Adjustable Density Expanding Foam

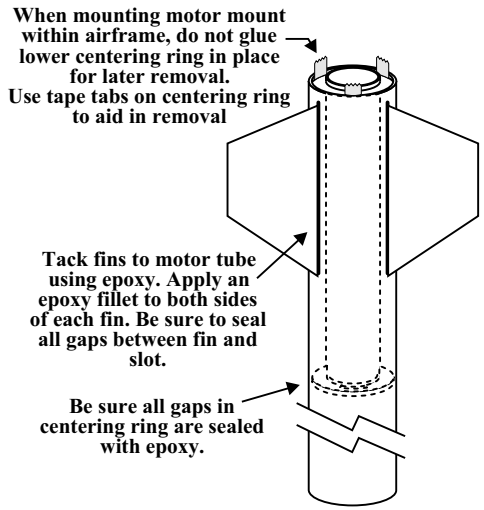
(See back side of this sheet for foam density adjustment)

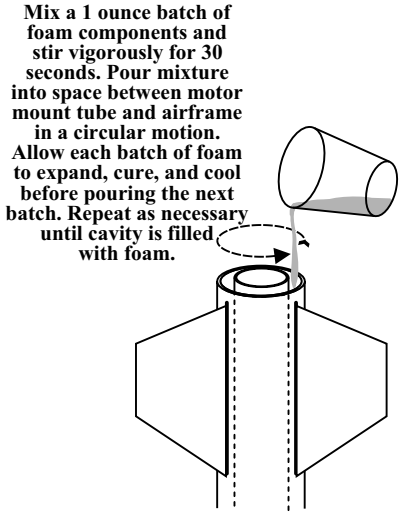
WARNING: Do not burn or hotwire cut this or any urethane based foam product because toxic fumes will be released.

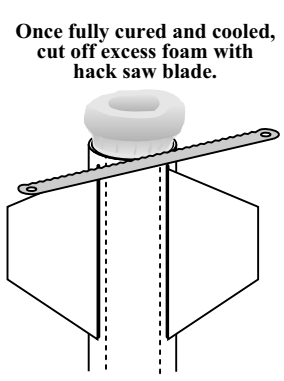
Encapsulate your fin roots with PML Adjustable Density Expanding Foam instead of using internal epoxy fillets for a much stronger and easier to form bond. Our special high temp foam is designed to resist the heat of a motor casing that makes some other foam products re-liquify or deteriorate.

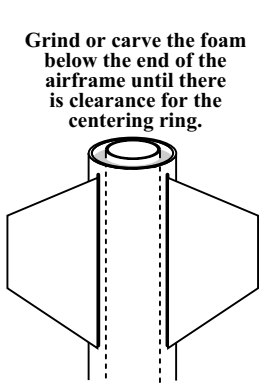
If you have never used Adjustable Density Expanding Foam, we recommend that you mix a small batch and allow it to expand and cure to get a feel of how it flows and how much it expands. Once poured, do not touch the foam until it is fully cured because you can easily ruin the expansion.

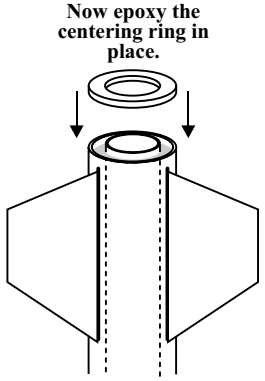
* Expandable liquid foam will not readily pour into cavities smaller than 1/4" wide.











Public Missiles Ltd.

Adjustable Density Expanding Foam

By combining equal parts of A and B, the foam expands to about 10 times it's original liquid volume. The result is a 6 lb. density (per cubic foot) rigid foam that is extremely strong and still relatively light weight. This is perfect for filling small spaces where the highest strength is required and weight is not a real issue. However, as the volumes increase, a lower density (higher expansion ratio) may be desirable. With the increase of volume, surface area also increases so strength and adhesion are less of a factor. In larger volumes, weight may be the over riding concern.

Rather than stock several hard to get foam densities, it is much easier to lower the density of a high density foam as needed.

This type of polyurethane foam is highly reactive to small amounts of water. Even the humidity in the air can slightly alter the expansion ratios. The more moisture introduced into the mix, the higher the expansion ratio. By purposefully adding small amount of water to the mixture, we can adjust the expansion (and density).

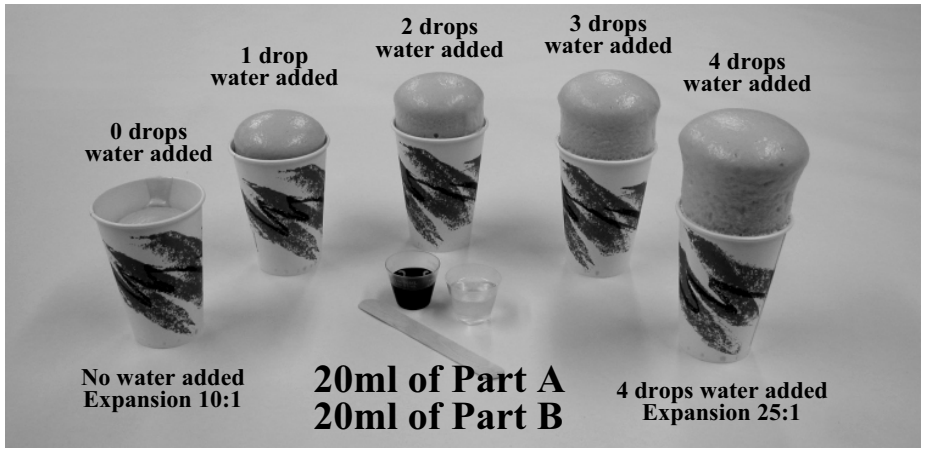
Most other brands of commercially available 2 part liquid foam expand to about 20 times their original volume and are already near the limit of usefulness. The foam is near it's lowest density and strength. It cannot be adjusted down.

Our new Adjustable Density Foam starts as a denser foam that can easily be adjust up using just a few drops of water.

Below is a photograph showing the results of adding various amounts of water to the mixture of foam. The difference of just adding one drop of water is dramatic. Keep in mind that if you double the batch size, you will need to double the water amount to achieve the same expansion ratio. A little experimentation is highly recommended before actual use in your project.

Please note that once the 2 components come in contact with one another, you will have just 30-45 seconds to stir and pour the mixture. Most often it is best to add the water to Part A before adding Part B to save time.

Do not exceed 5 drops of water per 40ml total batch size. The foam may expand erratically and lose many of it strength and void filling characteristics or simply collapse. The first indications that you are near the limit is an abundance of large bubbles in the foam.



Here are a few examples of what are considered small and large volumes:

---When doing fin root encapsulation on a 2.1" airframe with a 38mm motor mount, this would be considered a small volume so a higher density mix would be optimum.

---When doing fin root encapsulation on a 3.9" airframe with a 38mm motor mount, this would be considered a medium/large volume so a lower density mix would be optimum.

---When doing fin root encapsulation on a 6.0" airframe with a 54mm motor mount, this would be considered a large volume so the lowest density mix would be optimum. The same would hold true for filling nosecones. Even the lowest density foam will greatly strengthen any nosecone.

Since a fair amount of heat is generated during the expansion and curing process, it is highly recommended that you fill large cavities with multiple smaller batches rather than one large batch. Allow each batch to expand, cure, and cool, before adding the next batch.