

Glossary of Terms:

ABOUT WINDOW FILMS

Definitions and Terms

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

A

Abrasion Resistant Coating

See [Scratch or Abrasion Resistant Coating](#)

Absorptance

See [Solar Energy Absorptance](#)

Absorption

See [Solar Energy Absorption](#)

Acid Etched / Privacy Film

An effect obtained by specialist window films similar to acid etched glass that diffuses light but keeps the visible light transmission to high levels.

Annealed Glass

Glass is made by a process of heating and mixing its constituents; annealed glass is produced from the hot liquid as a thin sheet, which is allowed to cool and harden under controlled conditions. See also [Float](#)

[Glass](#).

[Top](#)

B

b Value

See [Shading Coefficient](#)

Biaxially Oriented Film

Film that has been stretched in both the machine and transverse directions. See [Machine Direction](#) and [Transverse Direction](#).

Blackout Film

Film, black in colour, that has visible light transmission close to 0 % (typically < 0,25 %).

Break Strength

The ability of window film of a given type and thickness to resist breaking. The measurement is given in terms of force per unit width, such as Newtons per 25 mm or pounds per inch. Break strength varies greatly with film thickness and substrate type and is used to demonstrate the absolute strength of a strip of the material of a given width. See also [Tensile Strength](#).

BTU-British Thermal Unit

The amount of heat energy required to raise the temperature of one pound of water one degree Fahrenheit. 1 BTU = 252 Calories (Cal). The BTU has been superseded by the metric Joule; 1 BTU = 1054,35 Joules.

BTU Meter

A device that measures solar energy intensity and gives solar intensity in either W/m² or BTU/ft².hour. It is used to compare the solar intensity entering through glazing with and without solar control window film.

[Top](#)

C

Carbon Emissions

Emissions of carbon dioxide occur when fuels such as oil, gas and coal are burnt; carbon dioxide emissions is accepted as causing global warming; window film can reduce energy demands for cooling buildings and thereby reduce carbon emissions.

Color Rendering Index

A measure of how much a glazing product changes the colour of natural daylight passing through the glazing on a scale of 0-100; an Index of > 95 indicates suitability for even the most demanding of conservation requirements.

Containment System

A system that provides a means of additionally securing a safety film + glass combination to the frame, for example by adhering to both the film and the frame.

Core

A plastic tube or a resin impregnated cardboard tube used to hold window film.

Cross Direction

See [Transverse Direction](#).

Cure Time

The time required for the water used in the installation solution to evaporate from between the film and the glass and for the film's adhesive system to reach maximum bond strength.

[Top](#)

D

Decibel (dB)

A unit of power loss or attenuation used in EMI/RFI shielding: 1 decibel = $10 \log (\text{Power in}/\text{Power out})$. 3dB attenuation is a fifty percent power reduction.

Detackified Pressure Sensitive (DPS) Adhesive

See [Pressure Sensitive Adhesive](#)

DGU

Double Glazed Unit, also known as double glazing. Modern forms contain coatings and/or gas fillings to improve their insulating properties and are known as IGUs or Insulating Glass Units.

Direct Solar Reflectance

See [Solar Energy Reflectance](#)

Direct Solar Reflection

See [Solar Energy Reflection](#)

Direct Solar Transmittance

See [Solar Energy Transmittance](#)

Direct Solar Transmission

See [Solar Energy Transmission](#)

Double Glazing

See Insulating Glass Unit.

Dry Adhesive

An adhesive that is initially dry to the touch but is activated by water; pressure sensitive adhesives are sticky to the touch. It provides a very hard and extremely durable chemical bond to the glass with no optical distortion which can sometimes occur with thicker PS adhesives. Used in window films for architectural

applications for maximum durability and optical clarity. Cure time can vary according to film type, temperature, and humidity but in reasonable environmental conditions is normally about 7 days.

Dual Reflectance

A window film that has higher visible light reflectance to the outside than to the inside in order to improve ease of viewing to the outside, especially at night.

Dyed Film

A window film with a color added within its structure.

[Top](#)

E

E-Beam Deposition

See [Electron beam \(e-beam\) deposition](#).

Edge Retention System

See [Containment System](#).

Electromagnetic Radiation

Electromagnetic radiation concerned with glazing includes UV light, visible light, infra red heat; solar radiation contains all these components. Solar radiation concerned with glazing is not radioactive. See also

[Solar Energy](#).

