

American Institute of Architects Headquarters



CLEAR V-KOOL



***You can clearly see inside or out
- day or night - with V-KOOL!***

Cool and Clear

**Conserve Energy
By Blocking Heat
Without Losing
The Light**

Office
Retail
Shopping
Restaurants
Hotels
Hospitals
Schools
Residential

 **V-KOOL®**
The Clear Heat Control Film



V-KOOL is Your Ultimate Sun Barrier

The sun's infrared heat streaming through windows can cause inside temperatures to climb, driving up air conditioning costs. On commercial buildings, dark tints and reflective coatings affect the appearance of the building, detracting from its architectural integrity. Finally, there's a real solution — a product that actually solves the visibility and appearance problem while significantly reducing solar heat build up.



BOMB BLAST TEST DATA

V-Kool Secure 8 mil

TEST DATA

Impact

ANSI Z-97 Unlimited

CPSC 16 CFR Part 1201 Category 2

Blast Mitigation

Day Light38

Puncture Strength

ASTM D-4830-88 129 lbs

Tear Strength

ASTM D-1004 >18lbf

ASTM D-2582 33.02 Average Tear

Surface Burn Characteristics

ASTM E-84

Flame Spread Index "A" rating

Smoke Developed Index "A" rating

Physical Properties

Film Thickness008"

Structure Multiply Laminate

Tensile Strength 30,000 PSI

Break Strength240 lbs./inch(width)

AdhesivePSA

Peel Strength 5 to 6 lbs./inch

Block the Heat without Losing the Light (Daylighting)

No other product can match V-KOOL's performance. When applied to your windows, V-KOOL forms a virtually transparent barrier that blocks up to 65% of total heat. At the same time, V-KOOL eliminates over 90% of the Sun's infrared rays while allowing up to 70% of visible light to enter. That means less need for expensive air conditioning and electric lighting, making V-KOOL a great way to help control soaring energy costs.

V-KOOL also screens out 99% of the ultraviolet light that, in combination with infrared rays, causes materials and products to fade and can damage skin and eyes. And because it is not a tint, V-KOOL does not hinder your ability to see out at night.

Keep Cool.

Applied to your windows, V-KOOL blocks up to 65% of total heat and screens out over 90% of the sun's infrared rays that causes heat to hold.

Cut Costs.

Less of the sun's heat streaming through the windows means lower air conditioning bills, helping to protect you from soaring energy costs.

Stay Clear.

V-KOOL is virtually transparent so customers can see in, getting a better look at displays and merchandise. And at night, better security is provided because employees have no trouble seeing out.

Keep it Vivid.

V-KOOL eliminates 99% of the ultraviolet light that causes merchandise and furnishings to fade. And since V-KOOL is not a tint, colors in your display look brighter.

At Work with V-KOOL

V-KOOL's outstanding combination of solar heat protection, energy savings and clarity make it ideal for a wide variety of business applications.

Office Buildings

Because V-KOOL blocks the sun's heat without eliminating the light, it reduces air conditioning costs and reduces your dependence on electric lighting. It also protects the architectural integrity of building by eliminating the negative visual effect of tints and reflective coatings.

Retail Establishments and Shopping Malls.

V-KOOL is virtually transparent, so it maintains the outside visibility of store displays and merchandise. It protects furnishings from fading by screening out destructive ultraviolet rays. And because V-KOOL blocks the sun's heat without eliminating the light, it reduces air conditioning costs.

Restaurants

V-KOOL allows diners to see out and enjoy the view. To passerby, your restaurant open for business and airy, not closed and dark. V-KOOL also keeps the areas by windows cooler to allow you more useable seating areas.

Hotels, Hospitals, and Schools

Because V-KOOL blocks the sun's heat without eliminating the light, it reduces air conditioning costs and minimizes electric lighting requirements. It protects the architectural integrity of buildings by keeping windows clear. And it allows those inside to look out, providing a better view and additional security.

