.**

1.The Situation of Window Solar Film



There are many kinds of solar films for car window and building window in the market.
But , most of films are just coated for only UV Cut and Tin-Tin

Recently , the demand of IR-Cut Film is expanded rapidly

For IR-Cut effect ATO is mainly used , but , due to the limit of ATO , organic pigment or dyestuff is used , but it has durability problem

We open new concept of IR-Cut coating solution with highest value and the most economic cost

Highest function with permanent life cycle

2.The general Properties



- ◆ UV Curing Type and Thermal Curing Type is available
- ◆ 100 % Inorganic material - permanent life cycle
- ◆ improving coating ability
- ◆ Excellent stability of coating material
- ◆ Highest IR – Cut effect

3. The general structure of coated film

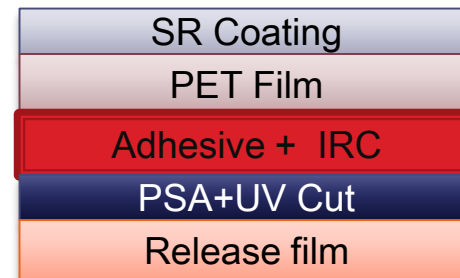


UV Type

1. 1 ply film



Thermal type



2. 2ply film

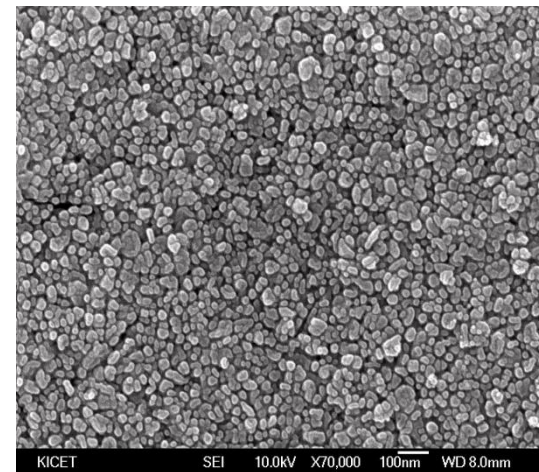


4.The Products

- IRC 70/90 (VLT 70 , IR Cut 90)
- IRC 70/70 (VLT 70 , IR Cut 70)
- IRC 60/60 (VLT 60 , IR Cut 50)
- V-Pigment (VLT10-20 ,IR Cut 90-80 + UV Cut 98%)

► Representative properties

Color	Black or bluish Color
Solid contents	Min.20%(200,000ppm)
Solvent	MEK or User option
PH	5±1
P-Particle	10±5nm
D-Particle	50±10nm
Density	1.0g/ml