Electromagnetic Spectrum

The electromagnetic spectrum includes infra-red energy, visible light and UV light. It includes wavelengths from more than 100 000 kilometers (with a frequency of 3 Hertz) to wavelengths of 0,000000001 millimetres (with frequencies of > 1020 Hertz). The solar radiation that reaches Earth is a very small part of this range, typically 300-2500 nm (0, 0000003 to 0, 0000025 meters). See [Nanometer or nm](#).

Electron Beam (E-Beam) Deposition

A manufacturing process used to deposit layers of metal or alloys (even those with high melting points) onto polyester film surfaces using an electron beam; very fast deposition rates are possible.

Elongation at Break

The percent increase in length of a sample of film at break when tested according to a recognised test method. Elongation is the film's ability to stretch without breaking. See [Break Strength](#), [Tensile Strength](#).

Elongation at Yield

The percent increase in length of a sample of film at break when tested according to a recognized test method. Elongation is the film's ability to stretch without breaking.

Emissivity

A measure of the ability of a surface to absorb and re-radiate energy. A low value reduces the rate of heat flow through the glazing; window films can reduce emissivity of glazing to less than 0,4.

Energy Savings

The savings that can be achieved in air conditioning costs by using solar control window film to reduce the amount of solar energy entering into a building through the glazing.

F

Fading and Fade Reduction

Fading is seen as color changes in fabrics, paintings, furniture, etc. and is caused by Ultra Violet light, visible light, infra red energy, air humidity and other factors. Fading cannot be stopped but the rate of fading can be

reduced. Window film can help to reduce fading, for example by reducing UV transmission to < 0,1%. Materials that fade quickly in sunlight cannot normally be protected sufficiently by window film against fading. See also [Solar Energy Damage](#).

Far Infra-Red

See [Infra-Red Radiation](#).

Film to Glass Thermal Stress Compatibility

See [Thermal Stress Compatibility](#).

Film Thickness

Thickness of window film is usually measured in microns (millionths of a meter or thousandths of a millimeter).

Fire Safety

Window film, if correctly installed, when burnt has low risk of propagating and spreading a fire, low toxicity, and low smoke emission.

Float Glass

Float glass made by the process developed by Pilkington using hot liquid tin – the hot liquid glass floats on the liquid tin surface. The hot glass is slowly cooled to release internal stresses from the glass and thereby enable the glass to be used in other processes such as cutting to specified sizes. Over 90 % of annealed glass worldwide is made by the float method.

[Top](#)

G

G Value

The total amount of solar energy that goes to the inside of the building by reflection and by absorption / re-radiation; window film can reduce g values to as low as 0,17. Occasionally, the g value is given as a percentage but this is not strictly in accordance with EN standards. See also EN standards.

Gasket

A plastic or rubber insert used around the perimeter of a window to prevent contact between the glazing and the frame; it is often also used as a weather seal.

Gauge

See [Film Thickness](#).

Glare Reduction

The percentage reduction in the amount of visible light transmitted by the glazing compared with that transmitted by 3 mm clear glass; window film can provide Glare Reduction of up to 95 %. See also [Blackout Film](#).

Glass Strength

Glass does not have one specific strength but a range of strengths. Glass strength is dependent upon a number of factors including thickness, type, processing conditions, and whether it is damaged or not. Type of glass: As a guide, heat strengthened glass is up to 3 times stronger than float glass and tempered glass is up to 5 times stronger than float glass. See also [Float Glass](#), [Heat Strengthened Glass](#), and [Tempered Glass](#).

Glass Surface

Glazing surfaces are counted starting at the exterior surface and finishing at the interior surface; a double glazed unit of two panes of glass separated by an air space has four glass surfaces.

Global Warming

The effect identified by scientists of world temperatures increasing because of carbon dioxide emissions from the burning of coal, oil, gas and other fuels. Sometimes called the [Greenhouse Effect](#) of the Earth.

Graffiti

Unwanted damage to glass and other surfaces by scratching, painting, etching and other means; window film can protect glass and other surfaces against graffiti. See [Sacrificial Window Film](#).

Greenhouse Effect

The effect where interior of buildings, vehicles, etc. increase in temperature by the transmission of solar radiation through the glazing but, because glazing is more opaque to long wave than short wave [infra-red energy](#), this heat cannot escape easily. See also [Global Warming](#).
[Top](#)

H

Hazard Rating

A system of rating the hazard produced from glass shattered in an explosion. Hazard ratings are obtained from standardized tests and range from No Hazard to High Hazard.