At Home with V-KOOL

V-KOOL is an excellent choice for new homes as well as for retrofitting existing windows. V-KOOL provides:

Important Solar Heat Protection and Energy Savings

V-KOOL blocks up to 65% of the total solar heat coming in through your windows. That translates into serious savings on lighting and air conditioning.

Outstanding Clarity

V-KOOL beautifully enhances visibility, letting in over 70% of the sun's natural light. And because windows don't need to be masked with drapes or curtains, tints or reflective coatings, V-KOOL protects the architectural integrity of your home while allowing much better views.

Superior Protection for Furnishings

The sun's ultraviolet rays can cause carpets or other fine fabrics to fade and can damage skin and eyes. V-KOOL blocks 99% of those harmful ultraviolet rays, providing important protection for people and furnishings.

Valuable Safety Protection

V-KOOL is also available in a strong, shatter-resistant safety film. In addition to providing sun protection this safety film offers protection from shattered glass and helps prevent "smash and grab" break-ins.

A Complete Product Line for Homes and Businesses

V-KOOL comes in four variations:

- **V-KOOL 40** blocks 65% of the sun's heat
- **V-KOOL 70** blocks 55% of the sun's heat
- **V-KOOL 75** blocks 44% of the sun's heat
- **V-KOOL Secure** blocks 55% of the sun's heat while offering important protection from flying debris, high winds, and other natural disasters and break-ins

To ensure a quality fit, V-KOOL is applied by highly trained professional installers, and all work is fully guaranteed. Every V-KOOL installation comes complete with a full warranty that guarantees that V-KOOL will perform to stated specifications without fading, discoloration, cracking, peeling, bubbling, adhesive failure, delaminating, or demetalizing (commercial = 10 year limited warranty, residential = limited lifetime warranty).



See for Yourself.

No other window film on the market can match the favorable combination of visible light transmission with low reflectance and high heat rejection as offered by V-KOOL.

V-KOOL 75

| | |
|-----------------------------|--------|
| Visible Light Transmittance | 77% |
| Ultraviolet (UV) Rejection | 99% |
| Visible Light Reflectance | 9.50% |
| Total Solar Energy Rejected | 45.50% |
| Infra-red Rejection | 77.00% |
| Total Solar Reflectance | 22.50% |
| Total Solar Absorptance | 30.20% |
| Total Solar Transmittance | 47.30% |
| Shading Coefficient | 0.63 |
| U-Value | 0.96 |
| Emissivity | 0.61 |
| Luminous Efficacy | 1.22 |

V-KOOL 70

| | |
|-----------------------------|--------|
| Visible Light Transmittance | 70% |
| Ultraviolet (UV) Rejection | 99% |
| Visible Light Reflectance | 8.00% |
| Total Solar Energy Rejected | 55.00% |
| Infra-red Rejection | 94.00% |
| Total Solar Reflectance | 26.50% |
| Total Solar Absorptance | 38.50% |
| Total Solar Transmittance | 35.00% |
| Shading Coefficient | 0.5 |
| U-Value | 0.94 |
| Emissivity | 0.6 |
| Luminous Efficacy | 1.4 |

V-KOOL 40

| | |
|-----------------------------|--------|
| Visible Light Transmittance | 42.80% |
| Ultraviolet (UV) Rejection | 99% |
| Visible Light Reflectance | 10.30% |
| Total Solar Energy Rejected | 64.50% |
| Infra-red Rejection | 98.30% |
| Total Solar Reflectance | 25.70% |
| Total Solar Absorptance | 53.60% |
| Total Solar Transmittance | 20.60% |
| Shading Coefficient | 0.42 |
| U-Value | 0.94 |
| Emissivity | 0.55 |
| Luminous Efficacy | 1.01 |

