

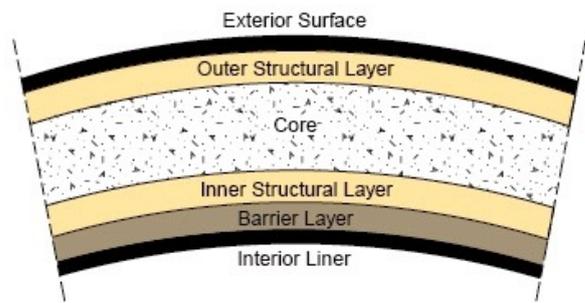


Surfacing veils for filament winding

A surfacing veil is a vital component in filament wound pipes and tanks.

Filament winding is a process used to manufacture composite pipes and tanks typically used in industries such as the chemical and petrochemical, power generation, water storage and treatment etc.. Reinforcing glass fibres are passed through a resin bath and wound onto a rotating mandrel in orientations controlled by the winding mechanism and the rotation of the mandrel. In practice a number of stages incorporate various components of the composite depending on the manufacturing process and the application for which the pipe or tank is being used.

A typical **discontinuous filament wound** pipe or tank body consists of an inner corrosion barrier and a main structural layer of glass roving and resin over wrapped with a resin rich outer layer. A **continuous filament wound** pipe also contains a core of resin, sand and chopped glass fibre between an inner and outer structural layer. A section of a discontinuous filament wound pipe is shown in the schematic.



Section of discontinuous filament wound pipe

Whereas the corrosion barrier layer consists of resin and chopped strand mat (CSM) the inner liner consists of resin and surfacing veil. The corrosion performance is provided by correct selection of the resin, however the surfacing veil provides a controlled thickness together with a degree of reinforcement to inhibit corrosion or stress-induced cracking, crazing and delamination.

The exterior surface of the pipe or tank also usually includes a surfacing veil to create a smooth surface and to protect from UV degradation, wind erosion and physical damage.

In addition tailored levels of conductivity in the surfacing veil can be used to impart surface static dissipation to the interior of the pipe or tank for enhanced safety.

The range of spunlaced non-woven products from CHM Composites and Norafin Industries includes:-

- flat (non-apertured) polyester based synthetic veils for even coverage and control of the thickness of the inner liner
- apertured polyester based synthetic veils for increased resin wet out and faster processing
- flat polyester based synthetic veils with added binder for high tension overwrapping of the exterior surface
- polyester veils with tailored levels of conductivity for surface static dissipation of the inner liner

For more information please contact CHM Composites or visit <http://www.norafin.com/business-area/composites/overview/>