

# FOAMALITE PROCESSING INFORMATION



## MACHINING

The tools and machines normally used today to machine timber and metal are generally also suitable (With the appropriate cutting edge geometry) for PVCU & foamed sheet materials.

### DRILLING

Foamalite sheets may be drilled with the standard twist drills used for machining metals. Cutting speed and forward feed depend on the depth of the hole to be drilled (high cutting speeds should be set in the case of thin-walled work pieces). Refer to main manual for drill specifications.

### MILLING

Milling of Foamalite sheets is also possible. It is simply necessary to note that the tools must be ground suitably for plastics and that they must be able to remove an adequate chip volume.

### SAWING

#### Handsaws

Foamalite sheets may be cut with fine-toothed crosscut saws due to the fact they are easy to machine.

#### Circular saws

Circular saws are suitable for straight cuts. The cut surfaces of the Foamalite sheets are very clean, if the teeth project through the material only slightly particularly clean cut surfaces and have longer service lives.

#### Bandsaws

Foamalite sheets may be sawn with the bandsaw blades usually used for timber machining.

### GRINDING

Foamalite sheets can be machined well with a belt or disc-grinding machine (grain 80-150). It should be noted that after grinding off the thin homogeneous outer layer the cellular structure of the foamed product becomes visible.

### CUTTING, SHEARING & STAMPING

It is possible to stamp Foamalite sheets and to cut them with special shearing knives, two part tools or panel shears

### Safety Guidelines

*It is recommended that adequate extraction be installed in working areas, where planning or sanding produces dust.*

### FORMING & SHAPING

Like all thermoplastic materials Foamalite also becomes elastic when heated up and therefore shapeable.

The best temperature range, depending on the shaping method, lies between 120 oC and 180oC. The following shaping methods can be used for Foamalite sheets: - Line bending, Drape forming, & Vacuum forming  
The colour differences of Foamalite and different ambient temperatures may have an effect on the heating time.

### WELDING

Welding as a jointing method for use with Foamalite does not have the same significance as in the case of homogeneous thermoplastics.

In order to achieve optimum welding of Foamalite, careful use of:

-Heating temperature, heating time, Jointing Pressure is required  
Basically there are two methods of hot gas welding: -Hot gas welding, high-speed hot gas welding.

## BONDING

This jointing process is also of particular importance for Foamalite rigid foam sheets.

### 1) Solvent Adhesives

Solvent adhesives are suitable only for bonding Foamalite sheets with each other and to other PVC materials, and the parts must have a very accurate fit with one another. It is not possible to bridge gaps with solvent adhesives.

### 2) Reaction Adhesives

A distinction is made between 1-part and 2-part systems:

a) 1-part reaction adhesives are commercially available based upon cyanoacrylate (superglue) and polyurethane. Cyanoacrylate adhesives applied manually are only suitable for bonding small components. 1-part reaction adhesives based on polyurethane cross-link are particularly suitable for bonding Foamalite sheets to other materials such as wood, metals etc.

For joining Foamalite sheets to other materials such as wood, stone, metals etc.

### 3) Contact Adhesives

These are solutions of synthetic rubbers and are applied to both pieces. Contact adhesives are suitable for plane bonding of Foamalite sheets including with other materials.

### 4) Adhesive Film

Unsupported dispersion adhesive films can be used for laminating Foamalite sheets with photographic papers, posters and so on.

### 5) Pressure-sensitive Adhesive Tapes

Pressure -sensitive adhesive tapes are predominantly used as assembly aids or for plane bonds.

### Pretreatment of bonding surfaces

The Pre-treatment of the surfaces of the components that are to be joined has a particular effect on the strength of an adhesive bond. Cleaning and degreasing is necessary in order to ensure perfect wetting of the bonding surfaces by the adhesive.

## CLEANING

Foamalite surfaces that are only lightly soiled are easy to clean with normal water, or solvent-free, non-scouring and non-scratching cleaners. Heavier contamination can be cleaned off with methylated spirits, methyl alcohol and petroleum ether. Cleaning with an anti-static cleaner is particularly effective.

### Application

For relatively large surfaces, soak a soft cloth with cleaner, wipe the surface to be treated and allow to dry - do not rub off.

### Anti-static treatment

Like most plastics Foamalite is an electrical insulator. During processing or cleaning of the sheets, static electricity is generated, which remains in existence for a relatively long time in the absence of any external influence. The only possibility of avoiding static charges is electrically conducting pathways, by which the charge can flow away. The following technical possibilities exist:

- Treatment with anti-static agents
- Ionisation of the air close to the surface of the plastic

## THERMAL EXPANSION

The thermal changes in length must be taken into account when fitting Foamalite sheets, otherwise stresses will occur in the material, which may lead to deformations (elongation) or cracks (shortening).

## CHEMICAL RESISTANCE

Foamalite sheet materials are generally resistant to normal disinfectants and acid and alkaline cleaning agents, provided that they are used in the normal concentrations.

The following resistance data is provided for guidance only and in Refer to the main technical support manual for detail.

\*In all aspects customers are advised to carry out their own tests prior to usage in any application, environment or process.