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Client: Alliance Moulding

Product tested: AM-5300RND

5330 litre above ground storage tank

Compliance to: AS/NZS 4766:2006

Polyethylene storage tanks for water and chemicals

For use with liquid density 1000 kg/m³

We are pleased to advise that this analysis was completed using Finite Element Method based on the COSMOS simulation program.

The material nominated for this product is Vanglobe "Rotathene UV11" which is a suitable LLDPE material for such tanks. We have used the latest data from "Vanglobe" which quotes the "Hydrostatic Design Basis" (HDB) stress level for this material as 8.62 MPa. This value is stated as being tested to ASTM2837 as required in AS4766. A wall thickness of 5.86 mm was adopted.

As required by AS/NZS 4766 we have applied the service factor of 0.5 to the above HDB stress level. The tank is analysed as moulded with no penetrations as specified by AS/NZS 4766:2006. Compliance is obtained when the FEM derived stress in the tank is ≤ 4.31 MPa (0.5×8.62).

The FEM simulation was based on the tank being full of liquid to the shoulder side height of the tank (a depth of 1.87 metres). The liquid density is taken as 1000 kg/m³.

The resultant stress was a maximum stress of 4.1 MPa occurring at the bottom corner radius as it turns up to the vertical side of the tank. This derived stress is LESS than the 4.31 MPa design limit value set by AS/NZS 4766:2006. The location of this maximum stress is a normal condition for such a tank.

Based on our FEM analysis, this tank is certified to be in accordance with the requirements set out in AS/NZS 4766:2006.

When moulded with a powder load of 100 kg and a wall thickness of 5.86 mm, this AM-5300RND tank can be embossed or marked to show such compliance.

Yours Faithfully,



C Eng. M I Mech E

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2011-08-26