

KlymetShield™

Low Emissivity Glass

solos  glass
see the possibilities

KlymetShield™ Low Emissivity Glass

What is KlymetShield™?

Ideally suited to Australian climatic conditions, KlymetShield™ is a cost effective and readily available range of hard coated, Low Emmissivity, energy efficient glass.

KlymetShield™ is available in a range of clear, neutral, green and grey tones to match the levels of solar control and natural daylight required to complement the thermal insulation performance of the Low E glass coating.

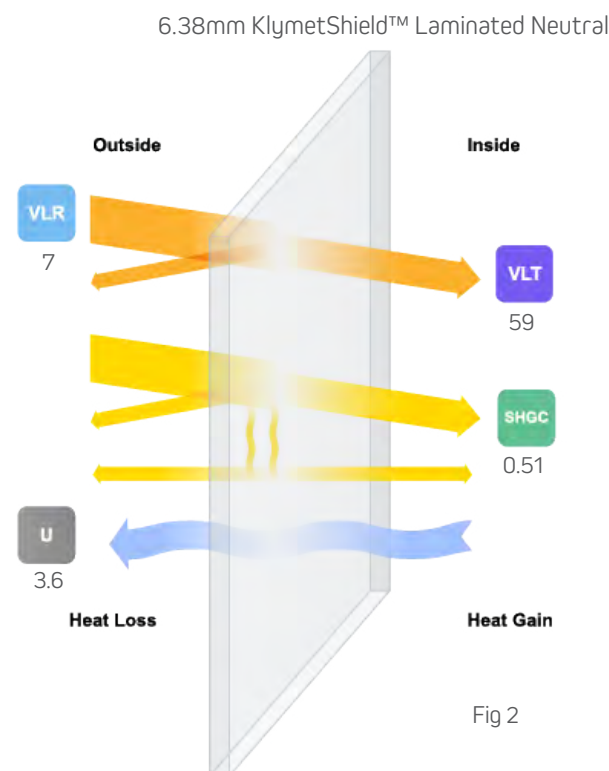
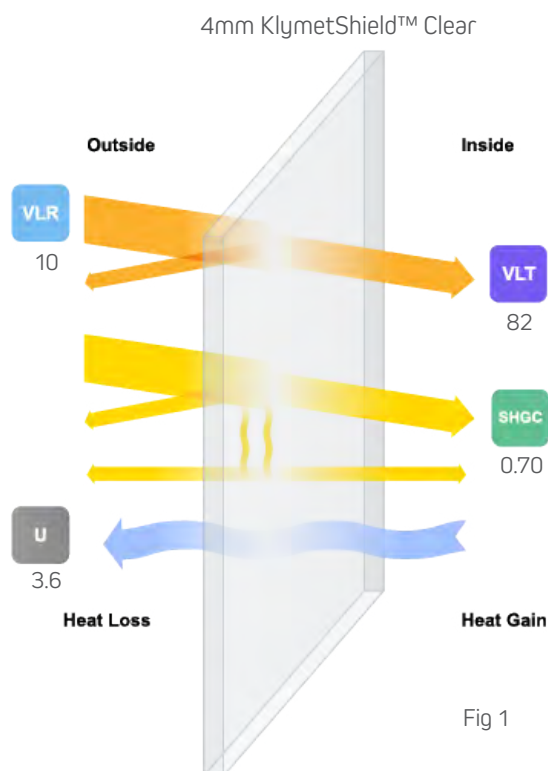
Available as a coated float glass in 4mm, 5mm, 6mm and 10mm* thicknesses as standard, KlymetShield™ is suitable to be single glazed in most domestic and commercial window suites. Available in standard annealed form, KlymetShield™ is also available laminated, toughened and heat soaked to meet the Grade A safety and regulatory requirements of AS/NZ1288 and as such is suitable for a wide range of window and door applications.

KlymetShield™ is equally suitable for facilitating BASIX compliance in NSW as a single glazed product in all its forms, or being used as one pane of a KlymetControl® double glazed unit (IGU) to further improve the overall energy efficiency properties of both the glass itself and the overall window system.

Single Glazed KlymetShield™

As a single glazed annealed, toughened or laminated product, KlymetShield™ is suitable for both commercial and residential window and door applications, providing improved energy efficiency in both Summer and Winter without compromising on acceptable levels of freely available natural light.

*Available in KlymetShield™ Clear only



KlymetShield™ Low Emissivity Glass

Single glazed Annealed and Toughened KlymetShield™

Whether specified in Commercial or Residential applications, for single glazed annealed and toughened KlymetShield™ the coating is always glazed to the inside of the building on surface 2.

Single glazed KlymetShield™ provides an excellent balance of both light transmission, thermal insulation (U value) and reduced solar heat gain (SHGC) when compared to both standard EnviroClear™ and EnviroTone™ products across the complete range.

KlymetShield™ single glazed performance data

Glass Product	Normal Thickness	Visible Light		Solar Energy		UV Trans.	U-value W/m2-C	SHGC	Shading Co.
		Trans.	Refl. Out	Trans.	Refl.				
KlymetShield™ Neutral (#2)	4	61	7	48	8	48	3.7	0.55	0.64
	6	60	7	46	7	46	3.7	0.54	0.62
KlymetShield™ Clear (#2)	4	82	10	66	10	49	3.7	0.70	0.81
	5	82	11	67	11	52	3.7	0.70	0.81
	6	82	10	66	10	49	3.7	0.70	0.81
	10	79	11	60	9	43	3.6	0.65	0.76
KlymetShield™ Grey (#2)	4	50	7	45	7	21	3.7	0.53	0.62
	6	40	6	37	7	16	3.7	0.47	0.55
KlymetShield™ Green (#2)	4	75	10	49	8	30	3.7	0.56	0.65
	6	71	9	39	7	23	3.7	0.49	0.57

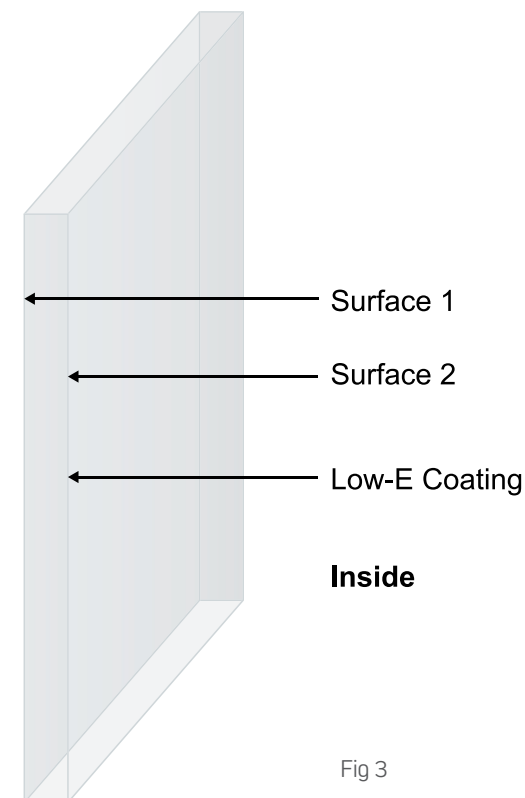


Fig 3

KlymetShield™ Low Emissivity Glass

KlymetShield™ Laminated

Available in 6.38mm, 8.38mm, 10.38mm and 12.38mm thicknesses as standard, KlymetShield™ Laminated is also available as a special custom laminated glass of various thicknesses to create a range of different energy efficient glass solutions for safety, security and decorative purposes.

