

CARVING MATERIALS.

EPS

- * easy to carve
- * different grades
- * light

Polystyrene

Extruded

- * takes compression well
- * not easy to carve

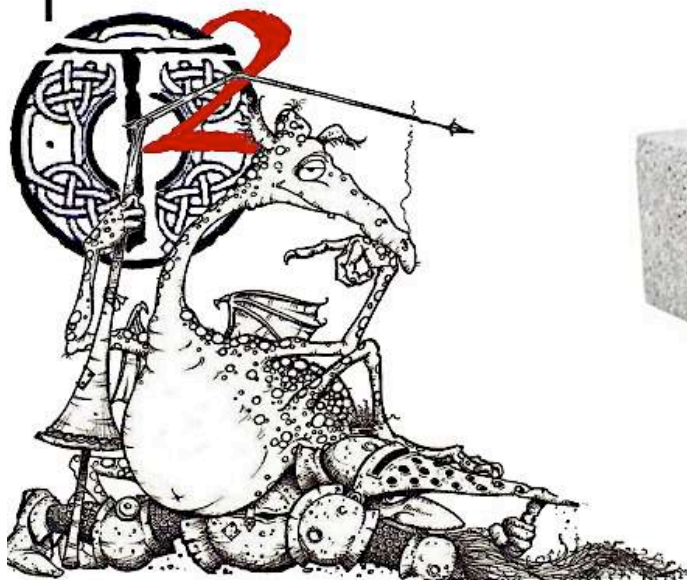
both can have heat applied to them if fra

EPS (Expanded Polystyrene) - normally white,
Block size 8' x 4' x 28".

This is the usual type of Polystyrene used in Prop making for carving.

FRA - Flame resistant additive is self extinguishing and will not hold a flame but simply shrinks from the heat source.

N - Normal is about a third of the cost of the above but is very flammable and would not be acceptable for theatre work.



Normal is worth mentioning however because Polystyrene is often used as formers for Props which are then cast or for bulking out armatures for sculpting, it would be a total waste of money to use FRA for these jobs unless you are using off cuts from previous jobs.

Polystyrene is easy to work with using saws, knives or wire brushes but it is extremely messy and the Polystyrene will stick to everything. Always allow time to clear up during the carving process and keep the mess under control, if this is left clearing up time will greatly increase. A vacuum cleaner is the best way to clear the loose polystyrene mess.

It is also possible to make templates and cut Polystyrene with hot wires (this has safety implications and will be covered in detail in another sheet). Turning is also an option but you must be prepared to spend time clearing the mess caused - this should not be attempted near delicate machinery as the Polystyrene can get into moving parts.

Key point.

Normal polystyrene will burn rapidly and give off obnoxious and toxic fumes - do not use heat near this type.

The monomer styrene, used in the manufacture of expandable polystyrene, has been manufactured for more than 60 years and is used for a wide range of plastics and plastic products.

Exhaustive research into the health effects of styrene has shown that although high exposure levels can be dangerous, like most chemical products, styrene is perfectly safe for normal use.

Based on the current EU classifications and the current draft of the UK's risk assessment report, styrene monomer is considered to have low oral toxicity, and is not classified in terms of carcinogenicity or mutagenicity.

