



FACADE Series

Profession in non-toxic energy
efficiency



NAN YA PLASTIC CORPORATION

HISTORY: 20 years' professional background with distinguished technique



The One and the only window film expert in Taiwan. Nan Ya Ice Cool is the core technology in Nan Ya Plastics Corporation. Our company has developed a super infrared absorption on ceramic membrane in 2014, becoming the exclusive OBM and R&D team regarding the brand of window film in Taiwan. A set of productions are developed by our own company to provide the best and reliable products for our customers. Adopt optical film in a 1000 grade cleanroom environment



Product Features:

- ✓ With nano ceramic coating product patent, ICE COOL has the best heat resistant effect for blocking 77-95% radiant heat.
- ✓ Exclusive non-toxic OCA. Excellent safety control.
- ✓ Exclusive nano ceramic coating technique. High resolution and mist prevention.
- ✓ Excellent efficiency and durability for 10 years of heat insulation guaranteed



Exclusive nano ceramic coating technique:

Anti-cloudy, Safety protection



- Increase 8% transparency. Excellent product for night vision.
- Exclusive nano ceramic coating technique. High resolution and mist prevention.
- BOPET on optical grade. High transparency and impact resistance.
- Exclusive heat insulation technique. Excellent weather resistant and heat resistant.
- World Patent: Taiwan, Japan, America, China.

Excellent safety control:

Nan Ya ICE COOL –The One and the Only Choice.



- Exclusive non-toxic OCA. Excellent safety control..
- Block all wave band of UVA, UVB, and UVC over 99%.
- Certificated RoHS Annex II 38 chemical elements. Approved REACH 168(SVHC) EU standard.
- Approved xenon arc lamp 5000HR environmental test. Non-foaming and non-deformation guaranteed.
- High viscosity and high stretch. Scatter-resistant and no residue.

測試報告

Test Report

號碼(No.): CC/2016/30106B 日期(Date): 2016/03/18 頁數(Page): 1 of 15

南亞塑膠工業股份有限公司 (硬式二廠)

NAN YA PLASTICS CORPORATION (RIGID FILM 2ND PLANT)

嘉義縣新港鄉中洋工業區2號

NO. 2, CHUNGYANG INDUSTRIAL PARK, HSINKANG VILLAGE, CHIAYI COUNTY, TAIWAN

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as):

送樣廠商(Sample Submitted By) : 南亞塑膠工業股份有限公司 (硬式二廠) (NAN YA PLASTICS CORPORATION (RIGID FILM 2ND PLANT))

樣品名稱(Sample Description) : 光學防潑膠膜

樣品型號(Style/Item No.) : NY-902

收件日期(Sample Receiving Date) : 2016/03/11

測試期間(Testing Period) : 2016/03/11 TO 2016/03/18

測試需求(Test Requested) :

168項高關注物質篩檢。高關注物質候選清單是根據歐洲化學總署(ECHA)於2015年12月17日，就關於REACH之Regulation (EC) No 1907/2006的公告，/ 168 Substances of Very High Concern (SVHC) screening. SVHC candidate list based on the publication by European Chemicals Agency (ECHA) on 2015 December 17, regarding Regulation (EC) No 1907/2006 concerning the REACH.

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).

總結(Summary) : 根據歐洲法院對於REACH規範下成品定義的裁決以及指定範圍和分析技術，送測樣品中所選擇的零件成品的高關注物質(SVHC) 測試結果濃度均小於0.1%(w/w) / According to the ruling of the Court of Justice of the European Union on the definition of an article under REACH, and the specified scope as well as analytical technique, the test results of the selected component article are $\leq 0.1\%$ (w/w) in the submitted sample.

- project: REACH 168(SVHC) EU
- number: CC/2016/30106B
- result: MDA, Musk Xylene, DEHP, DIEP, Furan, etc. 168 item free

- project: RoHS2011/65/EU AnnexII (EU)2015/863
- number: CC/2016/30106B
- result: Cd, Pb, Hg, Chromyl, PBB, DBP, etc. 38 item free

測試報告

Test Report

號碼(No.): CE/2016/33635B 日期(Date): 2016/03/18 頁數(Page): 1 of 12

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測試需求(Test Requested) :

(1) 依據客戶指定，參考RoHS2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鉛、鎘、汞、六價鉻、多溴聯苯、多溴聯苯醚、DBP, BBP, DEHP, DIBP. (As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample.)

