

AGC Glass Europe

Energie & Construction
Session « Prévenir la surchauffe »
05/05/2011

Reinout Speelman – Technical Adviser

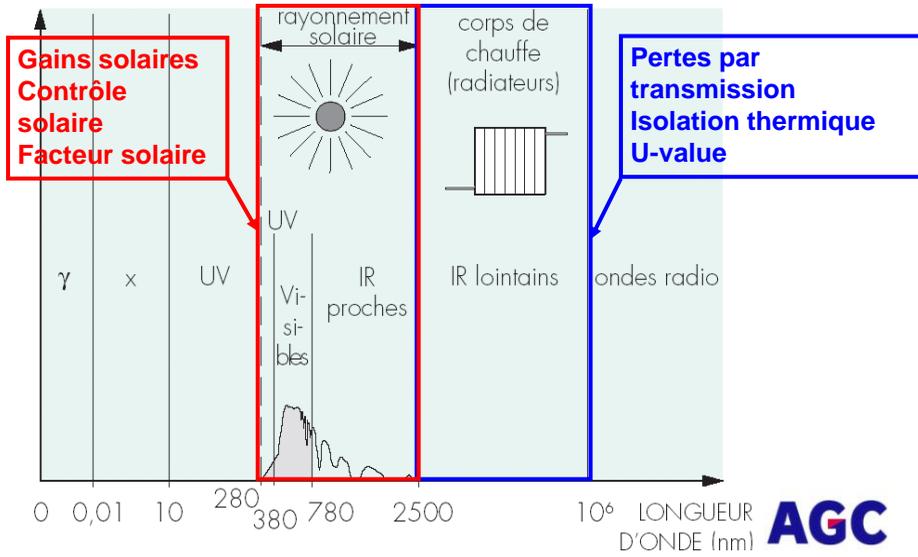
Prévenir la surchauffe - Introduction



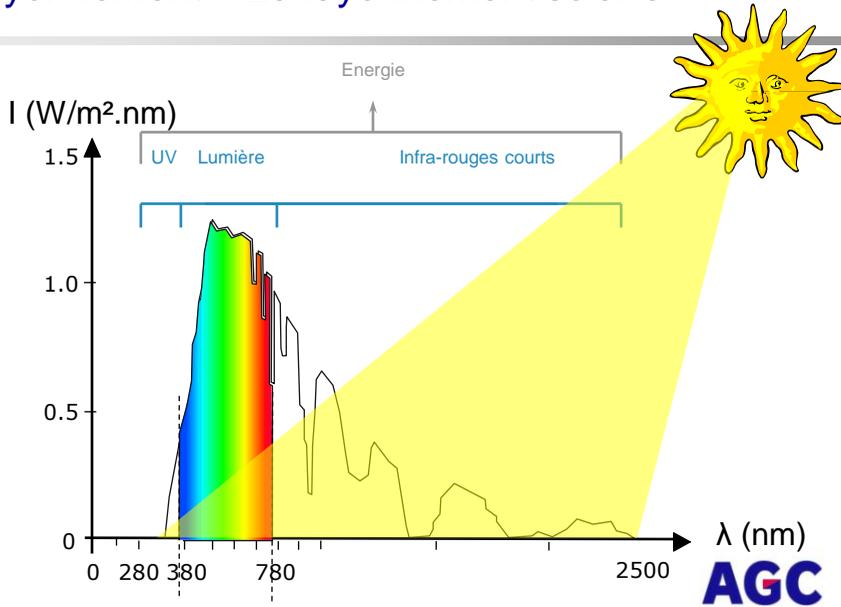
- ✓ Rayonnement
- ✓ Facteurs énergétiques
- ✓ Produits
- ✓ Simulation
- ✓ Q&A