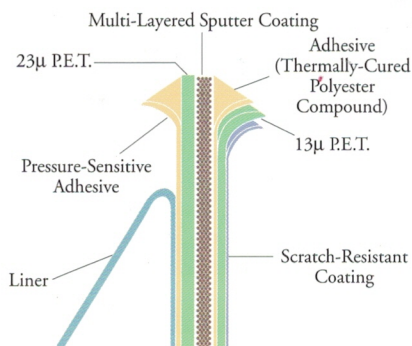
V-KOOL 70 Secure

| | |
|-----------------------------|--------|
| Visible Light Transmittance | 70% |
| Ultraviolet (UV) Rejection | 99% |
| Visible Light Reflectance | 8.00% |
| Total Solar Energy Rejected | 55.00% |
| Infra-red Rejection | 94.00% |
| Total Solar Reflectance | 26.50% |
| Total Solar Absorptance | 38.50% |
| Total Solar Transmittance | 35.00% |
| Shading Coefficient | 0.5 |
| U-Value | 0.94 |
| Emissivity | 0.6 |
| Luminous Efficacy | 1.4 |

| Product/Glass Type | Glass Thickness | | Transmittance | | Reflectance | | | Absorbance Solar | Solar Heat Gain Coefficient | Rejection Solar % | Winter Nighttime U-Value | | Summer Daytime U-Value | | Shading Coefficient |
|---------------------------|-----------------|-----|----------------|-------------|---------------|------|------------|------------------|-----------------------------|-------------------|--------------------------|------|------------------------|------|---------------------|
| | | | Daylight Total | Solar Total | Daylight Ext. | Int. | Solar Ext. | | | | Eng. | SI | Eng. | SI | |
| | | | | | | | | | | | | | | | |
| | Eng. | SI | % | % | % | % | % | % | | % | Eng. | SI | Eng. | SI | |
| V-Kool 70 on Single Pane: | | | | | | | | | | | | | | | |
| Clear Single Pane | 1/8" | 3mm | 90 | 93 | 9 | 9 | 9 | 10 | 0.85 | 15 | 1.11 | 6.29 | 1.03 | 5.85 | 0.93 |
| Clear Single Pane | 1/4" | 6mm | 89 | 77 | 9 | 9 | 7 | 16 | 0.81 | 19 | 1.09 | 6.19 | 1.03 | 5.85 | 0.97 |
| Clear/V-Kool | 1/8" | 3mm | 71 | 35 | 8 | 8 | 27 | 39 | 0.44 | 56 | 0.95 | 5.42 | 0.93 | 5.26 | 0.51 |
| Clear/V-Kool | 1/4" | 6mm | 69 | 33 | 8 | 8 | 21 | 46 | 0.44 | 56 | 0.95 | 5.69 | 0.93 | 5.26 | 0.51 |
| Green/V-Kool | 1/4" | 6mm | 61 | 25 | 7 | 8 | 8 | 67 | 0.41 | 59 | 0.94 | 5.34 | 0.96 | 5.45 | 0.48 |
| EverGreen/V-Kool | 1/4" | 6mm | 53 | 20 | 7 | 7 | 6 | 74 | 0.38 | 62 | 0.94 | 5.34 | 0.97 | 5.51 | 0.44 |
| Azurlite/V-Kool | 1/4" | 6mm | 57 | 22 | 7 | 7 | 6 | 72 | 0.40 | 60 | 0.94 | 5.34 | 0.97 | 5.50 | 0.46 |
| Blue/V-Kool | 1/4" | 6mm | 44 | 21 | 6 | 7 | 10 | 69 | 0.38 | 60 | 0.94 | 6.69 | 0.96 | 6.47 | 0.44 |
| Bronze/V-Kool | 1/4" | 6mm | 43 | 21 | 6 | 7 | 13 | 66 | 0.37 | 63 | 0.94 | 5.34 | 0.96 | 5.45 | 0.43 |
| Gray/V-Kool | 1/4" | 6mm | 36 | 18 | 5 | 6 | 10 | 72 | 0.36 | 64 | 0.94 | 5.34 | 0.97 | 5.49 | 0.41 |
| V-Kool 70 on Double Pane: | | | | | | | | | | | | | | | |
| Clear/Clear Float | 1/8" | 3mm | 81 | 69 | 16 | 16 | 13 | 18 | 0.75 | 25 | 0.94 | 2.79 | 0.55 | 3.13 | 0.87 |
| Clear/Clear with V-Kool | 1/8" | 3mm | 64 | 31 | 15 | 12 | 25 | 44 | 0.50 | 50 | 0.45 | 2.50 | 0.55 | 3.13 | 0.59 |
| Clear/Clear Float | 1/4" | 6mm | 79 | 61 | 15 | 15 | 12 | 28 | 0.70 | 30 | 0.48 | 2.74 | 0.55 | 3.15 | 0.81 |
| Clear/Clear with V-Kool | 1/4" | 6mm | 62 | 28 | 15 | 12 | 19 | 53 | 0.50 | 50 | 0.44 | 2.52 | 0.55 | 3.12 | 0.58 |