(2) 其他測試項目請見下一頁。(Please refer to next pages for the other item(s).)

Exclusive product. third party certification of energy label :

Energy saving and environmental protection

ICE COOL window film has great performance with heat cutting technique for long time use than others brands. LCBA certified that the film can save 12.4-15.2% of energy from simulation. Chen Gang Hospital further proof that it save 50% of energy from air-condition in actual measurement. The Top level window film is able to block 77-95% of radiation and provide people comfortable temperature, save more energy.

For House		Saving cost per year	
Country	USD/KWH	Country	USD
Mexico	0.088	Mexico	7771.19
China	0.089	China	7828.84
Taiwan	0.090	Taiwan	6641.97~8105.29
Malaysia	0.090	Malaysia	8762.97
Sth. Korea	0.116	Sth. Korea	10249.94
U.S	0.122	U.S	10786.29
Norway	0.125	Norway	10965.84
Chile	0.148	Chile	13065.32
Hungary	0.155	Hungary	13649.71
Turkey	0.166	Turkey	14631.00
Israel	0.168	Israel	14795.19
Czech	0.171	Czech	15049.45
Poland	0.188	Poland	16577.90
Finland	0.197	Finland	17371.39
Singapore	0.198	Singapore	17431.03
French	0.203	French	17869.13



LOCATION TAIWAN, TAINAN (22.9833° N, 120.1833° E)

CONDITION

Land area : 200 m²

stories high : 3 m × 10 stories high

Exterior wall area : 1,800 m²

Windows area : 900 m²

Test time : 0800 to 1700 ;
Mon. to Fri. ;
JAN. to DEC. (1 year)

Temp. setting : 23 °C

RESULT

Total use : Without film 580,000 Kilowatt

NY-2039 491,930

Kilowatt
NY-2076 507,830

Kilowatt

ENERGY SAVING

NY-2039 saving 88,070 Kilowatt (15.2%)

NY-2076 saving 72,170 Kilowatt (12.4%)

Energy saving test:



Near the area of Chiayi Chen Gang Hospital, the sun was very serious. It was not helpful to install curtains to reduce heat and save energy. Besides, people tried many window films in the markets to cut energy, they still cannot find a good one to make it efficient. Until the top level of ICE COOL comes to the public, Nan Ya promoted it to the hospital and installed it in 5 rooms. The temperature of installed room was comfortable. It also saved more energy to work with cooling system of the room.

$$1.5RT \times 0.85 \frac{KW}{RT} \times 7.5 \frac{hr}{day} \times 0.7 \times 30days \times 9 \frac{month}{year} \times 3 \frac{NTD}{KWH} = 5,421 \frac{NTD}{year}$$

Test

8.1M² per room using. The cooling system was used to control temperature on 25 °C. Once the room temperature goes higher than 26°C, the cooling system will run automatically. The running time can be used to estimate the energy-saving efficiency. (testing period: 9 days)

Result

The Cooling system of Chengang hospital was F/C 600 1.5RT. Energy saving time is about 7.5 hrs per day, 9 month of sunning day per year., parameter 0.7, 1 unit 3 dollar for electricity. (8.1M² per room using).

- ✓ **electricity-saving efficiency** : $223.6 \frac{KWH}{M^2 \times year}$
- ✓ **energy-saving efficiency** : $670.2 \frac{NTD}{M^2 \times year}$

DATE	Air condition working time per day.(NY-2079)	Air condition working time per day.	Time difference.
2016/6/29	6"12'	14"06'	7"54'
2016/6/30	7"26'	15"25'	7"59'
2016/7/01	7"54'	13"39'	6"45'
2016/7/2~4	22"29'	38"26'	15"47'
2016/7/05	6"44'	15"25'	8"41'
2016/7/6~7	11"29'	27"59'	16"59'
9 days working time	62"14'	125"0'	62"46'
Average time	7"47'	15"38'	7"51'

Simulation :

Simulation different types from Y-7 to Y-3, its take on different look and effect.



