prestige window films

Claridad Superior para sus Ventanas

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Historia de nuestra Innovaciòn

prestige window films

- 1966 – 3M inventó la primera película de control solar
- 1969 – 3M inventó las películas de securidad en respuesta a los ataques terroristas con bombas del IRA en GB
- 1980 – 3M desarrolla y patental las películas de Baja Emisividad (Low E)
- 1981 – 3M desarrolla las cubiertas resistentes a la abrasión (AR)
- 1995 – 3M desearrolla y patenta la tecnología de micro capas: películas resistentes al rasgado, Ultra.
- 2005 – 3M desarrolla y patenta las primeras películas que mantienen la estabilidad del color utilizando nano partículas de carbon dentro del poliester.
- 2006 – Películas claras que rechazan luz infraroja (Prestige)
- 2007 – Películas Ultra Prestige (Seguridad + Control Solar)

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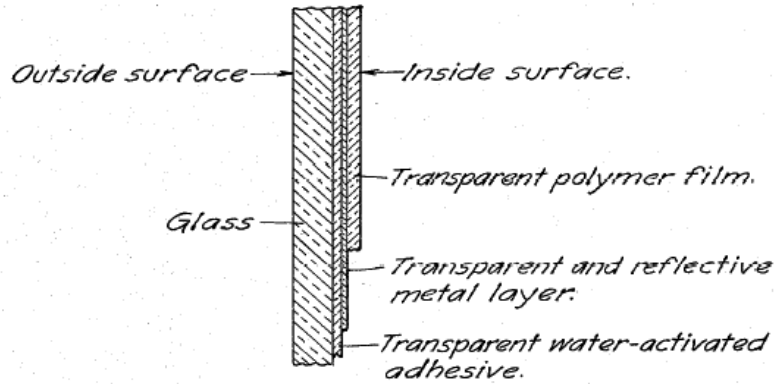
Patente Original de Películas para Ventana

Dec. 6, 1966 D. L. ANTONSON ETAL 3,290,203

TRANSPARENT AND REFLECTING ARTICLES

Filed Feb. 8, 1965

FIG. 1



www.uspto.gov

United States Patent Office

3,290,203
Patented Dec. 6, 1966

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3,290,203
TRANSPARENT AND REFLECTING ARTICLES
David L. Antonson, Woodbury Township, Washington County, and Gerald A. Berger, Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, Minn., a corporation of Delaware
Filed Feb. 8, 1965, Ser. No. 430,133
19 Claims. (Cl. 161—6)

ation is a continuation-in-part of our co-pending application Serial No. 118,077, filed June 19, 1961 (abandoned).

This invention relates to new and useful transparent coverings for glass surfaces, such as windows. In one embodiment of this invention is a film which when applied to the interior of a building reduces heat and glare, making the room more comfortable while retaining an adequate illumination and leaving the clarity of objects in the window substantially unchanged.

Our invention provides like-giving light and heat, it happens that one or both are present in excess and the problem of controlling solar radiation and mankind from the beginning of time. Many have long been provided with tinted glass, blinds, awnings, roller shades, louvers, drapes, etc., which absorb and/or reflect a portion of the light. Each of these techniques is effective to some extent but each has serious disadvantages. For example, shades, blinds, and the like must be adjusted to the position of the sun changes; for this reason make it difficult, if not impossible to open the opposite side of the window. Awnings reduce glare, but they function principally by absorbing and re-radiating solar energy and actually lower room temperatures. The few materials available prior to the present invention have been unsuitable for application to windows or failed to provide a satisfactory degree of results. To the best of our knowledge, no one prior to our invention has ever provide a durable transparent sheet which reduces solar energy transmission across the entire spectrum, which is free from undesirable distortion, which can be easily applied to any window and left in place for long periods of time, and which can be readily removed when desired. Our invention fulfills these objectives.

Our invention provides a product which reduces the transmission of ultraviolet light through a window, thereby minimizing such adverse effects as the fading of fabrics. Our novel product is particularly effective in reducing the transmission of infrared light, which is absorbed and reradiated by objects in a room. It likewise reduces the measured transmission of visible light, i.e., light in the 4,000-8,000 Angstrom unit wave length range, by as much as 80%; although heat and glare are greatly reduced, the apparent level of room illumination does not seem to be unpleasantly decreased. Without being bound thereby, we offer as possible explanation of this phenomenon, S. S. Stevens' discussion in Chapter 1 of Sensory Communication (John Wiley and Sons, Inc., New York, 1959), which states that the psychological magnitude of a physical stimulus ψ is related to the physical magnitude ϕ by the formula

$$\psi = k\phi^{n}$$

where n varies with the type of stimulus, having the value of 0.33 for brightness of white light and 1.6 for warmth. Assuming these values to be correct, a measured reduction of 80% in light transmission affects the human eye as if light transmission were reduced approximately 40%, while a measured reduction of 90% in

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heat transmission affects the human body as if heat transmission were reduced over 90%.

