

VISIBLY BETTER



GLASS UNLIMITED

PLANIBEL LOW-E ANTI-FOG



ARTIFOS

enjoy the outdoors from the comfort of indoors

Glazing choices are determined by financial, environmental and comfort-related factors. High-quality glazing enhances your day-to-day life, allowing you to fully enjoy the view outside from the comfort of indoors.

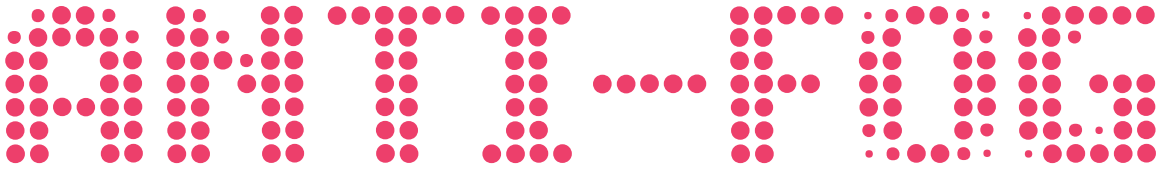


A person is sitting on a wooden ledge, looking out a window at a scenic view of a coastline and mountains. A framed picture sits on the ledge. The text is overlaid on the right side of the image.

visibly better!

Effective thermal insulation can cause condensation to build up on the outer pane, potentially impairing your view. The new Planibel Low-e Anti-Fog range developed by AGC Glass Europe* prevents the formation of condensation on glazing.

*In this document, AGC always refers to AGC Glass Europe.



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The effects of good thermal insulation

Home insulation is more than a passing fad: it is an issue of major social importance. Coated glass, in both double and triple glazing, provides excellent levels of thermal insulation while letting in light and harnessing solar energy gains. Their ability to keep heat inside a building means that they enhance your comfort while also benefiting the environment. However, improved insulation can also cause external condensation to form on glazing.

How is condensation formed?

Condensation is formed when two specific conditions occur, namely low temperatures and a high ambient relative humidity level. In these conditions, a high level of radiation escaping skywards combined with low heat loss through high-performance glass means that the temperature of the outside of the glass can fall below the dew point temperature of the outside air. It is then that condensation forms on glazing, in the form of mini-droplets.

The problem is made worse when the glazing is directly exposed to a very clear, cloudless sky. The risk of condensation can also be greater on sloped glazing.

External condensation - an unwelcome phenomenon

Condensation obscures glass, making it difficult to see through. It can also cause glass to look dirty by highlighting traces of cleaning.

External condensation proves that a glazing unit is insulating effectively. The more we insulate our homes, the greater the problem of condensation will become.

Preventing external condensation

AGC offers a special anti-condensation coating which delays the appearance of external condensation. Clear float glass is covered with a transparent pyrolytic coating. The low-emissivity G fasT coating is applied to the outside of the glass (position 1). This coating keeps the external temperature of the glass higher and therefore delays the onset of condensation*.

*In identical conditions (Ug value, temperature, air humidity, direction of glazing), glass with an anti-condensation coating will delay or even prevent the onset of condensation compared with the same glass without anti-condensation properties.