Y-7

Y-5

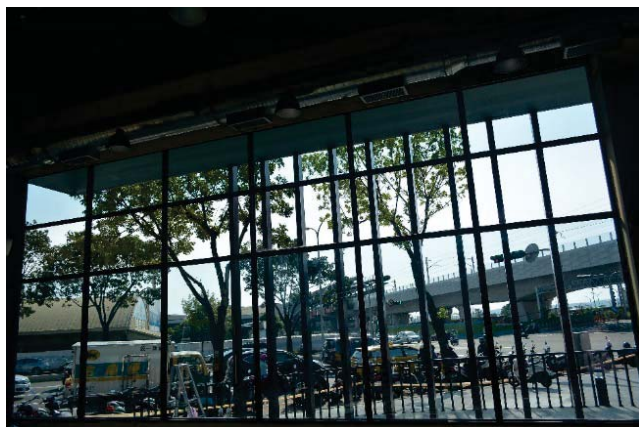
Y-3



The comparison of inside temperature :

Every increase of 1°C can save about 6% electricity used by air conditioning.

Measured on two surface of the film, the temperature difference between two side can reach 4.6°C. This may result in 15~25% energy saving from using air conditioning.



35.1°C



Without film

30.5°C



Y-7

NAN YA ICE COOL-WINDOW FILM

FACADE



Y-7
specification



ITEM	UNIT	RESULT	STANDARD
VLT	%	70±3	MODEL#SD2400(380~780nm)
IRC	%	95±3	MODEL#SD2400(>780nm)
UVC	%	>99	MODEL#SD2400(<380nm)
Thickness	μm	90±3	Mitutoyo thickness meter
Hardness		≥ 1H	JIS5600
Haze	%	≤ 3.0	ASTM D1003
Bondability		100/100	JIS K5400/Cross Cut
Solvent resistance		non	MEK 200g wipe 10 time

ITEM	UNIT	Wavelength(nm)	RESULT	STANDARD
Visible light transmittance	%	380~780	71.31	JIS R3106
Visible light reflectance	%	380~780	6.39	JIS R3106
Solar radiation transmittance	%	300~2500	32.8	JIS R3106
Solar radiation reflectance	%	300~2500	4.92	JIS R3106
Solar heat gain coefficients (Summer)			0.543	JIS R3106
Solar heat gain coefficients (Winter)			0.505	JIS R3106
Shading coefficients (Summer)			0.624	JIS R3106
Shading coefficients (Winter)			0.58	JIS R3106
UV transmittance	%	300~380	2.02	ISO 9050
CIE damage factor	%	300~600	47.85	ISO 9050
Skin damage factor	%	300~400	1.56	ISO 9050
Thermal transmittance	W/(m ² K)		5.992	ETC

NAN YA ICE COOL-WINDOW FILM

FACADE



Y-5
specification



ITEM	UNIT	RESULT	STANDARD
VLT	%	53±3	MODEL#SD2400(380~780nm)
IRC	%	95±3	MODEL#SD2400(>780nm)
UVC	%	>99	MODEL#SD2400(<380nm)
Thickness	μm	90±3	Mitutoyo thickness meter
Hardness		≥1H	JIS5600
Haze	%	≤3.5	ASTM D1003
Bondability		100/100	JIS K5400/Cross Cut
Solvent resistance		non	MEK 200g wipe 10 time

ITEM	UNIT	Wavelength(nm)	RESULT	STANDARD
Visible light transmittance	%	380~780	60.51	JIS R3106
Visible light reflectance	%	380~780	5.10	JIS R3106
Solar radiation transmittance	%	300~2500	26.91	JIS R3106
Solar radiation reflectance	%	300~2500	4.18	JIS R3106
Solar heat gain coefficients (Summer)			0.507	JIS R3106
Solar heat gain coefficients (Winter)			0.465	JIS R3106
Shading coefficients (Summer)			0.583	JIS R3106
Shading coefficients (Winter)			0.534	JIS R3106
UV transmittance	%	300~380	1.53	ISO 9050
CIE damage factor	%	300~600	39.42	ISO 9050
Skin damage factor	%	300~400	1.23	ISO 9050
Thermal transmittance	W/(m ² K)		6.000	JIS R3107



NAN YA ICE COOL-WINDOW FILM

FACADE



Y-3
specification



ITEM	UNIT	RESULT	STANDARD
VLT	%	35±3	MODEL#SD2400(380~780nm)
IRC	%	95±3	MODEL#SD2400(>780nm)
UVC	%	>99	MODEL#SD2400(<380nm)
Thickness	μm	90±3	Mitutoyo thickness meter
Hardness		≥1H	JIS5600
Haze	%	≤5.0	ASTM D1003
Bondability		100/100	JIS K5400/Cross Cut
Solvent resistance		non	MEK 200g wipe 10 time