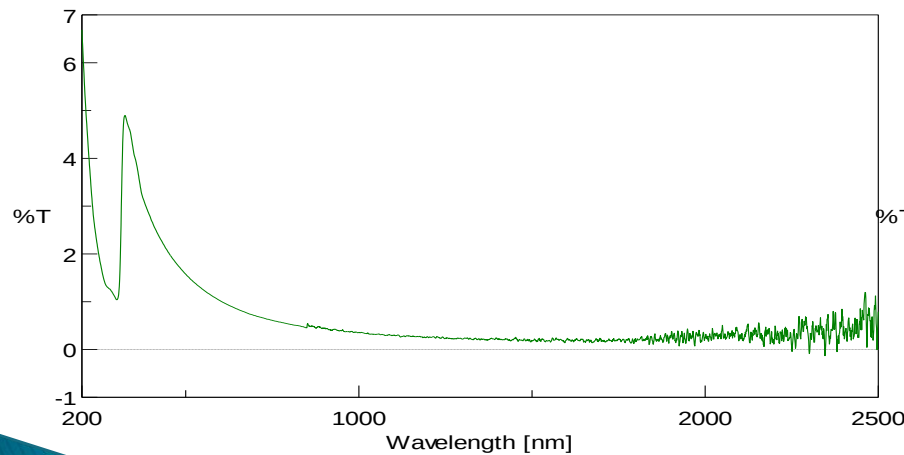
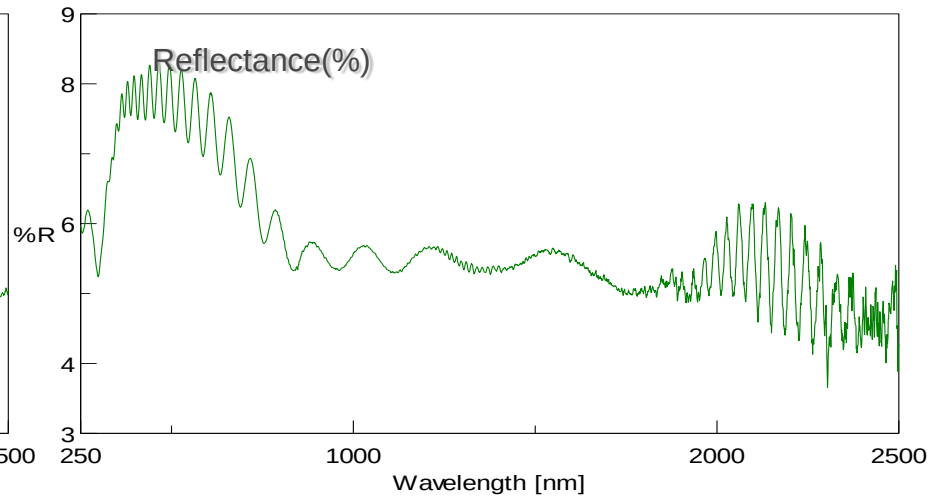
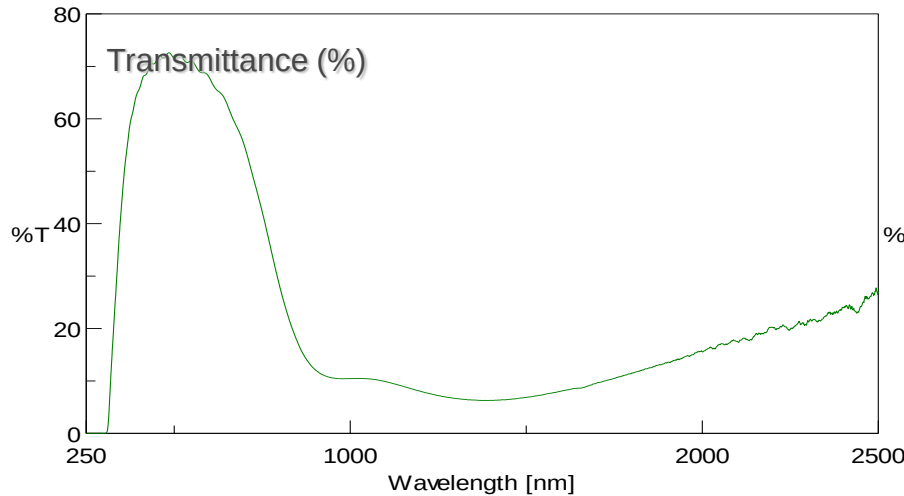


