

Design Resource

Thermocol Modeling - Ahmednagar, Maharashtra

Modeling Works

by

Prof. Bibhudutta Baral and Srikanth B.
NID Campus, Bengaluru

Source:

<https://dsource.in/resource/thermocol-modeling-ahmednagar-maharashtra>



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2. Tools and Raw Materials
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Introduction

Thermocol is the commercial name for the polymer product Polystyrene, synthesized from the monomer styrene. Polystyrene comes in two forms brittle solid or foamy. This inexpensive resin with 90- 95% of air is a type of plastic that comes with a high thermal insulation rate. Hence it is often used for concrete forms and insulation panels, that are used in structural insulations. The scale of thermocol production in our country is several million tons per year.

Polystyrene was discovered by Eduard Simon in 1839, a Berlin-based chemist who accidentally discovered a monomer from the resin of an American sweetgum tree *Liquidambar styraciflua*, and named it styrol. After several days, it turned into styol oxide, a thick jelly-like substance which he presumed to be due to oxidation. But by 1845, Jamaican druggist John Buddle Blyth and German chemist August Wilhelm von Hofmann proved that the new form has nothing to do with oxygen play. In 1866, Marcellin Berthelot identified the role of the polymerization process in the formation of Styroloxyd, which had practical application only after 80 years. When German organic chemist Hermann Staudinger illustrated a chain reaction when styrol is heated, he gave Styloxyde, which he changed to the present name, Polystyrene. Later in those days, it was used as a replacement for die-cast zinc, and the real successful application struck when a reactor vessel newly discovered gave pellet-shaped Polystyrene. The origin of its commercial name 'Thermocol' was a gift of a Mumbai-based manufacturer Mr. K.K Nag who, in partnership with German Rudy Arthur Coal, reversed the engineered process and synthesized a patterned Polystyrene, which was named after his partner. Now, this product has wide applications and is in great demand in the market.

Carving is the act of shaping materials by scraping off certain portions, using a range of tools that possess individual properties. Carving being done on any solid material that holds the chiseled shape is mainly used to make sculptures. Malleable materials like clay, wood, thermocol, melted glass, etc., have broad applications for this purpose. Mr. Laxman Sadupatla, a well known Thermocol sculpture artist from the Ahmednagar part of Maharashtra, is renowned for his thermocol sculpture works which are in the market for 20 long years. He gives credit to his team and his imagination and presentation skills for the dedicated creation of these handmade sculptures. The state government has honored him with several awards for his excellence in this area of art.

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The workspace of Mr. Laxman Sandupatla, the proprietor cum senior artisan at the center.



Mr. Laxman Sandupatla, a thermocol artist.

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Tools and Raw Materials

The following are the tools and raw material required for the making of thermocol modeling:

- **Polystyrene (thermocol):** It is the primary material used for the craft.
- **Thermocol Cutter:** It is a thin sharp blade, used to cut the thermocol into desired shapes.
- **Synthetic Adhesive:** It is used to stick thermocol pieces to one another.
- **Acrylic Paint:** It is used to paint the model.
- **Spray Gun:** It is used to paint the model speedily and efficiently.
- **Glitter:** It is used to adorn the model with added richness.
- **Sandpaper:** It is used to smoothen the edges and turn sharp edges to curve edges.
- **Paintbrush:** It is used to give detailing to the model in the making.



An Air compressor is used to power the spray gun, which compresses the atmospheric air in the internal chamber and releases it at high pressure.



Synthetic adhesive used to stick the different parts of thermocol together.

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Headpins used as additional decorative accessories to enhance the look.



Thermocol or polystyrene, the primary material for the craft.



Sandpaper used for smoothing the thermocol surfaces.



Thermocol cutter is used to cut the thermocol along the indicated marking.

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A stainless steel blade is used to cut smaller parts in the thermocol.



Acrylic paints are used to paint the model.



The gold powder used to paint some parts so that it looks like a gold ornament.



Diluted synthetic adhesive mixed with gold color powder for painting purposes.

