

Resin Degassing before VARTM Processing

SUMMARY

[FormaShape](#) has built a significant and world-class industrial manufacturing capability in industrial composites. In recent times FormaShape moved up-market by developing and selling an innovative translucent architectural products line, where the composite must perform both mechanical and aesthetic functions. Translucency is affected by component porosity levels, which must be reduced to levels below aerospace component standards (the highest currently specified). Initially up to 20% of production failed on this requirement. Following a structured approach, CRN identified the root cause of the problem (volatile components in the resin) and a solution (controlled resin degassing) was successfully scaled up to the full industrial shop-floor scale. Formashape is now implementing the degassing step across all its product lines, as the improvement in quality comes at low cost.



Formashape, a division of WhiteWater Composites Ltd.

Kelowna, British Columbia

FormaShape, with parent company, Whitewater Composites Ltd., is the world's largest manufacturer of fibreglass waterpark attractions.

Client Contact

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CHALLENGE

In the Spring 2011, [FormaShape](#) introduced innovative translucent architectural products line, where the composite must perform both mechanical and aesthetic functions. Reliable translucency proved difficult to achieve and some 20% of production was rejected resulting in materials wastage and production delays.

We had one mould that was so problematic for bubbles that it was taken out of service. Using de-gassed resin, we produced a part out of this mould without a bubble, first try!

Steve Binks, Manufacturing Engineer, FormaShape/Whitewater Composites Ltd.

APPROACH

CRN staff visited the client and recognized that desorption of volatiles and adsorbed moisture were likely contributing to the formation of visible voids in the panels. CRN staff identified the mechanisms and practical factors controlling resin degassing and developed/implemented resin degassing, first as a pilot phase (i.e., small production scale), and then in full production.



Translucent parts for use in gas station forecourts.

OUTCOME

The pilot phase demonstrated that a more rigorous degassing process would effectively solve the void problem. The production scale-up provided the factory-floor solution and better understanding of the critical issues for the technicians involved.

Everything here is working fabulously. The degassing process and the subsequent parts being produced are consistently superior to what we were experiencing before [...]. Again, I must extend a tremendous thank you for CRN's assistance.

Mark Jost, Manufacturing Engineer, FormaShape/Whitewater Composites Ltd.

IMPACT

Rejection rates fell to less than five percent, production levels rose, and material wastage fell to less than ten percent.

CONTACTS

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