In accordance with our invention a flexible, transparent, metallized sheet material is adhered to the inside surface of a windowpane. This sheet material is prepared by vapor depositing a thin layer of metal such as aluminum on one surface of a transparent film, e.g., a polyester film, to reduce the transmission of solar energy to the desired extent. An adhesive which is soluble in water (or aqueous alkaline solutions) is coated over the metal layer, desirably with a water-insoluble protective layer interposed between the metallic layer and the adhesive.

Polyethylene terephthalate film about 0.5 to 2 mils thick is especially useful in this invention and is preferred because of its clarity, uniformity, toughness, strength, and dimensional stability in widely varying humidity and temperature; this film is also particularly receptive to vapor-deposited metal coats. Polymeric backing films may also be formed from rigid (unplasticized) polyvinyl chloride, cellulose acetate, cellulose acetate-propionate, cellulose acetate-butyrate, polystyrene, and polybutyl acrylate, among others. The stability of these films may be improved, if necessary or desirable, by known techniques, e.g., incorporating ultraviolet ray absorbers in the film itself or, preferably, in a coating applied over the vapor-deposited metal.

Vapor coating is carried out in the conventional manner, the amount of deposited metal being measured and controlled by the reduction in light transmission of the visible spectrum, such that at least 10% but not more than about 80%, of the visible portion of the spectrum is still transmitted, as measured by a spectrophotometer such as a Beckman DK-2. This generally results in a highly reflective metallic layer on the order of 25-125 angstroms thick. Suitable metals for vapor deposition include aluminum, zinc, copper, silver, and gold.

Such water-activated adhesives as casein, hide glue, polyvinyl alcohol, or vinyl ether polymers which are soluble in neutral or alkaline solutions (e.g., vinyl methyl ether/maleic acid copolymer or the sodium ammonium salt thereof), may be employed in the practice of our invention. For most adhesives it is highly desirable to provide a transparent water-insoluble protective coating between the metal surface and the adhesive to prevent corrosion of the very thin metal layer. The protective layer should be as least thick enough to minimize annoying interference patterns, e.g., on the order of 10,000 angstroms or more, the upper limit of thickness being determined by economy, clarity, and convenience. Where such protective coatings do not firmly bond to the adhesive, suitable priming techniques may be employed; well known techniques as electrical discharge, ultraviolet irradiation and primer coatings (e.g., polyisocyanates) may be applied over the protective coat under appropriate circumstances. Adequacy of adhesion can be determined by hand-laminating a strip of conventional normally tacky and pressure-sensitive adhesive tape to the water-activatable adhesive surface and stripping it off quickly; if no "picking" occurs, adhesion is considered satisfactory. Alternatively, the finished product may be applied to a glass surface and removed after 16 hours; failure of a satisfactory product should occur either between the film and the metal vapor coat or by tearing of the film.

Our invention will be further illustrated by the accompanying drawing, which is not to scale and is for purposes of illustration only.

FIGURE 1 is a view in cross-section of a windowpane prepared in accordance with our invention, and

FIGURE 2 is a view in cross-section of a preferred embodiment of our novel solar energy reducing sheet material.

Tecnologías en Películas para vidrios

Cubierta dura Resistente a la Abrasión	**Ce** Ceramics	**Nt** Nano Technology	**Pd** Particle & Dispersion Processing	**Rp** Radiation Processing	**Fl** Fluoro-materials
Propiedades Solares	**Lm** Light Mgmt	**Sm** Specialty Materials	**Am** Advanced Materials	**Ip** Inks & Pigments	**Vp** Vacuum Processing
Películas Especiales	**Pe** Predictive Engineering & Modeling	**Fi** Films	**Pm** Polymer Melt Processing	**Pp** Precision Processing	**Pr** Process Design & Control
Adhesivo	**Ad** Adhesives	**Pc** Precision Coating	**Dm** Display Materials	**Su** Surface Modification	

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Porqué nace la Serie Prestige

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- Motivación – Se identificó la más grande necesidad insatisfecha del mercado y nos apalancamos en nuestra fortaleza de innovación tecnológica.
  - Se necesitaba una película virtualmente transparente para permitir visibilidad debido a las nuevas tendencias arquitectónicas con grandes cantidades de ventanas.
  - Tendencia mundial de conservación del medio ambiente y reducción de energía.

