

Triple-IGU Features/Benefits Comparison (2.5 mm glass thickness)

The latest advance in energy-efficient window glass, **Sungate 460** passive low-e glass can help keep your home warm in the winter and reduce heating bills, too. Clear and neutrally reflective, **Sungate 460** glass transmits solar energy into your residence then traps it with furnace heat to create warm, comfortable and energy-efficient living spaces.

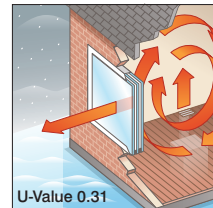
Designed for northern climates, **Sungate 460** glass can achieve exceptional center-of-glass winter nighttime U-values of 0.13 to 0.19 in 1-1/4-triple-glazed residential windows, which is up to 58 percent more insulating power than the same window unit made with clear glass.

Warmer in Winter

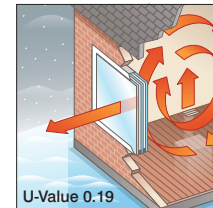
The winter nighttime U-Value (insulating value) of a (3)/(5) Triple-glazed window unit with **Sungate 460** glass on the third (3) and fifth (5) surfaces is up to **58%** better than the same triple-glazed unit made with clear insulating glass.

- Lower U-values mean higher performance
- Reduces furnace heat loss
- Helps reduce heating energy costs

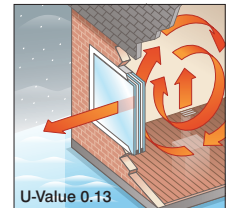
Standard Clear Insulating Glass



Sungate 460 (3) Insulating Glass



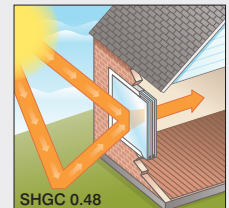
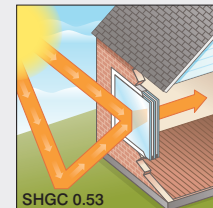
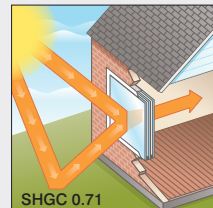
Sungate 460 (3)/(5) Insulating Glass



Warmer During Winter Daylight

The total solar energy transmitted through **Sungate 460** (3)/(5) glass is only **32%** less than that transmitted through a clear triple-glazed insulating glass unit.

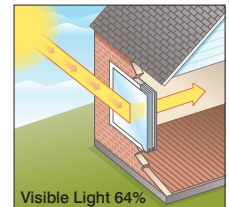
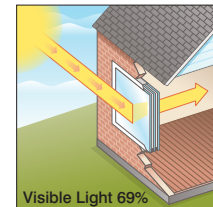
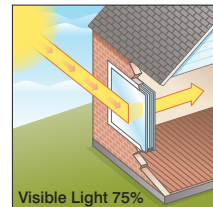
- Higher SHGC numbers mean more solar heat gain
- Helps keep interiors warmer
- Helps reduce heating energy costs



Transmits Visible Light/Appearance

Insulating units with **Sungate 460** (3)/(5) glass transmit about **85%** of the visible light as a clear triple-glazed insulating glass unit.

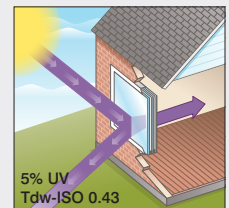
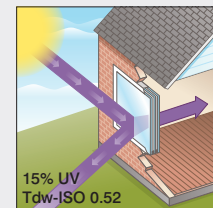
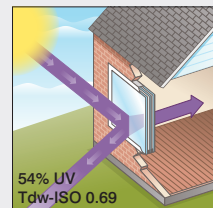
- Interior light from the sun not reduced dramatically versus clear glass
- Provides exterior appearance similar to clear glass



Fading Factors

While **Sungate 460** (3)/(5) glass blocks **95%** of damaging UV energy, it also blocks other contributors to fading – in all, **38%** better than a clear triple-glazed insulating glass unit.

- Helps protect interior furnishings, fabrics and carpets from fading



Note: Tdw-ISO represents potential fading damage caused by both UV and visible light. It is considered by the U.S. Department of Energy and the International Standards Organization (ISO) to be a more accurate barometer of fade resistance than UV transmittance alone. All comparisons are center of glass based on an insulating unit containing 3/4" insulating units; two 1/8" (3mm) glass lites and a 1/2" (12mm) air-filled space for the standard clear insulating glass and 90% argon gas-filled space for the Sungate® 460 insulating glass. Actual glass performance may differ due to glass thickness, gas fill and glass to frame ratio.

Solar Heat Gain Coefficient (SHGC) measures how well a window blocks (or shades) the heat from sunlight. SHGC is the fraction of solar radiation transmitted through a window, as well as the amount that is absorbed by the glass and reradiated to the interior. Figures may vary due to manufacturing tolerances. All tabulated data are based on the National Fenestration Rating Council (NFRC) methodology, using the Lawrence Berkeley National Laboratory's Window 7.4 software.