Significant benefits

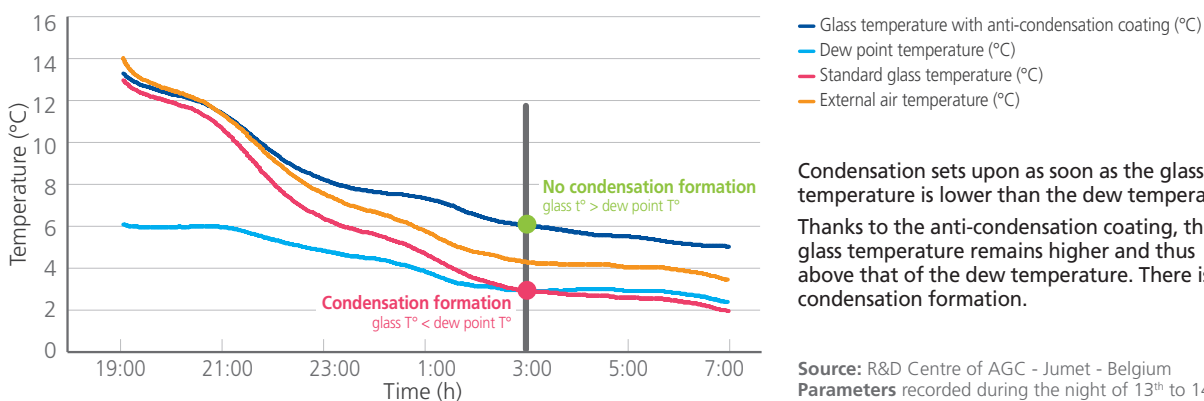
AGC's anti-condensation coating has good scratch resistance, is stable in terms of visual aesthetics and is easy to process.

AGC innovates with customised solutions

Currently, AGC offers two products that meet the most demanding of requirements.

- **Planibel AF (G fasT):** glass with basic anti-condensation coating (G fasT in position 1).
- **Planibel AF Top^{N+}:** double-coated glass combining anti-condensation properties (G fasT in position 1) with thermal insulation (Top^{N+} in position 2).

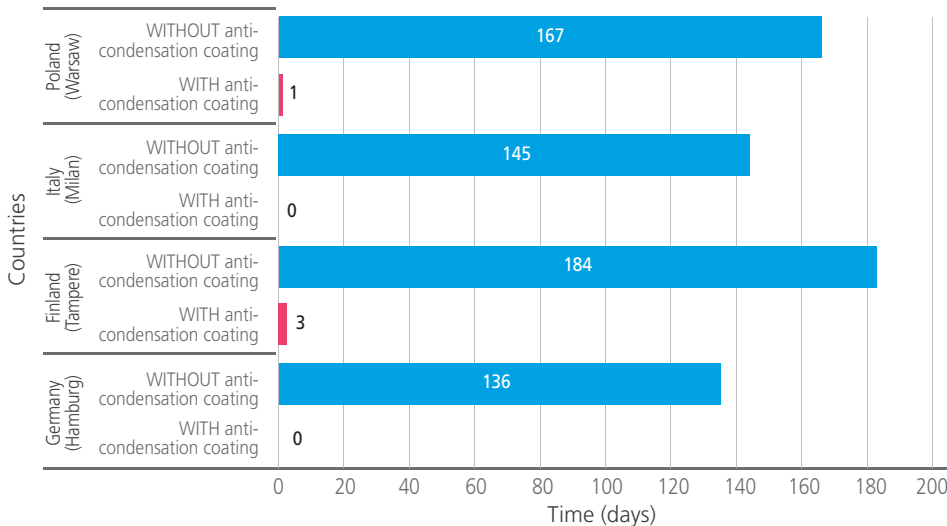
Condensation onset according to the glass, the external air temperature and the dew point.



Condensation sets upon as soon as the glass temperature is lower than the dew temperature. Thanks to the anti-condensation coating, the glass temperature remains higher and thus above that of the dew temperature. There is no condensation formation.

Source: R&D Centre of AGC - Jumet - Belgium
Parameters recorded during the night of 13th to 14th October 2011

Number of days of condensation appearance, according to various geographic zones.



The anti-condensation coating reduces the number of days during which condensation appears.