Heat Loss Reduction

An amount of energy is transferred through glazing by conduction, convection, and radiation; the higher the rate of energy transfer, the greater the heat loss in winter. The addition of an insulating window film to a glazing system reduces the loss of energy, i.e. reduces heat loss usually from the building to the outside, and is expressed as a percentage.

Heat Mirror

A window film that has high visible light transmission relative to its solar energy rejection. See also [Visible Light Transmission](#), [Total Solar Energy Rejection](#) and [Luminous Efficacy](#).

Heat Strengthened Glass

A glass that has been through an additional heat treatment process to make it 2-3 times stronger than annealed glass.
[Top](#)

I

IGU

See [Insulating Glass Unit](#) .

Infra-Red Radiation

Wavelengths of electromagnetic radiation from 780 nm to about 60 000 nm; near infra-red is about 780-2500 nm and far infra-red is about 2500-60 000 nm. Solar radiation contains a large amount of infra red radiation between 780 nm to 2500 nm. This type of radiation is not radioactive.

Installation

The process of installing a window film to glass using an appropriate [Installation Solution](#); correct installation by trained professionals is essential to ensure good performance and durability of the window film.

Installation Solution

Solution used during the installation of window film; it is specifically used to assist with film positioning and to prevent too-fast adhesion of the film to the glass.

Insulating Glass Unit

Glazing constructed from two panes of glass; the main use of insulating glass is to reduce the rate of heat flow through the glazing. Insulating Glass Units are often used to reduce heat loss from buildings in the winter, but are also used in hot climates to reduce solar heat gain by the building. Modern Insulating Glass Units have coatings on one or both surfaces that face in towards the space between the two panes of glass; these coatings reduce energy transfer through the glazing and are nowadays significant in reducing energy consumption. See also [Solar Heat Gain](#).
[Top](#)

J

K

K Value

K value is an obsolete term and has been replaced by the U value. See [U value](#).
[Top](#)

L

Laminated Glass

Laminated glass is made from two or more pieces of glass with a plastic interlayer, usually polyvinylbutyral (PVB). Annealed, heat strengthened or tempered glass can be used to produce laminated glass. Laminated glass, if constructed correctly, is a safety glass and is designed to either not break or to break safely upon impact with a low risk of injury from broken glass fragments.

Laminated Film

Window film made from two or more layers of polyester or other film adhered together with an adhesive.

Longitudinal Direction

See [Transverse Direction](#).

Low-E

An abbreviation for Low-Emissivity. See also [Emissivity](#).

Low-E or Insulation Film

Window film with low emissivity coating(s) designed to reduce heat loss through glazing. See also [Emissivity](#) and [Heat Loss Reduction](#).

Luminous Efficacy

A measure of how effective a glazing product is in rejecting solar energy but retaining good visible light transmission. A number great than 1 indicates the film or glazing unit is "spectrally selective," blocking more of the near infrared than the visible light components of the solar spectrum. It is calculated according to the equation:

[Top](#)

M

Machine Direction (MD)

The direction along the length of a roll of window film.

Metalizing

A manufacturing process used to deposit a metal onto polyester film surfaces by evaporation; the metal is usually Aluminum. Metalized window film provides excellent solar control.

Micron

One millionth of a meter or one thousandth of a millimeter.

[Top](#)

N

Nano- technology

From Wikipedia, the free encyclopedia

Nanotechnology or, for short, **nanotech**, refers to a field of [applied science](#) whose theme is the control of matter on an [atomic](#) and [molecular](#) scale. Generally nanotechnology deals with structures 100 [nanometers](#) or smaller, and involves developing materials or devices within that size.

Nanotechnology is a highly diverse and [multidisciplinary](#) field, ranging from novel extensions of conventional [device physics](#), to completely new approaches based upon [molecular self-assembly](#), to developing [new materials](#) with dimensions on the nanoscale, even to speculation on whether we can [directly control matter on the atomic scale](#).

There has been much debate on the future [implications of nanotechnology](#). Nanotechnology has the potential to create many new materials and devices with wide-ranging [applications](#), such as in [medicine](#), [electronics](#), and energy production. On the other hand, nanotechnology raises many of the same issues as with any introduction of new technology, including concerns about the [toxicity](#) and environmental impact of nanomaterials, and their potential effects on global economics, as well as speculation about various [doomsday scenarios](#). These concerns have led to a debate among advocacy groups and governments on whether special [regulation of nanotechnology](#) is warranted

Near Infra-Red

See [Infra-Red Radiation](#).

