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**LABORATORY :**

Energy Characteristics  
 (Lab EN)

**STUDY REPORT**

N° DE : 632xB874

N° Labo : ENa465/a

N° Sample : -

**REQUESTED BY : AGC Flat Glass Europe**

Chaussée de la Hulpe 166  
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**Contact persons :**

**- Client -**

Mr. D. Raymaekers

**- BBRI -**

Mr. G. Flamant

**Study :** SUMMARY OF PRODUCT PERFORMANCES – “SUNERGY” COATED GLASS

**References :** EN 410 (1998), EN 673 (1997), EN 1096-1 (1998)

**Date and reference of the request** : 2010.11.08

**Date of receipt of the sample(s)** : -

**Date of the study** : 2010.12.13

**Drafting date of the report** : 2010.12.13

This report contains 3 pages, numbered from 1/3 to 3/3; it may only be reproduced in its entirety. Each page of the original report has been stamped (in red) by the laboratory and initialled by the head of laboratory.

The results and findings are only valid for the tested samples.

No sample

Sample(s) submitted to a destructive test

Sample(s) to be removed from our laboratories 60 calendar days after sending of the report, unless a written request is received from the client

Head of laboratory



G. Flamant, ir.

Technical assistance : -

## 1. SUBJECT

The declared photometric and thermal properties of SUNERGY coated glass summarized on page 3 of this document have been attested by the BBRI (Belgian Building Research Institute) according to the specifications of the EN 1096-1 standard.

## 2. STANDARDS

- EN 410 (1998) : Glass in building – Determination of luminous and solar characteristics of glazing
- EN 673 (1997) + A1 (2000) + A2 (2002): Glass in building – Determination of thermal transmittance (U-value) – calculation method
- EN 1096-1 (1998) : Glass in building – Coated glass – Part 1 : definitions and classification

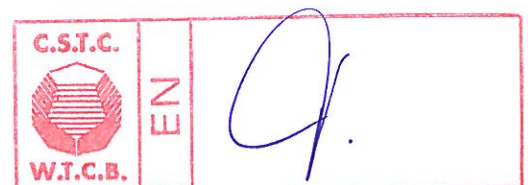
## 3. PHOTOMETRIC AND THERMAL PROPERTIES

The UV, light and solar properties are calculated according to the standard EN 410.  
The thermal transmittance (U-value) is calculated according to the standard EN 673.

The solar factor, the shading coefficient and the U-value are calculated with the coated side of the glass placed in position 2 (interior side).

The following properties are given :

- $\tau_{UV}$  : UV transmittance [-]
- $\tau_v$  : light transmittance [-]
- $\rho_v$  : light reflectance of the coated side [-]
- $\rho'_v$  : light reflectance of the uncoated side [-]
- $\tau_e$  : solar transmittance [-]
- $\rho_e$  : solar reflectance of the coated side [-]
- $\rho'_e$  : solar reflectance of the uncoated side [-]
- $g$  : solar factor (total solar energy transmittance or g-value) [-]
- SC : shading coefficient ( $SC=g/0.87$ ) [-]
- $\epsilon_n$  : normal emissivity of the coated side [-]
- U : thermal transmittance [ $W/m^2K$ ]



Product name	Coated on	Nominal thickness (mm)	UV range (EN410)	Visible range (EN410)			Solar range (EN410)				Thermal range (EN673)		Class	Glass substrate		
			$\tau_{uv}$	$\tau_v$	$\rho_v$	$\rho'_v$	$\tau_e$	$\rho_e$	$\rho'_e$	g	SC	$\epsilon_n$			U	
Sunergy Clear	2	6	0.38	0.68	0.10	0.09	0.09	0.54	0.10	0.11	0.61	0.70	0.28	4.1	A	EN 572-2
Sunergy Azur	2	6	0.20	0.56	0.10	0.07	0.07	0.34	0.10	0.06	0.45	0.52	0.28	4.1	A	EN 572-2
Sunergy Dark Blue	2	6	0.16	0.40	0.09	0.06	0.06	0.26	0.09	0.06	0.38	0.44	0.28	4.1	A	EN 572-2
Sunergy Green	2	6	0.12	0.56	0.10	0.07	0.07	0.31	0.09	0.06	0.42	0.48	0.28	4.1	A	EN 572-2
Sunergy Grey	2	6	0.13	0.34	0.09	0.05	0.05	0.30	0.09	0.06	0.42	0.48	0.28	4.1	A	EN 572-2

Table 1 : photometric and thermal properties