

Common Engraving Industry Terms and Definitions

ABS: Acrylonitrile and styrene liquids and butadiene gas are polymerized together in a variety of ratios to produce a family of ABS resins. Rowmark uses ABS resins in the manufacture of the core material for products such as Satins and Mattes. ABS resins are good for interior use products and are selected for their moderate costs and excellent engraving characteristics.

ACRYLIC: POLYMETHYL METHACRYLATE – A thermoplastic material compound of polymers of methyl methacrylate. It is a transparent solid with exceptional optical properties and good resistance to water. It is obtainable in the form of sheets, granules, solutions, and emulsions. It is extensively used for, lighting, fixtures, decorative articles, etc.; it is also used in optical instruments and surgical appliances. The molecular structure of acrylic provides increased protection from sunlight's ultraviolet rays; material is noted for outdoor durability and colorfastness. Typically marketed under trade names such as Plexiglas and Lucite. Rowmark uses blends in the construction of its various products such as Lacquers, Ultra-Mattes, laser engravable products.

BONDS : Procedure to join together two sheets of plastic or to join plastic to another substrate. It is recommended that the user test any new adhesive or bonding agent prior to use. Many solvent type adhesives will break down plastics or cause bleeding of pigments. Superglue is not recommended.

CAP LAYER : Laminated top piece in sheet materials with multi-ply layers. The Cap Layer is engraved or lasered through to expose the core layer thus providing a color "contrast" between the cap and core.

CORE LAYER : The base layer(s) in a multi-ply sheet. Rowmark provides core layer products in modified acrylic and ABS plastics. The core is the foundation or base that the cap layer is applied to.

DRILLS : A method of putting a hole into a piece of plastic using a press or hand drill. When mounting plastic signs, the hole size should be 1 ½ larger than the mounting screw or bolt to allow for the thermal expansion and contraction of the plastic.

FOIL : A very thin gauge material that is applied as a cap to the core layer. This applied material is sometimes referred to as a "microsurfaced" material. Foils are heat transferable to the core. Rowmark uses foils on products such as LaserMAX, Mattes, FlexiColor/FlexiBrass and Metals.

GLOSSY : A smooth or polished surface. Smooth or glossy surfaces are the result of the lamination process of products such as Slickers or Lacquers. Glossy surfaces will show surface abrasions more easily.

HEAT BENDABLE : The material may be heated using industry recognized heat benders. Cracking of the plastic may occur if the material is over 1/16" thick or if improperly heated and cooled.

HOT STAMPING (hot stampable): Engraving operation for marking plastics in which roll leaf is stamped with heated metal dies onto the face of the plastics. Ink compounds can also be used.

IMPACT MODIFIED ACRYLIC : See Acrylic.

INTERIOR SIGNAGE : Signage produced for indoor applications where UV stability and weatherability are not required.

LASERABLE (laser engraving): Acrylic core materials with thin cap surfaces that can be easily engraved with minimal wattage at increased cutting speeds. ABS materials are not recommended for laser applications.

LAMINATED IMPACT ACRYLIC: One or both of the plies of impact acrylic are mechanically bonded together under heat, pressure, temperature and time. The cap is typically between .005" and .010" in

thickness.

MATTE : A low gloss finish achieved during the extrusion or lamination process. Typically durable and resisting finger prints. Does not easily show surface scratches or abrasion.

MICRO SURFACED IMPACT ACRYLIC: A plastic engraving material with a cap, or top layer, around 1 to 2 thousandths of an inch in thickness, compared to a standard cap depth of ten thousandths of an inch or greater.

MODIFIED (modified acrylic): A modified blend of multi-polymer compounds containing ingredients such as fillers, pigments or additives that help to vary the physical properties of a plastic material. As opposed to Impact Acrylic, this material is not UV stable.

OUTDOOR WEATHERABLE : The ability of plastic engraving material to withstand exterior weathering conditions. Rowmark products designated as "outdoor weatherable" are designed to withstand average conditions and temperatures for up to 2 years without significant degradation. Although no specific life can be designated to any product, Rowmark recognizes that under normal conditions the material will not break down physically. Materials may become brittle and some discoloration or fading will occur when used in harsh environments or exposed for extended periods of time.

PERSONAL IDENTIFICATION : Applications such as name badges, small tags or signage.

ROTATING CARBIDE ENGRAVING : This marking method uses a single or multiple fluted cutting tool which rotates through the work to remove material, leaving a trough of exposed core. As compared to diamond-drag, rotary engraving may result in deep cutting or the complete cutout of a letter or object. The cutter's tip size determines the width of the cut. In most applications, the spindle micrometer setting controls the depth of cut. This process is suitable for most commercial and industrial work. Unlike diamond-drag, rotary engraving is the only means of engraving plastic materials with controlled depth.

SAW CUTS : As used in Rowmark product specifications, the material can be cut using industry recognized "safety saws". Safety saws provide a fine tooth high speed cut that produces a clean edge. Rowmark does not recommend circular or table saws because unacceptable edge chipping may occur.

SCORES : A procedure used to cut sheet material. A sharp knife is used to cut the material to a minimal depth. The sheet may be bent or broken completely by hand to produce the necessary finished size of material. This procedure is inexpensive, but not preferred. Acrylics perform better than softer ABS materials using this procedure.

SCREEN PRINTABLE : The engraving sheet will be receptive to most screen printing inks. Due to the variety of available inks, it is recommended that users pre-test the material for compatibility with their inks

SECOND SURFACE (reverse engraved materials): Clear cap with microsurface or laminated core, machined from the reverse or backside of the material. Back painting is a popular method of achieving a contrast in color. Example: Rowmark Ultra-Matte Reverse

SHEARS : Material can be cut with a pneumatic, foot, or hand shear. Typically hand shears (the most common), can accommodate material that is up to 12 inches wide by any length. While there are two versions of the shear, one for plastic and one for metal, they are actually the same device, but have different upper blades. The plastic-cutting shear has a knife-like upper blade with an extremely fine edge and is intended for cutting flexible engraving stock to a maximum of 3/32" thick. It is not intended for cutting rigid plastics like acrylic and phenolic. See saw cut for additional cutting methods.

THERMOPLASTICS : Capable of being repeatedly softened by heat and hardened by cooling (n.) – A material that will repeatedly soften when heated and harden when cooled. Typical of the thermoplastic family are the ABS, polypropylene, acrylics, cellulose, polyethylenes, vinyls, nylons, and the various fluorocarbon materials.

TWO-PLY, THREE-PLY : Substrate with thin top layers of contrasting colors. As top surface is removed in engraving, substrates of different colors are exposed, giving a look of fill. Two-ply denotes one different

colored layer on a substrate; three-ply denotes two different cap layers on each side of the substrate. Some three-ply substrates have only the core as a different color, so the only way for an observer to see the core is to look at the engraved area.

UV (Ultraviolet) STABILITY : The ability of the engraving material to maintain its colorfastness in UV conditions for a limited period of time. Although colorfastness is a desirable condition, no man-made product will remain colorfast in an exterior environment indefinitely. Rowmark uses UV stable plastic resins and foils in many products to prolong the useful life of the material when used in exterior conditions.

UV (Ultraviolet) STABILIZER : Any chemical compounds which, when mixed with a thermoplastic resin, selectively absorbs UV rays.