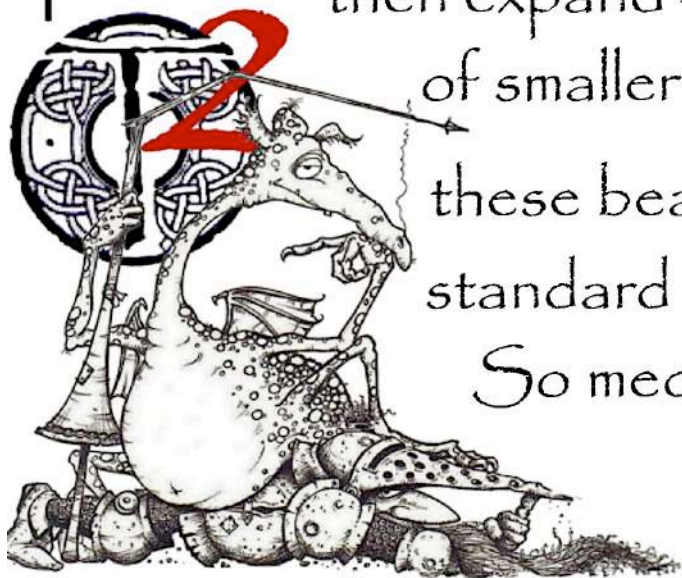


Raw Beads

Expanded Beads

EPS is created in a two-stage process:
Raw beads are expanded using steam, creating pre puff beads, which are then cured in large bags before being conveyed to the mold. Once in the mold, the pre puff beads are again steamed to form a block that is anywhere from 37-1/2" – 54" x 49" x 121- 1/2" – 220". The blocks are then placed on the storage floor to age for the appropriate length of time before being cut into various shapes and sizes. Blocks are produced in several densities to meet specific project needs.

It is a really unusual production method
EPS looks like a block of beads stuck together and in a way that is what it is.
Different densities are made by putting
More or less beads into the mould which
then expand - more giving the look of
of smaller beads - denser material
these beads are usually too big in
standard grade to carve much detail
So medium grade is normally used



When working with polystyrene it is worthwhile pointing out some safety aspects. Polystyrene dust caused when carving or sanding can become very fine and if breathed in can irritate the nasal passages - it acts like sandpaper on your nostrils - so wear a dust mask. Rumours also fly around that it gives off poisonous gases and this is true, although not as dramatic as it seems. When polystyrene is sanded, carved or cut with a hot wire it gives off Carbon Monoxide gas the same as car exhausts, this gas can be lethal if used in a closed area where the gas cannot escape. Think of a car running in a closed garage. Once the doors are opened the threat disappears.

Always work with polystyrene in a well ventilated area and if using heat to cut the material introduce an air flow - a fan.

As with so many of the materials used in Props common sense wins the day - **use it.**

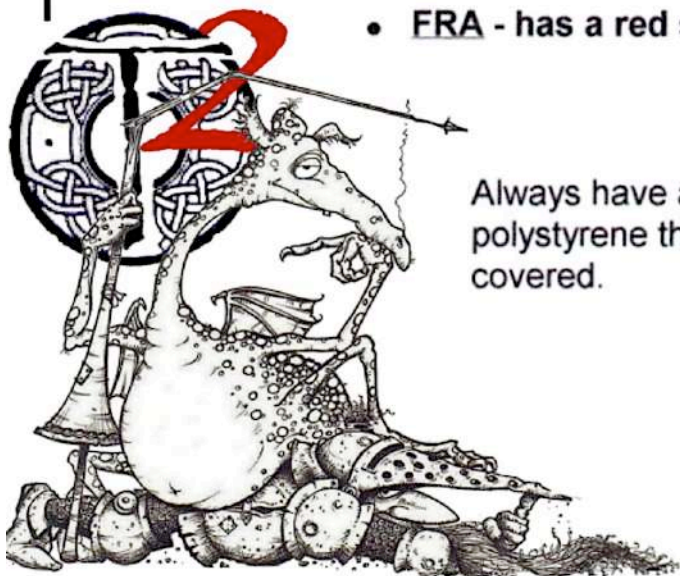
Key point.

- When working with polystyrene always have ventilation.
- Wear a dust mask or cloth over your mouth if sanding.
- Never use heat on N grade polystyrene.
- Clear up as you go.

EPS is available in different densities and these are identified by the following letters and colours;

- **SD** - standard, yellow stripe.
- **HD** - high density, black stripe.
- **EHD** - extra high density, green stripe.
- **FRA** - has a red stripe down the edge of the polystyrene.

Always have a CO₂ fire extinguisher handy if using heat on polystyrene this includes FRA grade - it is better to be fully covered.



As a rule High density is used for carving because you can get good detail and standard for any bulking out as it is far cheaper but not advisable for carving.

Extra High density is very expensive and tends to be more difficult to work with as it is very compacted.

Key point.

Think about what you need the polystyrene for before you order.

Basic costs are normally for block size and broken down from this. - 8"x4"x14" is half the block price, 2" is double 1" etc.

Do you need FRA or HD, don't cut corners if it is needed use it.

Don't forget delivery times and costs - these can vary considerably from company to company - shop around before ordering.