Source: calculations made by R&D Centre of AGC (Jumet - Belgium), based on data from Météo France (year : 2011) : external air temperature (°C), humidity, wind, layer of cloud

Defined parameters: vertical window, Ug : 1.1 W/(m².K), comparison between double glazing with and without condensation coating (Top^{N+})

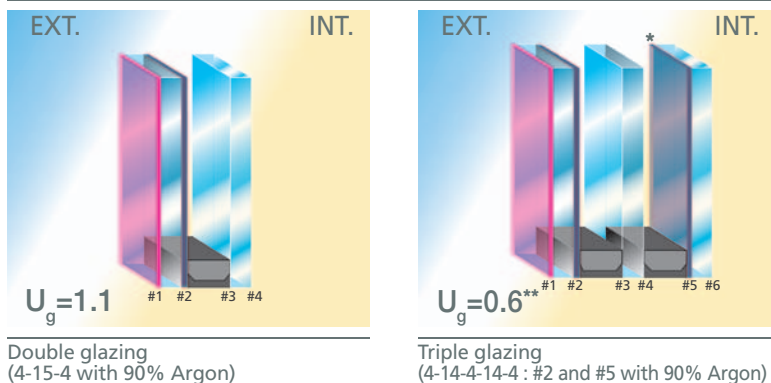
Other countries were studied.
See www.yourglass.com for further data.

Performance comparison of glazing with and without anti-condensation properties.

GLASS	EN 410			EN 673
	LT(%)	LR(%)	SF(%)	U _g (W/(m ² .K))
4 mm Planibel Clear - 15 mm Argon 90% - 4 mm Planibel Top ^{N+} #3	78	13	61	1.1
4 mm Planibel Energy ^N #2 - 15 mm Argon 90% - 4 mm Planibel Clear	71	12	42	1.0
4 mm Planibel AF (G fasT #1) - 15 mm Argon 90% - 4 mm Planibel Top ^{N+} #3	71	16	54	1.1
4 mm Planibel AF Top ^{N+} (G fasT #1 / Top ^{N+} #2) - 15 mm Argon 90% - 4 mm Planibel Clear	71	17	50	1.1
4 mm Planibel Top ^{N+} #2 - 14 mm Argon 90% - 4 mm Planibel Clear - 14 mm Argon 90% - 4 mm Planibel Top ^{N+} #5	69	17	47	0.6
4 mm Planibel AF Top ^{N+} (G fasT #1 / Top ^{N+} #2) - 14 mm Argon 90% - 4 mm Planibel Clear - 14 mm Argon 90% - 4 mm Planibel Top ^{N+} #5	62	20	43	0.6

Assembly options in double and triple glazing.

PLANIBEL AF TOP^{N+}



— G fasT
— Top^{N+}

*Can also be replaced by TRI coating

**Depending on the thickness of the spacers and the gas used inside them, the U_g value can be reduced to 0.5 W/(m².K)

Important note:

External appearance: anti-condensation glazings have a metal coating in position 1 (exterior-facing side) which means that they are slightly more reflective and tinted than normal glazing.

Cleaning: anti-condensation glazings have a coating in position 1 (exterior-facing side). A number of precautions must be taken when cleaning this coating. These are detailed in the "Cleaning and Maintenance Guide for Facade Glazing", available on www.yourglass.com/Products/Planibel-LOW-E.

ANTI-FOG

for a freer outlook on the world

True to its reputation for innovation*, AGC has succeeded in combining a pyrolytic anti-condensation coating and a magnetron thermal insulation coating in a single pane of glass – the first time this has been done.

*Through its innovative strength in advanced glass technology, its global sales network, its industrial presence spread from Spain to Russia, and its membership to the world's leading producer in flat glass: AGC Glass Europe is "Glass Unlimited".

A man in a light-colored polo shirt and grey shorts is running on a green lawn, followed by a young girl in a purple dress and purple shoes. The girl has large, colorful butterfly wings on her back. In the background, there are dense green trees and a blue tarp. A black vertical pole is visible on the left side of the frame.

visibly better!

As well as ensuring an uninterrupted view outdoors, Planibel Low-e Anti-Fog will make your living space more comfortable, reduce your energy bills and protect the environment. A better outlook in every sense!

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