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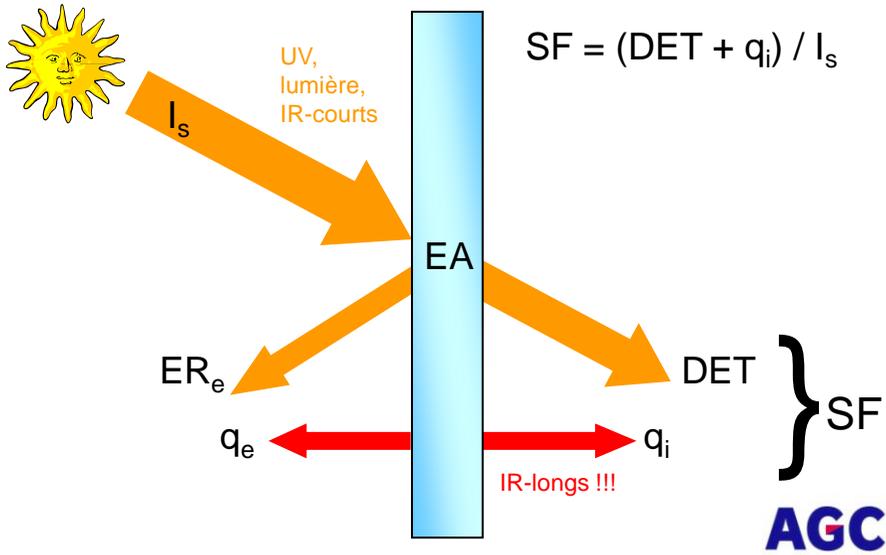
Rayonnement – Le spectre électromagnétique



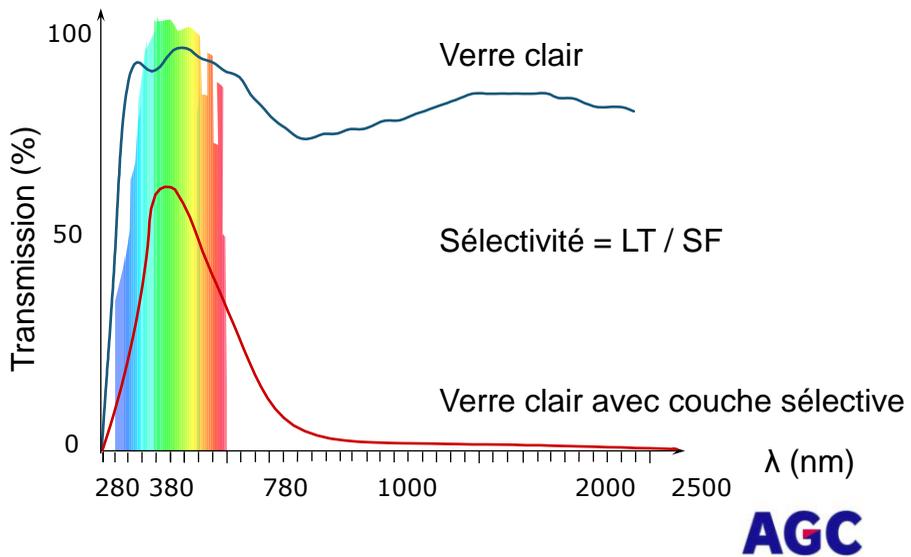
Rayonnement – Le rayonnement solaire



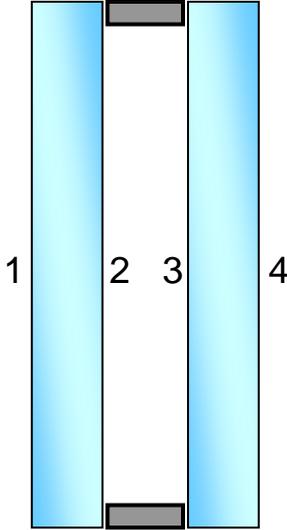
Facteurs énergétiques - Définitions



Facteurs énergétiques - Sélectivité



Produits - Général



- ✓ Couches pyrolitiques
 - très dures
 - positions 1,2,3 et 4
 - **MAIS** plus efficace en pos.1 !
 - sélectivité faible

- ✓ Couches magnétron
 - plus faibles
 - positions 2 et 3
 - **MAIS** couches controle solaire uniquement en pos.2 !
 - haute sélectivité



