

MERINO ELECTROSTATIC DISSIPATIVE LAMINATE



1. Product Description

Merino Electrostatic Dissipative (ESD) laminates offer one of the best ESD properties for laminate surfaces available today in India. It provides a safe environment for furniture used in electrostatic protected areas (EPAs). The ESD surface drains out the static charges thereby minimizing the chances of sparking and damage to sensitive electronic appliances. At the same time, it does not allow dust particles to accumulate on the surface, resulting in a clean and healthy work place. Dust, with different elements in it, aggravates allergies, asthma, eyesores, fatigue, etc. The dusty air inhaled day in and day out is a source of slow poisoning.

The requirement of effective static control has grown dramatically in recent years due to increased sensitivity of semiconductors which can get easily damaged by the slightest amount of static discharge. In today's workplace, the life and reliability of modern semiconductors require an environment where static electricity is continuously and totally drained out.

2. Advantages

Places where the clean-room-concept is used

- IT offices / Call centres / Laboratories / Electronic industries / Pharmaceutical labs
- Offices where electronic gadgets are regularly used
- Electrostatic Protected Area (EPA) ensures protection at all stages of receipt, storage, assembly, test and transport of electronic devices.

3. Product Type Available

- Type of Product** : Electrostatic Dissipative (ESD) Laminates
- Grade** : They are available in vertical and horizontal postforming, general purpose & Compact grades laminates.
- Size & Finish** : Available in following finishes & sizes: (2464mm x 1245mm) & 49" x 121" (3075mm x 1245mm)
***Suede Finish is also available in 49" x 97"*
- Thickness** : 0.7mm & above
- Colours** : Standard Colour: White - 21141 / Grey - 21369 & 22169 / Champagne 21187 / Pastel Blue - 21072
Special Colour: Subject to the availability in Merino Lam Catalogue



4. Fabrication and Assembly

Optimum conditions for use: High Pressure Laminates should be properly conditioned to the ambient conditions of the surroundings before they are used. For eg., High Pressure Decorative Laminates and the substrate need at least 48 hours to get acclimatised. Provision should be made for the circulation of air around the components.

Recommended conditioning temperature is about 24°C. Laminates should be conditioned at 45% to 55% relative humidity.

Tooling:

Sawing: To avoid chipping, it is important that the saw blade teeth cut into the decorative face.

Circular sawing: Always provide support to the material near the point of blade contact to avoid vibration that causes chipping. Blades with trapezoid tooth configuration and both tungsten carbide and diamond tip blades have proved to be excellent tools for sawing high pressure decorative laminates.

Routing: Routing may be done with electric or air powered carbide tip routers. Router speed should be maintained at 16000 to 22000 rpm. It is important to use a router having adequate horsepower to maintain cutting speeds (based on the type and amount of material to be cut). For special edge trimming, very high speed routers are available which produce smooth-edge chip-free work. Sharpness of the router cutters should be maintained.

Edge finishing: Belt sanders may be used to flush the self-edge before the laminate top is applied. However, care should be taken to direct the sanding operation away from or parallel to the decorative surface.

Adhesives: A variety of adhesives have been found satisfactory for bonding decorative laminates to core materials. The choice of adhesive should be based on the service for which the assembly is intended and upon the bonding facilities available. In all cases, the adhesive manufacturer's instructions for use should be followed closely.

Contact adhesives: Contact adhesives may be used for bonding laminates to a variety of substrates. Contact adhesives do not restrict the movement of the laminate caused by varying humidity conditions to the same extent as thermosetting adhesives. They are particularly useful for application to metal or other impervious surfaces. There are two primary types of contact adhesives; solvent based and water based. Water-based adhesives are not suitable for bonding laminates to non porous substrates. The solvent or the water must be evaporated before satisfactory bonding can be accomplished.

Polyvinyl acetate types (White glue): Polyvinyl acetate (PVA) emulsion adhesives may be used for bonding laminates to wood substrates where resistance to moisture and high heat are not required in the application (e.g. furniture, kitchen cabinets and office partitions). They may be both room temperature and hot pressed setting adhesives requiring only that the water in the emulsion be absorbed by the components. Catalyzed PVA offers improved moisture and heat resistance.

