



Expanded PVC in dimensional signs

PLASTICS IN THE
SIGN INDUSTRY

by Bruce Merklinghaus

An elaborate outdoor sign was needed depicting a chef holding a pizza and a hamburger. All the items had to be three-dimensional, and raised from the solid background. Expanded PVC was chosen as a substrate because of its stiffness, lightness, excellent weatherability, and its ability to be fabricated easily using existing woodworking tools.

The background was manufactured from 19 mm white expanded PVC. The chef was made of 12 mm which was rough-cut with a jigsaw and then routed utilizing a standard router with a three fluted cutter bit. His shirt, pants and shoes were produced from 6 mm foam using a standard router and a template.

His apron and hat were fabricated from 3 mm material.

For this exterior sign, the hamburger was made using combinations of 12 mm for the rolls, 6 mm for the beef, 3 mm for tomatoes, and 2 mm which was heat-formed in an irregular shape to depict lettuce. The pizza was cut from 6 mm expanded PVC, and a vinyl decal was affixed to replicate a pizza.

Details on the various components were then free-hand painted with 100 percent acrylic paint. The components were affixed to the backdrop using angle pieces and braces also manufactured from expanded PVC. Large pieces were bonded with a urethane adhesive system.

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Smaller pieces were bonded using regular PVC pipe cement. The urethane allowed the artist more time to adjust the placement of the items before it set, and also reduced the amount of volatiles. This entire sign measured 3 feet by 6 feet and was used outside a fast-food restaurant.

Coextruded high density PE for outdoor signs

Exterior signs are exposed to the harshest conditions — extreme cold and heat, ultraviolet light, snow, hail, acid rain and severe treatment perpetrated by vandals.

For quite some time, the sign industry has been trying to find a material that

can withstand these forces and also be economical. One such material is a high-density, coextruded polyethylene. It is produced in what is known as an A-B-A format. The top and bottom layers are usually about .100" thick of one color, and the inner core is a contrasting color. The inner core is generally between 5/16" and 1/2" thick, but there are many variations available. There are at least one dozen various color combinations. Some of the unique advantages of this material are that no pre- or post-treatment is necessary. It has extremely good cold impact properties, excellent resistance to ultraviolet light, and the ability to repel inks, paints and other types of graffiti.

It is also not abrasive, so it is not hard on tooling. The equipment necessary to produce signs is a CNC router or a hand router with a template for simple signs.

Engraving machines are generally too small and tend to overheat and break-down. If a CNC router is used, there are numerous sign software packages available, so the designs are only limited by the artist's imagination. Routing guidelines as to the proper tools, speed and feed rates for specific materials come from numerous sources. One of the best is produced by Onsrud Cutter LP, and can be found on the Internet by accessing www.plasticrouting.com.

Once you have routed the piece, your sign is complete except for installation. You have now created a dimensional sign with great eye appeal and excellent legibility. ■



This sign was routed out of PolyCarve™ coextruded HDPE engraving stock produced by Vycom/Scranton Products.

For more information, contact Vycom/Scranton Products, 801 E. Corey Street, Scranton, PA, 18505; (800) 235-8320, fax (570) 346-4122, www.vycomplastics.com.