< NANO POWDER SEM PHOTOGRAPH >

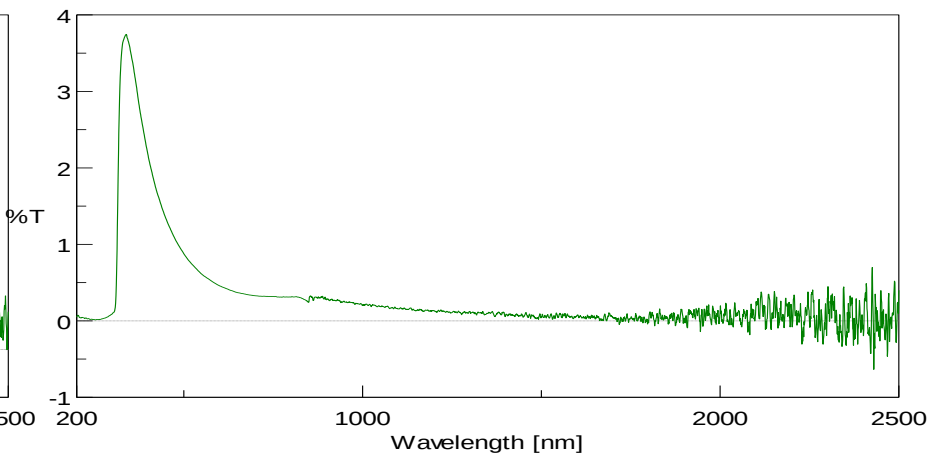
5.Graph & Data



1)IRC-7090 Graph



Base Film (38µm) Haze : 1.3

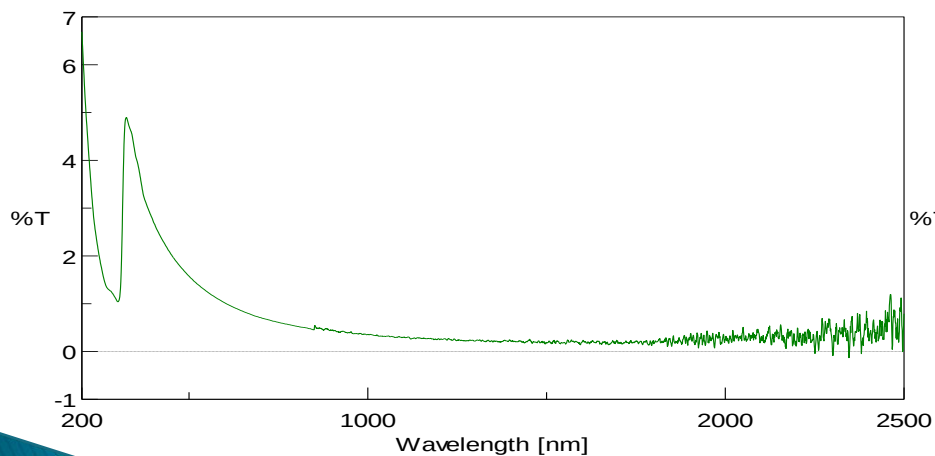
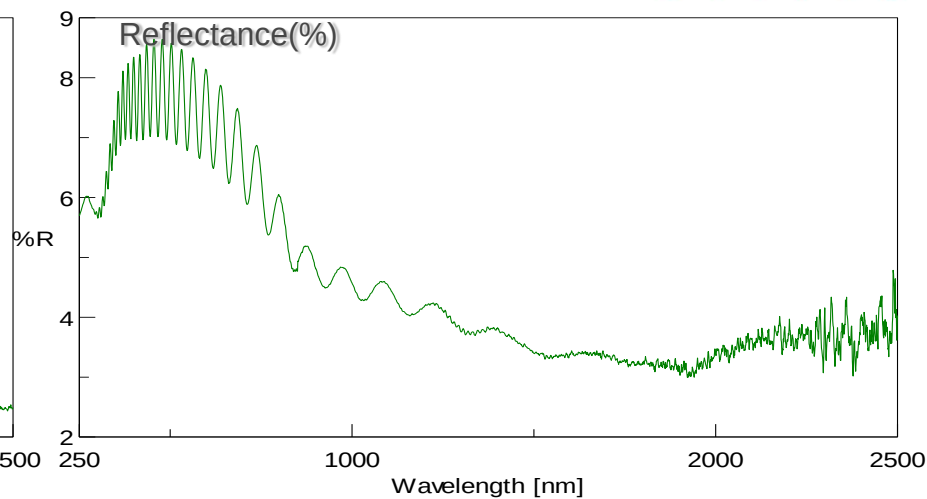
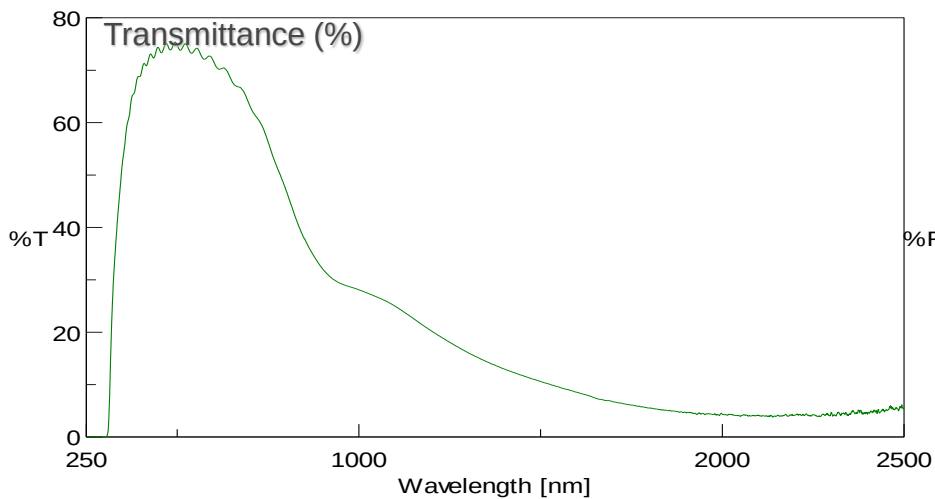


