

Extending service life in window and door systems

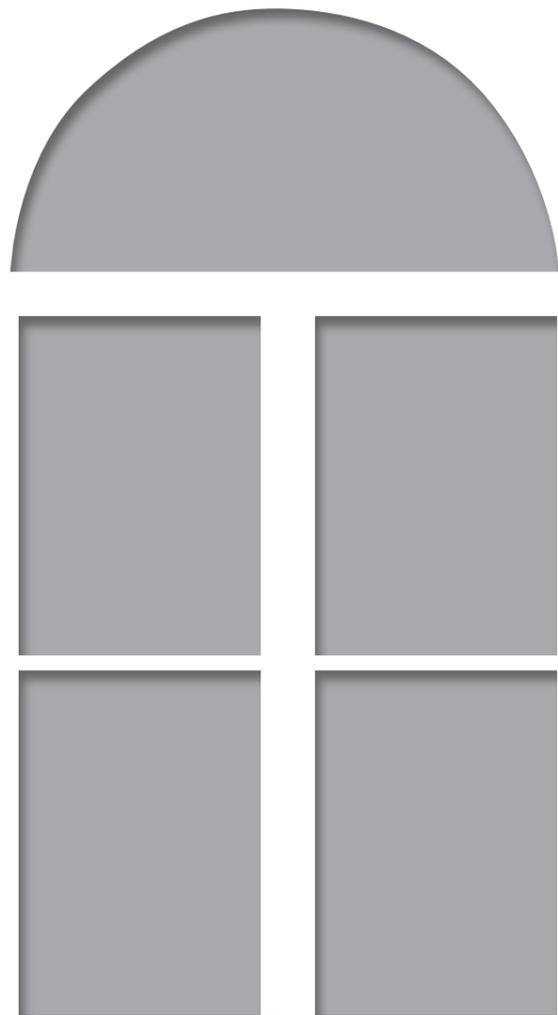
Save energy and reduce plastic waste with
Ti-Pure™ TiO₂ for Outdoor White & Colored Rigid PVC



Ti-Pure™

R-105 and R-960 Titanium Dioxide

Consumers look to their vinyl windows and doors to protect them from nature's elements.



But how do the windows and doors stay protected? The sun's ultraviolet rays can have damaging impacts on PVC, causing fading, cracking, and blistering over time. Exterior applications demand the durability that comes from PVC made with Ti-Pure™ TiO₂, to ensure lasting beauty and superior weatherability.



PVC and titanium dioxide: the winning combo for long-lasting windows and doors

The three most common materials used in door and window systems are wood, aluminum, and plastic or vinyl (PVC). Wood offers great insulation, while aluminum is resistant to rotting and warping. But PVC has the advantage of delivering similar performance, with virtually no maintenance required to stay beautiful for years—no painting, no treatments, and no hassle. The extensive list of benefits offered by PVC make it an ideal choice for consumers and builders alike.



THE BENEFITS OF PVC

- Cost-effective performance
- Ease of maintenance
- Energy efficiency
- Weatherability and long-term durability
- Chemical resistance
- Impact resistance
- Fire resistance
- Thermal expansion
- Dimensional stability
- Design flexibility
- Recyclability
- Structural strength
- Exterior solid colors



White pigment gives PVC the bright appearance that wood or aluminum can't match. It comes from the pigment's ability to translate light scattering into hiding power, tinting strength, and opacity.

Titanium dioxide (TiO₂) offers the highest Refractive Index among all white pigments. This superior light scattering ability delivers the most vibrant color to a plastic surface.

Using a controlled and reliable chloride process for producing TiO₂, Chemours is able to consistently deliver purer, brighter white pigments with Ti-Pure™ R-105 and R-960.

THE GREEN CHOICE.



Every year, tens of thousands of tons of rigid PVC are recycled, minimizing the impact on landfill waste sites. And titanium dioxide is fully robust, so its performance remains unchanged throughout the recycling process with no loss of properties.

