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(57) Abstract :

The present invention is directed to provide Nano fillers reinforced polymer composites wrap to repair damaged steel pipelines and a method of such repairing at site which uses high compressive strength nano clay dispersed epoxy matrix applied on damaged pipe surface after cleaning to achieve enhanced interfacial bonding strength between lay-up and corroded surface of the pipe; and nano clay reinforced glass/epoxy material to overwrap the damaged piping portion comprising selectively disposed layers of Chopped Strand Mat (CSM) for better and larger surface for bonding followed by layers of Woven roving glass fiber mat (WRM)for providing strength for wrapping by wetting epoxy (Araldite LY556, Hardener HY951) with nano clay, to transfer the hoop stress in the pipe wall due to the internal pressure to the cured composite sleeve thus avoiding leakage/rupture of damaged pipe. Advantageously, the method is suitable for in-situ repair of oil/gas pipelines, pressure vessels or similar mechanically failed structures.

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