



Patent Abstract

Thermoplastic Liner System Assembly Design, with Insulating Liner having Higher Coefficient of Thermal Expansion compared to that of Carbon Steel

Abstract

The present disclosure relates, in some embodiments, to a novel thermoplastic liner system assembly design for corrosion prevention in a tubular piping system in conjunction with a specially designed threaded and coupled connection. Herein, the word “liner” refers to a layer of insulating material lined along the inner wall of the tubular piping system. 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 thermoplastic inner pipe liner with a higher coefficient of thermal expansion compared to that of carbon steel, with one end of the liner tube designed as a free end to allow for longitudinal thermal expansion of the liner, extending into the other adjoining end of the connection, (iii) a stiff elastomeric end cap wherein its internal diameter acts as a centering guide for the internal upset diameter of the thermoplastic liner free end, (iv) a compressible elastomeric seal ring which would insulate the gap between the 2 pin connectors, (v) and a layer of non-structural filler material that would fill the annulus between the thermoplastic liner and the carbon steel pipe.