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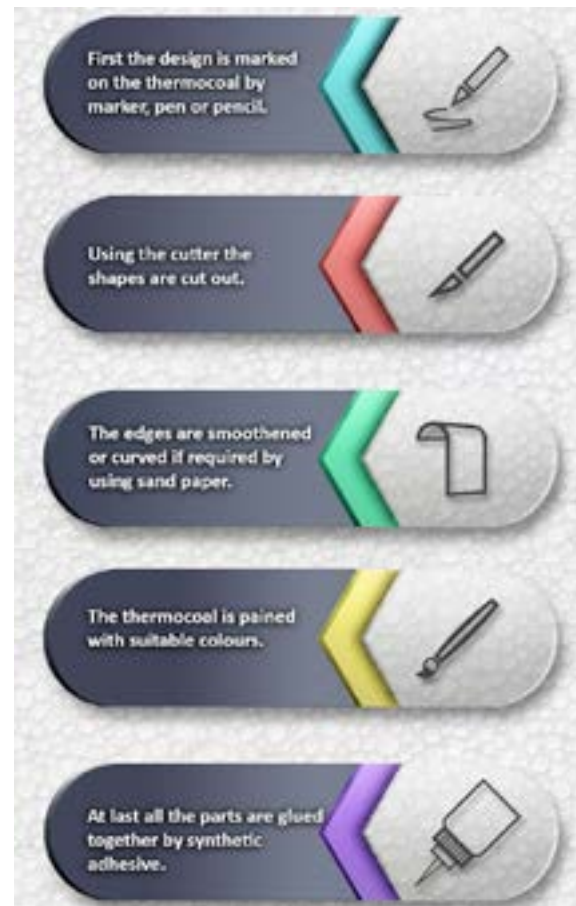
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Making Process

Firstly, the artisan sketches an idea or intended design in a paper for reference. Then determine the height and width of the statue; the design is transferred to a thermocol using a marker, pen, or pencil. Once the design is drawn, the unwanted areas within and around them are removed with the help of a cutter. The same tool is used to create basic shapes out of the thermocol. Next, the edges are smoothed or curved if required by using sand paper. This semi-finished work is then painted with suitable acrylic colours, followed by a gathering of designed parts for the final assembling by gluing them together with a synthetic adhesive. These steps form a thermocol statue.

Flow Chart:



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Using the stencil, markings are done for the intended model of thermocol.



Markings are done on the thermocol sheet.



Artist cutting the thermocol using a cutter along with the marked leads.



A thin sheet of thermocol being cut using a stainless blade to prevent breakage of the sheet during further processing.

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Sharp edges being cut diagonally to form curves.



Sharp edges being curved using sandpaper.



Smoothed parts of the Thermocol.



Acrylic paint is poured into a spray gun.

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Water is added to dilute the paint.



Firstly, the base of the model being painted.



All parts of the model being painted with a gradient effect.



Synthetic adhesive is applied to a thermocol ring.

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Silver glitter is spread on the thermocol ring.



A glittered ring is pasted on the base.



Details like forehead tika being drawn using a paintbrush.



All the parts being pasted on a base made earlier.

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Ornaments being created to give an Indian touch to the model in making.



A look of the semi-finished Lord Ganesha.



Red beads being glued to make an eye of the model.



Headpins are used to add beauty to the work.

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Products

The denser version of thermocol is used for fragile substance packing, sculpting, and construction purposes. Because of this characteristic of large volume under less mass, it enables carving of larger structures, bestowed with long durability. In the commercial market, the price of the thermocol statues depends on the customer's requirements and the quality of materials used. In India, these sculptures are more in demand during Dussehra and Ganesh Chaturthi festivals. According to Mr. Laxman Sadupatla, the making time of thermocol products range from two days to up to two months, completely based on their size and embellishments are done.



Modeling of Lord Shiva.



A statue depicting certain human expressions.

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An attractive thermocol statue of Lord Ganesha.



Model of Sant Tukaram.



Models of Lord Shiva and Ganesha i.e, father and son.

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Video



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