Coated Film Haze : 0.8

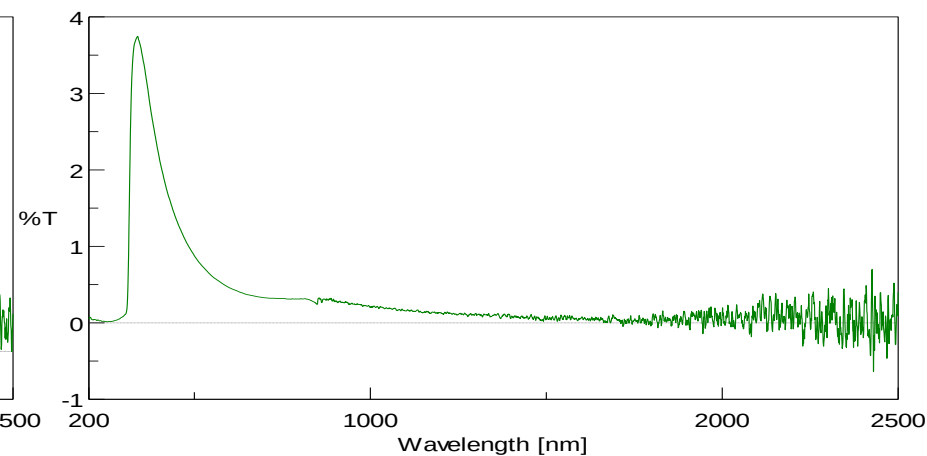
2)IRC-7090 detail data

% Total Solar Transmittance (300-2100nm)		38.43
% Total Solar Reflectance (300-2100nm)		6.41
% Total Solar Absorbance (300-2100nm)		55.16
%Visible Light (380-780nm)	VLT(Transmittance)	62.78
	VLR(Reflectance)	7.26
	VLA(Absorbance)	29.96
%Infra Red (780-2500nm)	IRT(Transmittance)	13.45
	IRR(Reflectance)	5.3
	IRA(Absorbance)	81.25
%Infra Red (900-1000nm)	IRR(Rejected)	83.75
Solar Heat Gain Coefficient (SHGC)		0.5317
%Total Solar Energy Reject(T.S.E.R)		46.83
% Haze		1.3 $\Rightarrow$ 0.8

