

**Sure-Weld<sup>®</sup> TPO**  
Roofing Systems



**There is Still No Equal**  
TPO VS. LOWER-PERFORMANCE PVC

Touting over 20 years of experience and 10 billion square feet installed, thermoplastic polyolefin (TPO) has become the largest and fastest-growing segment in the commercial roofing industry, and for good reason. When choosing between TPO, and lower-performance PVC, there's **Still No Equal to Carlisle SynTec Systems' Sure-Weld TPO.**

## TPO VS. LOWER-PERFORMANCE PVC

TPO membrane is now the most commonly used single-ply roofing membrane in the United States and many other parts of the world. As the leading manufacturer of single-ply roofing, Carlisle SynTec Systems is invested in educating customers about EPDM, TPO and PVC and how they compare to each other as well as alternative systems.

PVC has been used successfully as a low-slope roofing product for decades; however, some manufacturers are now producing a lower-cost, lower-performance PVC membrane in an attempt to take TPO's majority share of the low-slope roofing market. This brochure will outline the top reasons why there is Still No Equal to Carlisle's Sure-Weld TPO, particularly when it is compared to lower-performance, low-cost PVC.

## ENERGY EFFICIENCY

**Carlisle:** Carlisle's white and tan Sure-Weld TPO membranes are Cool Roof Rating Council (CRRC) certified and California Title 24 compliant. The high reflectivity of Carlisle's TPO can significantly reduce air-conditioning costs, particularly for buildings in hot climates. Most manufacturers can produce a white product, but the true measure of how the membrane can reduce your building's cooling costs is found in its three-year reflectivity test results. A smoother top ply and a formulation that resists dirt pick-up gives Carlisle's TPO one of the highest three-year reflectivity values in the industry, and enables Carlisle to offer a 10-year reflectivity warranty on all of their TPO membranes.

**Lower-Performance PVC:** While some lower-performance membranes start out extremely white and reflective, maintaining those reflectivity values can be very challenging if the formulation and top ply smoothness are not of the highest quality.

**Protect Your Investment:** Ensure that your building is protected by a membrane that will provide the highest level of energy efficiency and air-conditioning cost savings by requesting sufficient insulation and a membrane with a three-year reflectivity of .68 or higher.

## WEATHERING PACKAGE

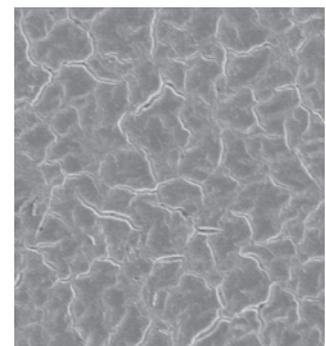
**Carlisle:** Xenon-arc and long-term heat aging tests show that Carlisle's Sure-Weld TPO exceeds the highest industry standards. That's because every Carlisle TPO membrane is enhanced with the OctaGuard XT™ Weathering Package, a unique, eight-component blend of antioxidants, UV absorbers, and light and heat stabilizers that significantly enhances long-term performance. Compared to other single-ply membranes, TPO is subjected to the most stringent heat and UV protection requirements. Carlisle's Sure-Weld TPO passes these rigorous tests with flying colors.

**Lower-Performance PVC:** One of the easiest ways to decrease the cost of a thermoplastic membrane is to reduce the quality of its weathering package. As you would expect, this lowers the material's price, but it also negatively affects the long-term performance of your roofing system.

**Protect Your Investment:** Ask your thermoplastic membrane manufacturer about their weathering package and long-term heat and UV exposure test results. Request a weathering package that can provide heat and UV resistance that is much greater than the ASTM minimum requirement. Ask for a membrane with the heat and UV performance of the OctaGuard XT Weathering Package.



**Carlisle TPO with OctaGuard XT**



**Lower-Performance PVC**

*Images of membrane surface after 6,300 kJ/m<sup>2</sup> radiant exposure at 340 nm (2,500 hours)*



## MOLD, FUNGUS, AND ALGAE GROWTH

**Carlisle:** Carlisle's Sure-Weld® TPO membranes are designed to be naturally resistant to the growth of microbials because there is no food source for microbials like mold and algae on the surface of the membrane. While most PVC membranes contain the latest antimicrobial technology, not all PVC membranes are formulated the same.

**Lower-Performance PVC:** Eliminating antimicrobials is an easy way for manufacturers of lower-performance PVC to cut costs. Lower-performance PVC manufacturers eliminate the ingredients that restrict microbial growth and replace these ingredients with a very thin coating. This coating can wear away in a few years, leaving the PVC unprotected from microbial growth that stains and eats away at the membrane's surface.

**Protect Your Investment:** Ensure that the PVC used on your project contains antimicrobials, not a thin coating on the top surface of the PVC. By using TPO that is naturally resistant to microorganisms, or including the antimicrobials within the PVC formulation, the surface of the membrane remains protected for the life of the roofing system.

## INSTALLATION FLEXIBILITY

**Carlisle:** In addition to being used in mechanically attached assemblies, all Carlisle TPO membranes can be fully adhered. Fully adhered installations provide greater wind uplift resistance, and therefore, greater resistance to damage caused by high winds. Fully adhered applications are ideal for facilities that require an enhanced level of protection, such as schools, government buildings, coastal locations, and tall buildings.