A beautiful appearance that stays looking like new

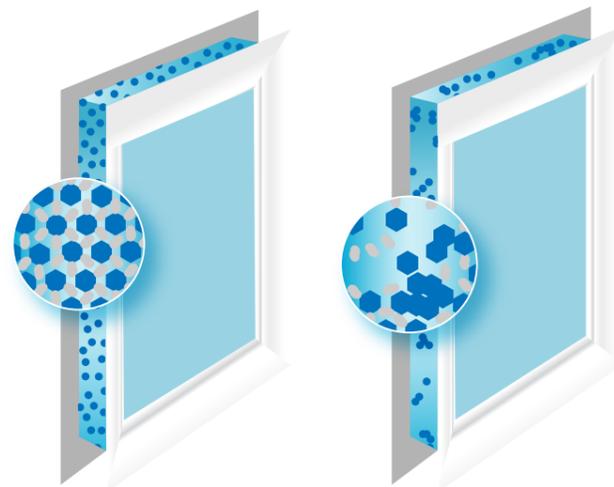


Titanium dioxide not only gives PVC its bright white appearance, it also helps it retain its color—white or otherwise. Extended exposure to sunlight can cause unprotected vinyl windows and doors to fade, yellow, or roughen over time. But the addition of TiO_2 can significantly slow down discoloration and degradation, with better gloss retention to keep windows and doors beautiful for longer.

While the amount of TiO_2 in the PVC determines its initial whiteness, the quality of the TiO_2 is what provides longevity. The more durable the grade of TiO_2 , the better the protection.

Both Ti-Pure™ R-105 (for white PVC) and Ti-Pure™ R-960 (for colored PVC) are highly treated to protect the polymer from light degradation and provide excellent long-term weathering resistance.

Ti-Pure™ R-105's
consistent dispersion and
particle size results in excellent
whiteness and brightness,
and economic efficiency



PVC with high-quality
Ti-Pure™ R-105

PVC with low-quality
surface treatment



SOLAR SPECTRUM



VISIBLE LIGHT

Ti-Pure™ R-105
SCATTERS VISIBLE LIGHT
to slow down discoloration and
provide long-lasting beauty

Durability

that stands up to the elements

Fading color isn't the only concern when battling sunlight. The sun's UV rays and heat can actually affect PVC's durability, too. When vinyl windows and doors begin losing their mechanical properties, their impact resistance decreases.

TiO₂ limits UV penetration to a thin surface layer on the plastic, protecting the PVC from degradation and maintaining a superior impact resistance level.

This added durability can extend the life of window and door systems, which translates to less waste and greater cost savings for consumers.



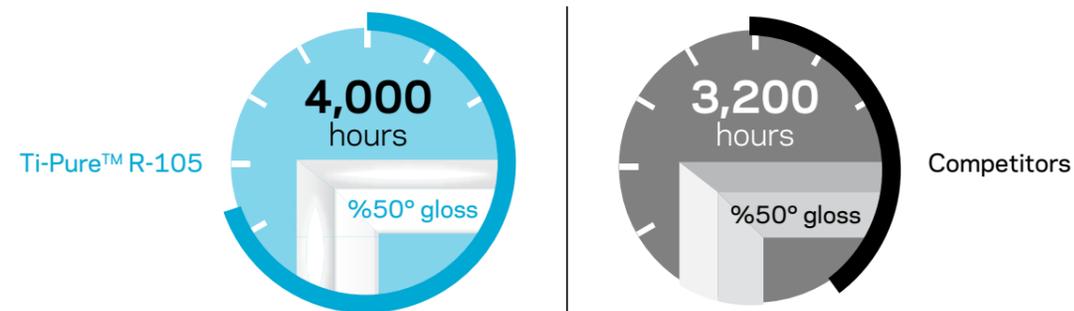
SOLAR SPECTRUM



Ti-Pure™ R-105
BLOCKS ULTRAVIOLET LIGHT
 to prevent degradation and ensure superior impact resistance

Ti-Pure™ R-105 extends the life of PVC in windows and doors.

Time to failure is reached when the amount of the PVC's gloss is reduced to 50%.

