

Automated non-destructive evaluation of welded joints in plastics pipes

The Pipeline Industries Guild has recently joined the TestPEP project, which is co-ordinated by TWI and has 17 partners from seven countries with the aim of developing an automated non-destructive evaluation (NDE) approach for testing welded joints in plastic pipes. It started in February 2010 and will last for three years.

Plastics have many advantages over metals or concrete, such as good chemical resistance, low weight, low cost and longer predicted service life. Plastic pipes are already used for the transport of gas, water and chemicals; however their use in more safety critical applications is limited by the fact that there is no inspection system available to evaluate plastic joints.

Although a number of non-destructive inspection systems are available commercially to inspect welds in plastic pipes, they have not been adequately validated and the data generated by these systems are not linked to any acceptance criteria. In addition, these systems require trained operators to allow interpretation of the results.

Following responses received from the plastic pipe industry, the system developed within the TestPEP project will be designed to accommodate pipe diameters from 90mm to 1m for both butt fusion and electrofusion joints.

Another part of the project will be to develop acceptance criteria for various types of flaws in welded joints based on



PE pipe being installed for gas distribution

both short and long-term testing. The NDE and mechanical test data will be brought together to develop a system capable of delivering an automatic pass/fail result, thus eliminating the need for a trained NDE operator.

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