

Glossary

- 3P Adhesive** - The Multek high temperature and low outgassing adhesive made with polyimide/polyamide/polyester based resin is used in laminates for applications requiring performance at extreme temperatures.
- A528 Adhesive** - The Multek low outgassing polyester based thermosetting adhesive used in laminates for standard temperature applications.
- Absorptance** - The ratio of the light absorbed by a material to the total incident light. (See also Solar Absorptance)
- Abrasion** - The wearing away of a surface by such means as rubbing, scraping or erosion.
- Acrylic Overcoat (AOC)** - A thin protective coating put on aluminum coated substrates.
- Adhesion** - The atomic or molecular attraction at the interface of two materials. Adhesion keeps a vacuum coating and substrate together.
- Adhesive** - A material used to attach similar or dissimilar materials to each other. (See also Pressure Sensitive Adhesive)
- Angstrom** - A unit of length, used especially in expressing the length of light waves, equal to 10^{-10} m, 3.9×10^{-9} inches.
- Blackbody** - An idealized substance that is completely opaque and non-reflecting in all directions and at all wavelengths.
- Blister** - An elevation of the surface of the adherent, somewhat resembling in shape a blister on the human skin; its boundaries may be indefinitely outlined and it may have burst and become flattened. It may be caused by insufficient adhesive, inadequate curing time, temperature, or pressure; or trapped air, water or solvent vapor.
- Blocking** - Undesirable adhesion between touching layers of similar or dissimilar materials.
- Blush** - Whitish surface appearance where moisture has condensed before solvent is all evaporated; or as a result of moisture or impurities bleeding from the substrate.
- Combining** - The process of adding PSA, coverlay, or release to substrate.
- Coverlay** - Protective layer of tape with a low tack adhesive to allow easy removal from the product to which it was combined.
- Desiccant** - Substance which can be used for drying purposes because of its affinity to water.
- Dielectric** - A nonconductor of electricity, an insulator.
- Dielectric Strength (Breakdown Potential)** - The potential per unit thickness of the dielectric to cause puncture when electrodes are in contact with the material and the voltage is increased at a specific rate.
- Embossing** - A technique to produce a rough or raised pattern on the surface of a material. Material may be embossed to produce a diffuse surface or to provide separation between surfaces with minimum contact as may be desired in multilayer insulation blankets.
- Emittance** - A material's ability to radiate heat energy. A perfect blackbody has an emittance of 1 at all wavelengths.
- FEP** - Fluoro ethylene propylene (Example: Teflon® Type A)
- ITO** - Indium Tin Oxide, a sputtered transparent conductive coating.
- Laminate (Noun)** - A product made by bonding together two or more layers of material with an adhesive.
- Laminate (Verb)** - To unite layers of material with adhesive.
- MLI** - Multi-Layer Insulation. A term used to describe a thermal control blanket.
- Outgassing** - The process of emitting volatile substances from a material.

A Multek Brand

Perforation - A process that punches many regularly spaced holes in a material.

PET – Polyester or Polyethylene Terephthalate (Example: Mylar™, Melinex®)

PI – Polyimide (Example: Kapton®, Apical®, Upilex®)

Porolation – A process also called micro-perforation that punches approximately 17,280 pin-prick sized holes per square foot in a material.

Pressure Sensitive Adhesive (PSA) - A dry thin adhesive with a paper or polypropylene backing. PSAs require only pressure to adhere to a surface.

PTFE – Polytetra fluorinated ethylene

Reactive Sputtering - A sputtering process that uses a small amount of gas to form compounds on the substrate.

Reflectance - The ratio of the light reflected from the surface of the total incident light.

Roll - A continuous length of films of any width typically one hundred to several thousand feet long.

Roll to Roll Coating - A process for handling continuous lengths of a material in a vacuum chamber.

Scrim - A loosely woven cloth which is attached or laminated to a substrate or product to give it strength.

Solar Absorptance – The fraction of the sun's energy that is incident on a surface that it absorbs. This is computed by measuring the absorptance at many wavelengths and performing a weighted integration based on the sun's spectral output. We normally report solar absorptance based on the solar spectrum in vacuum. We can also compute solar absorptance based on the sun's spectrum as modified by passing through the earth's atmosphere.

Sputtering - A deposition process by which atoms and/or molecules of atoms are ejected from the surface of a target after bombarding it with ions.

Substrate - The base layer(s) upon which a process is to be performed (i.e., Polyimide, Polyester, FEP).

Surface Resistivity - An electrical resistance parameter for thin conducting layers. The surface resistivity is given by the bulk resistivity divided by the film thickness and is independent of the cross sectional area of the layer measured.

Temperature Range, Continuous – Listed in our individual Product Bulletins, it is our engineer's best judgment of recommended temperature ranges that a material can withstand without degradation. Continuous exposure is described as periods of hours or longer. Sheldahl recommends users verify material selections are appropriate for their mission environment.

Temperature Range, Intermittent – Listed in our individual Product Bulletins, it is our engineer's best judgment of recommended temperature ranges that a material can withstand without degradation. Intermittent exposure is described as periods of seconds or minutes. Sheldahl recommends users verify material selections are appropriate for their mission environment.

Thermal Conductivity -Ability of a material to conduct heat.

TFB – Thick Film Black, a Sheldahl® brand matte black coating that may be modified to also serve as a conductive black adhesive.

Transmittance - The ratio of the light transmitted through a material to the total incident light. (See Absorptance)

VD – Vacuum Deposited

VDA – Vacuum Deposited Aluminum

Vapor Deposition – A process where a material, usually metal, is deposited in the absence of air. The material condenses onto cooler surfaces including the substrate.