Produits – La gamme AGC

PLANIBEL LOW-E Thermal insulation, neutral aesthetics and high light transmission													
Position	Color	LT EMI D	IR EMI D	UV EMI D	EA EMI D	IC EMI D	UV (2) EMI D	Temps. stable	Resistible	Shower resistant	Edge delamination	Shif. 10	
Double Glazing 4-16-4 with 90% argon													
TOP 1*	#3	Neutral	78	60	14	21	0.69	1.1	No	No	No	Yes	3 months
TOP 2*	#3	Neutral	80	64	13	18	0.73	1.1	Yes	Yes	Yes	Yes	3 months
TOP 1.0	#3	Neutral	70	50	20	30	0.57	1.0	No	No	No	Yes	3 months
ENERGY #1 (P)	#2	Neutral	71	42	12	30	0.48	1.0	No	No	No	Yes	3 months
ENERGY #2 (P)	#2	Neutral	75	45	13	26	0.52	1.0	Yes	Yes	Yes	Yes	3 months
PLANIBEL G	#3	Neutral	74	73	17	24	0.84	1.5	Yes	Yes	Yes	No	Unlimited
PLANIBEL STAY*	#3	Neutral	74	72	18	23	0.83	1.5	Yes	Yes	Yes	No	Unlimited
PLANIBEL A*	#3	Neutral	72	72	17	24	0.84	1.4	Yes	Yes	Yes	No	Unlimited
Triple Glazing 4-14-4-14 (Thin #2 - Clear) - Triple #5 - with 90% argon													
PLANIBEL TR	#2 #5	Neutral	72	60	19	22	0.69	0.7	No	No	No	Yes	3 months
PLANIBEL TR ON CLEAR ANTI-REFL	#2 #5	Neutral	74	63	19	14	0.72	0.7	No	No	No	Yes	3 months

SUNERGY Neutral, hard-coated glass offering solar protection and good thermal insulation													
Position	Color	LT EMI D	IR EMI D	UV EMI D	EA EMI D	IC EMI D	UV (2) EMI D	Temps. stable	Resistible	Shower resistant	Edge delamination	Shif. 10	
Double Glazing 6-16-6 (Top 1.0) #2 - with 90% argon													
SUNERGY CLEAR	#2	Neutral	53	37	15	51	0.43	1.0	Yes	Yes	Yes	No	Unlimited
SUNERGY GREEN	#2	Green	47	29	13	66	0.39	1.0	Yes	Yes	Yes	No	Unlimited
SUNERGY AZUL	#2	Light blue	40	31	13	66	0.36	1.0	Yes	Yes	Yes	No	Unlimited
SUNERGY DARK BLUE	#2	Dark blue	30	22	9	74	0.26	1.0	Yes	Yes	Yes	No	Unlimited
SUNERGY GREY	#2	Grey	26	22	7	74	0.25	1.0	Yes	Yes	Yes	No	Unlimited

STOPSOL Reflective, hard-coated glass providing solar control													
Position	Color	LT EMI D	IR EMI D	UV EMI D	EA EMI D	IC EMI D	UV (2) EMI D	Temps. stable	Resistible	Shower resistant	Edge delamination	Shif. 10	
Double Glazing 4-16-4 (Top 1.0) #3 - with 90% argon													
CLASSIC CLEAR	#2	Neutral	31	27	29	42	0.31	1.0	Yes	Yes	Yes	No	Unlimited
CLASSIC GREY	#2	Grey	15	17	10	73	0.2	1.0	Yes	Yes	Yes	No	Unlimited
CLASSIC GREEN	#2	Green	25	17	21	75	0.2	1.0	Yes	Yes	Yes	No	Unlimited
CLASSIC BRONZE	#2	Bronze	17	18	12	69	0.21	1.0	Yes	Yes	Yes	No	Unlimited
SUPERSILVER CLEAR	#2	Neutral	51	38	40	22	0.44	1.0	Yes	Yes	Yes	No	Unlimited
SUPERSILVER GREY	#2	Grey	24	22	12	67	0.25	1.0	Yes	Yes	Yes	No	Unlimited
SUPERSILVER GREEN	#2	Green	42	26	29	62	0.3	1.0	Yes	Yes	Yes	No	Unlimited
SUPERSILVER DARK BLUE	#2	Dark blue	33	23	20	66	0.26	1.0	Yes	Yes	Yes	No	Unlimited
SUNSHINE HT ANTI-REFL	#2	Intense blue	22	15	9	82	0.17	1.0	Yes	Yes	Yes	No	Unlimited