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¿Qué es la Serie Prestige?

- Prestige es la más reciente innovación de 3M.
- Tecnología patentada por 3M desarrollada con nuestra misma tecnología de micro capas de las pantallas LCD (TV´s) además de nuestras plataformas de Nanopartículas.
- Las láminas convencionales poseen tintes oscuros, la Serie Prestige es una lámina clara.
- Desarrollada para reducir la energía solar compuesta por los rayos infrarrojos, los rayos ultravioletas y la luz solar.

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Solar Energy Spectrum

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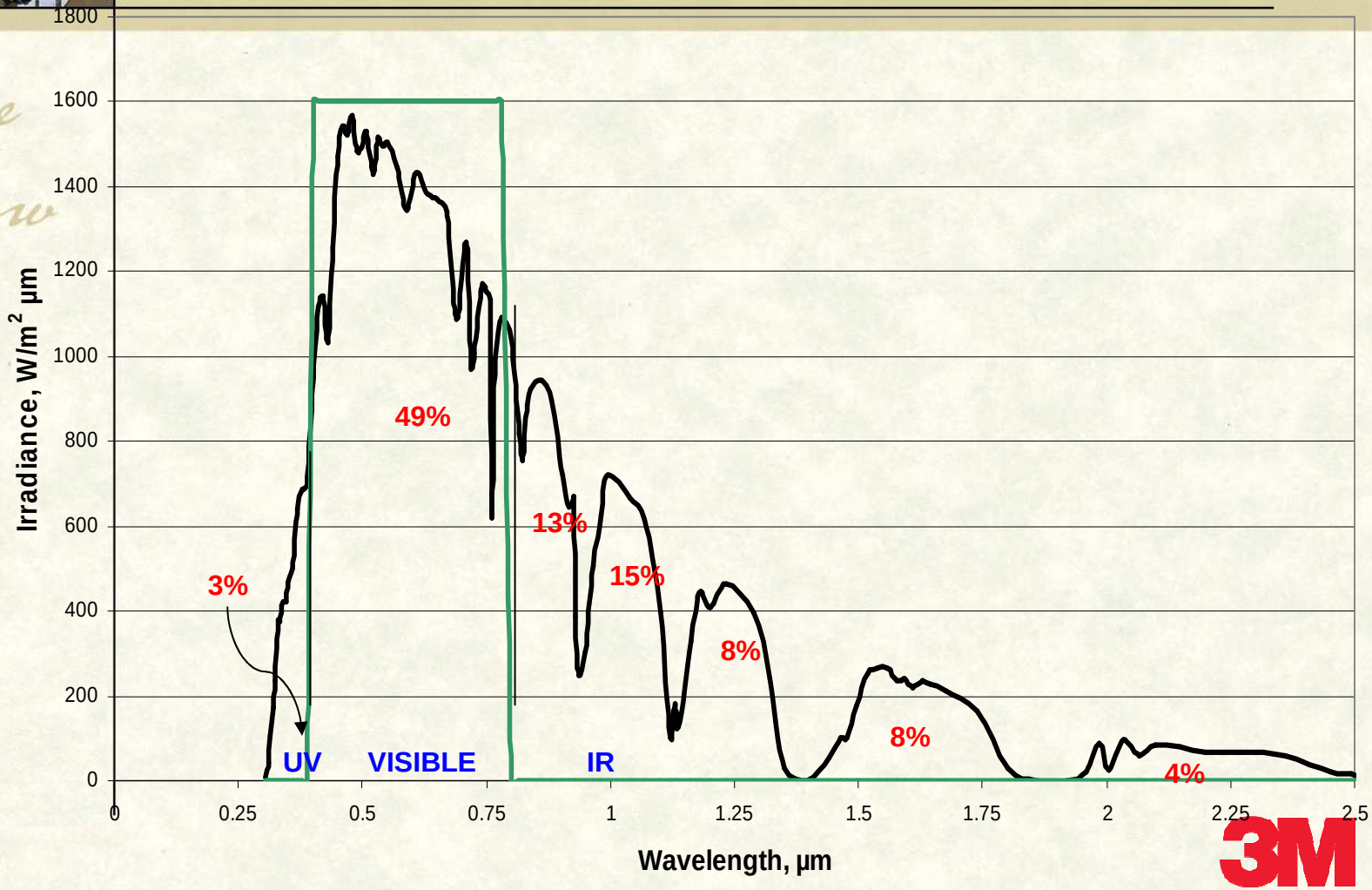