When used in either Residential or Commercial applications, it is important that KlymetShield™ is glazed with the coating to the inside of the building on surface 4.

Offered in a range of toned options to provide different light transmissions and levels of solar heat gain (SHGC), KlymetShield™ Laminated offers improved levels of heat insulation over both clear and toned single glazed glass whilst providing excellent levels of solar control, low reflection and protection to furnishings from harmful UV rays. Because the product is laminated, it also provides Grade A safety to AS/NZ 1288 and is easily stocked, cut and processed.

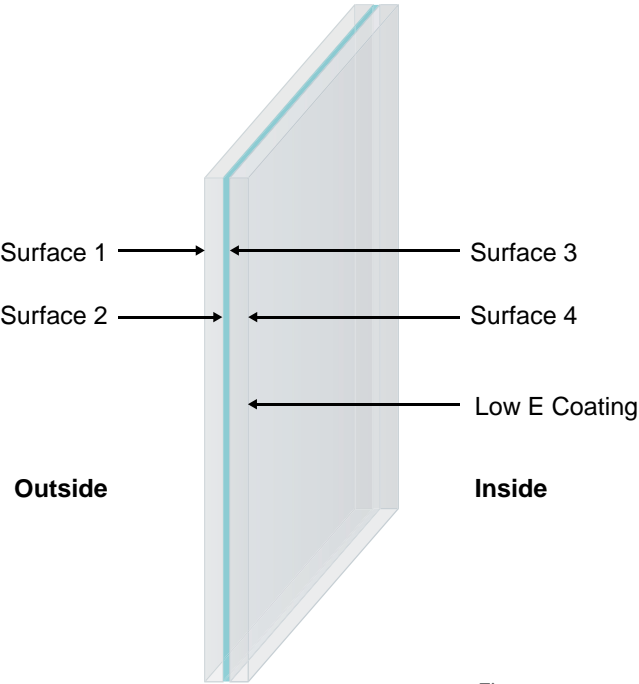


Fig 4

With a series of benefits including enhanced energy efficiency and solar control, Grade A safety and reduced UV transmission limiting fading of furnishings, KlymetShield™ Laminated continues to be the perfect mid range retrofit glass in residential applications for those wishing to upgrade from 3mm or 4mm clear glass in their windows without necessarily having the need to change their window frames.

With the increasing focus on the need to improve overall levels of energy efficiency in both Commercial and Residential buildings, whilst providing a range of additional benefits inherent to the product as shown in Figures 4 and 5, KlymetShield™ Laminated has increasingly been specified as part of a KlymetControl® IGU with the coating located on either surface 2 or 3 as shown in Figs 5 and 6.

KlymetShield™ Laminated performance data

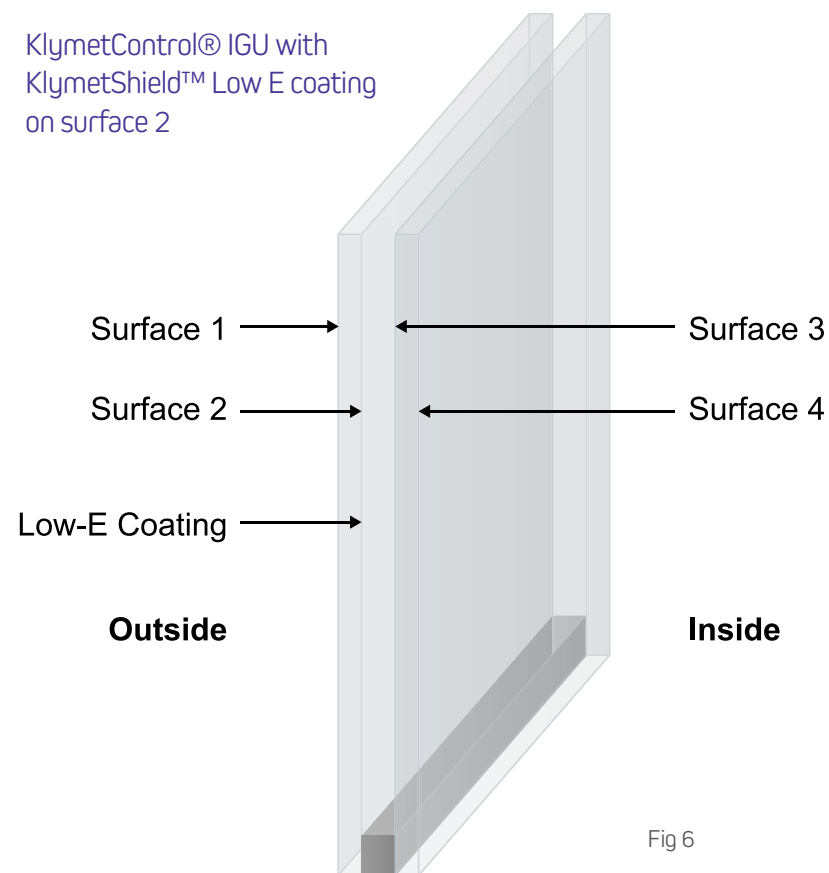
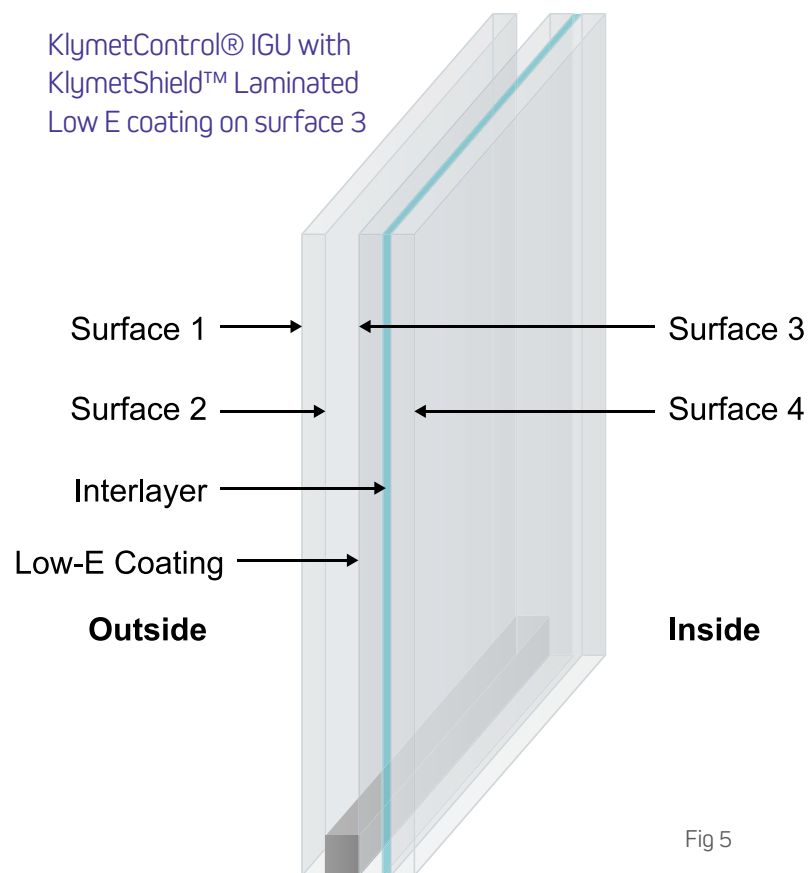
Glass Product	Normal Thickness	Visible Light		Solar Energy		UV Trans.	U-value W/m2-C	SHGC	Shading Co.
		Trans.	Refl. Out	Trans.	Refl.				
KlymetShield™ L Clear (#4)	6.38	82	10	64	9	<1	3.6	0.68	0.79
	10.38	79	11	58	9	<1	3.6	0.64	0.74
KlymetShield™ L Neutral (#4)	6.38	59	7	42	7	<1	3.6	0.51	0.60
	10.38	62	8	40	7	<1	3.6	0.49	0.58
KlymetShield™ L Grey (#4)	8.38	37	6	27	6	<1	3.6	0.39	0.46
	10.38	38	6	26	6	<1	3.6	0.39	0.46