**Lower-Performance PVC:** Due to the composition of many lower-performance PVC membranes, they are only suitable for mechanically attached applications, which reduce wind uplift performance and resistance to high winds.

**Protect Your Investment:** Request that the membrane protecting one of your most valuable assets be fully adhered in order to increase your roof's resistance to damage from high winds.

## PROTECTION

**Carlisle:** The OctaGuard XT Weathering Package is present in the entire monolithic top ply of every square inch of Carlisle's TPO.

**Lower-Performance PVC:** Lower-performance PVC manufacturers use a two-layer top-ply composition. While standards dictate that there must be a minimum thickness of top ply above the reinforcement in the membrane, there is no requirement that the top ply consists of one layer, or even that it have the same level of weathering protection throughout. In order to save money, some lower-performance PVC manufacturers use a two-layer top ply composition in which the full weathering package is only present in the top layer.

**Protect Your Investment:** Ensure that the thermoplastic membrane protecting your building has the most extensive heat and UV resistance in the industry throughout the entire top ply of the membrane. Specify a membrane with the OctaGuard XT Weathering Package and a monolithic top ply.

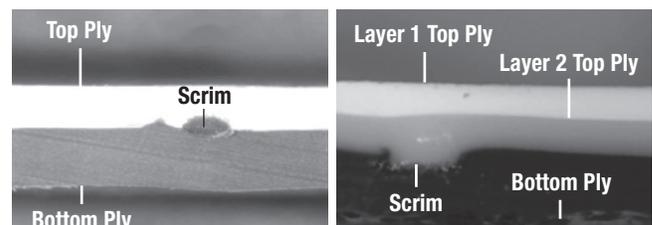
## WARRANTY COVERAGE

**Carlisle:** With Carlisle, you can rest assured that your building will have outstanding warranty protection. Carlisle's Total System, No Dollar Limit warranties reflect a commitment and ability to address any warranty issue for up to 30 years. Carlisle also offers warranties that protect against hail and accidental punctures, as well as a reflectivity warranty option for TPO roofing systems.

**Lower-Performance PVC:** Most lower-performance PVC manufacturers offer a restricted warranty, typically lasting no longer than 20 years, which limits their liability to the original installed cost of the roofing system. Most of these manufacturers do not offer warranty options for hail, accidental puncture or reflectivity.

**Protect Your Investment:** Ensure that the company providing your warranty has a comprehensive warranty offering including No Dollar Limit, Total System warranties.

### CROSS-SECTIONS OF TPO AND LOWER-PERFORMANCE PVC MEMBRANES

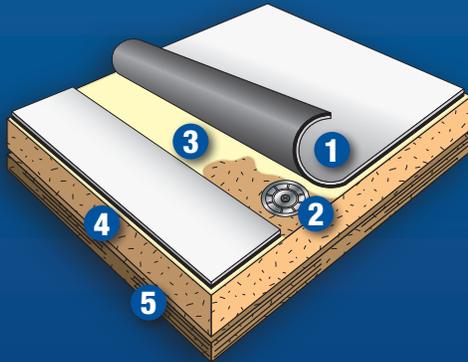


Carlisle TPO with OctaGuard XT

Lower-Performance PVC

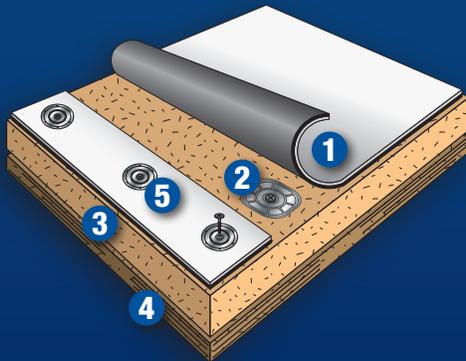
## EXPERIENCE THE CARLISLE DIFFERENCE

### FULLY ADHERED TPO ROOFING SYSTEM



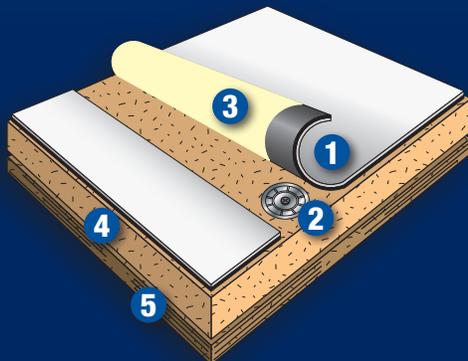
1. Sure-Weld TPO Membrane
2. Carlisle Insulation Fasteners and Plates
3. Sure-Weld TPO Bonding Adhesive
4. Acceptable Insulation
5. Approved Roof Deck

### MECHANICALLY FASTENED TPO ROOFING SYSTEM



1. Sure-Weld TPO Membrane
2. Carlisle Insulation Fasteners and Plates
3. Acceptable Insulation
4. Approved Roof Deck
5. Membrane Fasteners and Plates

### SELF-ADHERING TPO ROOFING SYSTEM



1. SAT™ TPO Membrane
2. Carlisle Insulation Fasteners and Plates
3. Pre-Applied Adhesive
4. Acceptable Insulation
5. Approved Roof Deck



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