Vitro customers use our products to manufacture Energy Star compliant windows, doors and skylights.



Triple-IGU Features/Benefits Comparison (3 mm glass thickness)

The latest advance in energy-efficient window glass, **Sungate 460** passive low-e glass can help keep your home warm in the winter and reduce heating bills, too. Clear and neutrally reflective, **Sungate 460** glass transmits solar energy into your residence then traps it with furnace heat to create warm, comfortable and energy-efficient living spaces.

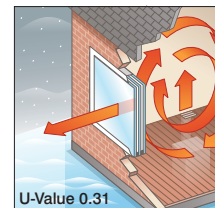
Designed for northern climates, **Sungate 460** glass can achieve exceptional center-of-glass winter nighttime U-values of 0.13 to 0.19 in 1-3/8-triple-glazed residential windows, which is up to 58 percent more insulating power than the same window unit made with clear glass.

Warmer in Winter

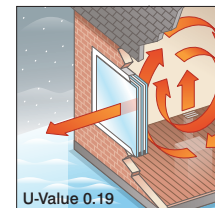
The winter nighttime U-Value (insulating value) of a (3)/(5) Triple-glazed window unit with **Sungate 460** glass on the third (3) and fifth (5) surfaces is up to **58%** better than the same triple-glazed unit made with clear insulating glass.

- Lower U-values mean higher performance
- Reduces furnace heat loss
- Helps reduce heating energy costs

Standard Clear Insulating Glass



Sungate 460 (3) Insulating Glass



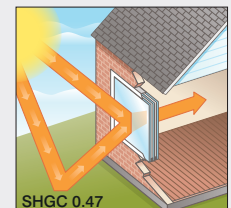
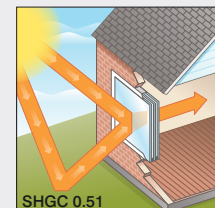
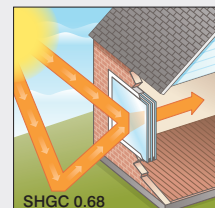
Sungate 460 (3)/(5) Insulating Glass



Warmer During Winter Daylight

The total solar energy transmitted through **Sungate 460** (3)/(5) glass is only **31%** less than that transmitted through a clear triple-glazed insulating glass unit.

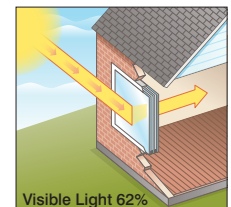
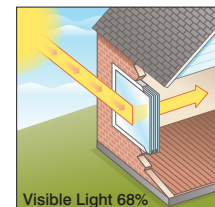
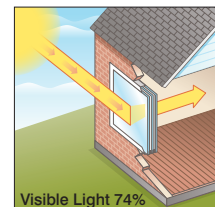
- Higher SHGC numbers mean more solar heat gain
- Helps keep interiors warmer
- Helps reduce heating energy costs



Transmits Visible Light/Appearance

Insulating units with **Sungate 460** (3)/(5) glass transmit about **84%** of the visible light as a clear triple-glazed insulating glass unit.

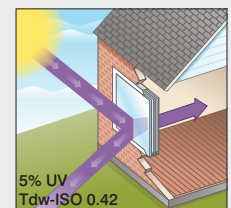
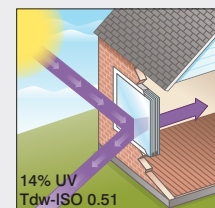
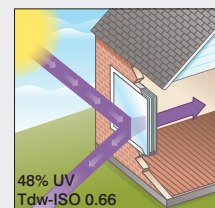
- Interior light from the sun not reduced dramatically versus clear glass
- Provides exterior appearance similar to clear glass



Fading Factors

While **Sungate 460** (3)/(5) glass blocks **95%** of damaging UV energy, it also blocks other contributors to fading – in all, **36%** better than a clear triple-glazed insulating glass unit.

- Helps protect interior furnishings, fabrics and carpets from fading



Note: Tdw-ISO represents potential fading damage caused by both UV and visible light. It is considered by the U.S. Department of Energy and the International Standards Organization (ISO) to be a more accurate barometer of fade resistance than UV transmittance alone. All comparisons are center of glass based on an insulating unit containing 3/4" insulating units; two 1/8" (3mm) glass lites and a 1/2" (12mm) air-filled space for the standard clear insulating glass and 90% argon gas-filled space for the Sungate® 460 insulating glass. Actual glass performance may differ due to glass thickness, gas fill and glass to frame ratio.

Solar Heat Gain Coefficient (SHGC) measures how well a window blocks (or shades) the heat from sunlight. SHGC is the fraction of solar radiation transmitted through a window, as well as the amount that is absorbed by the glass and reradiated to the interior. Figures may vary due to manufacturing tolerances. All tabulated data are based on the National Fenestration Rating Council (NFRC) methodology, using the Lawrence Berkeley National Laboratory's Window 7.4 software.



Vitro customers use our products to manufacture Energy Star compliant windows, doors and skylights.