ITEM	UNIT	Wavelength(nm)	RESULT	STANDARD
Visible light transmittance	%	380~780	37.46	JIS R3106
Visible light reflectance	%	380~780	5.13	JIS R3106
Solar radiation transmittance	%	300~2500	20.86	JIS R3106
Solar radiation reflectance	%	300~2500	4.69	JIS R3106
Solar heat gain coefficients (Summer)			0.466	JIS R3106
Solar heat gain coefficients (Winter)			0.419	JIS R3106
Shading coefficients (Summer)			0.536	JIS R3106
Shading coefficients (Winter)			0.482	JIS R3106
UV transmittance	%	300~380	0.92	ISO 9050
CIE damage factor	%	300~600	23.03	ISO 9050
Skin damage factor	%	300~400	0.73	ISO 9050
Thermal transmittance	W/(m ² K)		5.997	JIS R3107



NAN YA ICE COOL-WINDOW FILM

FACADE



Y-1
specification



ITEM	UNIT	RESULT	STANDARD
VLT	%	15±3	MODEL#SD2400(380~780nm)
IRC	%	95±3	MODEL#SD2400(>780nm)
UVC	%	>99	MODEL#SD2400(<380nm)
Thickness	μm	90±3	Mitutoyo thickness meter
Hardness		≥1H	JIS5600
Haze	%	≤8.0	ASTM D1003
Bondability		100/100	JIS K5400/Cross Cut
Solvent resistance		non	MEK 200g wipe 10 time

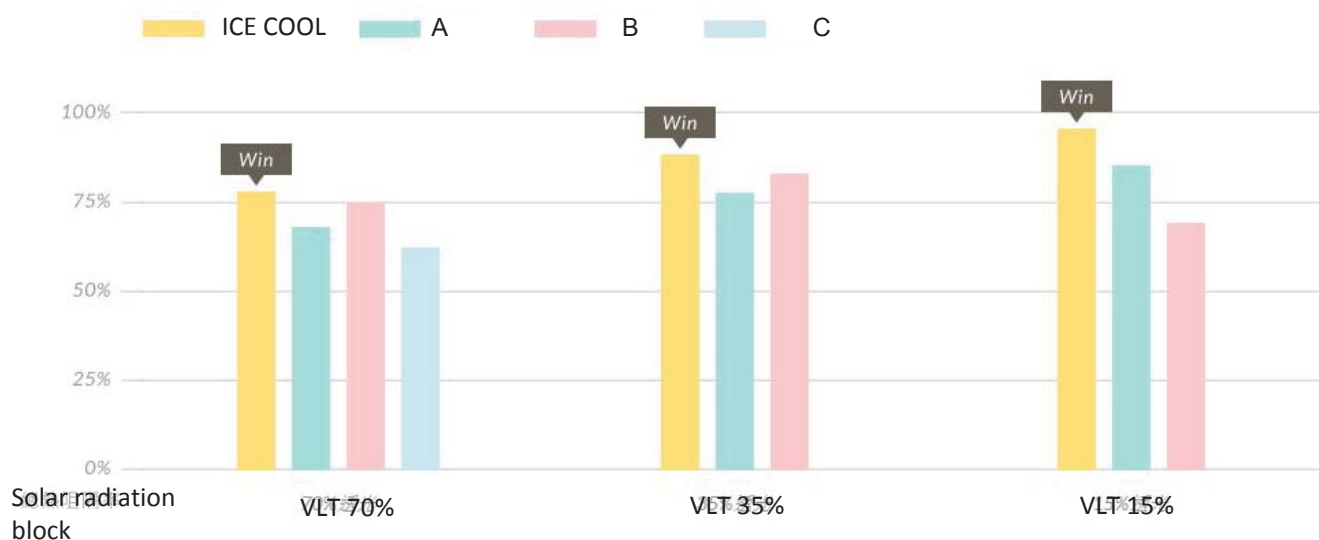
ITEM	UNIT	Wavelength(nm)	RESULT	STANDARD
Visible light transmittance	%	380~780	13..46	JIS R3106
Visible light reflectance	%	380~780	5.88	JIS R3106
Solar radiation transmittance	%	300~2500	15.72	JIS R3106
Solar radiation reflectance	%	300~2500	4.82	JIS R3106
Solar heat gain coefficients (Summer)			0.433	JIS R3106
Solar heat gain coefficients (Winter)			0.401	JIS R3106
Shading coefficients (Summer)			0.498	JIS R3106
Shading coefficients (Winter)			0.470	JIS R3106
UV transmittance	%	300~380	0.53	ISO 9050
CIE damage factor	%	300~600	17.03	ISO 9050
Skin damage factor	%	300~400	0.42	ISO 9050
Thermal transmittance	W/(m ² K)		5.995	JIS R3107