Tecnología Prestige

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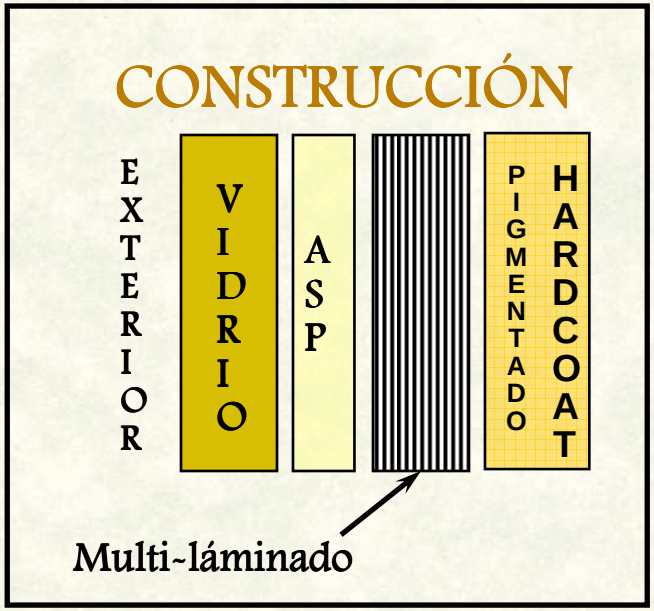
- Patentada por 3M
- Multi capas.
- Cientos (+200) de micro capas con el espesor de una nota Post-it.
- Nanotecnología.



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Beneficios de la Serie Prestige

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- Claridad y Visibilidad.
- Ahorro de energía, rechazando hasta el 97% de los rayos infrarrojos.
- Un ambiente más fresco, mejorando el comfort.
- Baja Reflectividad, igual o menor al 8% que el vidrio.
- No distorsiona la apariencia visual del vidrio.
- Protección de la familia y sus muebles reduciendo impacto de los rayos ultravioletas en un 99.9%.

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Beneficios de la Serie Prestige

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- Prestige no está fabricado con metales, por lo cual **no se corroe**. Al no ser metálica no interfiere en la señal de los celulares.
- Luz del día
  - Mejor visibilidad
  - Menos luz interior
- Garantía limitada de por vida.
- Característica de fácil limpieza.
- Rápido y fácil de instalar.

Prueba de Corrosión

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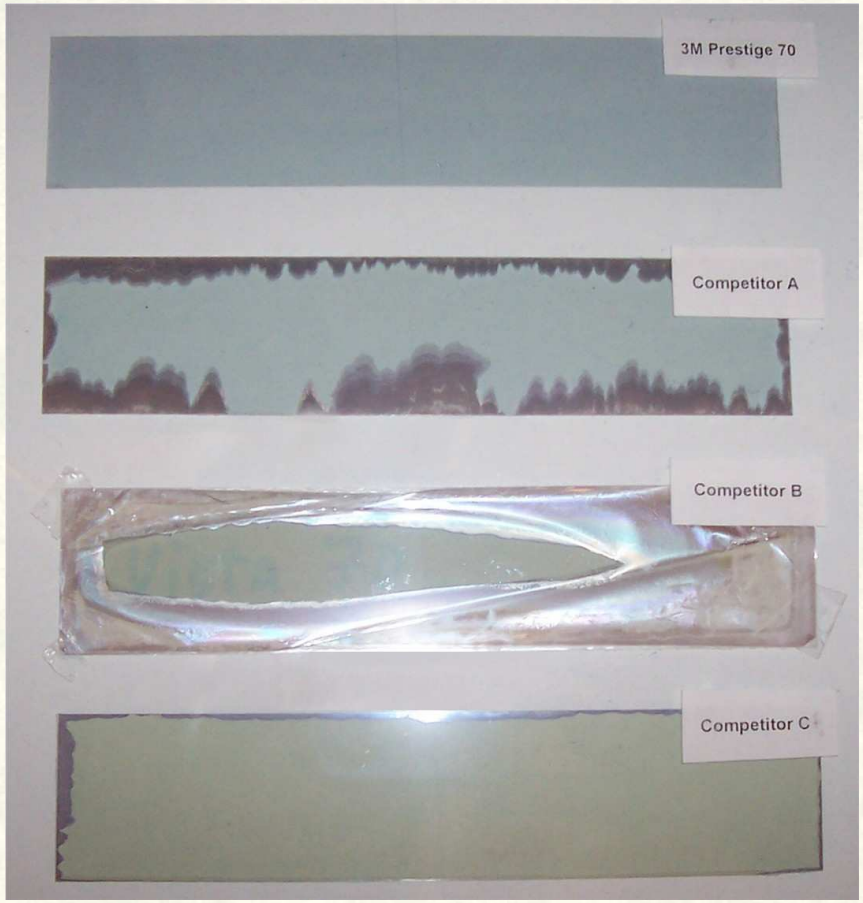