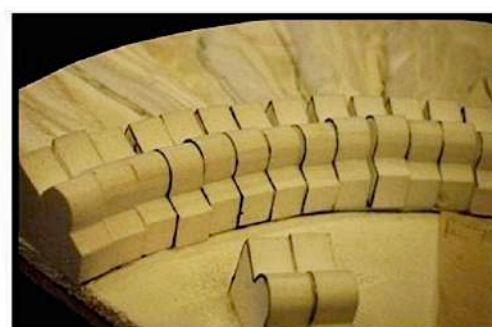


Cut from 8x4 block

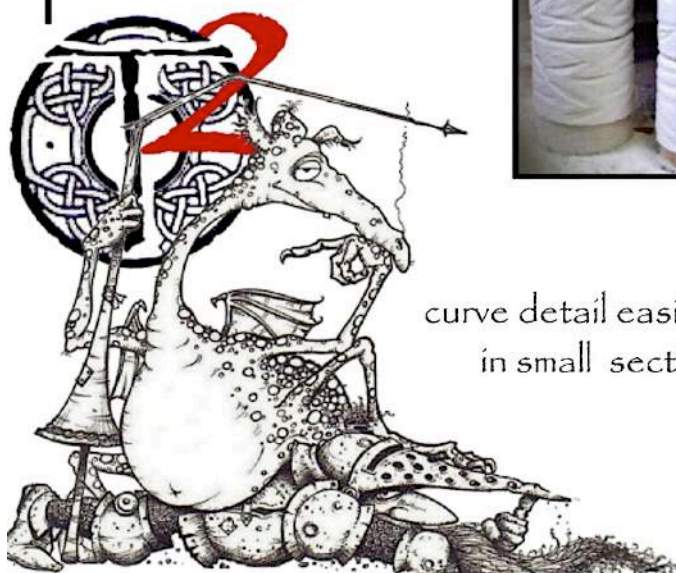


same on larger scale

1/2" HD bent
bent around wood



curve detail easier to do
in small sections



Polystyrene Carving

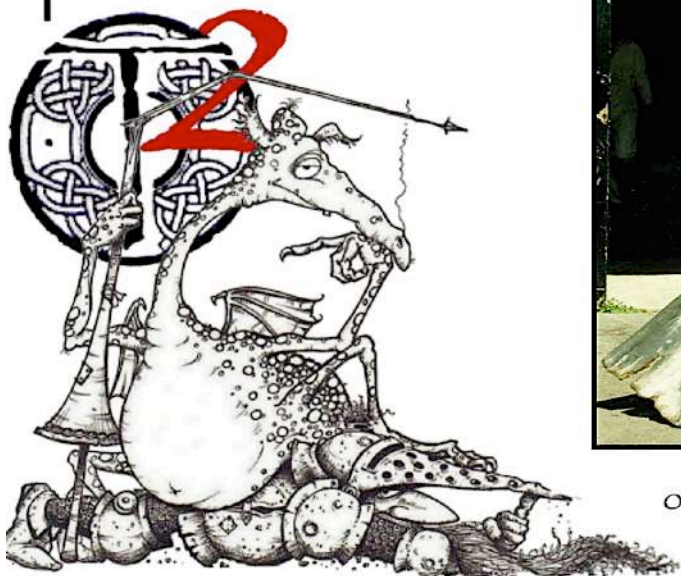
Prop makers employ a wide range of techniques to create high quality props and sculptures and one of the materials most suited to large scale props displays is polystyrene. From a small hand held sculpture to much larger replicas or displays, polystyrene gives us the chance to produce stunning props that can create a striking first impression when used as part of an event or retail display.



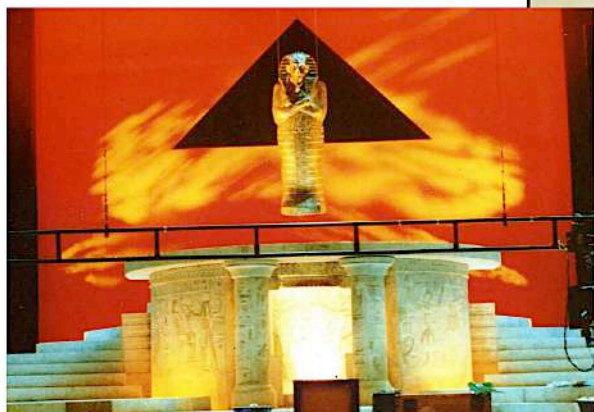
reusable - tree resculpted
after series filmed