Neutral Color

Usually refers to films that have a high Color Rendering Index (> 90). See [Color Rendering Index](#).

Nanometer or nm

One millionth of a millimeter or 0,000000001 m.

[Top](#)

O

Optical Properties

See [Solar-Optical Properties of Glazing](#).

[Top](#)

P

Pascal

The metric unit of pressure abbreviated Pa. 1 Pascal = 1 Newton / m². Tensile strength is usually measured in millions of Pascal or Mega Pascal, abbreviated MPa.

Peel Strength

The adhesive strength of a window film in grams per 25 mm width, and is usually tested in accordance with an appropriate standard. It is generally measured as the force required peeling the film from the glass using a peel angle between the film and the glass of close to 180°. Safety and security films have high peel strength.

Performance Time

The time required for safety / security film to achieve a minimum level of safety performance to an impact test such as EN 12600. This can be as low as a few hours but very thick and/or metallised and/or sputtered versions can take 1-3 days. Installation quality has a very significant effect on the time needed to achieve a minimum level of performance.

PET

See [Polyester Film](#).

Polyester Film

Polyester, as a biaxial oriented film, is the main constituent of window film; it has excellent optical clarity and strength. Its chemical name is polyethylene terephthalate, abbreviated to PET.

Polyvinyl Butyral

See PVB.

Pressure Sensitive Adhesive (PSA)

Pressure sensitive adhesive is sticky to the touch and remains so during its lifetime. It provides faster adhesion to glass than dry adhesives but durability can be lower; a small amount of optical distortion may be present, especially for safety and security films. DPS (Detackified Pressure Sensitive) adhesives are simply PS adhesives coated with a water soluble layer (intended to prevent the film from sticking to itself as the liner is removed) which must be washed away before the film installation. Cure for PS films averages three days, though this time is a function of temperature, humidity, and film type and may require up to 30 days in some situations. Some safety and security films can take longer to achieve full cure but this should not be confused with time to achieve performance. See [Cure Time](#), [Performance Time](#).

Privacy Film

Window film that, once correctly installed, reduces or prevents vision through glazing.

Puncture Strength

The puncture strength of a window film is given in kilograms or pounds. It is generally measured using a standardized test method as the resistance the film gives to a blunt probe forced through it.

PVB

PVB, or Polyvinyl Butyral, is a material used to adhere glass layers together to make laminated glass.

Q

R

Release Liner

A disposable plastic film covering and protecting the adhesive layer on the window film.

[Top](#)

S

Sacrificial Window Film

Window film used to protect glass surfaces from accidental damage or deliberate attack. Sacrificial film can protect from scratching, 'tagging', acids including etching acid, paint, and felt tip pens. The cost of removal is often very much less than the cost of replacing the glass; public transport vehicles need not be taken out of service for long periods of time.

Safety and Security Film

Window film that, when correctly installed to glass, modifies the glass to one or more of the following:

- a safety glazing impact resistant material according to a recognized standard such as EN 12600 "Glass in building. Pendulum test. Impact test method and classification for flat glass";
- a security glazing material resistant to manual attack according to a recognized standard such as EN 356 "Glass in building. Security glazing. Testing and classification of resistance against manual attack";
- a security glazing material resistant to bullet attack according to a recognized standard such as EN 1063 "Glass in building – Testing and classification of resistance against bullet attack";
- a security glazing material resistant to explosive pressures according to a recognized standard such as EN 13541 "Glass in building – Testing and classification of resistance against explosion pressure"

Window film has been extensively used for protection against deliberate attack on glazing, and is regularly specified by Governments and commercial organizations for protection against glass shattered in an explosion.

Safety Glazing

Glazing which complies with the requirements of an impact test; EN 12600 is the European standard for assessing safety glazing. Window film has been extensively tested to prove compliance with EN 12600. See also [Safety and Security Film](#).

Scratch or Abrasion Resistant Coating

A coating on the surface of many window films, applied during the manufacturing process, that resists abrasion; it is usually hard.

Security Glazing

There are various types of security glazing and specification needs to be careful to ensure the correct type is selected. Security glazing can resist manual attack (EN 356), reduce the effects of an explosion, or reduce the effects of bullet attack. See also [Safety and Security Film](#).

Shading Coefficient

A measure of the amount of solar energy that goes to the inside of the building by reflection and by absorption/re-radiation compared to the performance of 3 mm clear glass; it is being superseded by the g value.

Solar Control

Reduction by the glazing of the amount of solar energy passing through the glazing.

