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PE Gas Distribution Pipes – Some Key Quality Issues

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Abstract

Polyethylene pipe has become the preferred material for both gas and water distribution in Europe largely thanks to its excellent track record over the past 40 years. More recently the flexibility and toughness of the material have enabled new lower cost installation techniques to be developed which have greatly increased its attractiveness. These trenchless techniques can be applied to both network rehabilitation (e.g. relining, pipe bursting) and new lay projects (e.g. directional drilling).

However the success of these techniques relies upon the materials quality and in particular the resistance to crack growth as the surface of the pipes can be damaged during installation providing an ideal initiation site for subsequent crack growth. Recognising the need to establish and maintain enhanced material performance standards the major European polyethylene resin producers founded the PE100+ Association in 1999.

The main objectives of the PE 100+ Association are:-

- To establish a quality label for PE100+ materials and products
- To assure consistent quality at the highest level in the production and application of PE100 pipe materials
- To promote usage of PE piping systems in general
- Provide a focus towards end-users with more information support

The organisation is open to any raw material supplier who can meet the quality requirements and accept the statutes and subsequently two of the main Asian producers have joined and an Asian sub-group has been formed. The activity of this group in Asia and the Far East is particularly important as the market growth in this area is very high but the level of knowledge is still relatively low.

The PE 100+ Association also recognises that the overall quality and durability of the network is equally dependant upon the use of the correct jointing and installation techniques. For this reason they have formed a joint working group with Marcogaz to carry out a project on welding procedures and weld evaluation. The PE100+ Association also works with other industry partners such as The European Plastics Pipe and Fitting Association (TEPPFA), The Gulf Plastic Pipe Academy (GPPA) and The Plastics Industry Pipe Association of Australia (PIPA) to promote training and certification schemes.

This paper describes some of the important quality issues for PE systems and the activities of the PE100+ Association in different parts of the world to promote the production of high quality PE products and installation techniques.