KlymetShield™ Low Emissivity Glass

KlymetControl® IGU incorporating KlymetShield™ Low E glass

Glazed with the Low E coating on on either surface 2 or surface 3, KlymetShield™ provides a significant performance enhancement across a wide range of KlymetControl® IGU's. When glazed with the coating on surface 3, usually in its clear form, the main objective is to improve the thermal insulation or U Value performance of the IGU.

When glazed on surface 2, usually in its neutral or toned form, the main objective is to help reduce the solar heat gain (SHGC) into a building and hence reduce the heat load and improve occupier comfort. This can be achieved with either no or minimal impact on the thermal insulation (U Value) performance.



KlymetShield™ Low Emissivity Glass

KlymetControl® Double Glazing - incorporating KlymetShield™ Clear Low E backing glass (#3)

Float Glass	Normal Thickness	Visible Light		Solar Energy		UV	U-value W/m2-c 12mm Air	U-value W/m2-c 12mm Argon	SHGC	Shading Co.
		Trans.	Refl. Out	Trans.	Refl.	Trans.				
EnviroClear™	4+12+4	74	17	56	15	42	.9	1.6	0.69	0.78
	5+12+5	72	17	53	14	39	1.9	1.6	0.66	0.76
	6+12+6	73	16	52	14	36	1.9	1.6	0.66	0.76
EnviroTone™ Grey	4+12+4	45	9	38	10	23	1.9	1.6	0.51	0.59
	5+12+5	40	8	34	9	21	1.9	1.6	0.48	0.54
	6+12+6	35	7	30	8	16	1.9	1.6	0.43	0.49

Fig 7.
4mm EnviroClear™ with
4mm KlymetShield™ Clear
Low E (#3)

Fig 8.
4mm EnviroTone™ Grey with
4mm KlymetShield™ Clear
Low E (#3)

