Fibreglass-Reinforced Epoxy Liner System Assembly Design, with Insulating Liner having Similar Coefficient of Thermal Expansion as Carbon Steel

Abstract

The present disclosure relates, in some embodiments, to a novel fibreglass-reinforced epoxy liner system assembly design for corrosion prevention in a tubular piping system in conjunction with a specially designed threaded and coupled connection. The inventive design comprises (i) a specially designed carbon steel threaded and coupled pipe connection with the pin connector having an intermediate and/or external shoulder as a torque stop; and a recessed groove at the centre of the coupling to partially house an elastomeric seal ring, (ii) a chemically inert fibreglass-reinforced epoxy inner pipe liner with a similar coefficient of thermal expansion as carbon steel, (iii) a stiff elastomeric end cap to hold the inner pipe liner in place relative to the pin connector, (iv) a compressible elastomeric seal ring sealing the gap between the two pin connectors, (v) and a layer of non-structural filler material filling the annulus between the fibreglass-reinforced epoxy liner and the carbon steel pipe.

Fig. 1