

QUAL-PEX PLUMBING, CENTRAL & UNDERFLOOR HEATING PIPE



The Irish Agrément Board is designated by Government to issue European Technical Approvals.

Irish Agrément Board Certificates establish proof that the certified products are 'proper materials' suitable for their intended use under Irish site conditions, and in accordance with the Building Regulations 1997 to 2006.

The Irish Agrément Board operates in association with the National Standards Authority of Ireland (NSAI) as the National Member of UEAtc.

PRODUCT DESCRIPTION AND USE:

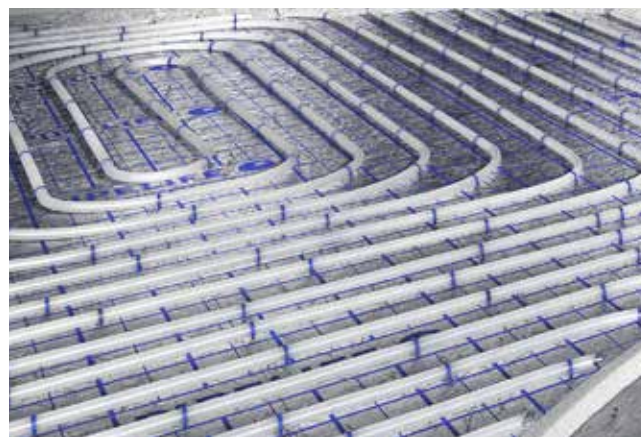
This Certificate relates to Qual-PEX barrier and non-barrier pipes. Qual-PEX plumbing pipes are manufactured by Pipelife Engineers Pack 2021 V9 ed from high density cross-linked polyethylene plastic developed for hot/cold water services, central (radiator) and underfloor heating systems. The barrier pipes have an oxygen barrier layer at mid-wall thickness. Qual-PEX pipes meet the requirements of Class S service conditions specified in Tables 1 & 2 of BS 7291-1:2010 Thermoplastics pipes and associated fittings for hot and cold water for domestic purposes and heating installations in buildings – General requirements which covers specifications for both vented and sealed central heating systems. Qual-PEX pipe also meets the requirements of Class 5 service conditions specified in Table 1 of IS EN ISO 15875-1:2004 Plastics piping systems for hot and cold water installations – Cross-linked polyethylene (PE-X) – General for a service life of 50 years.

This Certificate certifies compliance with the requirements of the Building Regulations 1997 to 2006.

MANUFACTURE AND MARKETING:

This product is manufactured and marketed by:
Pipelife Ireland Ltd., P.O. Box 29,
Whites Cross,
Cork,
Ireland.
Tel: +353 (0)21 4884700 Fax: +353 (0)21 4884701

Readers are advised to check that this Certificate has not been withdrawn or superseded by a later issue by contacting the Irish Agrément Board, NSAI, Glasnevin, Dublin 9 or online at <http://www.nσαι.ie/modules/certificates/uploads/pdf/IAB060067.pdf>



CERTIFICATION

1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), the Qual-PEX Plumbing, Central & Underfloor Heating Pipes, when used in accordance with the provisions of this Certificate, are satisfactory for the purpose defined above and can meet the requirements of the Building Regulations 1997 to 2006 as indicated in Section 1.2 of this Certificate.

1.2 BUILDING REGULATIONS 1997 to 2006 REQUIREMENT:

Part D – Materials and Workmanship

D3 – Qual-PEX Plumbing, Central & Underfloor Heating Pipes, as certified in this Irish Agrément Board (IAB) Certificate, are 'proper materials' fit for their intended use (see Part 4 of this certificate).

D1 – Qual-PEX Plumbing, Central & Underfloor Heating Pipes, used in accordance with this Certificate, can meet the requirements for materials and workmanship.

Part G – Hygiene

G1 – Bathrooms and Kitchens in Dwellings

Hot and cold water systems using Qual-PEX pipe in accordance with this Certificate can meet the current requirements for hot and cold water services.

G2 – Sanitary Conveniences and Washing Facilities

Hot and cold water systems using Qual-PEX pipe in accordance with this Certificate can meet the current requirements for hot and cold water services.

Part L – Conservation of Fuel and Energy

L1 - Conservation of fuel and energy

Heating and hot water systems using Qual-PEX pipe can meet the current requirements for heating controls and the insulation of pipes and ducts (see Section 4.2 of this Certificate).