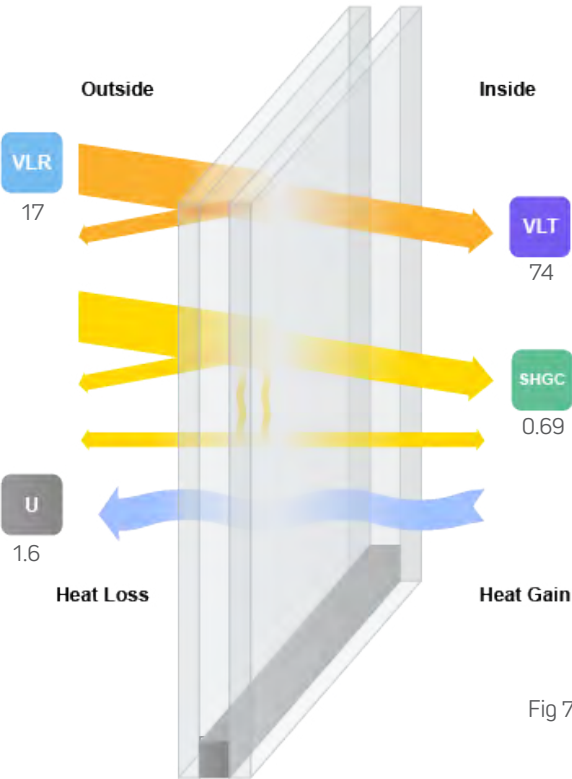


Fig 7

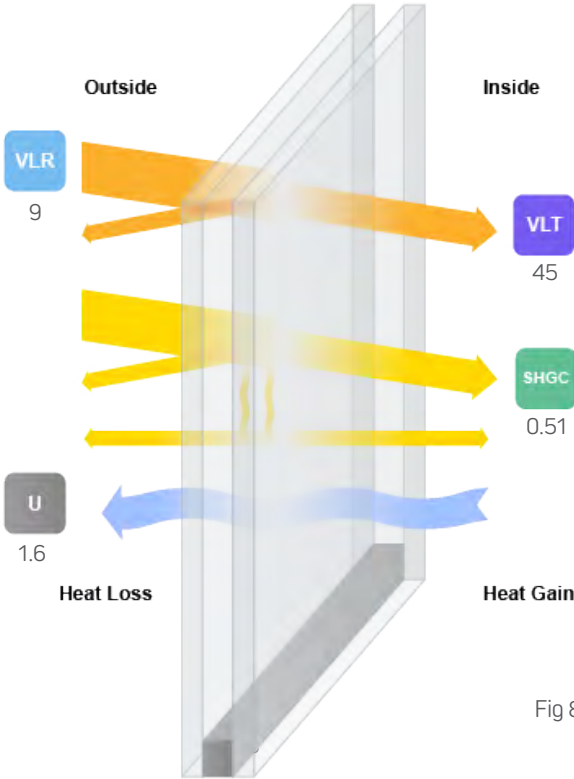


Fig 8

KlymetShield™ Low Emissivity Glass

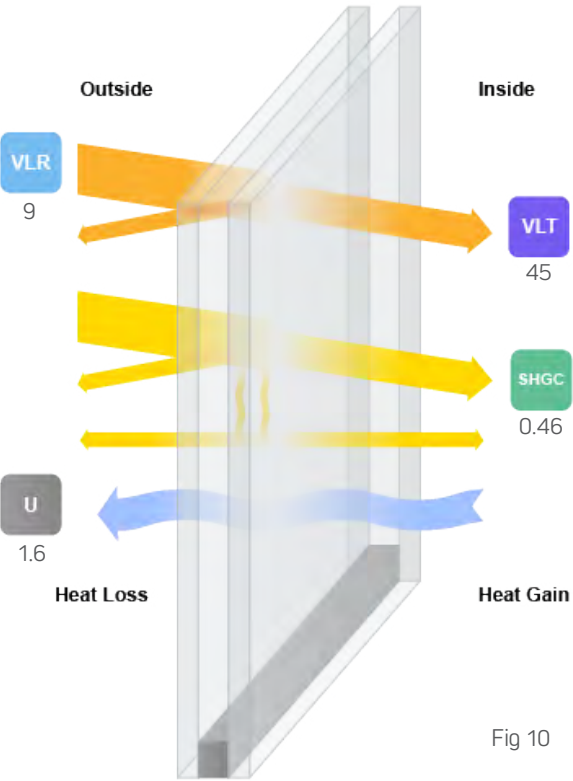
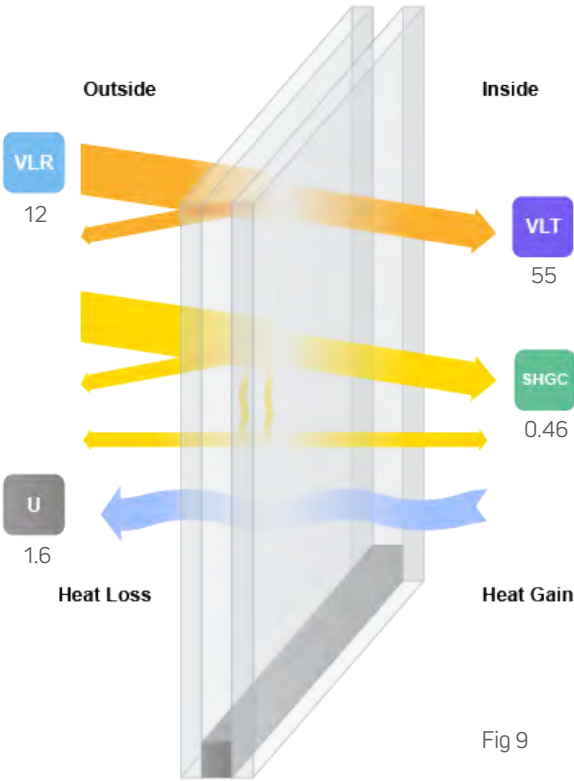
KlymetControl® IGU incorporating KlymetShield™ Neutral and KlymetShield™ Grey (#2) both with an EnviroClear™ backing glass

Glass Product	Normal Thickness	Visible Light		Solar Energy		UV	U-value	U-value	SHGC	Shading Co.
		Trans.	Refl. Out	Trans.	Refl.	Trans.	12mm air	12mm Argon		
KlymetShield™ Neutral #2	4+12+4	55	12	38	10	34	1.9	1.6	0.46	0.53
	6+12+6	56	12	36	10	30	1.9	1.6	0.45	0.52
KlymetShield™ Grey #2	4+12+4	45	9	38	9	18	1.9	1.6	0.46	0.53
	6+12+6	35	8	29	8	13	1.9	1.7	0.39	0.45

Further performance data is available in the [Resource Centre](#)

Fig 9.
4mm KlymetShield™ Neutral (#2)
with 4mm EnviroClear™

Fig 10.
4mm KlymetShield™ Grey (#2) with
4mm EnviroClear™



KlymetShield™ Low Emissivity Glass

KlymetShield™ - some points to consider

Helping to provide cost effective energy management

With its specialist Low E coating, KlymetShield™ is able to assist in the reduction of solar heat gain in Spring and Summer and the reduction of heat loss during Autumn and Winter as both a single glazed product and as part of a KlymetControl® IGU. KlymetShield™ helps to improve the overall solar control and thermal insulation performance of both commercial and residential window suites and reduces the reliance on artificial temperature control to either provide cool air in summer or warm air in Winter.



KlymetShield™ Low Emissivity Glass

Prevention of condensation

When single glazed, KlymetShield™ is not designed to prevent surface condensation forming on the glass, especially in colder climates during Winter.

To help reduce the level of any condensation, the use of KlymetShield™ as a component within an argon filled KlymetControl® IGU glazed in a suitable high performance glazing system is recommended here as the heat exchange across the gap between the inside and the outside of the building is reduced and the temperature of the inner glass surface is increased. Alternatively, the improved energy efficient performance of our range of OptEma™ Plus IGU's is an ideal solution.

Durability of the Coating

Because the coating on the surface of the glass is applied during the actual manufacturing process of the glass, the coating actually becomes a permanent part of the glass itself. As such, KlymetShield™ is a highly durable product, easily cleaned and suitable for both fixed and opening windows as well as doors and rooflights.

It is this durable pyrolitic coating technology which enables the coating to be exposed to the inside of the building when glazed as a single glazed product, enabling improved overall energy efficiency performance in a comparatively thin, light, yet easily maintained product.

Benefits

- Can be installed as either single glazed or double glazed
- As single glazed, suitable for most single glazed window frames for both new build and replacement/retrofit in either annealed, toughened or laminated form.
- Can be incorporated into a KlymetControl® IGU for even further enhanced energy efficiency and is suitable for most contemporary aluminium, timber or UPVC double glazed window suites.
- Highly durable pyrolitic Low E coating suitable for single glazing.
- Range of light and solar heat gain transmissions in combination with the Low E coating ensures that KlymetShield™ is suitable for all climatic conditions.
- Can be toughened and laminated to meet the requirements of AS/NZS 1288 to ensure suitability for all relevant applications.
- Cost effective and readily available energy efficient solution

Applications

- Windows, doors, atria, rooflights, skylights
- Renovations
- Retrofit glazing

Solar Control with Low E Glass

Whilst most types of uncoated glass have very similar and quite high U values, glass types which have a Low E coating applied to them have a much lower U value and are therefore much more energy efficient.

However the Low E coating does not just improve the level of insulation of the glazing by reducing the amount of heat lost to the outside, it also assists in reducing the amount of heat transferred from the outside to the inside of the building through the glazing.

The overall energy efficiency of the glass is also determined by the type of glass onto which the coating is applied (for example, clear float or toned), or whether the glass is single glazed, double glazed or double glazed with an inert gas, such as argon, in the airspace.

How does Low E work to reduce heat gain into a building

Glass absorbs both light and heat energy which is transmitted directly from the sun in the form of short wave infra red heat energy. That energy is subsequently either re-radiated away from the glass surface as long wave energy or moved away from the surface through convection.

Low E coatings do allow some direct transmission of short wave infrared radiation, allowing a proportion of the directly transmitted energy from the sun to be transmitted straight through the glass.

The low E coating blocks a % of the short wave radiation, absorbs it within the glass and re-radiates it outside, reducing the amount of heat being transferred to the inside of the building.

