Terms, Definitions & Symbols

Several of Rowmark’s sales tools, including swatch pages, color charts and the website feature symbols and terms. Provided are those visual references and definitions. They will serve as a reference to help answer commonly asked questions regarding product specifications.

Symbols:

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

🪨 Rotary-Engravable (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.

💡 Indoor (interior signage)
Signage produced for indoor applications where UV stability and weather-ability are not required.

🌞 UV Stable (ultra-violet 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.

🌞 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.

🪨 Reverse-Engravable (second surface)
Clear cap with microsurface or laminated core, machined from the reverse or backside of the material. Back-painting is a popular method of achieving contrast in color. (Example: Rowmark's Ultra-Mattes Reverse-Engravable)

🪨 Front-Engravable (first surface)
Multi-ply layered sheet material consisting of a laminated top piece over a base layer. The cap layer is engraved or lasered through to expose the core layer, thus providing a color contrast between cap and core.

Available in Gloss Finish
Available in 1/8” thickness

Manufacturing Methods:
Rowmark materials are manufactured using various resins such as ABS, impact acrylic, and modified acrylic. Please refer to manufacturers’ MSDS Sheets for more detailed information on each resin.

**Lamination:**
Components are extruded separately. One is referred to as the core or substrate sheet, and the other is the cap sheet. The core or substrate is the thicker of the two pieces, and the cap sheet is placed on top for front engraving. The cap sheet is typically between .005” and .010” thick. For reverse engraving, the core or substrate is clear, and the cap sheet is placed on the bottom side of the material. Components are then laminated together under heat and pressure. Glossy and matte (described below) surface finishes can be achieved in this process.

**Microsurfaced (Hot-Stamped):**
The core or substrate is coated with a very thin film or foil. The thickness of the film or foil is approximately 1/1000” to 2/1000” thick. This process allows for fine detail engraving.

**Co-Extruded:**
The core and cap are extruded together in one process to form a 2-ply finished product. The surface finish of this product is rolled on at the beginning of the extrusion process.

**Finish:**

**Matte non-glare:**
Materials have a matte, non-glare finish that does not reflect surface scratches, abrasion, or fingerprints.

**Brushed or Brushed Metal:**
Materials have a subtle brushed finish. Brushed Metals simulate the grain used in real brass and aluminum.

**Gloss:**
Materials have a smooth or highly polished surface. This surface tends to magnify fingerprints and requires scheduled cleaning.

**Textured:**
The textured finish feels like fine sand to the touch. This tough surface resists fingerprints, scratches, and marring. Textures are the only sheet materials that do not require protective masking, attesting to the durability of the finish.

**Engraving Method:**

**Laserable:**
Engraving is achieved through the use of a laser (a concentrated beam of light). The depth of the cut is controlled by the laser settings. Rowmark’s Laser Guide CD explains this process in detail.

**Rotating Carbide:**
This engraving method uses a single or multiple fluted cutting tool that rotates through the cap to expose the contrasting core color.

**Burnish:**
Burnishing is a method of engraving that allows for wider line widths without having to route deeply into the material. A burnisher is a faceted, rotating tool that removes the top surface and exposes the core color.

**Cutting Depth**
Cutting Depth is the recommended cutting depth for each product line to ensure the top surface is cleared and the core material is exposed.

**Fabrication Techniques**
Various methods of fabrication are applicable for individual product lines. Each method that applies to a product line is indicated with a black circle.

**Scores:**
To cut material, a sharp knife is used to make an incision in the material to a minimum depth. The cut should extend the length of the material required for the finished piece. The sheet may then be snapped or broken by hand. This method is inexpensive but can result in a rough edge.

Drills:
This is a method of making a hole in a piece of plastic by either using a press or a hand drill. When a sign is to be installed on the exterior of a building with a nail or screw, the hole should be 1.5 times the diameter of the shaft of the nail or screw. This allows for expansion and contraction of the material under hot and cold conditions and also prevents bowing. The same theory applies when a sign is to be displayed in a holder. In addition, signage installed on machinery that heats up should also be cut to allow it to expand and contract.

Saws:
Materials can be cut using industry recognized safety saws that produce a fine-tooth high-speed cut resulting in a clean or smooth edge. Rowmark does not recommend circular or table saws because edge chipping may occur.

Shears:
The material can be cut with a pneumatic, foot, or hand shear. Hand shears are the most common and can accommodate material up to 12” (30 cm) wide by any length. Flexible engraving materials can be sheared up to a maximum thickness of 3/32” (2 mm). Acrylics should not be sheared.

Vector Cuts:
Vector cutting follows the contour of a shape. It can be simple, such as a rectangle, or complex, consisting of straight lines and curves. Although it is possible to just engrave the surface with an outline when vector cutting, more often the intent is to cut through the material and cut out an actual shape.

Bevels:
There are two types of bevels. The first is a sloped edge that runs from the top to the bottom of a plate’s edges to provide a border effect. The second is a slightly rounded edge on the top of the engraved plate to expose the core color.

Heat Bendable:
The material may be heated using industry recognized heat benders. Crazing of the plastic may occur if the material is over 1/16” (1.6 mm) thick or if it is improperly heated or cooled. The material softens sufficiently at about 200° F (93° C) so that it can be bent as needed.

Braille Engravable:
Braille engraving is done by routing and is the process of engraving away the background of a Braille cell and leaving the Braille dots raised. The Edgerton method, also known as raster dots, is to drill holes into the core material and insert 1/16” (1.6 mm) diameter rasters.

Screen Prints: The stencil process forces inks through a silk or organdy screen that has been prepared to have printed and non-printed areas designed to form a pattern or logo.

Hot Stamps:
This method is used for marking plastics with a logo or insignia in which a roll leaf is stamped with heated metal dies onto the face of the material. Ink compounds can also be used.

Bonds:
This procedure joins two pieces of plastic or a piece of plastic with another substrate. Chemical solvents such as methylene chloride and acetone may be used. Rowmark does, however, recommend that the user test any new adhesive or bonding agent prior to use. Many solvent adhesives break down plastic or cause pigment bleeding. Superglue is not recommended.

Backlighting:
A reverse engraved sign can be inserted into a lightbox, the area where the plastic has been removed can be filled with fluorescent paints, or fluorescent black lights can be used in the lightbox with fluorescent paints. Fluorescent paints should be applied in several light coats. Incandescent lighting can be used with engraving material that is covered with a colored foil.
Reverse engraved signage can be spray painted, painted by hand with a brush suitable for acrylic or latex paint, or filled by using a paint dispensing system. Oil based paints tend not to dry. Krylon spray paints work well if sprayed sparingly, allowed to dry (approximately 10 minutes), and sprayed again depending on required opacity.