A better environment inside and out.®

Architectural Solar Control Window Film Solutions

Frequently Asked Questions

Solar Gard® and Panorama® Architectural Solar Control Window Films Climate Declaration

1. What is a Climate Declaration?

A Climate Declaration is a specific statement about the greenhouse gas emissions associated with a product, also known as a product's carbon footprint. It is part of an Environmental Product Declaration (EPD), which is a formal report about the environmental impacts of a product with respect to its manufacture, distribution, use, and disposal. The declaration is delivered in the form of a certified report created to an international procedure called ISO 14025, which includes key facts about the carbon emissions and carbon savings associated with the product.

2. What does the Climate Declaration say about Solar Gard and Panorama architectural window films? Are the carbon footprints positive or negative?

In more than 95% of the regions where Solar Gard and Panorama architectural solar control window films are sold, they produce a net reduction of greenhouse gas emissions, so as a family of products, they have a negative carbon footprint.

Thirty-two (32) solar control window films within the Solar Gard and Panorama architectural product lines were analyzed. Research found that one square meter of Solar Gard or Panorama window film prevents, on average, 1001 times as much greenhouse gas emissions from entering the environment over their lifetime than is used and/or created during the manufacturing process. Window film achieves this by reducing the solar heat load in a building which lowers interior temperatures and reduces the need for air conditioning.

3. Which Solar Gard and Panorama films were included in the analysis?

Autumn Bronze 30
Bronze Silver 15
Bronze Silver 20
Bronze Silver Bronze 10
Grey Silver 15
Grey Silver Grey 10
Hilite® 70
LX 70
Quantum® Silver Quantum 10
Quantum® Silver Quantum 20
Silver 20
Silver 35
Silver 50
Silver AG 25 Low-e
Slate 10
Slate 20
Slate 30
Slate 40
Slate 50
Solar Bronze 20
Solar Bronze 35
Solar Bronze 50
Stainless Steel 10
Stainless Steel 20
Stainless Steel 30
Stainless Steel 35
Stainless Steel 50
Sterling 20
Sterling 40
Sterling 50
Sterling 60
Sterling 70

carbon negative CO_2 earth positive™

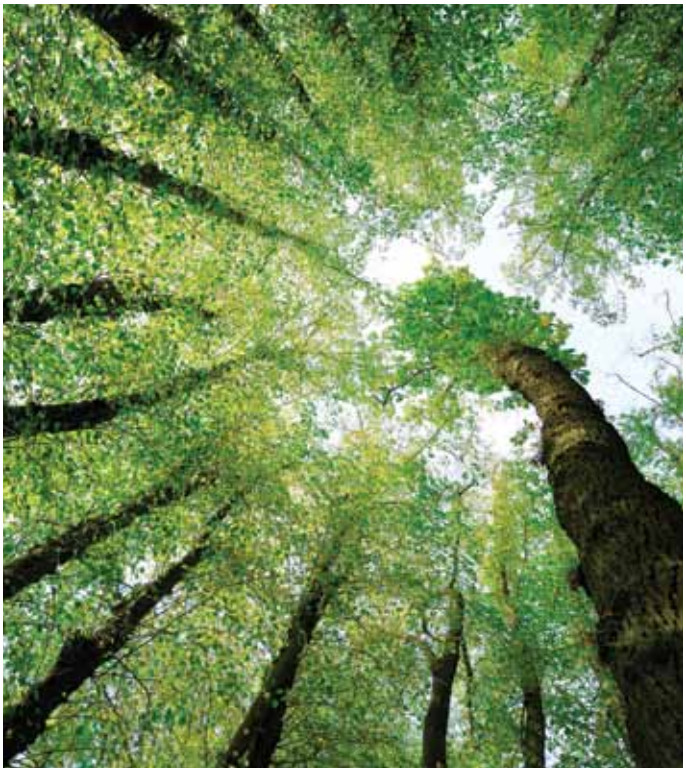
4. What steps did you take to achieve this Climate Declaration?