3)IRC-7070 Graph



Base Film (38µm) Haze : 1.3



Coated Film Haze : 0.8

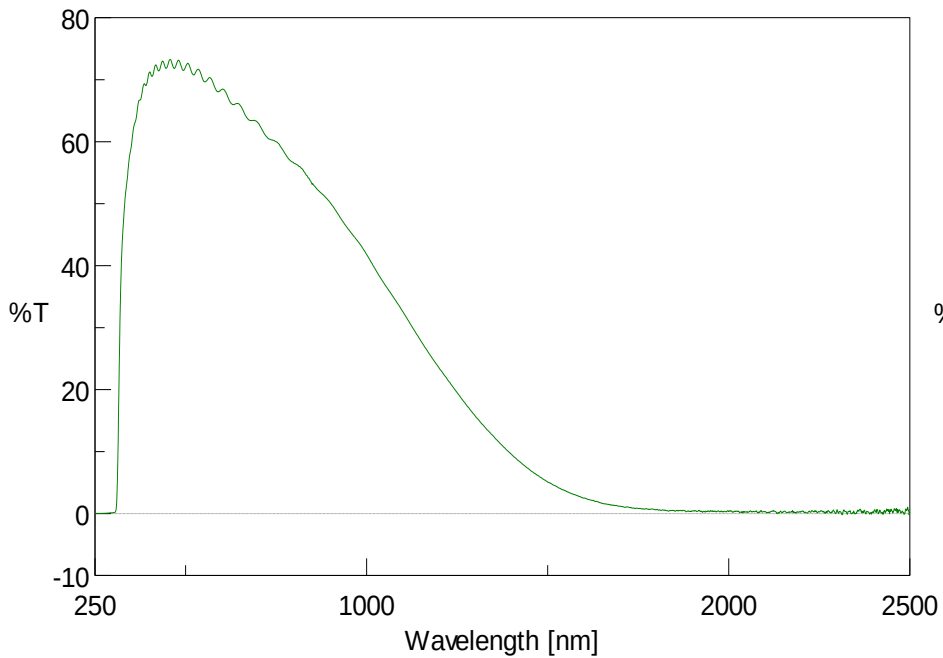
4)IRC-7070 detail Data



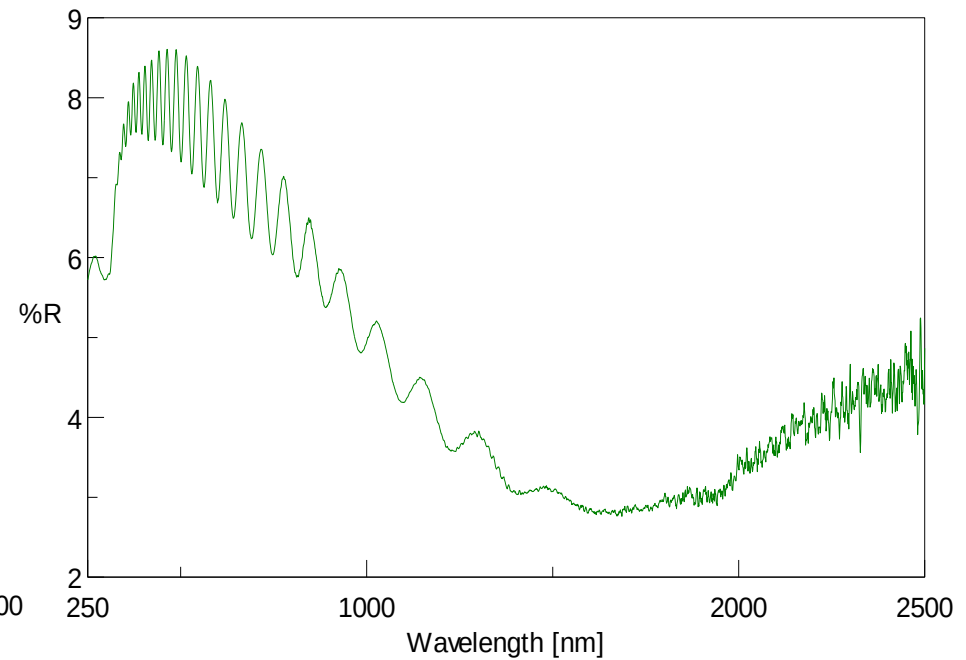
% Total Solar Transmittance (300-2100nm)		46.8
% Total Solar Reflectance (300-2100nm)		5.82
% Total Solar Absorbance (300-2100nm)		47.38
%Visible Light (380-780nm)	VLT(Transmittance)	68.59
	VLR(Reflectance)	7.21
	VLA(Absorbance)	24.2
%Infra Red (780-2500nm)	IRT(Transmittance)	13.12
	IRR(Reflectance)	3.82
	IRA(Absorbance)	83.06
%Infra Red (900-1000nm)	IRR(Rejected)	65.82
Solar Heat Gain Coefficient (SHGC)		0.59
%Total Solar Energy Reject(T.S.E.R)		40.54
%Haze		1.3 ⇒ 0.8

5)IRC-6060 Graph

Transmittance (%)



Reflectance(%)



