Chamberlain Plastics International Limited

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PRODUCT DATA SHEET

Product: ***Thermal Stability and Chemical Resistance Of Metalon Laminates***

METALON® laminates are manufactured from thermoplastic films and exhibit varying degrees of flexibility at room temperature. As the temperature increases the laminate becomes more pliable, until it softens and melts. The stability of the material will depend on:

- The thickness of the component film;
- The chemical composition of the component films;
- The nature of the subsequent process likely to change the characteristic of the laminate;
- The nature and composition of the substrate to which it is adhered.

Laminates with a rigid PVC base (R800, R801) will soften less readily than laminates with a flexible PVC base (FNM, FNM4, FNM5). Thin gauge laminates will be more flexible and soften more readily than thicker laminates.

Due to these reasons, it is impossible to specify optimum temperature ranges, however, below are observed melting ranges of the component films:

Polyester film	265°c	Dupont data
R800, R801	180-210°c	Chamberlain data
FNM, FNM4, FNM5	170-200°c	Chamberlain data

Films and subsequent laminates produced from the above films pass a cold flexibility test consisting of flexing the material around a 10mm diameter mandrel at -30c without cracking. No minimum temperature has been established.

Excessive heat and tension will cause the polished effects to dull and become hazy, and the point at which this occurs depends on the degree of heat and/or tension applied to the laminate during application by the user, and the degree of complexity of the profile to which it is applied. Excessive conditions can also cause metal/polyester film separation.

PVC can evolve noxious fumes if heating occurs close to, or above, their melting ranges. Avoid inhalation. Top coated rolls of METALON may block if stored, or used, above ambient conditions.

CHEMICAL RESISTANCE OF METALON BI-LAMINATES

The chemical resistance of Metalon bi-laminates is limited in its free form but increases as the product is extruded on to a PVC profile. Burying the edges of the tape protects the material further as does the application of a clear PVC overlay. We recommend that edges should be buried or encapsulated where profiles are to be used in harsh environments.

Extruded Metalon tape has good resistance to 24 hour immersion to the following:

- Dilute organic acids e.g. vinegar
- Glass cleaner
- Liquid/solid waxes
- Neutral cleaning liquids
- Neutral detergent
- Vegetable Oil
- Water based glues
- Weak solvents e.g. Alcohol

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Moderate resistance to:

- Mild Acidic/Alkaline detergents <5%
- Diluted household bleach <5%
- Moderately strong solvents e.g. esters, hydrocarbons
- Petroleum based solvent glues
- Salt water <5%
- Dilute Weak acids/alkalis e.g. acetic acid/ammonia
- Water vapour above ambient temperature

Poor resistance to:

- Hot solvents
- Oxidising agents e.g. Nitric acid
- Strong acids/alkalis e.g. Hydrochloric acid/Sodium Hydroxide
- Strong bleaching agents
- Strong polar solvents e.g. acetone

In addition cleaning liquids containing abrasive agents will scratch the polyester film surface degrading its appearance.

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