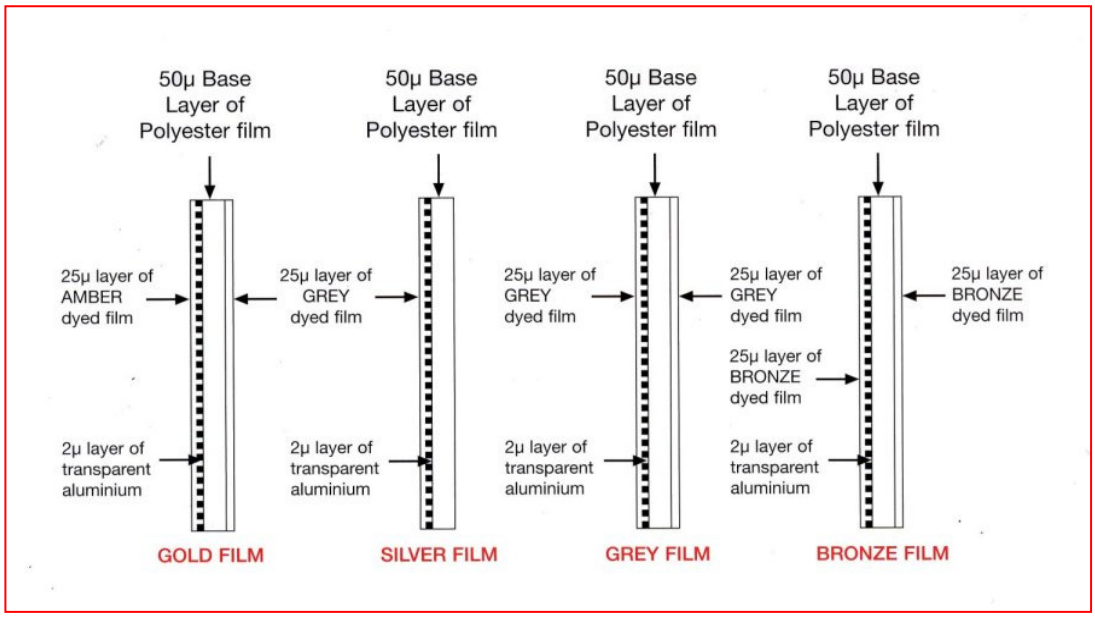
SOLASOLV® SOLAR FILM

SOLASOLV® anti-glare, heat rejecting solar films are manufactured under carefully controlled conditions to ensure they match exactly the features specified for each film type. The process involves laminating two or more layers of polyester film. One of the layers is coated with a transparent micro-thin layer of aluminium to reflect infra red light rays (HEAT rejection). The polyester layers may also be dyed to reduce the light transmittance (ANTI GLARE effect). Strict quality checks are an inherent part of the film manufacturing processes to ensure complete customer satisfaction.

It can be seen from the diagram below that the two highly reflective surfaces are achieved by dyeing one of the polyester layers amber, in the case of GOLD film and leaving one of the layers of film clear in the case of SILVER film. GREY film is manufactured by dyeing both layers of film grey and BRONZE film by dyeing both layers of film bronze.

SOLASOLV® SHADE FILM CONTRUCTION



The polyester layers used to manufacture all SOLASOLV® solar film are manufactured using an ultra violet inhibitor to ensure that all film colours will absorb at least 97% of the ultraviolet A and B light which strikes them.