TECHNICAL SPECIFICATION AND CONTROL DATA

2.1 PRODUCT DESCRIPTION

Qual-PEX high density pipe is a cross-linked polyethylene plastic plumbing pipe developed for hot and cold water services, central and underfloor heating systems. Qual-PEX pipes meet the requirements of Class S service conditions specified in Tables 1 and 2 of BS 7291-1:2010 which covers specifications for both vented and sealed central heating systems. The pipe comprises a bas cross-linked polyethylene (PEX) pipe, with a wall thickness of between 1.70 and 2.70mm depending on pipe size. Qual-PEX pipe is available in both barrier and non-barrier forms. The barrier pipe has an oxygen barrier which is located centrally in the pipe wall. The pipes are available in eight sizes as shown in Table 1.

For installations in a solid floor (see Section 2.4 of this Certificate) the base pipe is protected with a minimum screed thickness of 35mm or should be placed in black LDPE conduit pipe.

Ancillary Items

- Compression fittings to IS EN 1254-3:1998 Copper and copper alloys – Plumbing fittings – Fittings with compression ends for use with plastics pipes.
- Standard pipe clips.
- Standard trunking systems.

2.2 MANUFACTURE

The cross-linked high density polyethylene pipes are produced by an extrusion process.

2.2.1 Quality Control

Continuous quality control is carried out during manufacture, including checks on dimensional accuracy, degree of cross-linking, heat reversion, pressure resistance, thermostability and leak-tightness. The management systems of Pipelife Ireland Ltd. have been assessed and registered as meeting the requirements of BS

EN ISO 9001:2015 Quality Management Systems – Requirements by the British Standards Institute (Certification Registration No. FM 00466).

2.3 DELIVERY, STORAGE AND MARKING

To maintain Qual-PEX pipe in the best possible condition for use it may be stored either horizontally or vertically but should be stored out of direct sunlight. Pipe lengths or coils should be stored and supported so as to avoid sagging. The pipe should be similarly supported in transit and protected from abrasion and crushing. The pipe is supplied in rolls of 50-100mm depending on pipe diameter. The pipe bears a continuous mark showing the manufacturer's trade mark, nominal pipe size, operating temperature and pressure, manufacturing code, year and week of production. Each coil also shows the manufacturer's name and product description, the IAB identification mark and Certificate number and contains instructions on storage and installation.

2.4 INSTALLATION

Installation must be carried out in accordance with the manufacturer's instructions and BS 5955- 8:2001 Plastics pipework (thermoplastic materials) – Specification for the installation of thermoplastic pipes and associated fittings for use in domestic hot and cold water services and heating systems in buildings, and BS 6700:1997 Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages. General installation details are shown in Figures 1 and 2. If a joint beneath the floor is required, a compression fitting complying with the requirements of IS EN 1254-3:1998 must be used for the purpose.

As all plastic materials expand and contract with temperature change, due allowance in pipe runs should be made on installation to accommodate expansion and contraction of the pipe.

Nominal diameter	1/2"	3/4"	1"	10mm	15mm	22mm	28mm
Outside diameter (mm)	14.63- 14.74	20.98- 21.09	27.33- 27.44	10±0.1	15±0.1	22±0.1	28±0.1
Wall thickness (mm)	1.70±0.1	2.15±0.1	2.70±0.1	1.6±0.1	1.6±0.1	2.15±0.1	2.7±0.1
Weight (kg/100m)	6.7	12.3	20.0	4.41	6.9	12.9	20.4
Standard lengths	6m	6m	6m	-	6m	6m	6m
Standard coils	100m	50m	50m	100m	100m	50m	50m
Colour	Beige, white and cream						

Other diameter and lengths available to order
Table 1: Product Range

DESIGN DATA

3.1 GENERAL

The heating demands for particular rooms are designed in accordance with the CIBSE Guide 1980:Part A.

To calculate the pressure drop in the pipes connected to each radiator or underfloor heating coil, the total length of the pipe is defined as the sum of the lengths of flow and return pipes from the boiler.

Flow rates for the Qual-PEX pipe are calculated in accordance with BS 6700:1997.

3.2 STRUCTURAL DESIGN

Floor constructions should be designed to comply with the relevant technical specifications selected from IS 326-1:1995 Code of practice for the structural use of concrete, BS 5268-2:2005 Structural use of timber – Code of practice for permissible stress design, materials and workmanship, and TGD to Part B of the Building Regulations 1997 to 2006.

3.3 SAFE WORKING TEMPERATURES AND PRESSURES

Qual-PEX pipe meets the requirements for Class 5 service conditions specified in Table 1 of IS EN ISO 15875-1:2004 for a service life of 50 years. These conditions include operating temperatures of 60°C for 25 years operation, 80°C for 10 years and 100°C for 100 hours at a working pressure of 4 bar. The pipe is also suitable for cold water services for a period of 50 years at temperatures of 20°C and an operating pressure of 10 bar.