Solar Control Window Film

Window film that, once correctly installed, provides [Solar Heat Gain Reduction](#), [Glare Reduction](#), [Fading and](#)

[Fade Reduction](#), or a combination of these properties. Benefits include reduced summer temperatures inside buildings, reduced air conditioning costs, reduced eye strain, and reduced fading and damage to paintings, furniture, carpets, etc.

Solar Energy

The energy from the sun reaching the Earth's surface; it is generally in the wavelength range of 300-2500 nm. This type of radiation is not radioactive.

Solar Energy Absorptance

The portion of solar energy that is absorbed by the glazing expressed as a decimal.

Solar Energy Absorption

The portion of solar energy that is absorbed by the glazing expressed as a percentage.

Solar Energy Damage

UV is not the only cause of fading and damage to property; visible light and infra-red energy also cause damage. See also [Fading](#).

Solar Energy Reflectance

The portion of solar energy that is reflected by the glazing expressed as a decimal.

Solar Energy Reflection

The portion of solar energy that is reflected by the glazing expressed as a percentage. Not to be confused with [Total Solar Energy Rejection](#).

Solar Energy Rejection

See [Total Solar Energy Rejection](#)

Solar Energy Transmittance

The portion of solar energy that passes directly through the glazing into the building expressed as a decimal.

Solar Energy Transmission

The portion of solar energy that passes directly through the glazing into the building expressed as a percentage.

Solar Factor

See [g value](#).

Solar Heat Gain

The solar energy gained by a building from the sun and experienced as heat and / or as a temperature increase. Solar control window film can give significant reduction in solar heat gain.

Solar Heat Gain Coefficient

See [g value](#).

Solar Heat Gain Reduction

The reduction in solar energy gained by a building from the sun, often by the addition of [Solar Control Window Film](#).

Solar-Optical Properties of Glazing

Solar-Optical properties of glazing – including window film on glass – are determined in accordance with EN 410 “Glass in building. Determination of luminous and solar characteristics of glazing”. According to EN 410, the most important values are the visible light transmission and the g value. Other properties such as solar energy transmission, visible light reflection, etc. can also be obtained using EN 410. See also [U value](#).

Solar Overheating

This occurs when solar energy entering the building causes room temperatures to be too high for workplace comfort. Solar control window film can considerably reduce solar overheating.

Spectrally Selective

Glazing that allows high visible light transmission with good solar energy rejection. See Luminous Efficiency. See [Luminous Efficacy](#).

Sputtering

A manufacturing process used to deposit layers of metal, alloys, oxides, etc. onto polyester film surfaces; the process itself does not make the product better than metalized films, but the metals, alloys, etc. offer alternative properties to Aluminum.

Strength of Glass

See [Glass Strength](#).
[Top](#)

T

Tempered Glass

Glass, treated by heating and rapid cooling, to make it 3-5 times stronger than annealed glass.

Tensile Strength

The maximum force per original cross section area that a material resists before breakage when tested according to a recognised test method. The Tensile Strength of a material does not vary with thickness (for the same material of the same composition, tested in the same direction and under the same conditions).

Thermal Comfort

The condition, including reasonable temperature and glare levels, that allows employees to be comfortable at their place of work. Solar control and insulation window films improve thermal comfort.

Thermal Stress

Stress in a glass pane caused by one part of the glass pane being at a different temperature from another part of the same glass pane.

Thermal Stress Breakage

A break in glass that is caused by thermal stress; the typical feature of a thermal stress breakage in glass is that the break commences at 90° to the edge of the glass. All glass has a risk of breakage due to thermal stress. See also [Thermal Stress](#), [Thermal Stress Compatibility](#), and [Thermal Stress Strength of Glass](#).

Thermal Stress Compatibility

There is a wide range of window films that are suitable for installation to existing and new glazing. However, in some situations an incorrectly specified window film can cause thermal stress breakage of float glass. Window film manufacturers provide good guidelines on the thermal stress compatibility of each of their films with different glazing systems. Note that glass always has a risk of thermal stress breakage whether window film is installed or not; this risk is insignificant for tempered glass, very low for heat strengthened glass, and low for float glass. The installation of correctly specified window film will keep the risk of thermal stress breakage to the same levels provided that the glass is undamaged and meets accepted standards. See also [Float Glass](#), [Heat Strengthened Glass](#), [Tempered Glass](#), and [Thermal Stress](#).

