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Composite tank truck using AIREX® T90.100 wins the «Reinforced Plastic Product of the Year 2008» award



Muovityö Hiltunen OY offers a new composite sandwich tank with increased chemical resistance and greatly reduced weight, thus allowing a considerable increase of the truck's payload.

With over 40 years of experience in the production of chemically resistant tanks and pipes, Muovityö Hiltunen OY has produced a new generation of tanks that are lighter, offer increased chemical resistance and at the same time help reduce costs compared to conventional metal tanks.

Muovityö Hiltunen OY designed the new composite tank with glass fiber reinforcement and a vinyl ester resin to improve the tank's chemical resistance. In order to reduce the weight without losing strength and stiffness, the Finnish company decided to use foam core for their laminate, thus achieving excellent thermal insulation at the same time. Good FST behavior of the foam core was an additional requirement.

AIREX® T90.100 fulfilled all these criteria. It has good FST properties, is efficient in thermal insulation and gives the required stiffness and strength to the sandwich. The price/performance ratio and the favorable delivery terms were other reasons why Muovityö Hiltunen OY opted for this solution; AIREX®



Filament winding of a sandwiched tank

T90.100 is always available from stock at Bröste OY, our distributor in Finland.

The new tank was designed by Esa Hiltunen, managing director and owner of Muovityö Hiltunen OY, and his crew, in collaboration with Componeering Inc., a Helsinki-based composites consulting company and developer of the ESAComp software for composites analysis and design.

The tank's tube is made by filament winding, using a ContourKored AIREX® T90.100. The convex ends are produced by vacuum infusion with T90.100 finished accordingly. The main customers interested in the tank are chemical transportation companies. Muovityö Hiltunen OY offers them not only a tank that is chemically more resistant and better insulated than traditional designs: the lighter weight of the composite tank allows for as much as 10% additional payload, thus shortening pay-back time considerably.

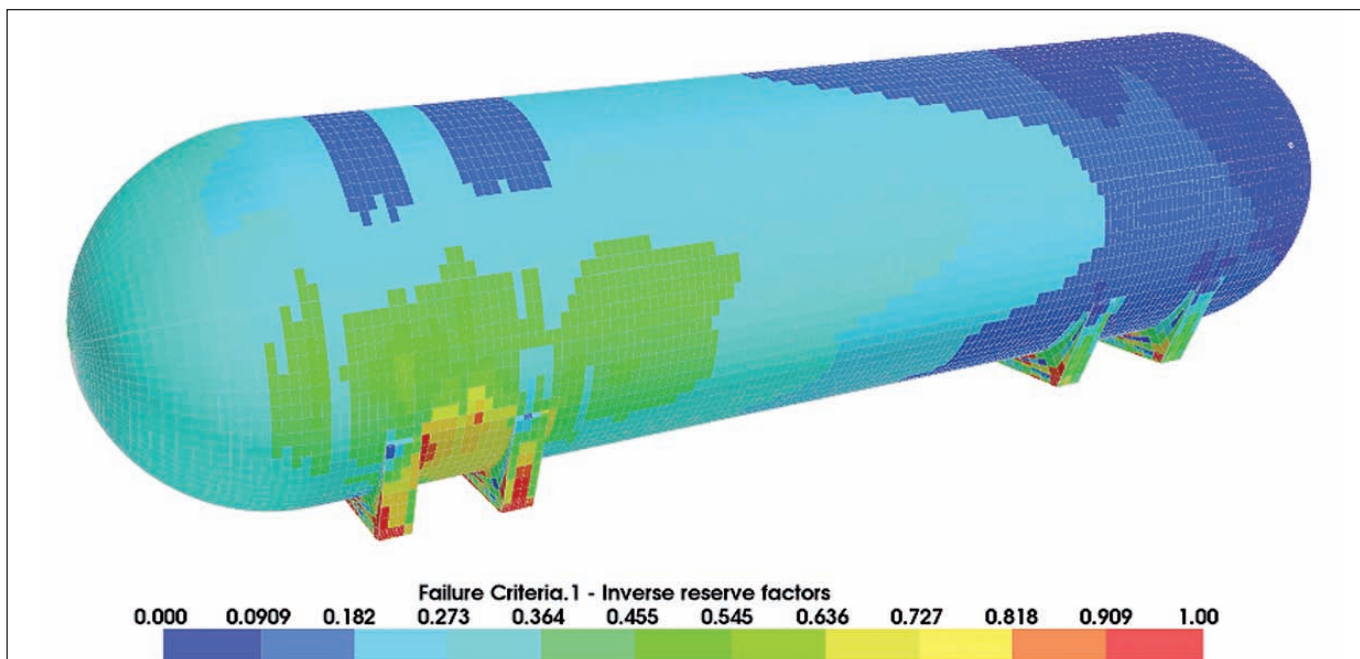


Composite sandwich truck tank by Muovityö Hiltunen OY: the reduced tank weight allows a payload increase of 10%

Muovityö Hiltunen's vinyl ester tank with AIREX® T90.100 foam core won the award of the «Muoviteollisuus RY» Finnish Plastics Industries Federation for the «Reinforced Plastic Product of the Year 2008». This composite transportation tank received the award on the grounds that it was «innovative,

lightweight and cost effective». Since AIREX® T90 is very easily thermoformable, Esa Hiltunen plans to substitute the ContourKore finishing of the foam by forming and welding the T90 sheets to the shape of the convex end, thus optimizing the resin uptake and further lowering final weight and

material costs. The truck tank has a capacity of 18 m³ (635 ft³), while the capacity of the trailer tank is 31 m³ (1,094 ft³). Muovityö Hiltunen OY is able to optimize the dimensions of the tanks according to the transportation requirement for specific chemicals.



Structural analysis of the tank by finite element method for assessing specific composites failure modes