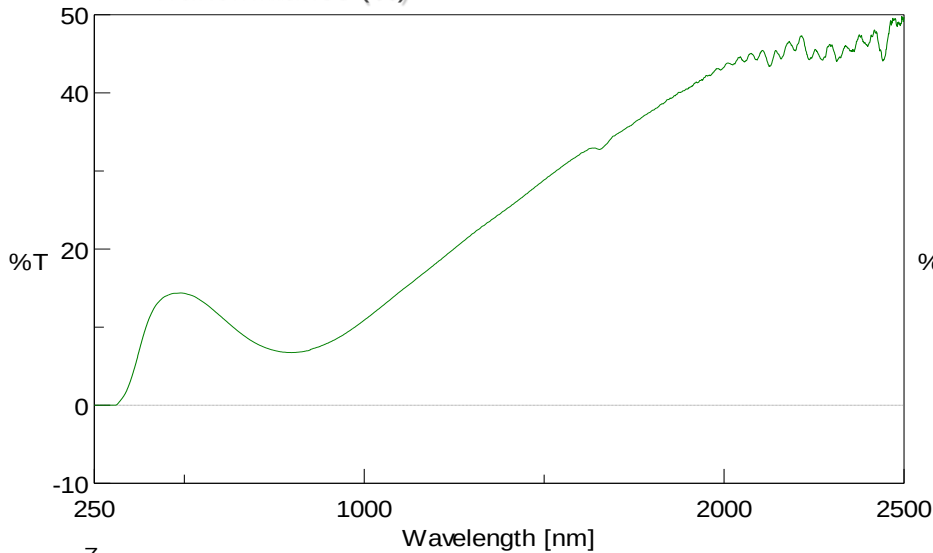
6)IRC-6060 detail Data

% Total Solar Transmittance (300-2100nm)		49.34
% Total Solar Reflectance (300-2100nm)		6.03
% Total Solar Absorbance (300-2100nm)		44.63
%Visible Light (380-780nm)	VLT(Transmittance)	67.47
	VLR(Reflectance)	7.41
	VLA(Absorbance)	25.12
%Infra Red (780-2500nm)	IRT(Transmittance)	12.97
	IRR(Reflectance)	3.87
	IRA(Absorbance)	83.16
%Infra Red (900-1000nm)	IRR(Rejected)	49.37
Solar Heat Gain Coefficient (SHGC)		0.61
%Total Solar Energy Reject(T.S.E.R)		38.74
%Haze		1.3 $\Rightarrow$ 0.68

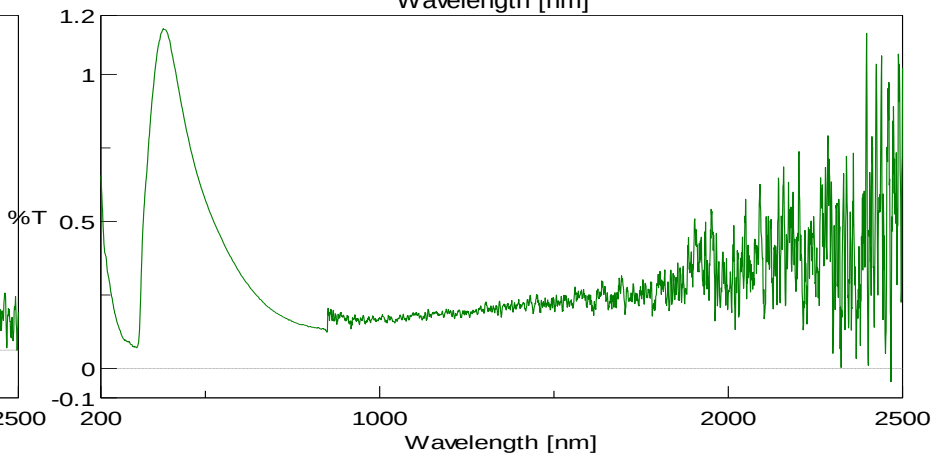
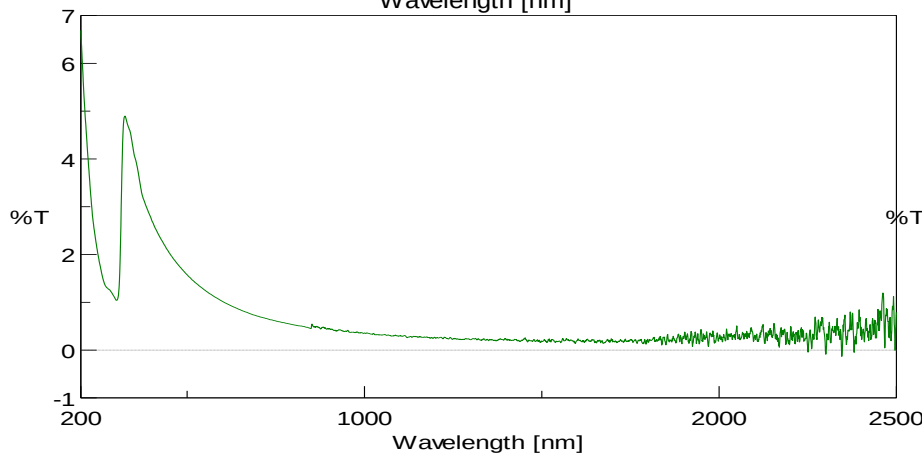
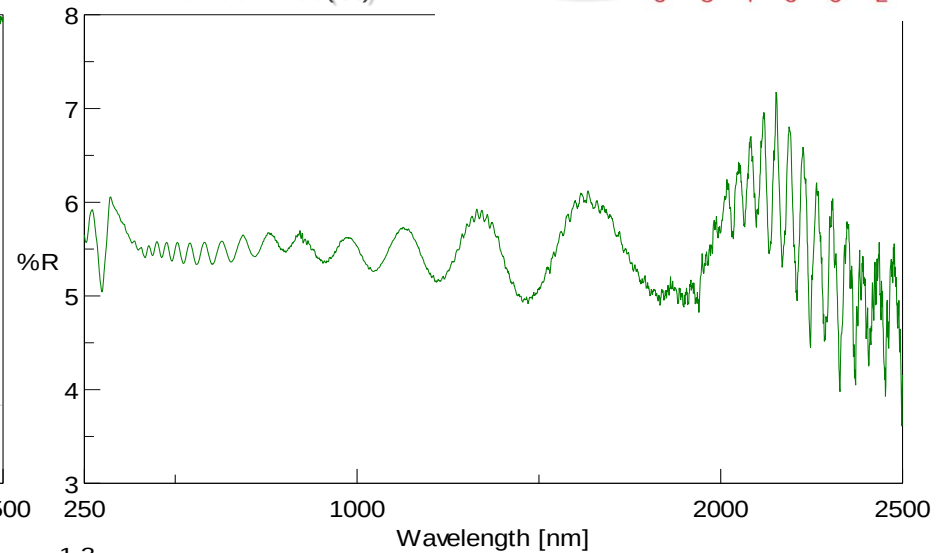
7) V-Pigment Graph