Thermosetting types: Urea-formaldehyde adhesives are satisfactory for most applications. Resorcinol and phenol-resorcinol adhesives are recommended for use when moisture resistance and heat resistance are required. Epoxy adhesives are liquids with no volatile components. They have good gap-filling and low shrinkage properties and are used mainly for bonding laminates to impervious cores such as steel.

Hot melt types: Hot melt adhesives are suitable for use only in edge banding operations because of their low heat resistance.

Urethane types: Urethane adhesives are liquids with 100% solids and no volatile components. They have good gap filling and low shrinkage properties. These are used mainly for bonding laminates to impervious cores such as metal, glass etc.

Protective film: The protective film should be removed as soon as the application is complete. If the film is not removed after fabrication, exposure to strong lights for a period of time may cause a pale residue and make it difficult to remove the protective film.

Proper bonding recommendations:

- The surfaces should be clean, dry, and free of oils or other contaminants, such as dust, synthetic particles, and so forth. The adhesive film should have full contact with the surface to which it is applied in order to give maximum adhesion.
- The adhesive should always be stirred or agitated before use. Sufficient amount of adhesive should be applied on either or both the surfaces to be bonded. When ready for bonding, the spread film of most contact adhesives will exhibit a uniform semi-gloss appearance over the entire surface of the materials to be bonded. Marked variation in appearance will generally indicate an improper or non-uniform adhesive spread. The substrate can generally be seen more readily through those areas where insufficient adhesive has been applied. If this occurs, re-coating the surfaces should achieve a uniform coating. Double coating the edges with adhesive is advisable because of the higher porosity of the substrate edge.
- Sufficient bonding pressure to ensure intimate contact is necessary for an adequate bond. Sufficient pressure should be applied over the entire area using as much pressure as possible without damaging the assembly. Pinch rollers (rotary press) and heavy weighted rollers are ideal for such purposes. Hand rolling should be done from the centre to the edges to ensure the removal of all air bubbles. The edges should be rolled twice.
- Care should be taken to follow the manufacturer's recommendations concerning the allowable tack range of the adhesive. If assembly is made before the adhesive is dry or after the allowable open time is exceeded, the bond may not have satisfactory results.



- Unless otherwise indicated by the manufacturer, the temperature of the gluing area and all materials should be maintained around 21°C (70°F) or above.
- Experience has shown that when the relative humidity is above 80% at temperatures of 21°C (70°F) or lower, moisture may condense on the surface during drying (known as blushing) and this will prevent an acceptable bond. Hot spray or forced air drying may be used to help prevent this condition.
- It is recommended that the maximum sheet size used for vertical field application be limited to 610x2440 mm (2 x 8 ft). If larger panels are required, these should be fabricated in the shop.
- A gap of minimum 2mm should be maintained between two laminates while pasting side by side.

5. Care & Maintenance

Storage: Sheets should be stored horizontally with the top sheet turned face down and a thick hard board placed on top to protect the material from possible damage and reduce the chances of getting warped. Stored laminate stock should be rotated such that older sheets will be used first. Laminate sheets should be protected from moisture, and should never be stored where they may come in contact with the floor or outside wall. Always carry the sheets vertically. Never slide the sheet but, lift it while moving it from one place to another. We recommend that ideally two people should carry a full size sheet as carelessness can damage the decorative surface.

Resistant to stains: Merino Laminates are resistant to stains belonging to Group 1 and 2 but may take stains of reagents of Group 3 and 4. Group 3 and 4 reagents should not be allowed to spill on the surface, and in case of spillage should be immediately wiped off.

Classifications of the reagents:

Group 1: Acetone, trichloromethane, toothpaste, hand cream, urea, alcoholic beverage, natural fruit, fruit drink, meat, vegetable oil, water, NaCl (solution), mustard, soap solution, paint remover (kerosene), phenol and citric acid.

Group 2: Coffee, black tea, milk (condensed and evaporated), cola beverages, vinegar, hydrogen peroxide (3% solution), ammonia (10% solution of commercial concentrate), nail polish remover, lipsticks, water colour, laundry marking ink, ball point ink.

Group 3: Sodium hydroxide (25% solution), hydrogen peroxide (30% solution), concentrated vinegar (30% acetic acid), acid based metal cleaners, shoe polish, hair colouring, iodine, boric acid, lacquers.

Group 4: Citric acid (10% solution), acetic acid (5% solution).