Solar Gard has invested more than $1M on its environmental programs to date, assessing the company's carbon footprint, updating environmental management systems, and measuring/auditing the carbon footprint of its architectural solar control window films. First the company formed a dedicated, cross-functional task force to study the films' carbon footprint. This involved hundreds of hours of work over more than a year to collect data and perform a cradle-to-grave lifecycle analysis of the window films. The lifecycle analysis was performed under standards specified by ISO 14025 protocol. Some of the data were collected internally; other data were extracted from SimaPro Life Cycle Analysis software, a widely used program to assist with lifecycle analysis. Then two independent third-party organizations, Alta Nova, LLC and Five Winds International, reviewed and audited the data. The resulting Climate Declaration is registered at www.climatedec.com, which is operated by The International EPD® Consortium.

5. Why did Solar Gard seek a Climate Declaration?

Our motive is simple: environmental responsibility is a core value at Solar Gard. We strive to do all we can to create a better environment. We believe consumers have a right to know the real environmental performance of the products they purchase, and our research pointed us to the ISO 14000 standards and the international Climate Declaration. You can view our Environmental, Health and Safety Policy at http://www.solargard.com//Assets/PDFs/BSF_ENV_Policy.pdf and our organizational carbon footprint, which is currently registered with the California Climate Action Registry at http://www.climateregistry.org/CARROT/public/reports.aspx

Additionally, we believe lifecycle analysis should be mandatory for all manufacturers who want to market their products as energy-saving solutions. Without it and the accompanying third-party audit, companies may be (unintentionally) engaging in greenwashing. They may claim their product/service can save energy but consumers would have no way to verify their claims. Many manufacturers have yet to embrace lifecycle analysis, but we believe the ISO 14000 environmental guidelines are comprehensive enough to be adopted as best practices.



6. Are these the first building improvement products in the U.S. to measure and report their greenhouse gas (GHG) emissions through a Climate Declaration?

Yes. To date, no other building product has published its Climate Declaration. Solar Gard and Panorama, are the first and only window films to publish their audited carbon impact.[1]

7. Many products claim to be green. Are Solar Gard and Panorama any different?

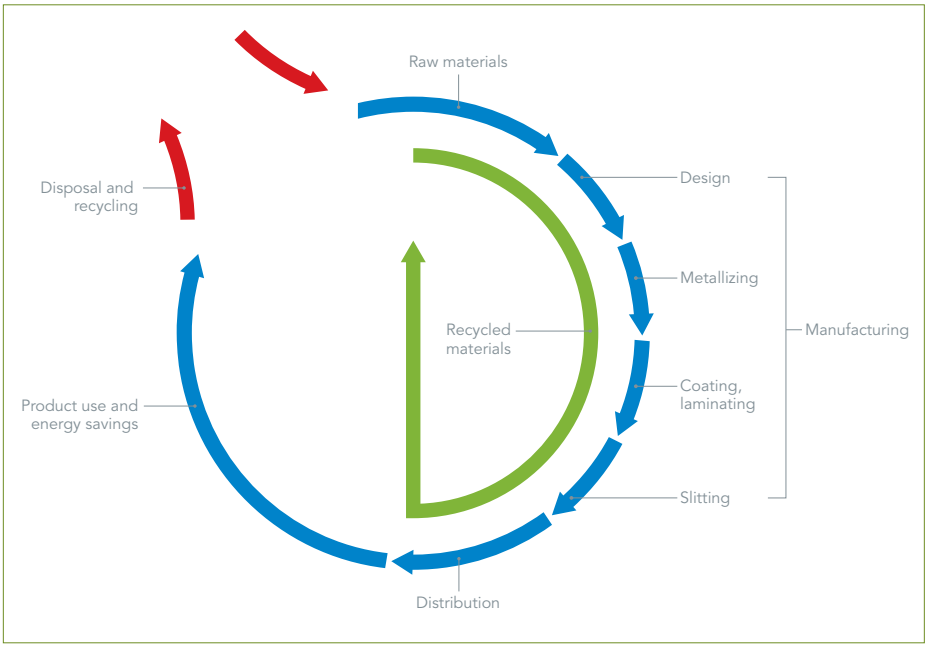
Though many products worldwide claim to save energy, only a small number of those manufacturers have completed lifecycle analyses to measure whether the products they sell are carbon negative, neutral or positive. Companies can run a risk of greenwashing – that is, claiming to be green while hiding the truth about how those products are made, which can mislead consumers. The Climate Declaration for Solar Gard and Panorama architectural solar control window films proves they have a negative global carbon footprint and provide an overall benefit to the environment.