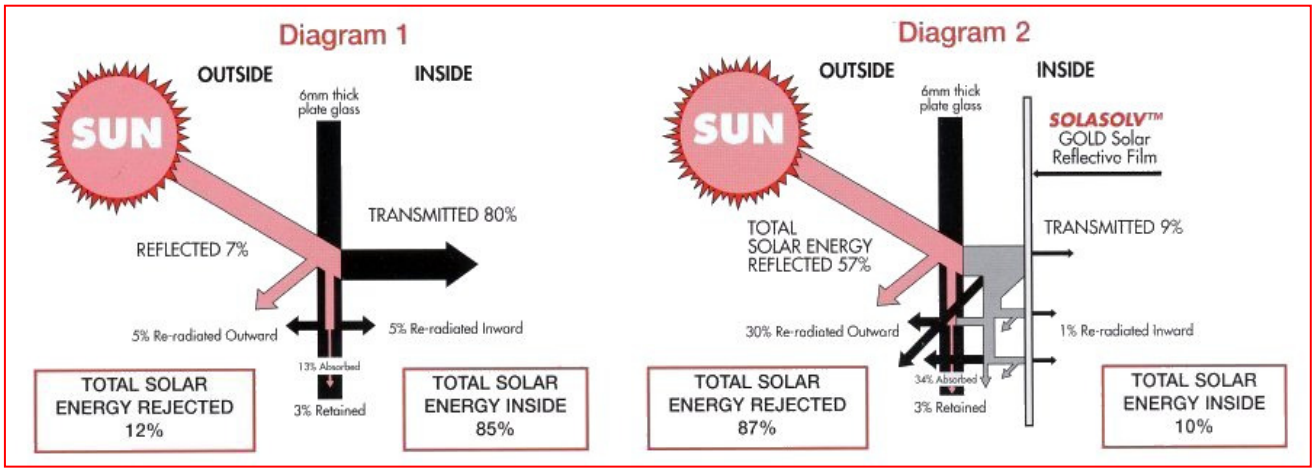
GOLD and **SILVER** are the most effective film colours. They are most efficient at rejecting heat because of their highly reflective outside facing surfaces. The gold film rejects 87% of heat, the silver film rejects 77% of heat and they both reject more than 90% of glare. For some applications, particularly naval vessel windows, gold and silver film is not suitable.

GREY film is non-reflective so it does not have a highly reflective outer surface, yet it still rejects 65% of heat and 91% of glare. It is more effective than bronze film and is the most popular colour choice. It gives a blue cast when in use.

BRONZE film is also non-reflective and rejects 67% of heat and 84% of glare. It gives a bronze cast when in use.

The diagram on the reverse shows how an installation with GOLD reflective film rejects 87% of the total solar energy.

PRINCIPLE ON WHICH SOLASOLV® SHADE FILM WORKS



Installation **WITHOUT SOLASOLV®** film protection

Diagram 1 shows how an enclosed area is heated by short wave energy from the sun passing through a glass window. This short wave energy is absorbed by the room surfaces and then re-radiated from them as long wave radiation, generating heat in the process.

Because plain glass does not allow this long wave radiation to pass back through it into the atmosphere, the heat is trapped within the enclosed area.

Installation **WITH GOLD SOLASOLV®** film protection

Diagram 2 shows how the rejection of solar energy takes place with very little conversion to heat. The transmitted energy is only converted to heat when it strikes an absorbing surface.

The absorbed heat which is contained in the glass, the surroundings and polymer is partly re-radiated to the outside air and partly re-radiated into the inside atmosphere.

The dyed layers of polyester film which make up the finished film type control the amount of visible light which the film transmits. This feature creates the Anti Glare effect and the colour shading observed when looking though the film.

SPECIFICATIONS FOR SOLASOLV® ROLLER SCREEN FILMS

	SOLAR REFLECTIVE			
FILM COLOUR	GOLD	SILVER	GREY	BRONZE
% Glare Reduction (Anti Glare Effect)	93	92	91	84
% Total Solar Energy Rejected (Heat Rejection)	87	77	65	67
% Ultra Violet Light Rejected	99	97	98	98
% Total Solar Transmission	9	7	23	27
% Total Solar Reflection	57	63	19	19
% Total Solar Absorption	34	27	58	54
% Visible Light Transmission	7	7	8	15
Shading Coefficient	0.2	0.19	0.45	0.48

The shading coefficient and % of total solar energy rejected by solar film products will vary depending on physical conditions existing at the fitted location. Laboratory conditions for the above tests were for a free hanging system with solar film at a distance of 15mm from 6mm thick glass. Polyester used in solar film is a biaxially orientated polyethylene terephthalate film. Heat set during processing, it has a melting point of approx. 260℃ (500℉) and does not shrink at temperatures below 150℃.

DEFINITIONS FOR SOLAR ENGINEERING PARAMETERS

Total Solar Transmission – amount of the sun's energy that passes directly through a glazing system.
Total Solar Reflection – amount of the sun's energy that is directly reflected by a glazing system.
Total Solar Absorption – amount of the sun's energy that is immediately absorbed by a glazing system.
Total Solar Energy Rejected (HEAT rejection) – amount of all of the sun's energy that is rejected by a glazing system.
Visible Light Transmission – amount of the visible light that goes directly through a glazing system.
Ultraviolet Light Rejected – amount of ultraviolet light that is absorbed by a glazing system.
Glare Reduction (ANTI GLARE effect) – percentage reduction in visible light
Shading Coefficient – amount of the sun's energy allowed through a glazing system. A low figure provides good shading.