

Newace[®] Hydroplane Inshore Powerboat Winning National Championship Races with its Unique Composite Construction

Team 21, based in Lowestoft, East England design, build and race inshore powerboats. For the 2009 racing season, they replaced their wooden racing craft with a newly designed NEWACE fibreglass model which has a unique composite construction; the backup resin, the barrier coat and the structural adhesives used are all based on urethane acrylate chemistry. Powered by a 400cc (33hp) Outboard Stock Yamoto engine (OSY400 racing class), these small one man powerboats, which are approximately 3.5 metres long by 1.5 meters wide, reach speeds of up to 70mph (61 knots).

Team 21 are currently top of the OSY400 class British National Championship for 2009, achieved racing in this new FRP composite powerboat, made almost entirely from Scott Bader's urethane acrylate technology Crystic[®] products.

The unique NEWACE composite hull has a hydroplane design which must withstand the very high flexural and impact forces which occur during the demanding racing conditions and have extremely good fatigue resistance. The backup resin used was Crestapol[®] 1220, a urethane acrylate polyester blend resin, selected for its tough, very high performance mechanical properties; compared with a conventional ortho or iso unsaturated polyester resin, Crestapol 1220 has over 50% higher shear strength and more than six times the load fatigue performance, according to Scott Bader test data. High density PVC foam was used in the underside of the hull. Kevlar twill-weave cloth and woven glass fibre matting was used for reinforcement; Kevlar is a high tensile strength and high modulus composite fabric that is ideal where maximum strength and minimal weight are critical. Plywood, glass mat and Kevlar cloth were used around the cockpit section. The hull laminate structure has a vinyl ester/DCPD skincoat Crystic VE 679PA in front of the backup resin, which improves the aesthetics of the gelcoated outer surface by reducing print through as well as providing blistering resistance. Directly behind the Crystic LS 88PA marine grade gelcoat, Crystic Crestacoat 5000PA barriercoat, another urethane acrylate based product, was applied to help reduce drag by producing an ultra smooth surface finish. The barriercoat also provides greater laminate flexibility to help prevent gelcoat cracking. The combination of this matched gelcoat, barriercoat and skincoat laminate construction is recommended by Scott Bader as the optimum combination for a long term high quality surface finish, particularly in demanding applications and where aesthetics are critical. For this powerboat racing class, while there is considerable design freedom, a hull design must be according to the parameters governed by the RYA (Royal Yachting Association) for UK racing and the UIM (Union Internationale Motonautique) for International racing.

An additional construction feature of the new NEWACE composite hull was the use of Crystic Crestomer® structural adhesives to help reduce weight. Areas of the hull and cockpit, as well as the deck to hull joint, were bonded together using Crystic Crestomer 1152PA and 1181A structural adhesives, which reduced the overall weight of the craft by over 40%. Also based on urethane acrylate chemistry, Crystic Crestomer structural adhesives are very tough and provide a bond strength which is significantly stronger than a fibreglass laminate. Scott Bader, who developed this marine adhesive technology, has supplied Crestomer structural adhesives to leisure marine and naval composite boat builders for over 30 years.

Mark Speller, head mechanic for Team 21 commented *“We had an unplanned crash test earlier in the year. I examined the boat after a high speed collision and have seen for myself how really tough these Crystic products are when put to the test. I can say with confidence that Crestomer adhesive products bond really well and are extremely strong and tough”.*

More information on the full Crestomer adhesive range available from Scott Bader can be found and downloaded from their website: www.scottbader.com or e mail composites@scottbader.com to request a follow up call from a local sales representative or to be sent further information.



The Crystic LS 88PA gelcoat surface finish is enhanced by using Crystic Crestacoat 5000PA barriercoat and Crystic VE 679PA skincoat, which reduces cracking and provides a long term high quality gelcoat surface.

Team 21 in action, winning their National Championship race earlier this year in the UK with their new lightweight Composite Newace design OSY 400 class inshore powerboat built from Scott Bader Crystic products.





Sponsored by Scott Bader, the new Team 21 OSY 400 class inshore powerboat is made almost entirely from unique urethane acrylate based technology Crystic products.

About Scott Bader

Scott Bader was established in 1921. Today it is a £180 million multinational chemical company, employing 560 people worldwide. It is a common trusteeship company, having no external shareholders, with a strong commitment to supporting its workforce, society and the environment.

The Scott Bader headquarters is based in the UK where they have purpose-built, state-of-the-art Technical facilities that provide R & D as well as complete evaluation, testing and application support. They have manufacturing facilities in the UK, France, Croatia, The Middle East and South Africa. For further information regarding Scott Bader, please call +44 (0) 1933 663100, visit www.scottbader.com or e-mail info@scottbader.com