The Ageing of Glass Fibres Used in Polymeric Composites

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Introduction
Glass fibre composites are utilized widely as a lighter and corrosion resistant alternative for metals, in applications such as reactor and chemical transportation tanks, marine applications and wind turbines [1-2]. Failure cases have however been reported and the reasons of failure range from errors during manufacture to stress corrosion or other forms of ageing in the composite [1-3]. The changes in the glass properties are a result of the removal of structural compounds, which leads to the formation of a more porous, silica rich surface layer.

Conclusions
- The changes in glass properties are a result of the removal of structural compounds, which leads to the formation of a more porous, silica rich surface layer.
- The boron structures are a part of the weakness of E-glass compared to ECR, but likely not the whole reason.
- Accurate prediction of the ageing of all components of a composite could help prevent failure cases and cause significant savings for the industry.
- Further studies on the subject will be aimed, for example, on the changes in the solution as it diffuses through the resin and if the compounds removed from the glass affect the ageing at the interface or in the matrix.

References