

Theme Park Attraction

Resin:	Vipel® K022 vinyl ester
Key Resin	Inherent Class 1 flame retardance
Benefits:	High Elongation Superior Strength Outstanding Adhesion
Fabricaton Processes:	Hand lay-up open molding with some spray-up
Composite Application:	Moving parts of giant animated creature
Final Dimensions:	57 ft. wide by 42 ft. high (17.4 by 12.8 m)
Year Installed:	2000
Location:	Universal Studios Orlando, FL, USA

Cinnabar, Orlando, FL, fabricated the exterior animated shells for a towering “alien” with fiberglass in Vipel® K022 flame retardant vinyl ester. In addition to its ASTM E-84 Class 1 flame rating, the resin provides outstanding adhesion that augments the mechanical application of composite to metal support tubing. The same fabric-resin combination is used to mold composite stiffening members that are bolted to the steel interface structure. The composite stiffeners act like stringers that are laminated to the inside of boat hulls.



To finish the outside surface, molded parts were first coated with a syntactic foam of glass microsphere-filled resin that allowed the exterior to be sanded and sculpted to precise detail before flame-retardant primer and top coats were applied. Vipel® K022 vinyl ester was also specified for the syntactic foam matrix to ensure total chemical compatibility while extending the resin’s flame retardant and adhesion benefits.

The Vipel® K022 vinyl ester contributes to a composite strength that allows moving parts to withstand more than 13 million activations over the 10-year life cycle of the attraction. The resin also plays a key role in the composite’s high design, lightweight, sound-insulating and vibration-dampening characteristics.