The comparison of other brand of top grade window film

Every product has its own exclusive heat insulation technique. With nano ceramic coating product patent, ICE COOL has the best heat resistant effect for blocking 77-95% radiant heat. For you, all of the best.

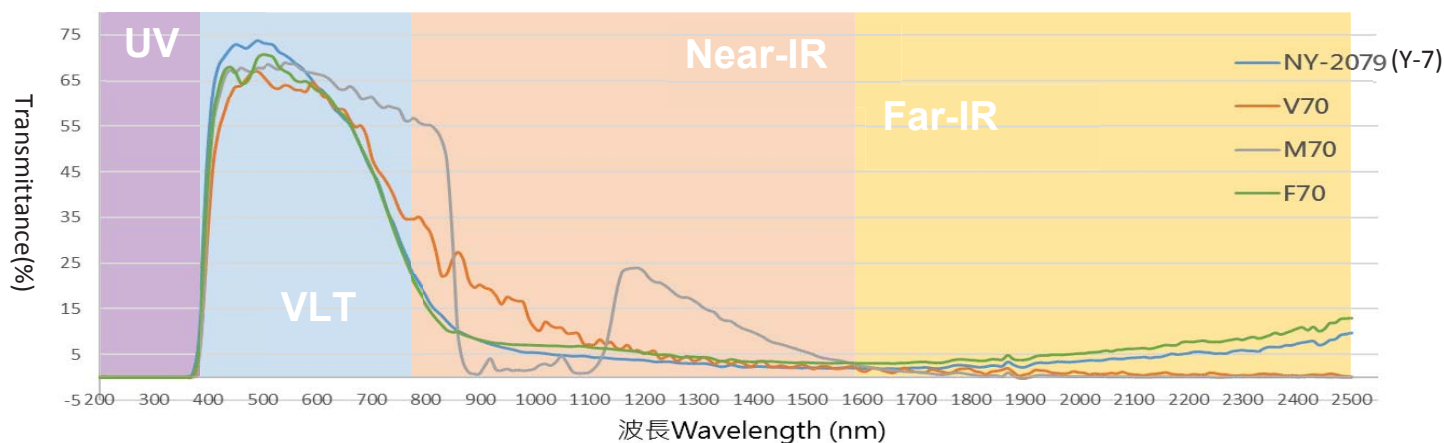
	ICE COOL	A	B	C
TYPE	Y-7	M-70	F-70	V-70
VLT	71%	70%	70%	73.2%
Solar radiation block	78%	68.1%	74.7%	62.1%
IR CUT	95%	98%	95%	94%
Warranty	10 years	10 years	5 years	5 years

On-the-spot survey for ready-made window films on 95% IR blocking, every product from ICE COOL block the most radiant heat source (CNS 5119 Class II), reducing the apparent temperature effectively. ICE COOL, surpass all.



The comparison of total wavelength

- Using total wavelength proof ICE COOL have best solar radiation block.
- Y-7 with highest VLT and blocking near-IR to far-IR.



Weather resistance test

To confirm the quality of our products , they were exposed to arc lamp for 2500 hrs. The exposing times was equal to 12.5 years of exposure under sun energy. Nan Ya Nano-ceramic technology makes the lattice of ceramics more stable, which give performance, anti-Cloudy and constant optical clearance, to stand long time sunning. The IR and Optical clearance of our competitors will decay in the long run due to unstable lattice of ceramics through sunning.

The comparison of lamp aging test chamber

		0hr	500hr	1000hr	1500hr	2000hr	2500hr	3000hr	3500hr
Ice cool Y-7	UV cut %	100	100	100	100	100	100	100	100
	VLT %	71	72	72	72	72	73	73	73
	IR cut %	95	93	85	81	80	79	78	76
B F70	UV cut %	100	100	100	100	100	100	100	100
	VLT %	73	74	77	78	78	79	75	68
	IR cut %	95	90	86	76	72	72	69	64