The Product of a Major Technology Advance

V-KOOL was originally developed for America's space and defense programs and represents an important breakthrough in surface and particle science. It works through a patented process known as sputtering in which tiny particles of exotic metals are embedded in optically clear, durable polyester film.

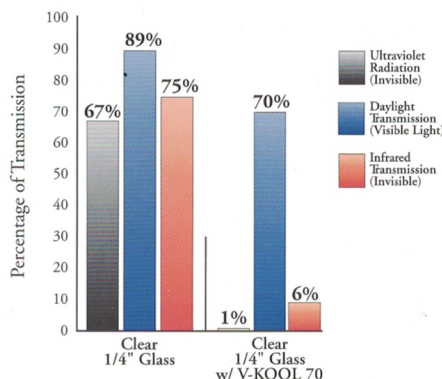


Small wonder then that Popular Science magazine recently selected V-KOOL technology as one of the most scientifically significant products of the past thousand years.

An Important part of Businesses All Across America

V-KOOL is used by a large number of companies, businesses and organizations. It can be found on the Stanford University campus, the American Institute of Architect's Building in Washington, D.C., Alltel Stadium, Hibernia Banks, Exxon Mobil, Texas A & M University campus, Chico's, Bass Pro Shops, University of Colorado, Circle K Stores, Michael's and Haircuttery.

V-KOOL is headquartered in Houston, Texas and is the exclusive worldwide distributor of V-KOOL Clear Window Coating. Products are manufactured for us in California by Southwall Technologies, an award winning U.S. technology company.



Technical Definitions:

Visible Light Transmittance

The percent of total visible light that passes through a glazing system.

Ultraviolet (UV) Rejection

The percent of total ultraviolet light that is rejected from passing through a glazing system.

Visible Light Reflectance

The percent of total visible light that is reflected by a glazing system.

Percent of Total Solar Energy Rejected

The percent of incident solar energy (heat) rejected by a glazing system which equals solar reflectance plus the part of solar absorption which is re-radiated outward.

Total Solar Reflectance

The percent of incident solar radiation that is reflected by a glazing system.

Total Solar Absorptance

The percent of incident solar radiation that is absorbed by a glazing system.

Total Solar Transmittance

The ratio of incident solar radiation that directly passes through a glazing system.

Shading Coefficient

The ratio of solar heat gain through a glazing system to the solar heat gain of a single lite double-strength glass. A measure of degree of efficiency of a glazing system to control solar energy.

Solar Heat Gain Coefficient

The ratio of the solar heat gain entering the space through the glazing system to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation which is the re-radiated, conducted or convected into the space.

U-Value

The overall coefficient of heat transfer by conduction equals the reciprocal of R value. The lower the U-Value, the better the insulating qualities of the glazing system.

Emissivity

A measure of the ability of a product to reflect long wave radiant energy. The lower the emissivity, the better the insulating quality of the glazing system.

Luminous Efficacy

The ratio of daylight transmission to solar heat transmissions which passes through a glazing system. This is determined by dividing the visible light transmittance by the shading coefficient. The higher the number the better it indicates how much the transmitted solar energy is useful visible light rather than heat.

Low E Window System

Glass with a transparent metallic coating applied onto or into a glass surface. Helps with winter heat loss not summer heat rejection.

Low E Squared Window System

Same as above with some solar heat control