Protección de los Rayos UV

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- Prestige rechaza el 99.9% de los rayos UV.
- Los Rayos UV son la causa número uno de cáncer en la piel.
- Además de evitar el cáncer también evita el descoloramiento de los muebles.

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Recomendación

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- Recomendaciones de la Fundación para el Cáncer en la Piel
  - 12 películas 3M originalmente aprobadas
  - Muchas más películas sometidas

THE SKIN CANCER FOUNDATION RECOMMENDED

RECOMMENDED SKIN CANCER FOUNDATION

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Ventajas de la luz del día

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En promedio la gente pasa el 80% de su tiempo adentro

Otros beneficios de la Luz Solar vs. la Luz Artificial

- Efecto positivo en el sistema inmune
- Aumento de la productividad
- Baja el ratio de enfermedades y ausentismo
- Mejor atención y más rápida velocidad de aprendizaje
- Salud y bienestar general

Requerimientos

- La mayoría de las actividades normales necesitan a lo más de 200 velas mientras que la luz directa del sol da por encima de 1 billón velas
- Balance en la luz es importante – demasiado contraste entre la luz y la oscuridad es muy incomodo

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Prestige Superior al Calor del día

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Para la mayoría de las personas existen tres razones para colocar las láminas de control solar:

- Reducción de Calor (Rayos Infrarrojos)
- Protección de los Rayos UV (Ultravioletas)
- Ahorro de energía

Hasta la introducción de Prestige, sólo se contaba con películas oscuras o metalizadas con riesgo de corrosión y bloqueo de señales celulares.

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No hay Interferencias

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	Sheet Conductance	Sheet Resistance (Ohm/Square)	dB Shielding Effectiveness*
RE35SIARL	0.0471	**21.23**	**18.9**
RE35NEARL	0.0213	**46.95**	**11.8**
PRESTIGE70	0.0000	**>10^5**	**0.0**
VISTA VS70	0.1550	**6.45**	**29.3**
VKOOL 70	0.1863	**5.37**	**30.9**
VISTA V50	0.0653	**15.31**	**21.8**
RE35AMARL	0.3440	**2.91**	**36.2**

Tendencia de las personas aumenta en utilizar su celular como su único teléfono y redes inalámbricas en casa.

*** 0.1 – 6 GHz**

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¿Cómo Funciona Prestige?