Cleaning:

- 1) To clean the surface, use a damp cloth or sponge and a mild soap or detergent.
- 2) Stains belonging to group 2 such as coffee or tea can be removed using a mild household cleaner/detergent and a soft bristle brush.
- 3) If a stain persists, apply a paste of baking soda and water with a soft bristled brush. Light scrubbing, 10 to 20 strokes should remove most stains. Although baking soda is a low abrasive, excessive scrubbing or exerting too much force may damage the decorative surface, especially if it has a gloss finish.
- 4) Stubborn stains belonging to Group 3 and 4, which resist any of the above cleaning methods, may require the use of undiluted household bleach or nail polish remover. Apply the bleach or nail polish remover to the stain and let it stand no longer than two minutes. Rinse thoroughly with warm water and wipe dry. This step may be repeated if the stain appears to be going away and the colour of the laminate has not been affected.

Warning: Prolonged exposure of the laminate surface to bleach will cause discolouration. Acid based cleaners will permanently damage the laminates. Never allow these cleaners, or bottles, rags or other items contaminated with these cleaners, to come in contact with the laminates. Wipe such areas immediately and rinse thoroughly with water.

Maintenance:

Abrasives: Abrasive pads, scouring powders or cleansers may permanently damage the laminate surface making it susceptible to staining.

Harsh chemicals: Harsh chemicals such as oven cleaner, toilet cleaner, or drain cleaner will etch and discolour the decorative surface. High Pressure Decorative Laminates are not designed to resist continual contact with these chemicals. If any of these products spill over the surface remove immediately, rinse thoroughly, and wipe dry.

Hot objects: Even though HPL has high heat resistance, exposure to temperatures greater than 135°C is not recommended. Hence, do not place hot frying pans or dishes directly from the oven or cooktop on the laminate surface. As a precaution, protect the surface from heat generating appliances such as pressing irons, toasters, curling irons and electric cookers by using a trivet or insulated pad. Prolonged exposure to temperatures above 65°C may result in separation of the laminate from the substrate.

Sharp objects: Never use knives or other sharp objects directly on the decorative surface. Use of chopping block or counter saver is recommended.



Impact: Even though High Pressure Decorative Laminates have excellent impact resistance, chipping or cracking may occur. Do not abuse the High Pressure Decorative Laminate by dropping heavy objects such as cans, dinnerware, or glasses or deliberately hammering directly on the surface.

6. Technical Data

ESD Properties as per IEC 61340& ESD S-4.1, S-20.20		
Test Condition	Temp.- 25 *C	
	Humidity- 45%	
Instrument Used	MEGGER METER	
Surface Resistance (Max.)	Preferred Value	Observed Value
	< 1.0x10 ⁹ Ohm	< 5x10 ⁸ Ohm
Point to Point Resistance (Max.)	< 1.0x10 ⁸ Ohm	< 5 x10 ⁷ Ohm
Surface to Ground Resistance (Max.)	< 1.0x10 ⁹ Ohm	< 2 x10 ⁸ Ohm
Decay Time (As par NFPA 99- MIL-STD-3010)	< 0.5 sec	< 0.02 sec

7. Limited Warranty

Merino Industries Limited & Merino Panel Product Ltd. warrant that, under normal use & service, the material & workmanship of their products shall confirm to the standards set forth on the applicable technical data sheet for a period of twelve (12) months from the date of sale to the first consumer purchaser. Dealers & distributors are provided with the technical data sheets, which contain specific standards of performance of the product. In the event that a Merino Industries Limited or a Merino Panel Product Limited product does not perform as warranted, the first purchaser's sole remedy shall be limited to repair or replacement of all or any part of the product, which is defective, at the manufacturer's sole discretion. This warranty is not transferable, and expires upon resale or transfer by first purchaser. This warranty shall not apply to defects or damage arising from any of the following: Accidents, abuse or misuse, exposure to extreme temperature, improper fabrication or installation, improper maintenance. No other warranties, expressed or implied, are made. Under no circumstances shall the manufacturer be liable for any loss or damage arising from the purchase, use, or inability to use the product, or for any special, indirect, incidental, or consequential damages. No fabricator, installer, dealer, agent or employee of Merino Industries Limited and Merino Panel Product Limited has the authority to modify the obligation or limitation of this warranty.

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