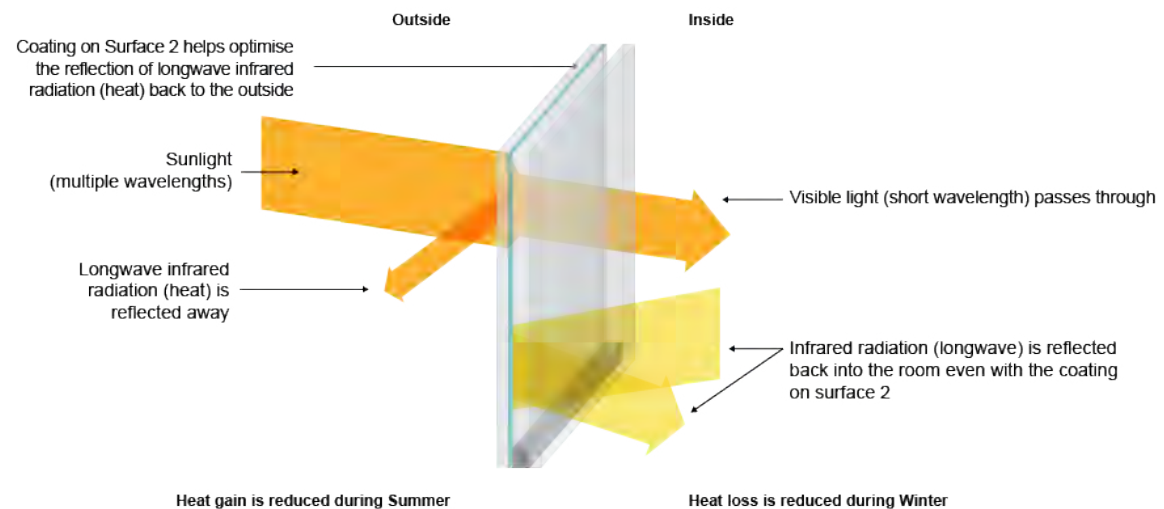
Additionally, because short wave radiation changes to long wave radiation when it hits the ground, cars, buildings etc, the coating on the glass helps further reduce the heat gain into a building by reflecting this long wave radiation back outside.

Whilst using a single glazed hard coated Low E glass, such as KlymetShield™ and having the coating facing the inside of the room will help to both reduce heat gain and heat loss, the most effective barrier to heat gain is to have Low E coating on surface 2 of an IGU.

Whilst an air gap in an IGU slows down the heat transfer through the IGU itself, placing the Low E coating on surface 2 reflects the heat from the sun before it gets to the air gap as well as slowing down the heat transfer even further.

In hot climates or to reduce the heat gain into buildings in Summer. this process is improved by having a solar control glass with a Low E coating applied to it as the outer pane of an IGU limiting the amount of heat transfer through to the Low E coating even further.

KlymetControl® IGU
With Low E Glass Coating on Surface 2



Solar Control with Low E Glass

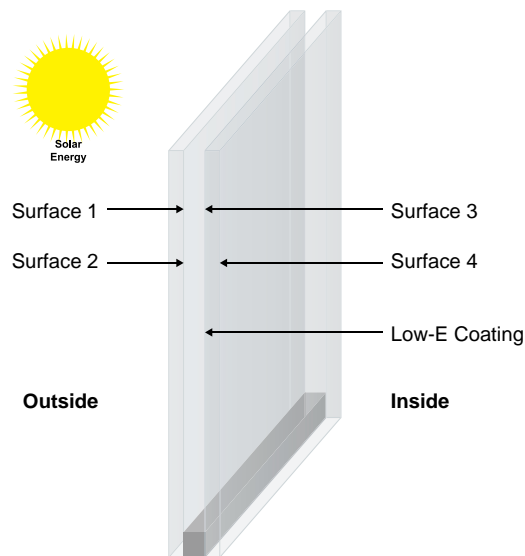
How does Low E work to reduce heat loss from a building?

The Low-E coating has the ability to filter out certain types of energy and as such is a more effective barrier to some wave lengths of light but not others. Low E coatings are particularly effective in reflecting Long Wave infrared heat energy.

Long wave infrared is the heat produced by our bodies, heaters and the furnishings in a warm room and it is the transmission through the glass of long wave infrared which is significantly reduced by the low-e coating.

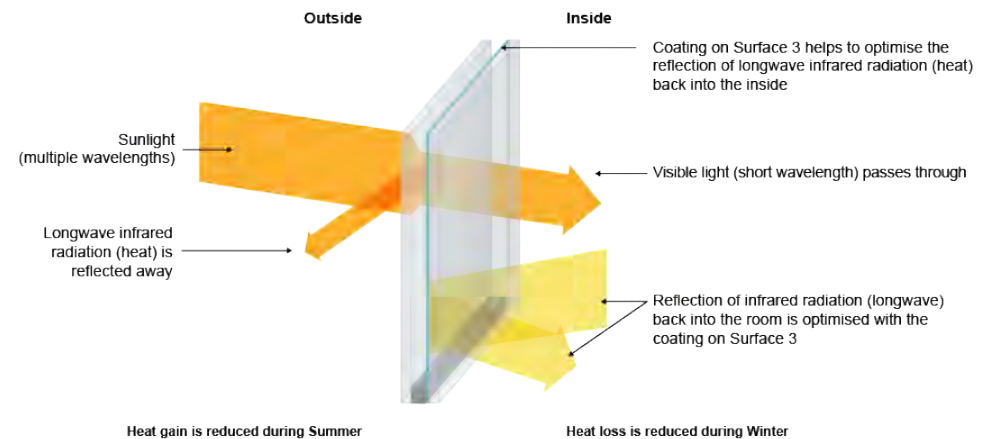
The Low E coating on the glass therefore reflects energy back into the room or office space, reducing the amount of heat escaping through the glass.

The most effective barrier to heat loss is to have the Low E coating on surface 3 of an IGU.

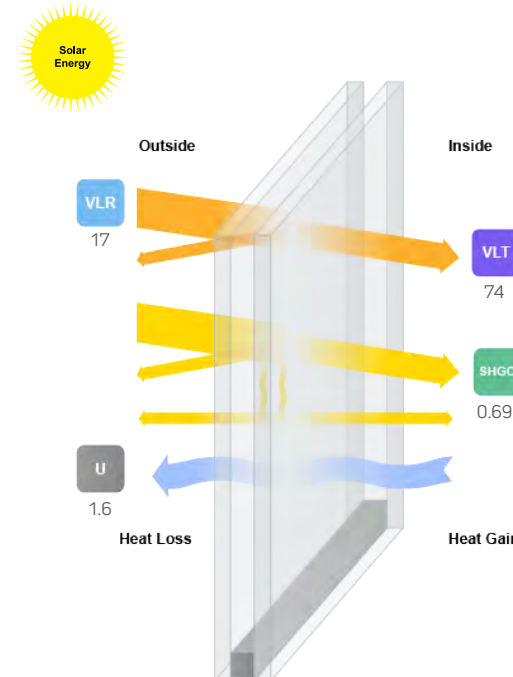


This improves the insulation, keeps the inside surface of the glass warmer therefore keeping the room itself warmer reducing the amount of heat required to be generated by central heating systems, gas, electric or wood burn heaters. In cold climates it also helps minimise any chance of condensation forming on the inside surface of the glass.

KlymetControl® IGU with Low E Glass Coating on Surface 3



KlymetControl® IGU with 4mm EnviroClear™ / 12mm argon / 4mm KlymetShield™ Low E (#3)



Solar Control with Low E Glass

Low E coatings with additional solar control

Recent improvements in CVD technology however also allows for a limited number of additional solar control interlayers to be applied through the same manufacturing process to further improve the overall performance of the Low E coated glass.

