

Plumbing Regulation

Advisory Note

PRAN: Issued 11 September 2014

WATER SERVICES - PLASTIC PIPES AND FITTINGS

PURPOSE

The aim of this Advisory Note is to remove doubts regarding the use of plastic pipes and fittings in water services within a property where the supply pressure exceeds 500 kPa and an authorised pressure regulating device is installed at the meter.

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 styrene
- PB Polybutylene

As there are many types of plastic materials used in plumbing systems this advice uses cross-linked polyethylene pipes and fittings as an example.

Cross-linked polyethylene pipes and fittings are certified against Australian Standard AS/NZS 2492 *Cross-linked polyethylene (PE-X) pipe for pressure applications*. Australian Standard AS/NZS 3500.1 Water services require materials and products used in a water service to be selected from Appendix B Acceptable pipes and fittings. Appendix B lists cross-linked polyethylene (PE-X) pipes and fittings along with the range of other plastic pipes and fittings as being acceptable for use in water services.

All 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. PE-X pipes and fittings are available at PN16 and PN20 pressure ratings, reflecting a maximum water pressure of 1600 kPa and 2000 kPa respectively at 20°C.

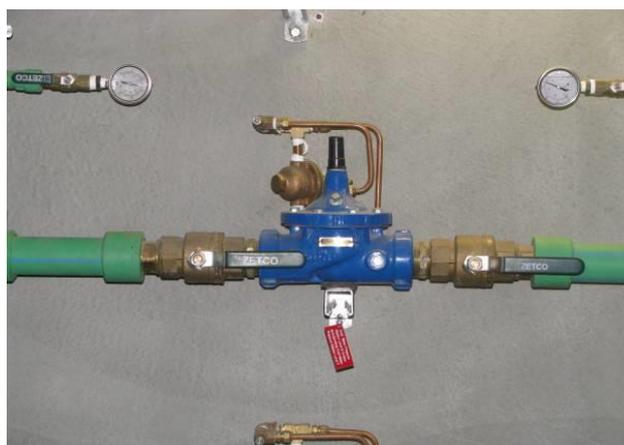
In installations downstream of the property service water meter, AS/NZS 3500.1 requires water at any outlet within a building to not exceed 500 kPa which is within the capabilities of PN16 (PE-X) pipes and fittings.

This maximum pressure requirement exists because pressures above 500 kPa can cause damage from water hammer, reduced life of appliances, taps and fittings, and cause excessive noise in the water service.

AS/NZS 2492 provides performance testing, some of which provides data that extrapolates out to an expected minimum life of 50 years. This data provides the basis upon which the life of P-EX pipes and fittings are calculated. Given the requirements set out in AS/NZS 3500.1, requiring regulation of pressures, the pipe pressures beyond the regulating device are within the tested performance capabilities of PN16 (PE-X) pipes and fittings.

PRESSURE REDUCING VALVES

Where the delivery from the water authority exceeds the maximum pressure of 500 kPa a water service can consist of break pressure tanks, pressure ratio or pressure reducing valves installed to maintain the desired pressure within the installation. For additional technical information regarding pressure control devices refer to Advisory Note “Pressure Control Valves”.



CONCLUSION

PN16 (PEX) pipes and fittings and other authorised plastic pipes and fittings, when selected and installed correctly with the specified pressure regulating devices, are suitable for use in plumbing water services throughout Tasmania.

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