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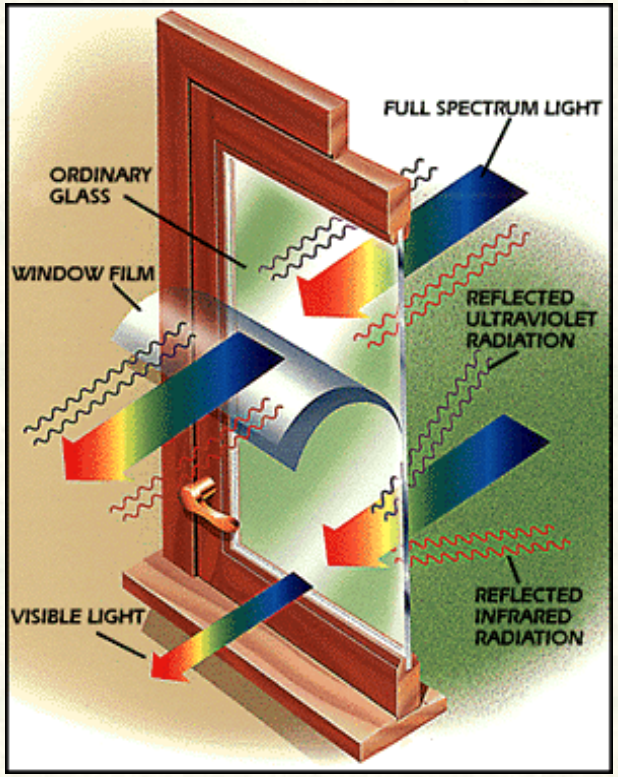
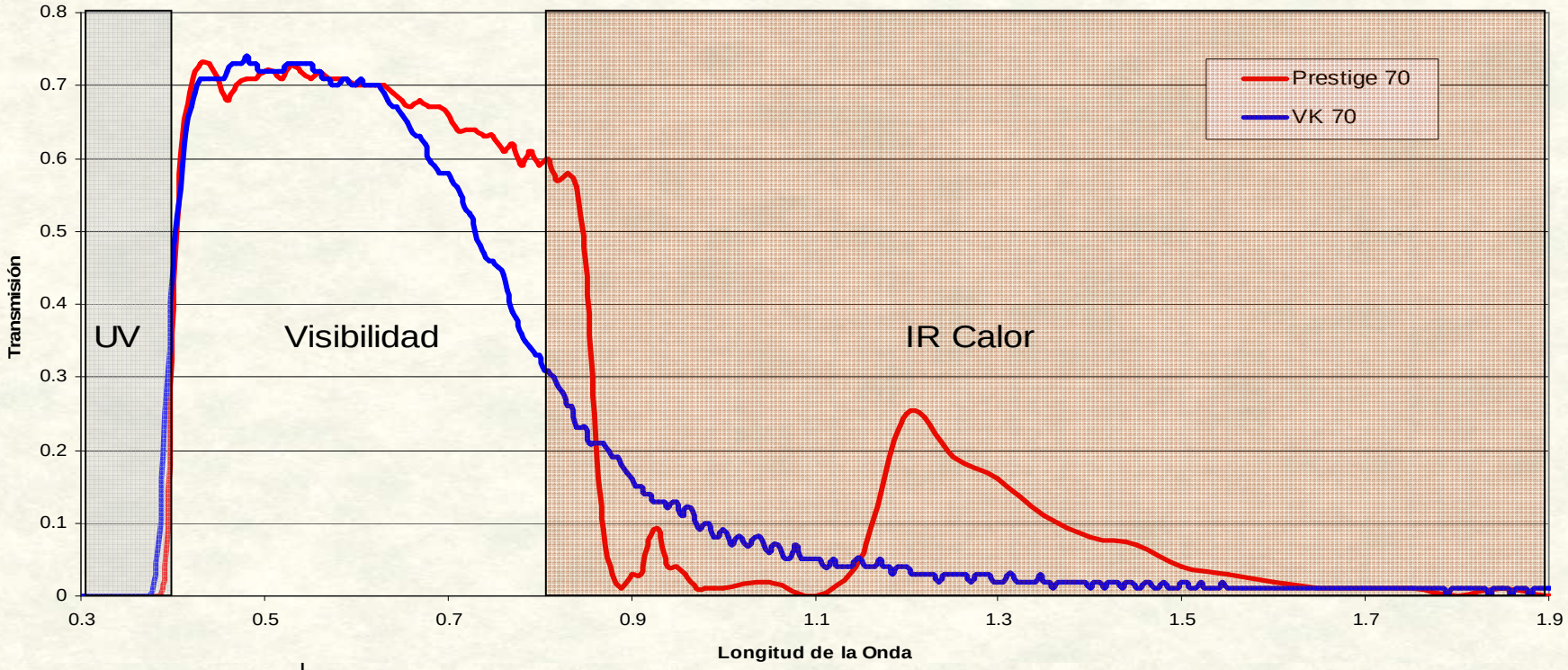
Rechazo de la Energía Solar

- Rechaza y Absorbe los rayos IR y UV.
- Representando esto ahorro de energía y ambientes más frescos.
- Manteniendo la claridad en el hogar.