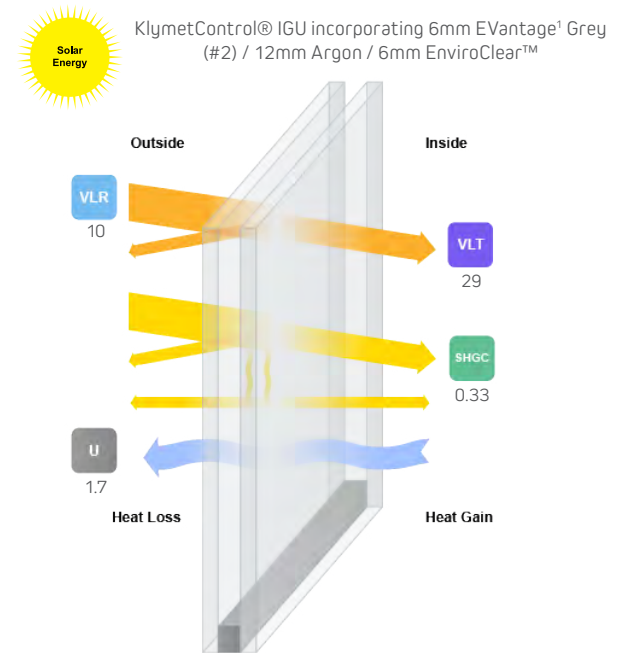
The result has been the development of solar control coated glass products with low emissivity (Low E) characteristics which provide both moderate to high levels of solar control, excellent daylight transmission, lower levels of internal and external reflectivity and high levels of thermal insulation.

Each solution provides different performance parameters with regards to the balance across SHGC, light transmission and thermal insulation. As such, with such a broad range of solutions on offer, the designer or specifier has a number of choices when choosing a buildings appearance as well as its performance characteristics.

In addition to KlymetShield™, the SOLOS Glass range includes a number of the World's leading Low E brands including EVantage*, SolTech* and Sunergy*. Because of the extremely durable nature of the pyrolitic coating, each can be single glazed or incorporated into a KlymetControl® IGU for enhanced performance.

*EVantage and SolTech are registered trademarks of Viridian.

Sunergy is a registered trademark of AGC Flat Glass Asia Pacific Pty Ltd



Solar Control with Low E Glass

The manufacture of Sputtered Soft coated glass

Whereas the pyrolitic method of hard coat coated glass manufacture can manufacture both reflective solar control coatings and less reflective Low Emissivity type glasses, Sputtered soft coating technology focuses on multi layered, high performing, thin film Low E coatings.

Unlike pyrolitic or hard coated glass which has the coating applied whilst the glass is being manufactured, soft coated glass is manufactured by applying multiple thin layers of silver and metal oxides to the glass surface by a sputtering deposition process undertaken after the glass has been manufactured. Each process creates different types of coatings with different properties and different levels of overall performance.



Whilst multiple layers of metallic oxides can be applied, the overall thickness of sputtered coatings are only about 1/10,000th of the thickness of a human hair.

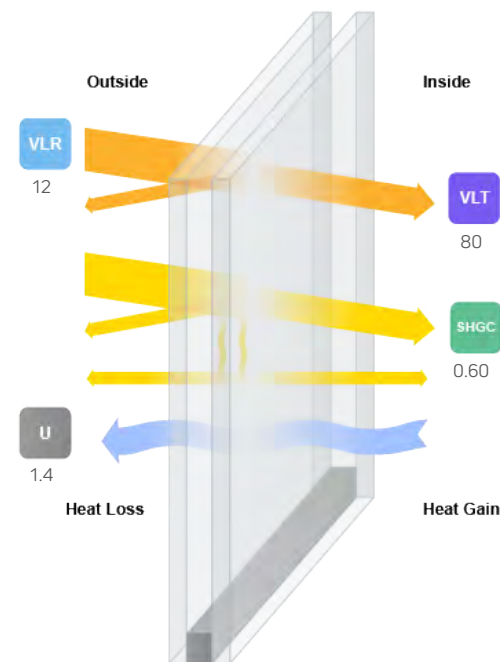
Often known as 'offline' coatings, sputtered coatings help create a finished glass product that is much more dynamic in performance than one utilising a pyrolitic, or hard, coating.

The benefits of sputtered Low E glass

Sputtered coatings have enabled an improved balance between SHGC and U value performance to be achieved when compared to clear and pyrolitically coated products, whilst also retaining high levels of light transmission.

Because of the 'soft' nature of Sputtered coatings, sputter coated Low E glass products require special handling and glass processing techniques and can only be glazed as part of an IGU. The coating faces the airspace on either surface 2 or 3, depending on whether the focus is on preventing heat gain or heat loss, which protects the coating from environmental conditions and also maximises the overall performance of the IGU. OptEma™ and CoolRay™ are examples of IGUs manufactured with a sputtered Low E glass.

OptEma™ IGU incorporating 4mm EnviroClear™ / 12mm argon / 4mm OptEma™ (#3)



Insulated Glass Units (IGUs)

What is an Insulated Glass Unit?

In its standard, uncoated form, glass is an excellent conductor, but a poor insulator. Indeed clear float glass can often increase the effects of extreme temperatures; rapidly overheating a room in the summer and allowing warm air to easily and quickly transfer through the glass from the inside of the room to the colder outside in winter.

It was in the late 1800's that it was discovered that two pieces of sealed glass with an air pocket in-between provided enhanced thermal insulation and helped to reduce the effect that both sunlight and exterior temperature had on the internal conditions of a building. This is because air is a poor conductor of heat, so having an air gap between the panes of glass in an IGU slows down the transfer of heat. Incorporating argon gas in the air space further reduces the heat transfer as does incorporating Low E coatings on the inside surface of the glass. However, it has only been relatively recently that IGU's (also known as Double Glazed Units) have become used more frequently in Australia both in commercial and residential applications.

Whilst the quality of the components have improved and manufacturing techniques have become increasingly automated, the basic premise of IGU's offering suitable levels of light for the occupants of the building whilst helping to provide better solar control and provide improved overall thermal insulation for the buildings envelope remains in place today.

An IGU consists of two (or three for a triple glazed unit) pieces of glass separated by a spacer and an air space. The air space is often filled with argon to help improve the overall thermal efficiency of the IGU because argon is a much better insulator than just air. SOLOS Glass fill all its IGU's with argon as standard. This is particularly valuable for residential applications where the emphasis is increasingly on minimising heat exchange through the window in all climatic conditions as well as improving overall thermal insulation in colder climates.

Traditionally using clear glass, improvements in the overall performance of the panes of glass used to manufacture an IGU, especially recently through the use of specialised coating technology, has meant a broad range of aesthetic and energy efficient performance options are now available for both commercial and residential applications.

Further the incorporation of specialised glass types within a KlymetControl®, OptEma™ or OptEma™ Plus IGU has seen the range of standard applications extended into the areas of safety, security, acoustic, decorative and other purposes to meet specific performance criteria in addition to just improved energy efficiency.

