

Flexible Clear PVC

Description

PVC or **Polyvinyl Chloride** is a linear polymer comprised of a linked chain of CH₂ molecules similar to polyethylene, but with every fourth carbon atom supplanted by a Chlorine atom. Simply; basic plastic and is by nature, relatively rigid. Plasticizers are added, which are synthetic oils, in proportion of about 30% by weight softens and adds pliability making the film flexible. Other ingredients are added; UV absorbers to improve resistance to UV radiation, heat stabilizers, fillers and other processing aids. These ingredients are placed into a bowl or mixing churn in a predetermined order, heated and mixed at a specific speed and time to achieve a semi-liquid resin. The two main processes to form Flexible Clear (and Tint) PVC are **Calendared** and **Extruded**.

Calendared

Calendared PVC is made by squeezing flat the semi-liquid resin through a series of calendars or rollers to flatten out the stock to the required thickness. The maximum thickness of calendared sheets is 0.50mm. Sheets are then laminated together when thicker gauges required.

Typical Characteristics

- Layers of PVC film laminated together
- Non slip technology to reduce stickiness
- Good transparency
- Used in Café style blinds for over 35 years



Extruded

Extruded PVC is made by pushing the semi-liquid resin through a die to the required thickness. This process results in a smoother surface, less roller movement and therefore achieves greater optical transparency. Extruded PVC has historically been used in marine clear side curtain and front screens.

Typical Characteristics

- Single film layer
- Noticeably better transparency than calendared
- Non slip technology to reduce stickiness
- Marine grade PVC performance



Japanese Technology

HVG partner with Japanese manufacturers , world leaders in Flexible Clear PVC technology, for the following reasons

- Renowned superior clarity, consistency and durability
- Tried and tested technology specifically formulated for Australian conditions.
- Culture of continuous product development.
- Long standing supply relationships for greater confidence, reliability & support.
- Manufacturing standards that comply with all local and international manufacturing conventions and corporate governance.

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Optical Transparency

The relative transparency of Easislip PVC (Calendared) and Easislip Premium (Extruded) has been judged in a 'Visual Light Scattering Tester' which measures haze over wavelengths of light detectable to the human eye. The outcome demonstrates **better optical transparency for extruded PVC**, especially when looking through at an angle.

Inherent Characteristics

Visual translucency is greatly affected by light refraction, dust, flow marking, fish eyes, embossing, cloudiness and various other inherent characteristics of Flexible PVC film products. It is imperative to note that flexible films will exhibit characteristics throughout its life cycle that can and will affect translucency and performance.

Such characteristics are not imperfections in the material and are not a result of any faulty manufacturing process.

Flow marking or fish eyes are a natural consequence of PVC film in its liquid state: When calendared under high heat temperature and during the laminating process these flow lines will be encapsulated inside the PVC film layer. The severity can vary from batch to batch.



Cloudiness: Flexible Clear films are by nature, permeable, allowing moisture to penetrate into the film. Under certain atmospheric conditions (particularly during cold mornings where there is dew present or in regions of high humidity with moisture in the air), the film can demonstrate a cloudy or milky appearance. Direct sunlight or heat generally draws out any moisture present and will restore clear to its original clarity.



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Embossing or indentations that impact on the surface of the film during the life cycle of its performance: Engineered to be flexible to act in a blind / roller application, PVC film needs to have sufficient plasticizer to create the conformability achieved. This compound by necessity creates a flexibility that captures various emboss details wherever pressure points impact on its surface. This marking will always alter with heat & pressures applied and thus over the life cycle of a blind will periodically appear & disappear dependant on environmental conditions and blind movement. Most embossing will come and go during the cycle of a blind however becomes less discernible the longer it is left extended in a fixed vertical position. It is recommended that blinds should remain in its fixed vertical position at all times to achieve its greatest lay flat properties. Designed to increase flexibility at higher temperature, clear and tint films operate best when installed in cooler climates or away from direct sunlight. Where direct sunlight is unavoidable PVC film should be left in a static position as much as practicable.



Dimensional Stability: PVC is produced primarily by a combination of heat and pressure. Easislip clears are “un-supported” products which mean they have no internal scrim to stabilize movement where heat or pressure is applied. They consequently are subject to constant movement often described as elongation and shrinkage. This can be reduced by releasing some of the stresses applied during production. Residual stress is applied as PVC is wound onto a roll under tension in both Calendered and Extruded processes. As the PVC is unrolled these residual stresses are released and result in contraction in the length (up and down the roll) and very minor expansion in the width (across the roll). The actual amount of movement can vary depending upon the temperature and time. Generally, at room temperature these residual stresses are relieved over a few days. The higher the temperature the quicker this process occurs. This relaxing of the PVC will remove a high percentage of stress in the product and reduce the tendency of the blind to shrink or stretch in application. Please note this cannot be alleviated totally and always remains a characteristic of PVC blinds and will be affected by temperature and pressure at various times during its life cycle.

Care & Maintenance

PVC is a complex composition of PVC (Polyvinyl Chloride) polymers engineered for external applications with standard weather conditions and UV exposure.

While the surface of the material can be exposed to both water and sunlight the natural characteristics of PVC will vent off plasticizer, ageing the product and affecting clarity over time.

All blinds should be left in a vertical fixed position wherever possible, however where rolled up a regular program of unwinding and laying flat is essential maintenance for extending the flexibility and clarity of clear PVC films. It is highly recommended that blinds should be dropped for at least for 48 hours at any one time. Where extended periods of retraction are necessary an extended period of vertical extension will be necessary to allow embossing and roller marking to drop out of the PVC film. A moderate amount of heat in the film will also assist in removing these marks.

Do not roll up blinds wet; irreparable damage can occur due to sunlight magnifying through the film, heating up the moisture captured inside the rolled up layers.

While clarity can be maintained (to some degree) with a cleaning regime it is vitally important that all surfaces are not exposed to chemical compounds capable of damaging the PVC surface.

Neutral diluted detergents are the most effective proven method of removing stains and marks off the surface of the PVC without affecting the structure or make up of the material.

The recommended cleaning process is as follows:

1. Remove any particles on the surface of the material to avoid scratches when wiping with a cleaning cloth
2. Clean with a soft fabric cloth using a diluted warm water based detergent solution 1: 10 (1 part detergent 10 parts water)
3. Rinse completely with clean water and wipe dry with a soft lint free cloth or sponge

While proprietary cleaning agents are commercially available for clear PVC materials it is important to verify the performance of such with the suggested cleaning instructions included and recommended by the cleaning solution manufacturer.

HVG take **NO** responsibility for the performance of any cleaning agent and any potential damaged caused to the surface of the material as a result of the use of such.

This applies to both clear and tint options available; Calendared and Extruded.