Rechazo de los rayos Infrarrojos



Cuatro Formas de proteger

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Serie Prestige - PR 40

Visibilidad de la Luz Transmitida	39 %
Total de Energia Solar Rechazada	59 %
Total de Energia Solar Rechazada - En un Angulo de 60°	66 %
Rechazo de Rayos Infrarrojos	97 %
Visibilidad de Luz Interna Reflejada	6 %
Rechazo de Rayos UV	99.9 %

Serie Prestige - PR 50

Visibilidad de la Luz Transmitida	50 %
Total de Energia Solar Rechazada	56 %
Total de Energia Solar Rechazada - En un Angulo de 60°	63 %
Rechazo de Rayos Infrarrojos	97 %
Visibilidad de Luz Interna Reflejada	7 %
Rechazo de Rayos UV	99.9 %

Serie Prestige - PR 60

Visibilidad de la Luz Transmitida	61 %
Total de Energia Solar Rechazada	52 %
Total de Energia Solar Rechazada - En un Angulo de 60°	61 %
Rechazo de Rayos Infrarrojos	97 %
Visibilidad de Luz Interna Reflejada	8 %
Rechazo de Rayos UV	99.9 %

Serie Prestige - PR 70

Visibilidad de la Luz Transmitida	68 %
Total de Energia Solar Rechazada	50 %
Total de Energia Solar Rechazada - En un Angulo de 60°	59 %
Rechazo de Rayos Infrarrojos	97 %
Visibilidad de Luz Interna Reflejada	9 %
Rechazo de Rayos UV	99.9 %

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Rechazo de los rayos Infrarrojos

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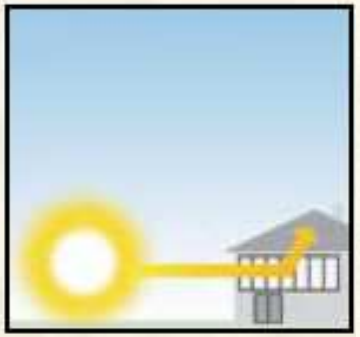
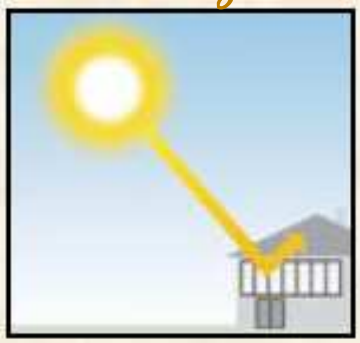
- Los rayos IR, son los rayos transmitidos por el sol que producen calor.
- Para medir el desempeño de Prestige se ha desarrollado una prueba denominada – Total Energy Rejected – En Angulo.

Otras Marcas



Realizan las pruebas cuando los rayos IR se encuentran perpendicularmente a la ventana

Prestige



Prestige también se prueba y presenta el mejor desempeño cuando el sol es alto en las partes más calientes del día.

¿Dónde utilizar Prestige?

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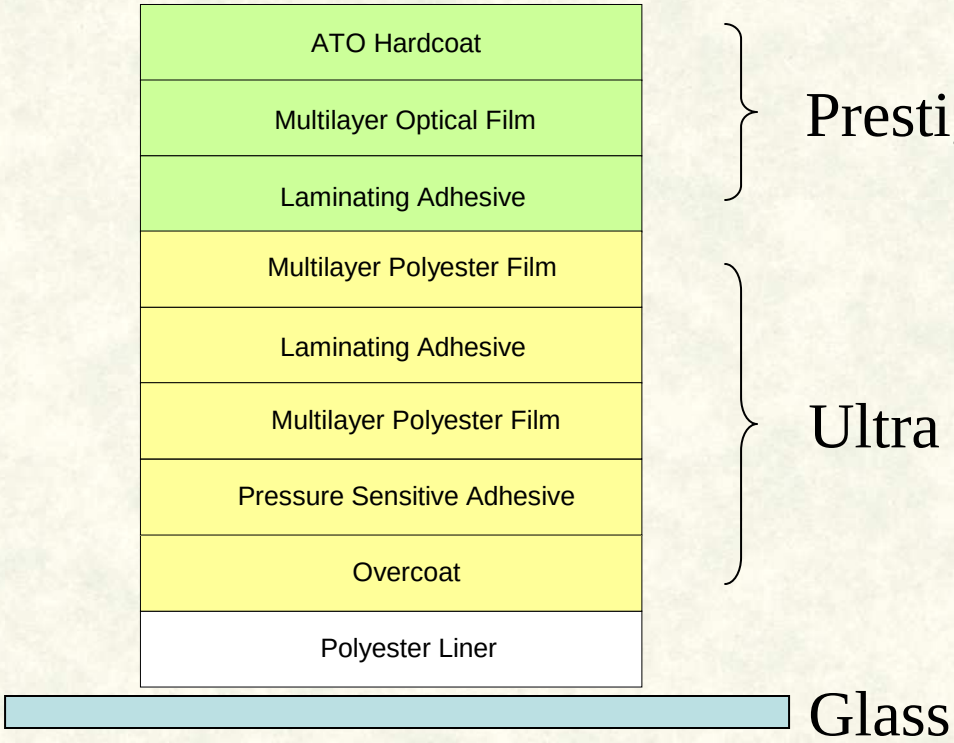
En vidrios que estén expuestos al sol y donde usted desearía tener un ambiente más fresco