1. According to EPD registrar www.climatedec.com and www.thegreenstandard.com

8. What did your analysis cover?

Our analysis included a full cradle-to-grave life cycle analysis (LCA) of Solar Gard and Panorama architectural solar control window films. This LCA consisted of materials, manufacturing, business operations, shipping, product use phase and end of life, as depicted in Image 1.

Image 1



Architectural solar control window film lifecycle

9. What kind of buildings and what kind of glass were used in your models?

Hundreds of commercial and residential buildings across the globe were modelled using various industry and proprietary software programs. A 2,000 square foot home (where windows made up 10% of the walls) served as the residential model, and a ten story building with 70,000 square feet of glass and 25% glass coverage was the model for commercial buildings. Single pane glass was used for warmer climates, and double pane glass was selected for cooler climate analyses.

10. Does architectural solar control window film work better in some regions than others?

Regional differences do impact the amount of carbon savings generated by solar control window film. For example, in colder climates, passive heat loss may occur when solar control window film is installed. This impacts the amount of carbon savings, but the audited research still shows that Solar Gard window film is carbon negative even in many colder climates across Europe and the US. In addition to climate variances, different regions of the world generate electricity in different ways, some of which are cleaner (nuclear, hydroelectric) than others (coal). The combined factors of clean energy sources, cold climates, little sunlight and more efficient buildings may mean that Solar Gard and Panorama architectural solar control window films are not carbon negative in every region; our analysis shows that this impacts just a few of the films in France and the line of films in Canada. In general, carbon savings from window film increases in regions that rely on traditional fossil fuel energy. Our analysis did not take into consideration the time or cost associated with building additional clean energy infrastructure, such as nuclear or hydroelectric plants. Inclusion of these costs may have led to a more positive outcome in regions which benefit from these types of energy sources, such as Canada or France.

Despite regional differences, the analysis shows that the global carbon footprint of Solar Gard and Panorama is negative. That is, Solar Gard and Panorama cut carbon emissions across the globe.

11. How does the carbon footprint of installing architectural solar control window film compare to new windows?

According to the 2009 Buildings Energy Data Book, published by the U.S. Department of Energy, the carbon footprint of low-e windows with several different frame types is shown in Table 1. The most carbon intensive architectural solar control window film has a carbon footprint, or carbon cost, of about **1 kilogram per square meter**. 1 square meter of a wood frame low-e window, the type with the smallest carbon footprint, has a carbon cost of **253 kilograms per square meter**.

12. Does the cost of the film factor into the Climate Declaration calculations?

There is no economic analysis included in a Climate Declaration as its purpose is to solely examine the carbon impact (green house gas emissions) of a product. However, building managers and homeowners looking to conserve energy may want to conduct a carbon-cost benefit analysis as shown in Table 1.

13. What about other architectural solar control window films not included in your Climate Declaration?

After thorough analysis of architectural solar control window films launched after the period of analysis for the Climate Declaration, we determined the following films would also be carbon negative based on construction and solar performance. These additional films include:

Hilite® 40
Sentinel™ Silver 20
Sentinel™ Silver 35
Sentinel™ Solar Bronze 20
Sentinel™ Solar Bronze 30
Sentinel™ Solar Bronze 40
Sentinel™ Stainless Steel 15
Sentinel™ Stainless Steel 25
Sentinel™ Stainless Steel 40
Sentinel™ Stainless Steel 45
TrueVue™ 5
TrueVue™ 15
TrueVue™ 30
TrueVue™ 40

Note: films are carbon negative worldwide, except in Canada for residential applications. Sterling 20 is not carbon negative in France for residential applications.

Table 1

Window film or window frame type	Carbon footprint of 1 square meter, installed (kg)	Approximate cost of 1 square meter, installed (in US $)*
Window film	0.998	$64 to $150
Aluminium window	348	$448
PVC-clad wood	303	$713
Wood	253	$314
Vinyl (PVC)	402	$295
Curtainwall viewable glazing	301	$882

Carbon-cost benefit analysis of window film compared with various types of window frames
** These are Solar Gard estimates based on data obtained from RSMeans Construction Cost Data Book 2011.*

www.solargard.com

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