- ✓ Planibel Low-e
 - isolation thermique
 - couche en position 3
 - parfois controle solaire

- ✓ Sunergy (pyrolitique)
 - solaire + isolation (faible)
 - couche en position 2

- ✓ Stopsol (pyrolitique)
 - uniquement controle solaire
 - positions 1 et 2



* Referenced values for 6 or 16mm spacer
 * See condensation on www.agc.com
 * The casting must be performed in a clean, dry and protected environment. It can not be used outdoors.

Produits – La gamme AGC

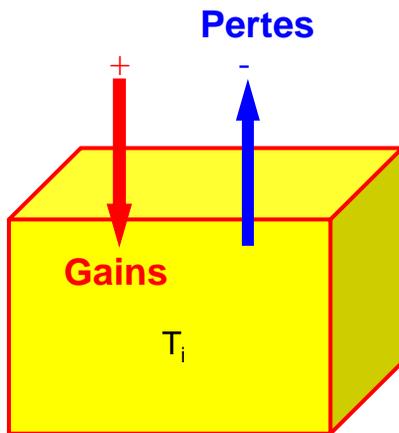
STOPRAY Soft-coated single glazing offering thermal insulation and maximum solar protection													
Double Glazing 6-16-4 (with 90% argon)													
	Coating Position	Colour	U _t (EN 410)	SF (EN 410)	LR (EN 410)	EA (EN 410)	SC (EN 410)	U _g (EN 410)	Temp. stable	Hardness	Effacement printing	Edge Sealing	Shall life
STOPRAY ELITE	#2	Neutral	07	40	14	33	0.46	1.1	No	No	No	Yes	3 months
STOPRAY SARR	#2	Neutral	01	35	15	36	0.40	1.1	No	No	No	Yes	3 months
STOPRAY VISION 60 ^{1st}	#2	Neutral	60	37	14	38	0.43	1.0	Yes	Yes	Yes	Yes	3 months
STOPRAY VISION 50	#2	Neutral	50	28	19	42	0.32	1.0	No	No	No	Yes	2 months
STOPRAY VISION 50 ^{1st}	#2	Neutral	50	31	20	37	0.36	1.0	Yes	Yes	Yes	Yes	2 months
STOPRAY SEVER	#2	Neutral	43	27	47	27	0.31	1.0	No	No	No	Yes	2 months
STOPRAY VISION 36 ^{1st}	#2	Neutral	36	21	31	40	0.25	1.0	Yes	Yes	Yes	Yes	2 months
STOPRAY LIME 61 ^{1st}	#2	Green	61	32	19	43	0.37	1.0	Yes	Yes	Yes	Yes	2 months
STOPRAY TITANIM 37 ^{1st}	#2	Grey	37	26	8	54	0.30	1.0	Yes	Yes	Yes	Yes	3 months
STOPRAY INDOOR 48 ^{1st}	#2	Dark Blue	48	29	8	66	0.33	1.0	Yes	Yes	Yes	Yes	3 months
STOPRAY ON CLEARVISION													
Double Glazing 6-16-4 (with 90% argon)													
