

## Closed Mold Expertise



**Resin:** Hydropel® R580-CUC  
Closed Mold Marine Resin

**Applications:** Sports Boats

**Lengths:** 17.5 feet (5.33 meters) and  
18.5 feet (5.64 meters)

Leading international boat supplier Sea Ray believes reducing unwanted emissions for workers and the environment is reason enough to use closed molding. However, the company is also reaping the benefits of higher quality for its customers.

The transition to closed molding is supported by marine resin leader AOC, a principal member of the team that Sea Ray has assembled to help implement its strategy of “Precision Process Technology.” Teaming up with AOC has also led to the development of the optimum resin to use in conjunction with Sea Ray’s revolutionary new “RIMFIRE®” preforming technology.

Sea Ray initially developed RIMFIRE for its boat production and is now licensing the know-how to composites manufacturers outside the marine industry. “Precision Process Technology is driving our move into resin transfer molding and vacuum infusion,” says Scott Lammers, Executive Director of Manufacturing Technology for Sea Ray. “With closed molding, we can integrate automated systems and computer controls that are the foundation of never-ending improvement. Continuous improvement is the key to tighter tolerances, reduced material variance and a stronger, more reliable boat, which means a better product for the customer.”

AOC’s Technical Service Organization has been contributing to Sea Ray’s conversion to new technologies right from the start. “AOC has always been ready and willing to provide on-site technical support,” says Lammers. “That includes the manner in which Ken Anello and Mike Harkless share their experience and knowledge to help move Precision Process Technology forward.”

## Closed Mold Expertise, continued

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In addition to providing on-site technical assistance, AOC progressed through several iterations of formulations to develop a resin that best meets Sea Ray's requirements. The end-result of this work is the creation of Hydropel® R580-CUC resin, part of AOC's new family of high performance marine resins for closed mold processing. "Hydropel R580-CUC resin is performing beyond our expectations," Lammers says. "To prevent print-through of reinforcing fibers, we thought we might have to lay down a veil before closing the system to inject or infuse resin into the cavity. But the low-profile technology in Hydropel R580-CUC resin is so good that we don't need a veil to get a surface that is as good as or better than the surface of an open molded part. Eliminating the veil improves cycle time, reduces costs and helps us implement our new RIMFIRE performing technology."

### **New RIMFIRE Preforming**

RIMFIRE stands for Robotic In Mold Fiber REinforcement and is based on Sea Ray's patentpending technology for creating a ready-to-use fiberglass preform inside the production mold. Unlike directed fiber preforming, RIMFIRE eliminates the added preliminary steps of creating the preform on a screen, curing the preform binder in an oven, then moving the preform to the mold.

As a result, RIMFIRE:

- shortens the part production cycle,
- saves manufacturing plant space,
- reduces raw material waste, and
- contributes to enhanced preform integrity.

"Developing resin chemistry that brings advantages to RIMFIRE is the just one way that AOC is helping Sea Ray succeed," states Ed Kleese, Technical Service Manager at AOC's Closed Mold Technology Center in Valparaiso, Indiana.

"We have the resources, the people and the commitment to expand the benefits of closed molding to more applications. What Sea Ray needs is what we do."



Hydropel® R580-CUC low-profile resin allows Sea Ray to use RIMFIRE® preforms without having to use a veil.

  
**Hydropel**®  
HIGH PERFORMANCE  
MARINE RESINS