oversized raft had to float on the sea



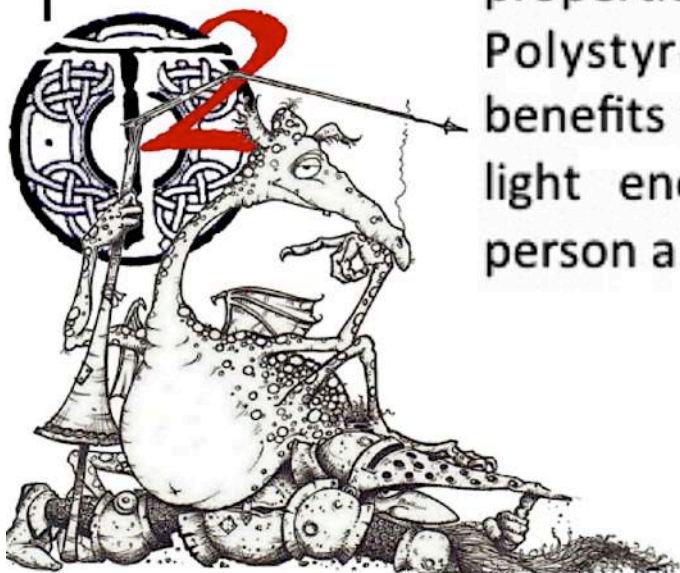
A very versatile material



Once the polystyrene has been carved it can be coated with a variety of finishes, giving it the protection it needs prior to painting or a paint effect which might be a marble effect, wood grain effect or concrete.

Polystyrene carving is especially popular for theatre props and retail display due to its lightweight properties,

Polystyrene props offer a range of benefits with even the largest props being light enough to be lifted by a single person and enabling easy transportation.



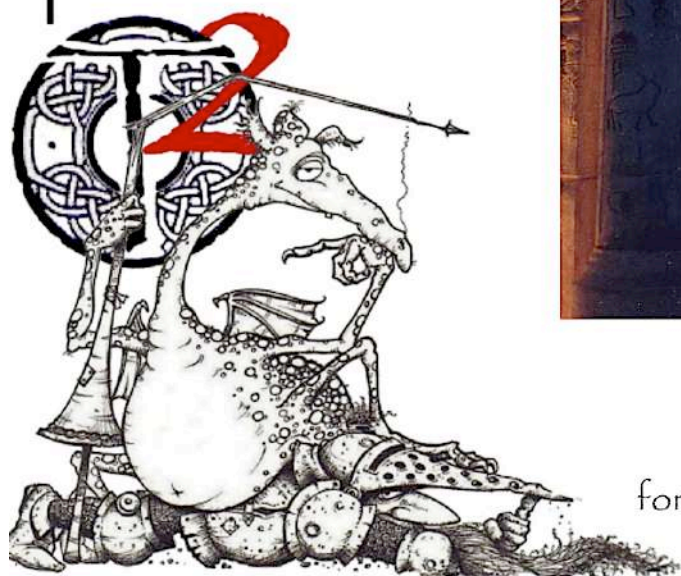
due to the use of a hot air gun to shrink

back the material use HD but this
depends on detail needed
And must be FRA



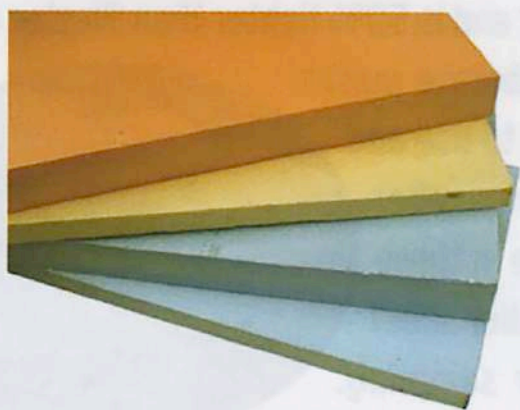
You can achieve really good effects easily

simply draw on material
marker pen then use
a mini drill to cut the
design, sand, heat and voila



for more detail see Working with EPS booklet

XPS - Extruded Polystyrene



Modelfoam Fine cell extruded polystyrene which is very easy to shape and form using conventional hand tools. It can be glued with Modelfoam Adhesive. Modelfoam comes in two grades- use the dense grade for finer detail work. Battenburg colours. Dense is always blue but the standard may be orange or yellow [at random!]

This is very good
for sharp detail
or if the
surface is walked
bit it is not easy
to carve like
EPS