	Coating Position	Colour	U _t (EN 410)	SF (EN 410)	LR (EN 410)	EA (EN 410)	SC (EN 410)	U _g (EN 410)	Temp. stable	Hardness	Effacement printing	Edge Sealing	Shall life
STOPRAY ELITE	#2	Neutral	06	42	14	24	0.48	1.1	No	No	No	Yes	3 months
STOPRAY SARR	#2	Neutral	63	36	15	28	0.41	1.1	No	No	No	Yes	3 months
STOPRAY CLEARVISION 60 ^{1st}	#2	Neutral	62	39	15	23	0.45	1.0	Yes	Yes	Yes	Yes	3 months
STOPRAY CLEARVISION 50	#2	Neutral	51	29	20	31	0.33	1.0	No	No	No	Yes	2 months
STOPRAY CLEARVISION 50 ^{1st}	#2	Neutral	52	33	21	25	0.38	1.0	Yes	Yes	Yes	Yes	2 months
STOPRAY SEVER	#2	Neutral	44	28	50	12	0.32	1.0	No	No	No	Yes	2 months
STOPRAY CLEARVISION 36 ^{1st}	#2	Neutral	37	22	32	27	0.25	1.0	Yes	Yes	Yes	Yes	2 months
STOPRAY VISION 50 REF. AVAILABLE FROM MARCH 2011	#2	Neutral	49	23	18	32	0.27	1.0	No	No	No	Yes	3 months
STOPRAY GALAXY	#2	Neutral	41	22	17	43	0.25	1.1	No	No	No	Yes	3 months
STOPRAY with 0.9 Ug-value													
Double glazing 6-16-4 (Dopray in #2 - Planibel G Fast in #8 - with 90% argon)													
	Coating Position	Colour	U _t (EN 410)	SF (EN 410)	LR (EN 410)	EA (EN 410)	SC (EN 410)	U _g (EN 410)	Temp. stable	Hardness	Effacement printing	Edge Sealing	Shall life
STOPRAY VISION 60 ^{1st}	#2	Neutral	54	36	16	40	0.41	0.9	Yes	Yes	Yes	Yes	3 months
STOPRAY VISION 50	#2	Neutral	46	27	20	44	0.31	0.9	No	No	No	Yes	2 months
STOPRAY VISION 50 ^{1st}	#2	Neutral	46	30	22	39	0.34	0.9	Yes	Yes	Yes	Yes	2 months
STOPRAY VISION 36 ^{1st}	#2	Neutral	33	21	31	40	0.24	0.9	Yes	Yes	Yes	Yes	3 months
STOPRAY LIME 61 ^{1st}	#2	Green	55	31	12	45	0.36	0.9	Yes	Yes	Yes	Yes	2 months
STOPRAY INDOOR 48 ^{1st}	#2	Dark Blue	44	27	9	69	0.31	0.9	Yes	Yes	Yes	Yes	3 months
STOPRAY TITANIM 37 ^{1st}	#2	Grey	33	25	7	66	0.29	0.9	Yes	Yes	Yes	Yes	3 months
STOPRAY SEVER	#2	Neutral	40	26	48	29	0.30	0.9	No	No	No	Yes	3 months

