

ClearCal

Thermoplastic Polymer Films for Video and Touch Displays

Protection • Visual Enhancement • Substrate Strengthening • Finger Friction Reduction

Overview:

ClearCal Anti-Glare (AG) films greatly improve the viewability, impact and shatter resistance of glass and poly/glass hybrid displays when used in brightly lit or outdoor environments. ClearCal AG combines a hardened anti-reflective layer which is permanently laminated to a flexible and transparent PET base. All films are supplied with protective PET release liners shielding both faces.

ClearCal Transparent (Trans) films similarly improve the impact and shatter resistance of video and touch displays while providing a glossy, optically-correct viewing surface for maximum image sharpness. Transparent films are best suited to environments where incident or sun light are not likely to impart glare.

ClearCal's Grade 5 hardened surface resists impacts, scratches, abrasions, smudging and oil deposits - and is easier to clean than bare glass. Both film types feature a blemish-healing, pure silicone pressure-sensitive cling layer that provides an optically correct, yet easily removable / repositionable bond that conceals any existing surface defects like abrasions and scratches.

ClearCal films significantly reduce glass panel breakage and will contain and keep glass fragments in place should the panel become cracked - preventing personal injury and maintaining the usability of the cracked display. Additionally, ClearCal films are useful for both preventing anti-glare (AG) and anti-reflective (AR) coating abrasion and restoring a uniform appearance to previously abraded AG / AR coatings.

How Supplied:

Roll Goods: ClearCal AG and Trans films are manufactured 1.04 meters wide and put up on 200 lineal meter rolls (partial rolls are often available). Roll widths of 1.2 meters can be supplied via special order (MOQ: 3000 lineal meters).

Cut Patterns: ClearCal films can be supplied as pre-cut patterns to meet any specific requirement.

Rotary-cut rectangles:

Maximum pattern size: 1.04 x 2.44 meters - 90 degree corners - Tolerance: +/- 0.5mm

Die-cut (complex 2D shapes):

Maximum pattern size: 70 x 40cm - Any 2D shape (1mm min radius) - Tolerance: +/- 0.1mm

Cut patterns supplied:

Bulk (stacked & boxed); Clear envelopes (1-6 pieces); Custom retail packaging

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Specifications:

ClearCal Anti-Glare

Transmissivity	~ 93%
Haze	3-5%
Surface Hardness 4H Clarity	95-97%
Static Charge Dissipation (100k volts)	0.35 sec
Main Substrate Composition	Thermoplastic Polymer (PET)
Harsh Substance Resistance Test (No visual impact 10 min)	Petroleum & Distillates, Ammonia, Acetic Acid, Acetone, Bleach (10%), IPA, MEK, Cola, Coffee, Ink, Grease, Saliva

Layer ID • Material • Thickness:

- 1 - Front Release Liner • PET • 0.051mm
- 2 - AG Layer • PET • 0.020mm
- 3 - Main Substrate • PET • 0.110mm
- 4 - PSA (cling layer) • Partial Cure Silicone • 0.030mm
- 5 - Rear Release Liner • PET • 0.048mm



ClearCal Transparent

Transmissivity	~ 94%
Haze	< 1%
Surface Hardness 5H Clarity	99%
Static Charge Dissipation (100k volts)	0.35 sec
Main Substrate Composition	Thermoplastic Polymer (PET)
Harsh Substance Resistance Test (No visual impact 10 min)	Petroleum & Distillates, Ammonia, Acetic Acid, Acetone, Bleach (10%), IPA, MEK, Cola, Coffee, Ink, Grease, Saliva

Layer ID • Material • Thickness:

- 1 - Front Release Liner • PET • 0.055mm
- 2 - Main Substrate • PET • 0.125mm
- 3 - PSA (cling layer) • Partial Cure Silicone • 0.030mm
- 4 - Rear Release Liner • PET • 0.055mm



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Material Safety Data:

Identification

Product Name: ClearCal Film
Chemical Name: Polyethylene Terephthalate
Chemical Family: Polyester
CAS Number: 25038-59-9
DOT Regulation: Not regulated as a hazardous material

Physical - Chemical Data

Melting Point: 255 Deg Celsius
Specific Gravity: 1.4
Sublimation Temp: 300 Deg Celsius
Appearance: Transparent to Semi-Transparent Film
Odor: None

Hazardous Components

None as defined by OSHA Hazard Communication Std, 29 CFR 1910.1200
None as defined by SARA Title III, Sec 313
ClearCal Film is considered an Article under OSHA & TCSA Standards

Fire & Explosion Hazard

Flammability: Burns if exposed to open flame
Extinguishing Media: Water Spray, Foam, Dry Chemical or CO2
Special Procedures: Self-Contained Breathing Apparatus and protective clothing recommended for large volumes. Low levels of Acetaldehyde, Carbon Monoxide and Carbon Dioxide may be released upon high temperature heating or fire conditions.

Special Hazard Designations

NFPA

Health: 0
Flammability: 1
Reactivity: 0

Chemical Stability: Stable

Hazardous Decomposition Products: >300 Deg C; Acetaldehyde, Carbon Monoxide and Carbon Dioxide

Health Hazard Data: No adverse effects, permissible exposure for Acetaldehyde - OSHA Std: 100 ppm

Effects of Exposure: Ingestion, none. Skin Contact, non-irritating

Spill / Leak Procedures:

Non-Hazardous. Solid waste not regulated. Dispose of or incinerate in accordance with local regulations
Protective clothing is not required for normal use conditions.

Special Precautions, Handling:

Winding / unwinding and passage of PET film over and through rollers will generate a strong electrostatic charge on the film surface. Static discharge shunts should be positioned at the appropriate points to mitigate charge buildup and prevent discharge from the spool and unspooled portions - especially required in potentially explosive environments and to protect personnel from high-kilovolt static discharge.