Manufacturing the IGU's

Initially the required panes of glass are cut and washed before being brought to the front of the IGU manufacturing line. For each IGU manufactured, one of two spacer types can be used; either an aluminium spacer or an OptEseal™ silicone warm edge spacer, each type of spacer having a range of different widths up to a maximum width of 20mm.

Aluminium Spacer

The spacer is cut to size and then bent at either three or four corners before the two ends of the bar are joined together with either a corner key (3 bent corners) or a straight connector (4 bent corners). The completed aluminium spacer has 2 of the 4 sides filled with dessicant which acts as a drying agent to absorb any moisture within the space which may have found its way into the IGU during manufacture or which may find its way into the IGU during its lifetime.

The finished spacer then has a primary seal made from polyisobutylene (PIB) applied to its perimeter along all four edges on both sides. The spacer is then applied to one piece of glass which has been automatically moved into position on the IGU manufacturing line.



Insulated Glass Units (IGUs)

The glass is then moved along the line into what's known as the 'Press'

The second piece of glass is then automatically moved into position in the Press and subsequently bonded to the PIB on the other side of the spacer.

Here the space between the two panes of glass is filled under vacuum with argon, an inert gas, which helps improve the overall energy efficiency of the unit itself.

The unit is then automatically moved along the IGU manufacturing line where a robot automatically fills the void between the spacer and the edge of the glass with a secondary seal made from either polysulphide or Silicone depending on the final application of the unit.

A polysulphide secondary seal is suitable for the vast majority of applications. However, due to its increased strength, bond and enhanced resistance to UV, heat, humidity and moisture penetration, a silicone secondary seal should be used for roof glazing applications, stepped units or where the secondary seal is exposed. Silicone sealed IGU's are the only type of IGU which should be considered for structural glazing applications.

Together, the primary and secondary seals are there to ensure that no air enters or leaves the unit and prevents any vapour from entering.

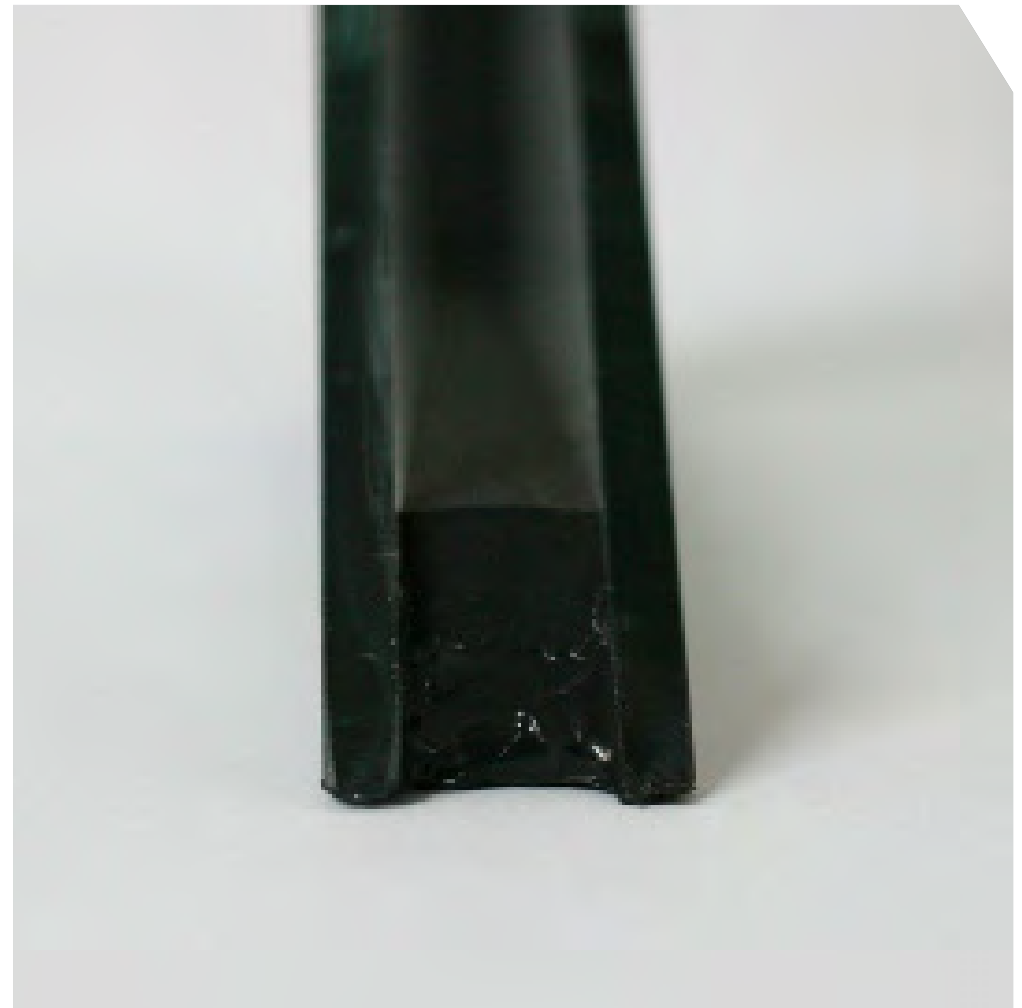
OptEseal™ Spacer

The manufacturing process is similar to that of an IGU incorporating an aluminium spacer with the exception being that in lieu of the aluminium spacer, the OptEseal™ spacer is robotically applied to the glass with the adhesion to the glass being ensured by a unique triple seal design which incorporates an inner acrylic adhesive seal, a polyisobutylene primary seal and an outer silicone seal all working together for enhanced structural strength and durability. The glass then moves through the press and into automatic secondary seal application in a similar manner to an IGU manufactured with an aluminium spacer.

Shaped IGU's

Available as part of the KlymetControl® range, shaped IGU's can be manufactured using OptEseal™, or, for simpler straight edge shapes, the standard black aluminium spacer bar.

The OptEseal™ spacer provides its own primary seal with the IGU, with either the polysulphide or silicone secondary seal applied during manufacture.



OptEseal™ Spacer

Insulated Glass Units (IGUs)

OptEseal™ - warm edge silicone IGU spacer

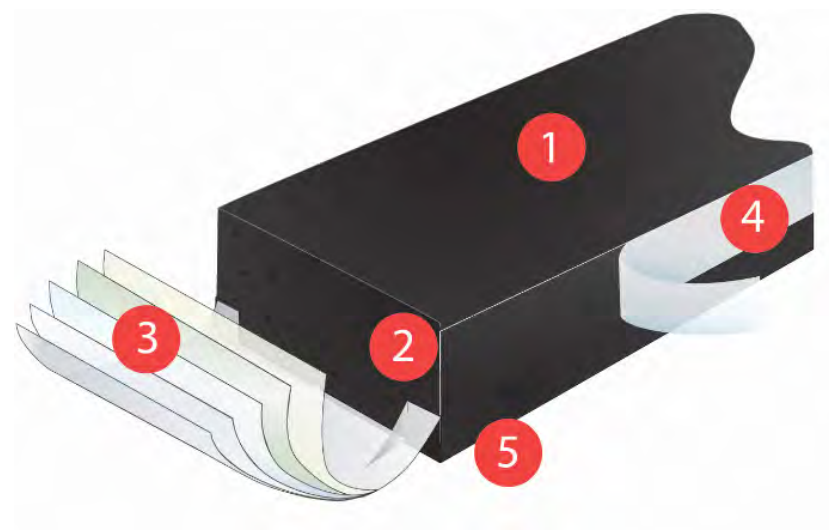
With up to 80% of a window's energy loss occurring at its edge, OptEseal™ is a specialist warm edge spacer designed to bridge the thermal gap between the glass and the edge of the frame. As such the edge of the glass pane becomes warmer in colder conditions providing additional protection from any condensation and an improved barrier to heat transfer. This is becoming increasingly important as higher performing UPVC, timber and thermally broken aluminium window suites become increasingly available for the residential market, improving the overall energy efficiency of the window, not just the glass.