- ✓ Stopray
 - solaire + isolation
 - couche en position 2
 - produits neutres + colorés
- ✓ Stopray on Clearvision
 - solaire + isolation
 - couche en position 2
 - produits les plus neutres
- ✓ Stopray 0.9
 - solaire + isolation
 - couche en position 2 et 4
 - isolation améliorée



Simulation – Bilan énergétique

T_e (pas toujours $< T_i$!)



- ✓ Comportement thermique d'un bâtiment en fonction du climat, de l'orientation, surfaces et types d'éléments
- ✓ Enveloppe du bâtiment consiste des murs, sol, plafond et éléments transparents (vitrages)
- ✓ Vitrages caractérisées par valeur U (pertes ou gains) et SF (gains)

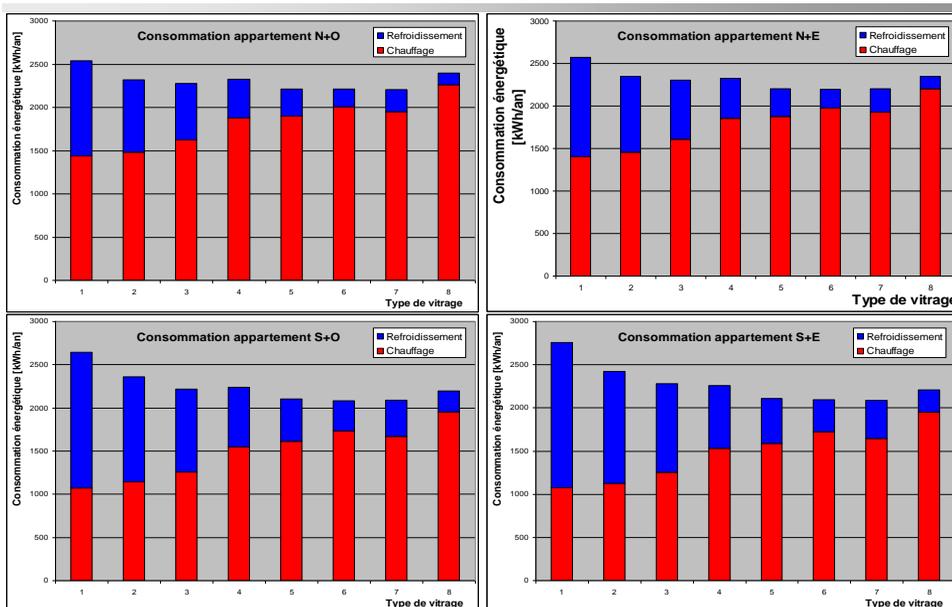


Simulation – Modèle de 4 appartements

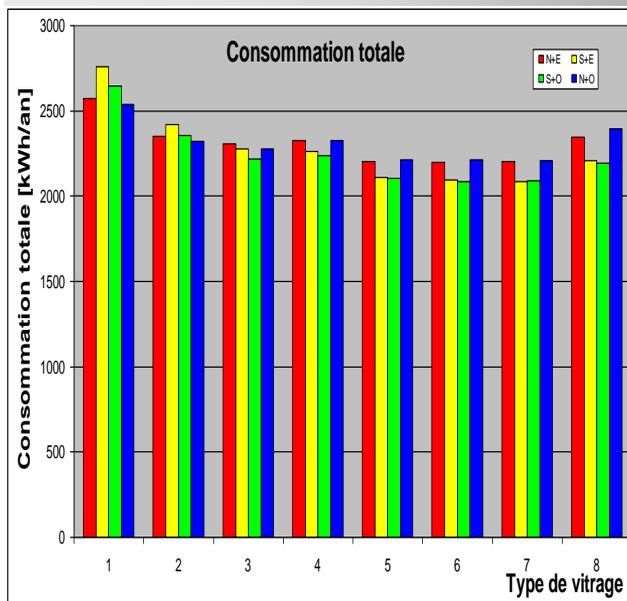
- ✓ Climat moyenne sur 1 an complet, à Bruxelles
- ✓ 4 appartements avec 2 façades
 1. Nord + Est
 2. Sud + Est
 3. Sud + Ouest
 4. Nord + Ouest
- ✓ 8 types de double vitrages
 1. 6 / 15 Ar / 6 Top N+ pos.3
 2. 6 / 15 Ar / 6 Top 1.0 pos.3
 3. 6 Energy N pos.2 / 15 Ar / 6
 4. 6 Stopray Safir pos.2 / 15 Ar / 6
 5. 6 Stopray Vision 50 pos.2 / 15 Ar / 6
 6. 6 Stopray Ultravision 50 pos.2 / 15 Ar / 6
 7. 6 Stopray Silver pos.2 / 15 Ar / 6
 8. 6 Stopray Galaxy CV pos.2 / 15 Ar / 6



Simulation – Résultats



Simulation – Conclusions



- ✓ un SF de 20 à 30% (vitrages type 5,6 et 7) donne le meilleur résultat pour les 4 types d'appartement
- ✓ Si on tient compte du LT aussi, un vitrage avec SF de 40% fait plus d'économies (éclairage)

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Prévenir la surchauffe - Q&A

- ✓ Merci de votre attention!
- ✓ Pour plus d'info, visitez notre site internet:

www.yourglass.be

- ✓ Questions?

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