
Avoiding Print in Mold Making

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Most Arjay products were developed specifically for a particular application and their use is generally limited to that intended purpose. Occasionally, however, our customers will notice certain product characteristics such as low exotherm, low shrink, etc. and find an unintended application. One such application is in the tooling area.

Same Product, New Application

Our J-Core line was developed with hardtop applications in mind. Its light weight, along with low exotherm and shrink, combine to give both functional and cosmetically superior advantages when used with hardtops and small parts—even when considerable masses are involved. One customer, impressed with solving their issues concerning print on hardtops, tried using the 4501HV to address another print problem occurring in mold building. Bonding the steel reinforcing structure to the deck mold laminate was causing print. In order to avoid transferring print to each subsequent part, the mold would have to be sanded out before putting the mold into production. They wanted to eliminate the print and the sanding in order to reduce the inherent mold maintenance problems. Here's how this customer used J-Core to solve their problem:

- They flooded the attachment areas with Arjay's 4501HV, applying material under, and around the steel. In the case of a deck mold these areas typically form natural dams which retain the semi-flowable J-Core. Sufficient product was used to create a smooth surface to facilitate subsequent lamination.
- They allowed the 4501HV to cure. Because this product is formulated to result in a low exotherm (less than 200F) when applied in large quantities, shrinkage and its associated problems are minimized dramatically.
- After curing, fiberglass laminate is applied to resultant smooth 4701HV surface to lock in the structure.

The customer reports that the method has totally eliminated the print problem.

When Higher Viscosity is Needed

The semi-flowable 4501HV works well with those molds where cavities are present or can easily be formed with removable, natural release materials. But what about a hull mold where the attachment points are vertical or close to vertical?

In such cases, the 4501XHV can be employed. This is a putty-like product with a viscosity and thixotropic index that result in its staying put when applied. The following steps are suggested for using it to attach a reinforcing structure to a hull mold:

- Use a minimum width ½" low density foam material to shim under the framework. This ensures that the steel will not directly contact the laminate.
- Liberally apply Arjay's 4501XHV to both sides of the structural steel and the mold to form a trapezoidal shape.
- Before the XHV gels apply pre-wetted strips of 1 ½ ounce or 2 ounce fiberglass mat and roll out ("wet on wet").
- Allow for an overnight cure and follow up with a light sanding and additional glass strips. Again, the slow cure and low exotherm and shrink of the XHV will result in a print free mold surface.

Both methods described are very straight forward and will produce excellent results with either the 4501HV or 4501XHV products.