Qual-PEX pipe was also tested and meets the requirements of Class S service conditions specified in Tables 1 and 2 of BS 7291-1 of 12 bar at 20°C, 4 bar at 92°C, and short term overload temperatures of 114°C.

3.4 CHEMICAL RESISTANCE

The material used in the Qual-PEX pipe will not be adversely affected by accidental contact with linseed although these materials should not normally be used in making joints to the pipe.

3.5 EFFECT ON WATER QUALITY

Qual-PEX pipe is approved and listed by WRAS (The UK Water Regulations Advisory Scheme) as a product which has passed full tests on the effect on water quality in accordance with BS 6920-1:2001 Specification for the suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Specification.

3.6 FLOW CHARACTERISTICS

The bore of the Qual-PEX pipe is less than copper or steel pipe of the equivalent outside diameter. The consequent reduction in flow rate for a given pressure head should be considered when designing a system – see Tables 4 and 5 for design flow rates, head losses and velocities for Qual-PEX pipe.

3.7 NOTE ON SYSTEM DESIGN

In systems where low water content gas boilers with cast iron heat exchangers are used, Quality Plastics recommend that the balancing valve for the hot water circuit be a brass lockshield gate valve (conforming to BS 5154:1991 Specification for copper alloy globe, globe stop and check, check and gate valves). This lockshield valve is important so as to prevent the valve being inadvertently turned off while the boiler is on and so avoid the pipework being exposed to excessive temperatures by providing an open circuit for water to circulate between the boiler flow and return.

TECHNICAL INVESTIGATIONS

4.1 BEHAVIOUR IN FIRE

Where the Qual-PEX pipe passes through an element or structure or cavity barrier the opening should be fire-stopped in a way that will permit thermal movement.

4.2 THERMAL INSULATION

Heating controls and pipe insulation must meet the minimum requirements of TGD to Part L of the Building Regulations 1997 to 2006. Guidance is given in Section 2-3 of this TGD.

4.3 DURABILITY

The Qual-PEX pipe has been widely used in other European countries for thirteen years. Experience with the system has been favourable. For central and underfloor heating applications, in accordance with good practice, it is recommended that a corrosion inhibitor is used and its concentration checked and maintained.

As with all plumbing and heating systems, the control fittings i.e. thermostatic radiator valves may require replacement within the lifetime of the Qual-PEX pipe.

The Qual-PEX pipe will have a life of at least equivalent to that expected from a traditional installation with metal pipes and fittings.

4.4 TESTS AND ASSESSMENTS WERE CARRIED OUT TO DETERMINE THE FOLLOWING:

- Dimensional accuracy
- Degree of thermal cycling on pipes and fittings
- Degree of cross-linking
- Long-term hydrostatic pressure resistance of pipe
- Resistance to pull-out of assembled joints
- Short-term hydrostatic pressure resistance of pipes at 20°C
- Short term hydrostatic pressure resistance of pipes at 95°C.

4.5 OTHER INVESTIGATIONS

- (i) Qual-PEX pipe has been tested to and meets the requirements of Class S service conditions as specified in BS 7291-1:2001 which covers specifications for both vented and sealed central heating systems.
- (ii) Existing data on product properties in relation to toxicity with respect to suitability for use with potable water supplies, mechanical strength/stability and durability were assessed.
- (iii) The manufacturing process was examined including the methods adopted for product quality control, and details were obtained of the quality and composition of the materials used.
- (iv) Site visits were conducted in Ireland to assess the practicability of installation and the history of performance in use of the product.

CONDITIONS OF CERTIFICATION

5.1

National Standards Authority of Ireland (“NSAI”) following consultation with the Irish Agrément Board (“IAB”) has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer’s instructions and usual trade practice. This Certificate shall remain valid for five years from date of issue so long as:

- (a) the specification of the product is unchanged.
- (b) the Building Regulations 1997 to 2006 and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.
- (c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.
- (d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.
- (e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
- (f) the registration and / or surveillance fees due to IAB are paid.

5.2

The IAB mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate holder must not use the IAB mark and certification number and must remove them from the products already marked.

5.3

In granting Certification, the NSAI makes no representation as to;

- (a) the absence or presence of patent rights subsisting in the product/process; or
- (b) the legal right of the Certificate holder to market, install or maintain the product/process; or
- (c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.

5.4

This Certificate does not comprise installation instructions and does not replace the manufacturer’s directions or any professional or trade advice relating to use and installation which may be appropriate.

5.5

Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act. 1989, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.

5.7

Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standards, manufacturer’s instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.