

The Compleat Sculptor presents...

Sculpting Foam *Part 1: White Foams*

Rigid foam is a sculpting material that can be sculpted quickly and easily for making all kinds and sizes of light-weight 3D forms. In this project sheet we will discuss two types of foam and the most effective way of carving them.



Materials Used in this Article:

- Foam for Carving
- Hot Wire Foam Tools
- Rasps & Sandpaper (220 grit)
- Magic-Smooth

• **Foams** (Image #1)

The foams we will be sculpting in the article will be defined for clarity purposes as the following:

Bead Board – the foam that looks like it is made of little foam beads mashed together, typically used in packing material. (Expanded polystyrene)

Blue or Pink Foam - blue or pink foam typically used for insulation. (Extruded polystyrene)

Styrofoam* - open cell foam typically seen in craft stores, usually white, sometimes green. (Not floral foam) (Expanded polystyrene)

Balsa-Foam - a dense foam that was developed specifically for three-dimensional design and model making. It cannot be carved with hot tools! (Phenolic foam)

• **Tools** (Image #2)

Many tools can be used to carve rigid foams. The tools you use depend on the amount of material you want to remove and vary somewhat depending on the type of foam you are using.

Hot Tools – There are many hot tools on the market for carving foam. These tools have metal components that heat up and carve the foam by melting it. Steady, light pressure is all that is needed when using hot tools and they can be used for high volume removal or refining details. Hot foam sculpting tools should be used with care, ventilation and respiration; the heated components can burn skin and fumes created by the melting foam are toxic.

Rasps, Files & Rifflers – Many abrasives can be used to sculpt foam. Choose a fine or coarse abrasive depending on the volume of material you wish to remove. Coarse tools can be used for high volume removal and fine tools can be used for final shaping.

Power Tools - Power tools are a quick way to carve large blocks of foam by removing large areas rapidly, for example Dremel & Burrs, Flexible Shaft & Burrs, and Angle Grinders & Die Grinder & Zec Disks and Grinding Wheels. Use extreme caution when using power tools to sculpt foams. Be certain that your foam piece is anchored securely before carving with power tools! Also be aware that the friction created by the power tool may cause the foam to melt, clog the abrasive and produce noxious fumes.

Sand papers – Sandpaper should be used for refining the final shape and is not effective for stock removal (unless the piece being sculpted is very small).

• **Carving**

Bead Board

Bead Board can be carved with many abrasive tools as well as hot tools. It can also be shaped with wire brushes but be prepared - although the wire brush method is fast and easy – it makes a mess! Beads from Bead Board are highly static and will stick to you and everything else. Anti static spray can help and clean up is most effective with a shop vacuum or a good ol' fashion broom and dustpan. (spritzing with water can help reduce static)

In this project sheet we have used a piece of scrap bead board from a previous project. If you like, sketch your design with a permanent marker on your foam before carving to get a general idea of the form (Image#3). We chose to rough out the shape using Hot Wire tools first (Image #4) because it is very fast then we rounded out the shape using a wire brush (Image #5).



Image #1

Left: StyroFoam
Right: Bead Board



Hot Tools
Power Tools
Files, Rasps & Sandpapers

Image #2
Various tools



Image #3
Sketch your design



Image #4
Using Hot Wire Tool



Image #5
Shaping with a wire brush

Lastly we used 220 grit sand paper to smooth the foam and refine the final shape (*Image #6*). This step is not necessary if you are using a thick foam coat under which finer sandpaper details may be lost. However it will smooth the surface of the foam if that is the look you are going for.

Styrofoam - White (and green) Styrofoam can be carved with all the tools mentioned above. Hot tools, files, rasps and sand paper work well.

Using compressed air or a vacuum, remove any last loose bits of foam before coating, this will keep bits of foam mixing in with the coating and creating lumps.

• **Gluing**

You will find that many types of glue, including Super Glue, Hot Glue and most epoxy glues, will melt most foam. For gluing foam pieces use Magic-Smooth and Weldbond. For the Bead Board bunny tail was carved from another scrap piece of foam (*Image #8*) and glued on using Magic-Smooth (*Image #9*).

Magic-Smooth is rigid when cured hence carving then gluing is preferable to gluing then carving. Weldbond is better if you are planning to glue your foam pieces together and then carve into them. We do not recommend using hot tools on foam that has been glued together as adhesives can cause toxic fumes when heated or burnt.

Tips:

- A Tyvek suit can keep clothing foam free (and can be repaired with duct tape). Use elastic bands to keep the dust out from around your wrists. Keep an old pair of shoes to wear during carving and eye protection.
- Use a shop vacuum to keep the dust level down.
- If you plan on coating your foam sculpture - make the foam sculpture 25-30% smaller that you want you final piece to be.
- Avoid burning foam. Hot tools should be used at a temperature that cuts the foam but does not smoke.
- Do not force hot tools through the foam... they “cut” the foam by melting it and should be allowed to move at their own pace. Excessive force can break the tool. The hotter the tool the faster it will melt the foam however the more fumes it will create. The perfect temperature for hot tools is one where the tool moves through the foam without producing smoke.

*** Fun Fact**

“STYROFOAM* is a registered trademark for a line of extruded polystyrene foam products made exclusively by The Dow Chemical Company. STYROFOAM Brand Foam is often Blue* in color and used as insulation, except in the Floral and Craft markets, where STYROFOAM Brand Foam is white or green.

STYROFOAM Brand Foam is not used in the manufacture of disposable foam products, such as food packaging, cups, plates, coolers or egg trays. These disposable products are made of either molded expanded polystyrene beads or thin extruded polystyrene sheet, neither of which is manufactured by Dow in the United States.

So next time you get a cup of java to go, remember, you can’t drink coffee from a STYROFOAM cup - because there is no such thing!”

STYROFOAM and the color Blue are trademarks of The Dow Chemical Company

Excerpt From - <http://craft.dow.com/craft/about/cup.htm>

For more information on Foam and Foam Coatings – see our website at www.SCULPT.com



Image #6
Detail sanding



Image #7
Sculpting the tail



Image #8
The finished tail



Image #9
The rubber band will hold the tail in place until the glue cures.

Upcoming Project sheets:

- Sculpting Foam Part 2 Blue / Pink Foams
- Sculpting Foam Part 3 Balsa Foam
- Foam Coating Techniques *Not necessarily in that order!*
- Sculpting with Magic-Sculpt
- Making Custom Fangs for Halloween or any other day!

Please email us at TCS@SCULPT.com if you have suggestions for Project Sheets you would like to see or questions or comments about our Project Sheets. If you have images of artworks you have created using our Project Sheets that we could post online, please email those as well!



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We’ll Supply the Rest!”