- Residencias
  - Edificios
  - Casas.
- Comercial:
  - Hoteles
  - Restaurantes
  - Almacenes
  - Edificio de Oficinas
  - Colegios y Universidades
  - Agencias de autos, etc.

2007: Películas Ultra Prestige

prestige window films



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Películas Ultra Prestige
Película de Seguridad

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- Multicapas resistentes a la rasgadura.
- Fácil de instalar vs. otras películas
- Mejora la seguridad de las personas y sus propiedades / activos, a la hora de desastres naturales y ataques terroristas.
- Reducción de Calor logrando ahorro de energía, mayor comfort, combinado con una película virtualmente transparente.
- El rechazo de UV extiende la vida de los muebles y protege a las personas.

CCI Comunicado de Prensa

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President Clinton Announces Landmark Program to Reduce Energy Use in Buildings Worldwide

Four Multinational Corporations, Five Global Banks, and Sixteen Cities Partner with the Clinton Foundation to Retrofit Buildings and Reduce Carbon Emissions

May 16, 2007
New York, NY

President Bill Clinton today announced the creation of a global Energy Efficiency Building Retrofit Program, a project of the Clinton Climate Initiative (CCI). This program brings together four of the world's largest energy service companies (ESCOs), five of the world's largest banks, and sixteen of the world's largest cities in a landmark program designed to reduce energy consumption in existing buildings.

Photo courtesy of David Scull/Clinton Foundation

About the Clinton Climate Initiative

Building on his long-term commitment to preserving the environment, President Clinton launched the Clinton Foundation's Climate Initiative in August 2006 with the mission of applying the Foundation's business-oriented approach to the fight against climate change in practical, measurable, and significant ways. In its first phase, CCI is working with the C40 Large Cities Climate Leadership Group to accelerate efforts to reduce greenhouse gas emissions. CCI team members have visited nearly all of these cities and are working with them to define projects and take action.

The C40 Large Cities Climate Leadership Group is comprised of the following cities: Addis Ababa, Bangkok, Beijing, Berlin, Bogotá, Buenos Aires, Cairo, Caracas, Chicago, Delhi, Dhaka, Hanoi, Hong Kong, Houston, Istanbul, Jakarta, Johannesburg, Karachi, Lagos, Lima, London, Los Angeles, Madrid, Manila, Melbourne, Mexico City, Moscow, Mumbai, New York, Paris, Philadelphia, Rio de Janeiro, Rome, Sao Paulo, Seoul, Shanghai, Sydney, Toronto, Tokyo, and Warsaw.

For more information contact the Clinton Foundation Press Office: press(at)clintonfoundation.org

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Ciudades

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Melbourne
Sydney
Dhaka
Beijing
Shanghai
Hong Kong
Mumbai
New Delhi
Jakarta
Tokyo
Manila
Seoul
Bangkok
Hanoi

Paris
Berlin
Rome
London
Madrid
Warsaw
Moscow
Istanbul
Cairo
Addis Ababa
Lagos
Karachi
Johannesburg

Buenos Aires
Rio de Janeiro
Sao Paulo
Toronto
Bogota
Mexico City
Lima
Caracas

Chicago
Houston
Los Angeles
New York
Philadelphia

Pruebas Realizadas

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- CPSC Impacto y prueba de pequeño misil en el condado de Dade, Florida– completada
- Flamable – completada.
- EN12600 Prueba de impacto – completada.
- Bombas- en curso en Gran Bretaña August 2007

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BTU Meter Demo

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DEMOSTRACIÓN DE REDUCCIÓN
DE BTU Y GRADOS CENTIGRADOS!

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Innovation

Gracias

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