

Plastics Pipe Testing

Materials, pipes, fittings and jointing systems

Plastics pipes and piping systems are designed for a minimum lifetime of at least 50 years. This requires some intensive testing to declare such predictions.

The minimum lifetime of 50 years is applicable for both gas and water distribution pipes (e.g. a 630mm PE100 pipe) as for indoor installation pipes for hot & cold water and gas (e.g. a 16mm PE-X/Aluminium multilayer pipe).

Kiwa is both specialised in pipe material evaluations as in pipe construction evaluations on the long term hydrostatic strength and offers 24/7 data access to all customers.

Material evaluation (MRS)

Kiwa is one of the most renowned institutes in the world for the evaluation of plastics materials for piping systems. Decennia of experiences are available on testing of traditional distribution materials such as PE, PP and PVC.

For indoor installation materials Kiwa has the same expertise and experience on e.g. PB, PE-X, PE-RT, PVC-C and PP materials.



But not only on the more traditional materials, Kiwa also has plenty of expertise and experience in upcoming engineering plastics and (glass) fibre reinforced materials.

Typical product standards for material and pipe evaluations are:

- EN 12201 / ISO 4427 for PE water;
- EN 1555 / ISO 4437 for PE gas;
- EN ISO 15874 for PP;
- EN ISO 15875 for PE-X;
- EN ISO 15876 for PB;
- EN ISO 22391 for PE-RT.

Pressure testing and the strength evaluation (SEM evaluation) for materials are generally performed in accordance with EN ISO 1167 and EN ISO 9080.

Multilayer pipe evaluation

Multilayer pipes, both with an aluminium functional layer as all plastics multilayer pipes are intensively tested and evaluated at Kiwa. Kiwa has built up a high quality name in the evaluation of these pipe constructions.

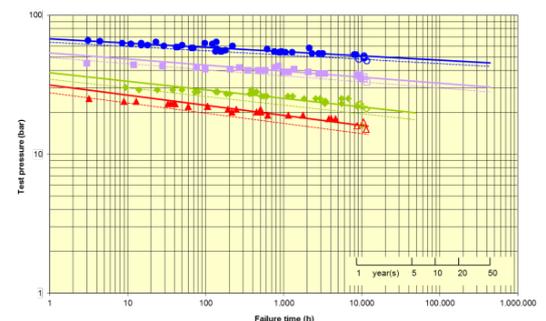
Pressure testing and the strength evaluation for multilayer pipes are generally performed in accordance with EN ISO 1167 and ISO 17456.



Classification of multilayer pipes are generally not based on a temperature profile as described in ISO 10508. (E.g. Class 2 for hot & cold drinking water and Class 5 for radiator heating applications).

Typical product standards for multilayer pipe evaluations are:

- EN ISO 21003 for H&C applications;
- ISO 17484 for indoor gas;
- DVGW W542 / DIN 16887.



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The complete package

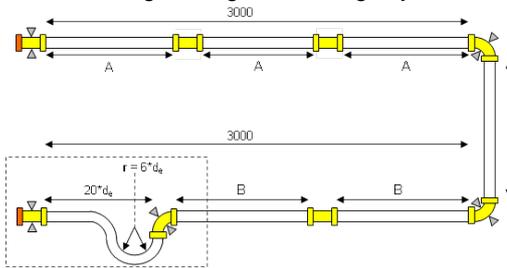
Product testing

The long term strength evaluation isn't the only characteristic Kiwa can test. Other mechanical or physical aspects are tested at Kiwa, e.g.:

- MFR, VST, DSC, TGA, FTIR, density;
- Impact testing;
- Tensile properties;
- Crack growth (RCP, SCG, FNCT);
- Chemical resistance;
- Various aging tests;
- Microscopy.

Fitness for purpose testing

For the fitness for purpose of the piping system the leaktightness of the jointing is evident. Fitness for purpose requirements are applicable to all application areas such as gas, water, heating, sewage or drainage systems.



Typical fitness for purpose tests as described in product standards are:

- Thermal cycling tests;
- Bending tests;
- Deflection tests;
- Pull-out tests;
- Vacuum and pressure tests;
- Pressure cycling tests;
- Oxygen permeability.

And many, many more

To cover it all Kiwa can also perform all tests on rubber sealing products and elastomeric materials which are often used in jointing systems.

Kiwa Online : 24 / 7 data access

Kiwa offers all its clients 24/7 free access to all its pressure testing data. Via your computer Kiwa's current and past data on your material or pipe can be accessed by just one simple mouse click.

The verified pressure testing data in the Kiwa laboratory is sent directly to the Kiwa Online server. The customer can now access via a secured and personal plug-in the live data and project information through its Pipeson® Analyzer or DataManager software (more info see www.pipeson.com).

Recognised all over the world

Kiwa's test reports are recognised all over the world by numerous testing and certification institutes. Testing at Kiwa usually implies no double testing costs. Once tested at Kiwa the reports are willingly accepted worldwide.

Next to the acceptance of the test reports Kiwa can also perform various certification audits, including audit testing for many institutes such as Germany's DVGW. This concretises Kiwa's one stop shop philosophy which inevitably has advantages for any producer.

Also recognised are our hygienic tests and approvals which can meet e.g. current Dutch and German regulations and future European regulations.

Kiwa's testing activities are EN ISO/IEC 17025 accredited by the Dutch accreditation Council.

More information ?

If you would like to know more about testing at Kiwa, please have a look at our website www.kiwa.com or send an e-mail to marco.mekes@kiwa.nl.

