National Plumbing Regulators Forum

NPRF ADVISORY NOTE

Issued 19 August 2011

WATER SERVICES - PN16 CROSS LINKED POLYETHYLENE PIPES AND FITTINGS

PURPOSE

The purpose of this Advisory Note is to advise that plastic pipes and fittings including PN16 Cross-linked polyethylene (PE-X) are suitable for use in water services where the pressure supplied from the property service exceeds 500 kPa and when an authorised pressure regulating device is installed.

BACKGROUND

There are a number of types of plastic pipes and fittings used in plumbing installations throughout Australia. For example:

- PVC-U Unplasticised polyvinyl chloride
- PVC-M Modified polyvinyl chloride
- PVC-O Oriented polyvinyl chloride
- PE Polyethylene
- PP Polypropylene
- PE-X Cross-linked polyethylene
- ABS Acrylonitrile butadiene styrene
- PB Polybutylene

PE-X pipes and fittings are certified against Australian Standard *AS/NZS 2492:2007 Cross-linked polyethylene (PE-X) pipe for hot and cold water applications* and *AS/NZS 2537 Fittings for use with Cross Linked Polyethylene Pipes for hot and cold water applications.* Australian Standard *AS/NZS 3500:2003 Plumbing and drainage Part 1: Water services,* Clause 2.3 require materials and products used in a water service to be selected from Appendix B of the Standard. Appendix B *Acceptable pipes and fittings* lists cross-linked polyethylene (PE-X) pipes and fittings along with a range of pipes and fittings listed above as being acceptable for use in water services.

Pipes and fittings used in a cold water service must have a maximum allowable operating pressure (MAOP) of at least 1200 kPa at 20°C. Cross-linked polyethylene (PE-X) pipes and fittings are available at PN16 and PN20 pressures ratings, reflecting a maximum water pressure of 1600 kPa and 2000 kPa respectively at 20°C.

In installations downstream of the water meter, AS/NZS 3500.1:2003, Clause 3.3.4 provides that water at any outlet within a building shall not exceed 500 kPa which is within the capabilities of PN16 cross-linked polyethylene (PE-X) pipes and fittings.

This maximum pressure requirement is essentially required because pressures above 500 kPa can cause damage, excessive noise in the system and reduce the life of appliances taps and fittings.

Given the requirements set out in AS/NZS 3500.1:2003 the pipe pressures beyond the regulating device are within the tested performance capabilities of PN16 Cross-linked polyethylene (PE-X) pipes and fittings.

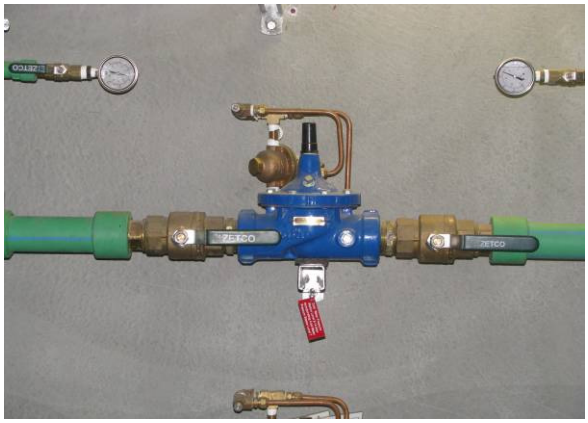
PRESSURE REDUCING VALVES

Where the delivery from the water authority exceeds the maximum pressure of 500 kPa, break tanks, pressure ratio or pressure reducing valves should be installed to maintain the desired pressure within the system. These methods represent a plumbing solution in accordance with the Plumbing Code of Australia.

CONCLUSION

PN16 Cross-linked polyethylene (PE-X) pipes and fittings, when selected and installed correctly with the specified pressure regulating devices, are suitable for use in plumbing installations throughout Australia. For additional technical information regarding pressure control devices refer to NPRF Advisory Note "Pressure Control Valves" issued 22 August 2011on the NPRF web site.

Pressure Reducing Valve installation



Pressure Limiting Valve installation

For further information contact www.plumbingregulators.org or your state or territory plumbing regulator

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