Multilayer (Composite) Gas Pipe

Multilayer gas pipe is increasingly being used in gas installations due to the ease of installation. Gasfitters should be aware that there are restrictions in the use of this pipe.

Multilayer pipe is a stress-designed pipe of polymeric layers, with one or more stress-designed metallic layers. For example, PE-X/AL/PE (multilayer polyethylene – aluminium – polyethylene gas pipe).

Protection of multilayer pipe

If multilayer piping is installed above ground, protection shall be afforded against degradation from exposure to ultraviolet light (direct sunlight) and physical damage and other deteriorating effects. Where this protection conceals the original pipe markings additional markings shall be applied to the protective material for identification purposes and to maintain compliance with the product standard for this piping.

Protection from ultraviolet light can take the form of sleeving with a suitable protective material. Where physical damage is likely to occur the sleeving must be appropriate to ensure adequate protection of the pipe. Refer to the supplier for advice and evidence of resistance to ultraviolet light.

Prohibition

Multilayer gas pipe in bushfire-prone areas

ESV is concerned that multilayer gas pipe used above ground in bushfire-prone areas creates an unacceptable safety hazard. This pipe will be subjected to excessive heat; melting the pipe and causing gas to escape. Hence multilayer gas pipe cannot be used above ground external to a building in a designated bushfire-prone area. Refer to the VBA Fact Sheet: Use of gas composite pipe in bushfire prone areas for additional information.

Gasfitters can determine if their installation is in a bushfire-prone area by referring to the interactive map service at http://www.land.vic.gov.au/. Just enter the property address, and the map generated will show shaded areas which are designated bushfire-prone. (See below).
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Restriction on appliance connection
Multilayer piping shall not be used as an appliance connection. Final connections to appliances shall be made using copper tube, steel pipe or a certified hose assembly.

Caravans and boats
Multilayer piping systems shall not be used for caravans or boats.

General concerns with the use of multilayer pipe
Concerns include:

- Using fittings from one brand of multilayer pipe system with another brand of multilayer pipe system. Always ensure that you are using the correctly matched fittings if you keep in store more than one brand of multilayer pipe system.

- Connecting two different brands of multilayer pipe using reversion fittings in Class 1 buildings. Different brands of multilayer pipe are not dimensionally compatible and you cannot safely use fittings or tools from one brand to connect to another brand. Achieving a secure gas tight connection may not be possible. This operation may create a hazard, invalidate the warranty on both systems, breach the Gas Act and not comply with AS/NZS 5601.

- Labels must be used to identify multilayer piping systems. The label should identify the make or trade-name of the multilayer pipe system and shall be attached adjacent to the gas meter or LP Gas tank or cylinders.

- Damaging multilayer pipe due to hot work (e.g. brazing) on inline connected copper pipe. Hot work may allow high heat transfer to the multilayer pipe. Where hot work is conducted on copper pipe, in close proximity to multilayer pipe, the disconnection of the copper piping should be considered wherever possible. Consult your multilayer pipe supplier if in doubt.

Reversion fittings for multilayer piping
In Class 1 buildings where a proprietary multilayer piping system, with a main run longer than 10 m and connected to more than one appliance is being installed, a reversion to standard thread (complying to AS ISO 7.1, BSPT, or a standard annealed copper tube) shall be provided immediately prior to the first branch take off point and prior to the last branch take off point. The reversion fitting may be incorporated in the upstream side of the branch take off fitting.

This allows future extension or connection to a non-compatible piping system to protect the consumer/end user from difficulties that may arise from non-availability of the proprietary system.

(For the definition of Class 1 buildings refer to Appendix L in AS/NZS 5601.1:2013 Amendment 2).
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The figure below shows examples of reversion fittings installed in a multilayer piping system, reversion to copper tube and reversion to standard thread.

Further information

For further information, please contact the Gas Safety Technical Information Line on 1800 652 563.