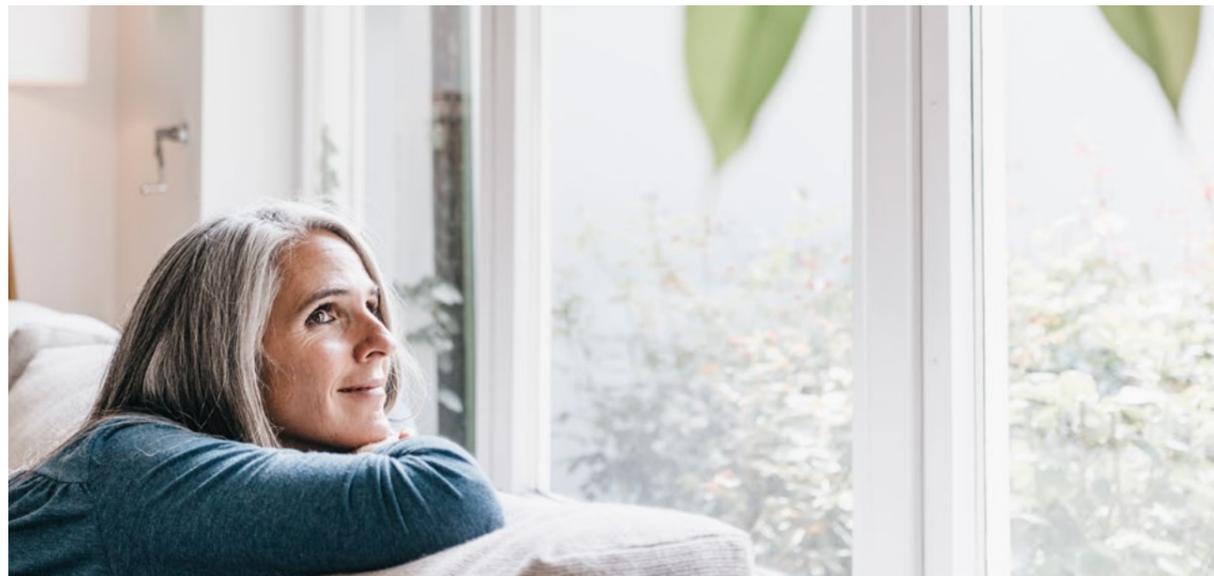
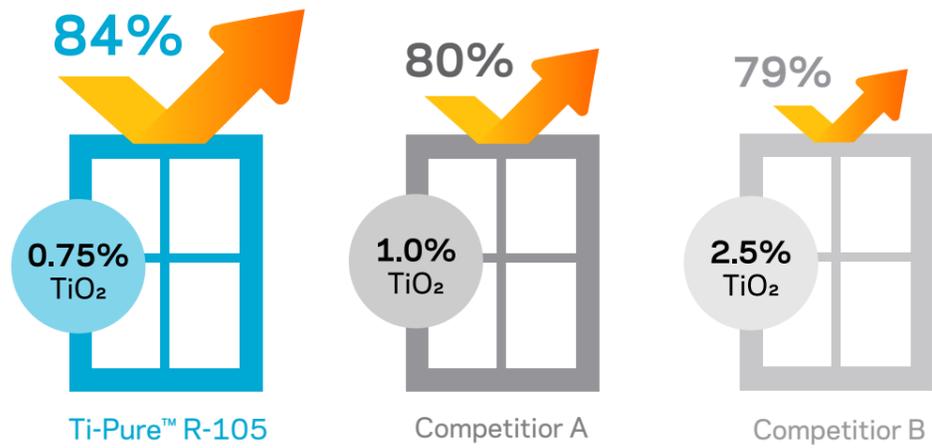


Protection that keeps you cool in the heat

Constant exposure to the sun also means that windows and doors are subject to a great deal of heat from infrared light. This can lead to heat distortion, creating deformities in the window frame or door. It can also raise the temperature of the entire building and place a heavy burden on air conditioning systems—driving more energy usage and more CO₂ emissions.

Infrared light constitutes 50% of solar radiation, so reflecting it is key to reducing the thermal heat exposure of a surface. **TiO₂ pigments uniquely reflect the infrared portion of the solar spectrum to reduce heat build-up, while still absorbing the visible light to maintain a bright and colorful appearance.**

PVC made with Ti-Pure™ R-105
reflects more sunlight with less TiO₂ content



SOLAR SPECTRUM

INFRARED
LIGHT

Ti-Pure™ R-105
REFLECTS INFRARED LIGHT
to reduce heat build-up and allow
for better temperature control

Ti-Pure™ R-105 for White Rigid PVC Windows and Ti-Pure™ R-960 for Colored Rigid PVC Windows have been specifically designed to achieve:

- **Maximum weathering resistance** in even the sunniest regions around the globe
- **Excellent quality and color consistency**, with bright, neutral whites
- **Superior bulk flow properties**, ideal for automatic feeding systems
- **More opacity and gloss retention** for long term applications to ensure that PVC retains its smooth appearance indefinitely
- **Cost savings**, with complete and faster processing/dispersion (Ti-Pure™ R-105) that reduces TiO₂ use, and lower tint strength (Ti-Pure™ R-960) that requires less color concentrate

Request Your Sample Today!

With a global reach, supply reliability, technical service capabilities, and a history of innovation, Chemours is your trusted partner for high-quality titanium dioxide in durable PVC applications.

Ti-Pure™ R-105 and Ti-Pure™ R-960 are available in 25 kg polyethylene bags to eliminate fiber contamination from paper bags. They are also available in bulk trucks in Europe, and one metric ton flexible intermediate bulk containers where larger volumes are processed.

Let's create great.



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