Thermal Stress Strength of Glass

In normal architectural and automotive uses: tempered glass will not break from thermal stress, heat strengthened glass is very unlikely to break from thermal stress, but float glass is susceptible to breakage from thermal stress. When adding a window film to existing glazing, the supplier should always check the glazing for thermal stress compatibility between the window film and the glazing. See also [Float Glass](#), [Heat Strengthened Glass](#), [Tempered Glass](#), and [Thermal Stress](#).

Tinted Film

See [Dyed Film](#).

Total Solar Absorption

See [Solar Energy Absorption](#)

Total Solar Energy Rejection

The total amount of solar energy that goes to the outside of the building by reflection and by absorption/re-radiation. See also [g value](#).

Total Solar Reflection

See [Solar Energy Reflection](#)

Total Solar Transmission

See [Solar Energy Transmission](#)

Toughened Glass

See [Tempered Glass](#)

Transverse Direction (TD)

The direction across the width of a roll of window film.

[Top](#)

U

U Value

The U value is a measure of the rate of heat transfer through the glazing (or other building material) and is given in units of W/m².K. A method of calculating the U value of glazing is given in EN 673 "Glass in building. Determination of thermal transmittance (U value). Calculation method".

UV Transmittance

The portion of Ultra Violet light that passes directly through the glazing into the building expressed as a decimal.

UV Transmission

The portion of Ultra Violet light that passes directly through the glazing into the building expressed as a percentage.

[Top](#)

V

Vapor Deposition

There are several different definitions of vapor deposition. For example, [metalizing](#) can be regarded as a form of physical vapor deposition where Aluminum metal is evaporated as a vapor onto polyester film; [sputtering](#) uses ionized plasma that some people regard as a vapor. Chemical vapor deposition (CVD) deposits atoms (or molecules) from a chemical vapor.

Visible Light Reflectance

The portion of visible light that is reflected by the glazing expressed as a decimal. Usually the visible light reflectance is given for both exterior and interior sides of the glazing.

Visible Light Reflection

The portion of visible light that is reflected by the glazing expressed as a percentage. Usually the visible light reflection is given for both exterior and interior sides of the glazing.

Visible Light Transmittance

The portion of visible light that passes directly through the glazing into the building expressed as a decimal. Visible Light Transmittance is often given for both interior and exterior directions.

Visible Light Transmission

The portion of visible light that passes directly through the glazing into the building expressed as a percentage. Visible Light Transmission is often given for both interior and exterior directions.?

[Top](#)

W

Window Film

Window film is a self-adhesive film that is applied to glass and glazing systems to modify the properties of the glass / glazing. The properties that can be modified include solar control, safety, security, privacy, insulation, UV filtering and fade reduction, and decorative.

[Top](#)

X

Y

Yield Point

The point at which a material, when deformed by an applied force, can no longer contract back to its original shape; normally determined according to a recognized test method. Various properties can be used to determine the Yield Point, such as Yield Strength, refractive index and size. Yield Strength is normally used for polyester film. See [Yield Strength](#).

Yield Strength

The maximum force per original cross section area that a material resists before it reaches its Yield Point when tested according to a recognized test method. The Tensile Strength of a material does not vary with thickness (for the same material of the same composition, tested in the same direction and under the same conditions).

BTU Meter

a device that measures solar energy intensity and gives solar intensity in either W/m² or BTU/ft².hour. It is used to compare the solar intensity entering through glazing with and without solar control window film.

BTU-British Thermal Unit

The amount of heat energy required to raise the temperature of one pound of water one degree Fahrenheit. 1 BTU = 252 Calories (Cal).

Infra-Red Radiation

Wavelengths of electromagnetic radiation from 780 nm to about 60 000 nm; near infra-red is about 780-2500 nm and far infra-red is about 2500-60 000 nm. Solar radiation contains a large amount of infra red radiation between 780 nm to 2500 nm. This type of radiation is not radioactive.

Luminous Efficacy

A measure of how effective a glazing product is in rejecting solar energy but retaining good visible light transmission. A number greater than 1.0 indicates the film or glazing unit is "***Spectrally Selective***," blocking more of the near infrared than the visible light components of the solar spectrum.

Machine Direction (MD)

The direction along the length of a roll of window film.

Metalizing

A manufacturing process used to deposit a metal onto polyester film surfaces by evaporation; the metal is usually Aluminum. Metalized window film provides excellent solar control.

Neutral Color

Usually refers to films that have a high Color Rendering Index (> 90). See [Color Rendering Index](#).

Nanometre or nm

One millionth of a millimeter or 0,000000001 m.