



Worldwide Foam, Ltd.

A Better Way To Buy

Closed Cell Foam

One-stage Foams vs Two-stage Foams

- Difference in the foams.

Within the same density, two-stage foams typically come out with a smoother surface, less pinholes, and slightly better physical characteristics. One-stage tend to be heavier and have a coarser surface.

- Difference in the manufacturing process.

One-stage production uses only one set of molds and is considerably faster. Two-stage, as the name implies uses two sets of molds to manufacture the finished product.

- Advantages of one-stage foam:

- Less expensive; contains some recycled content
- One-stage foam has a higher compression deflection, leading to less compression of the foam during skiving, which allows tighter tolerance.
- The charcoal color tend to be darker and more consistent

- Disadvantages of one-stage foam:

- Material cell structure is slightly coarser, and has more pinholes on the surface
- Compression set is not as good as two-stage foam, so die cutting can be difficult
- Will not heat bond easily
- Color limitation; only available in charcoal

- How do I know which one I am buying?

On all our new literature, they are marked with the “R” designation in our product codes. This will indicate that the foam is a one-stage product instead of a two-stage.

- When are they used?

Only two-stage foam is available up to 4lb densities. In 6lb foam and greater, either can be used depending on the customers application and manufacturing process. We can provide specifications and samples of each and we recommend that each customer determine for themselves which one is right for them.

- What is the manufacturing process?

Almost every XLPE foam plant in the world uses the same process. Raw materials such as PE resin, blowing agents, cross-linking agents, as well as others are mixed together thoroughly into a consistent mixture. This mix is then placed in metal molds, and when the presses are closed, it will expand with the heat to transform into XLPE foam.

In the one-stage (also referred to as one-step) process, the foam is expanded in the mold just once. It comes out of the mold and expands further in the air until it reaches its final size. Once it has cooled, it is ready to ship.

In the two-stage (or two-step) process, the materials are foamed twice, the first time is identical to one-stage foam, and then the foam is expanded a second time in a second, different set of molds. The 2nd stage in this process is much slower and mold costs are much higher than in first stage molds as they need to be heated and cooled without opening the molds.