Further, as pressure for improved structural strength and durability becomes at least as important as thermal performance in commercial glazings, the benefits associated with OptEseal™ in commercial IGU's become increasingly apparent.

	Aluminium Spacer	OptEseal™
Glass Surface Temperature	Poor	Excellent
Thermal Performance	Poor	Excellent
Condensation Resistance	Poor	Excellent
Edge Seal Integrity	Good	Excellent
Structural Strength	Excellent	Excellent
Dew Point Drop	Good	Excellent
Sound Absorption	Good	Excellent
Sealant Stress Reduction	Good	Excellent
UV Resistance	Excellent	Excellent
Desiccant Capacity	Excellent	Excellent
Wind Loading	Very Good	Excellent
Structural Glazing	Yes	Yes
Compatible with Performance Coatings	Yes	Yes

That's why we've incorporated OptEseal™ not only in our residentially aligned range of OptEma™ Plus IGU's, but also in our commercially aligned range of KlymetControl® Plus IGU's.

OptEseal™ Cross Section



1. Smooth, matt finish guaranteed against blistering and bubbling.
2. Thermoset silicone matrix
3. Proprietary multi-layer vapour barrier
4. Acrylic structural adhesive.
5. Captive PIB primary seal for triple unit seal longevity.

Insulated Glass Units (IGUs)

OptEseal™ - warm edge silicone IGU spacer

Improving Energy Efficiency And Comfort All Year Round

Windows and doors fitted with OptEseal™ warm edge spacer will help keep your home warmer in Winter and cooler in Summer. Unlike the aluminium spacer used in many double glazed units, OptEseal™ conducts less heat at the edge of the glass where most energy flow occurs, actively blocking the heat path and allowing your windows and doors to better manage the level of comfort in your home all year round.

The Best Place In The World

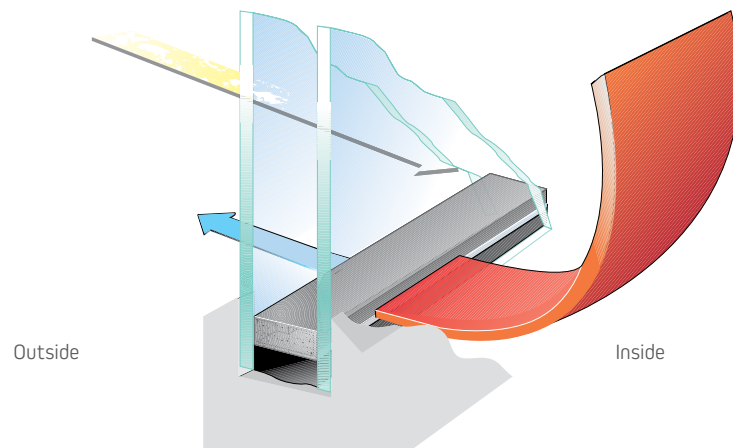
Home is important. So is saving energy, keeping your energy bills down and enjoying a comfortable living environment. Choosing windows and doors which are glazed with double glazed units (IGU) incorporating an OptEseal™ warm edge spacer is an important step in achieving this. It's time to relax and look forward to a more energy efficient future.



Insulated Glass Units (IGUs)

OptEseal™ - warm edge silicone IGU spacer

Window energy ratings are the easiest way to determine the overall energy performance of windows. In Australia, the Window Energy Rating Scheme (WERS) rates and evaluates the overall energy performance of windows and doors to assist specifiers and consumers in making better informed decisions. Rating the cooling and heating performance of a window or door on a scale of 1-10 stars, the WERS ratings take into account the heat losses through the glazing and framing material (U value), the energy losses arising from air leakage through the seals (Air Inf) and the solar heat gained from the sun (SHGC), as well as the level of light transmittance (T_{vw}). The more stars, the better the performance of the window or door. Choosing a window or door glazed with an OptEma™ Plus IGU incorporating an OptEseal™ spacer means you are choosing one of the highest performing energy efficient glazing systems available.



Enjoy The Peace And Quiet...

Want to unwind? It's easy - if you chose windows fitted with OptEseal™. They've been proven to reduce noise transmission by over 1 decibel when compared to IGUs manufactured with a comparable glass make-up using a standard aluminium spacer.



Insulated Glass Units (IGUs)

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A Happy, Healthy Home

We all want to make our homes as safe as possible. And that includes keeping allergens at bay. The mould caused by condensation on conventional windows can aggravate respiratory conditions like asthma. OptEseal™ helps reduce condensation by up to 70% - virtually eliminating mould growth and the bacteria it can lead to.

OptEseal™ - The benefits

Where OptEseal™ is the preferred choice of spacer, it provides a unique triple seal design which incorporates an inner acrylic adhesive seal, a polyisobutylene primary seal for enhanced gas retention and an outer silicone seal for proven structural strength and durability.

This translates to a number of valuable benefits:

- Improved occupancy comfort
- Exceptional energy savings
- Sleek sight lines
- Excellent UV resistance and colour stability
- Structural strength against wind and snow loads

At home with saving energy (and the environment, too)

Energy efficiency - everyone's talking about it. You will already be aware that energy costs are increasing and reducing our carbon footprint is something we all need to think about. It's important to choose double glazing that not only will improve your levels of comfort, but also really save you energy and money – long into the future.

SOLOS Glass manufacture 5 different suites of IGU products:

- The **KlymetControl®** product range, designed for use in both the residential and the commercial market which incorporates a broad range of glass types dependent on the final performance requirements
- The **KlymetControl® Plus** product range which incorporates OptEseal™, a warm edge spacer solution for superior thermal insulation performance, improved structural strength and enhanced durability
- The **OptEma™** product range, a superior performing IGU incorporating a specialised Low E glass manufactured specifically for the residential market
- The **OptEma™ Plus** product range which incorporates OptEseal™, a warm edge spacer solution for superior thermal insulation performance when glazed in a selected range of window and door suites
- The **CoolRay™** range of IGU's incorporates a multi layer Low E coating for superior SHGC reduction whilst maintaining high levels of light transmission combined with exceptionally low U vales; the perfect combination for medium to high rise commercial projects.