Transmittance (%)



Reflectance(%)



Base Film (38 μ m) Haze : 1.3

Coated Film haze : 1.0

8) V-Pigment detail Data

% Total Solar Transmittance (300-2100nm)		14.44
% Total Solar Reflectance (300-2100nm)		5.51
% Total Solar Absorbance (300-2100nm)		80.05
%Visible Light (380-780nm)	VLT(Transmittance)	10.96
	VLR(Reflectance)	5.49
	VLA(Absorbance)	83.55
%Infra Red (780-2500nm)	IRT(Transmittance)	30.63
	IRR(Reflectance)	5.4
	IRA(Absorbance)	63.97
%Infra Red (900-1000nm)	IRR(Rejected)	89.63
% Ultra Violet (250-380nm)	UVT(Transmittance)	1.62
	UVR(Reflectance)	5.68
	UVR(Rejected)	98.38
Solar Heat Gain Coefficient (SHGC)		0.35
%Total Solar Energy Reject(T.S.E.R)		64.17
%Haze		1.3 $\Rightarrow$ 1.0

6. Thermal Curing type coating solution



- ◆ Innovative new coating system for IR – Cut film
- ◆ Much less coating trouble , and better coating process
- ◆ Reduce the production loss up to 30 % , compared to UV Curing type
- ◆ We supply total solutions for Thermal coating type (SR coating agent, PSA with UV cut agent & Thermal IRC and V-Pigment)

7.Compare Thermal Curing with UV Curing Type

	UV Curing TYPE	Thermal Curing TYPE	R e m a r k s
IRC coating	Micro Gravure coating	Slot Die coating	we can supply the thermal curing type as follows ;
IRC & V-Pigment	adding other function is not possible frequent trouble in coating agent a lot of troubles in coating process Solvent type defects on coated film surface (orange pill etc)	adding other function is easy less trouble in coating agent less trouble in coating process less then orange pill & rainbow on coated film	- Non-solvent type of SR UV resin - PSA and Adhesive agent (including UV cut agent, V-Pigment no needs UV cut agent) (PSA and adhesive agent is same) - IRC coating agent of thermal type (V-pigment , IRC6060,7070, 7090)
Condition	400mmj/350nm (UV quantity of light and wave)	120°C X Min. 5sec.	PSA : Pressure sensitive Adhesive

Contact point



Coating Suisse GmbH
Binningerstrasse 141
CH – 4123 Basel – Allschwil

and :

CH – 4153 Reinach
Birsigtalstrasse 5

Tel. +41 (0) 61 501 80 86

Mobil +41 (0) 76 675 19 49

e-mail : info@coating-suisse.ch

e-mail : ulf.delavigne@coating-suisse.ch

Internet: www.coating-suisse.com