



A better environment inside and out.™

Solar, Safety, Security and Automotive Window Films

## 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.

In a Climate Declaration, the term "carbon emissions" encompass more than just carbon dioxide. It includes other chemicals and solvents that are greenhouse gasses which may contribute to global warming. Collectively, these emissions are expressed in terms of carbon dioxide equivalents, or CO<sub>2</sub>e.

Climate Declarations all analyze some type of material, and the unit of product analyzed is called the "functional unit". A product's functional unit is defined at the beginning of an analysis, and can be a specific unit, amount, or volume the product. In the case of the Climate Declaration for Solar Gard® and Panorama® architectural solar control window films manufactured by Saint-Gobain Solar Gard LLC, the functional unit is one square meter of window film.

To achieve a Climate Declaration, a product must undergo an exhaustive evaluation of all materials and energy used to manufacture the product, carbon impacts from shipping, and carbon impacts associated with the product's usage during its lifetime. Upon completion of this evaluation, a comprehensive peer reviewed report is written, the product receives final certification, and it is registered by an authorized registrar.

### Product Life Cycle Analysis

Many factors contribute to a product's carbon footprint, or the total set of greenhouse gas (GHG) emissions caused by its manufacture. These factors include raw materials, manufacturing processes, distribution, product use, and disposal. All of these

factors together are known as the product's life cycle analysis, or LCA. Collectively, these factors reveal the impact of the total life cycle of a product on the environment. An LCA is a required component of a Climate Declaration.

### Raw Materials

All raw materials have carbon emissions associated with their extraction and creation. It takes energy to harvest the materials needed to manufacture a product, such as drilling and shipping oil that is eventually converted into polyester film, and mining and refining metals that will be sputtered onto a film. Shipping raw materials to the factory where they are used also has an associated carbon cost.

### Manufacturing

Each step in the manufacturing process consumes energy, and therefore results in greenhouse gas emissions that must be counted. During this phase, materials not used in the final product may be recycled.

Together, the raw materials and manufacturing of a product result in an important value called the "embodied carbon footprint" of an object. The embodied carbon footprint of a product is the carbon emission total encompassed in the creation of the product.

### Distribution

The entire carbon cost of distribution encompasses numerous factors, including shipping raw materials to the manufacturing facilities, as well as the carbon costs of shipping the finished goods to customers throughout the world. Energy usage associated with office operations supporting the product are also allocated against the product.

### Product Use and Energy Savings

The use phase accounts for the energy consumed or saved by a product when it is used as intended. Because architectural solar control window films are designed and utilized as energy saving products, there is an energy savings achieved during the use phase of the films.



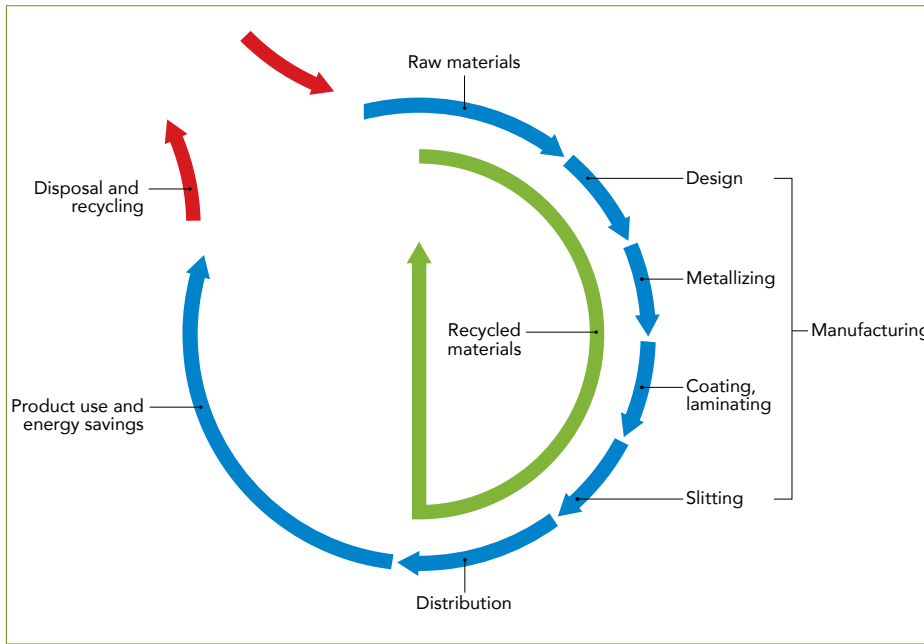
## Disposal and Recycling

After the useful life of a product, the final carbon emissions associated with its disposal and/or recycling are calculated. For solar control films, a conservative assumption was made that the products would be disposed of in a landfill at the end of their fifteen-year useful life.

## Report and Climate Declaration

When the full product LCA is complete, a detailed report is written incorporating all of the information in the analysis. A third-party reviewer, not associated with the organization submitting the report, reviews the data and format of the submittal to ensure it is complete, accurate, and complies

with the ISO 14025 procedures for creating a Climate Declaration. The entire process ensures that product manufacturers have followed a systematized, transparent and consistent process, resulting in an accurate and credible report.



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Saint-Gobain Performance Plastics  
4540 Viewridge Avenue, San Diego, CA 92123  
+1 858-576-0200