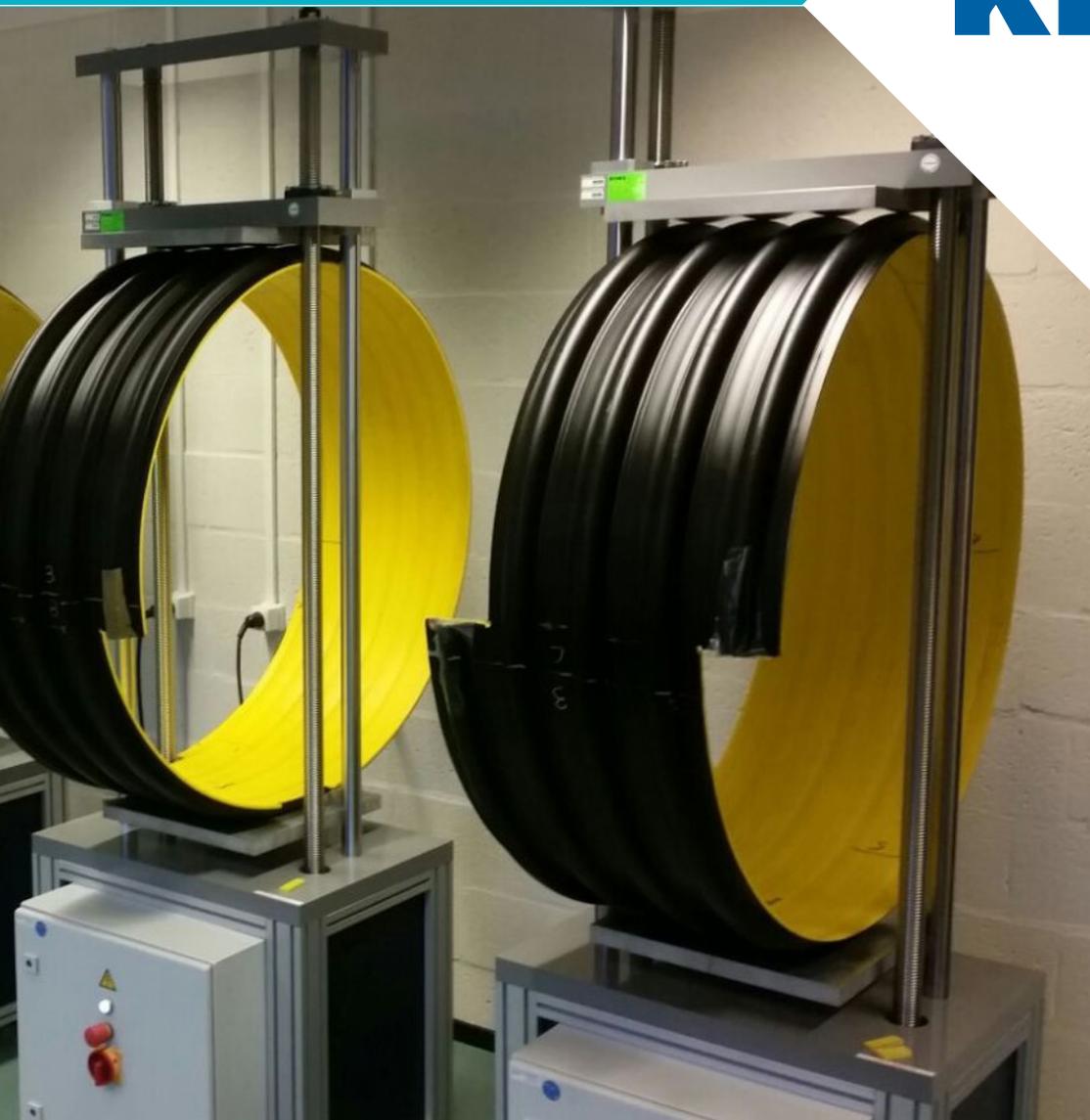


Plastics Pipe Testing

Materials, pipes, fittings and
jointing systems



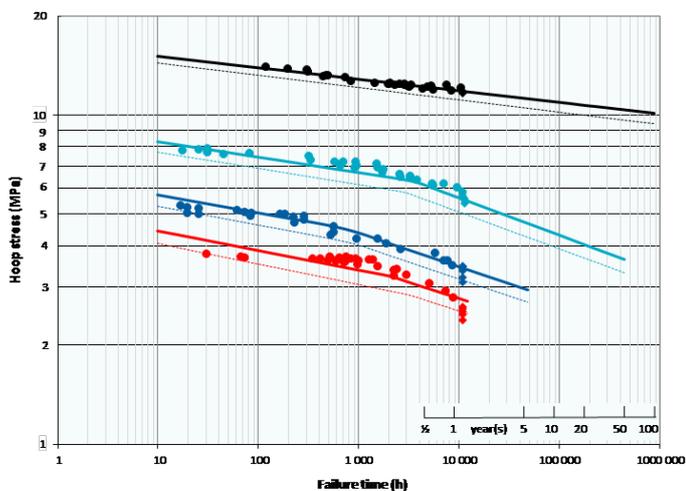
**Partner
for
Progress**

Plastics Pipe Testing

With a state-of-the-art accredited laboratory, many years of know-how and experience the Kiwa laboratories in the Netherlands are able to perform all your needs for testing and research activities on plastics materials, pipes and piping systems. Kiwa's testing activities are supported by certification, inspection, training and consultancy, allowing us to offer you the full range of support as a partner for progress.

Material evaluation and classification (MRS)

Kiwa is one of the most renowned institutes in the world for material evaluations. With numerous pressure stations and a 24/7 data access service Kiwa can provide you material classification testing works in accordance with standards such as ISO 9080, ASTM D3350 cell classification and similar standards.



Polyethylene (PE)

Kiwa can perform almost all tests applicable for Polyethylene materials and pipes.

Typical product standards for material and pipe evaluations are:

- ISO 4427 (EN 12201, ASTM D3350) for PE water;
- ISO 4437 (EN 1555), ASTM D2513) for PE gas.

Testing works involve a.o.:

- Pressure testing;
- Slow crack growth (NPT-SHT-CRB-FNCT-PENT-2NCT);
- Rapid crack propagation (RCP-S4);

- Material characterisation (such as MFR, OIT, density, CB, tensile testing, etc.);
- Fusion compatibility;
- Other PE related testing works.



Polyvinylchloride (PVC)

Kiwa can perform almost all tests applicable for Polyvinylchloride materials and pipes. This relates to PVC-U, PVC-HI, C-PVC and PVC-O pipes.

Typical product standards for material and pipe evaluations are:

- ISO 1452 (ASTM D1785) for PVC-U;;
- ISO 15877 (ASTM D2846) for C-PVC;
- ISO 16422 (ASTM F1483) for PVC-O.

Testing works involve a.o.:

- Pressure testing;
- Impact testing;
- Ring stiffness and creep ratio;
- Material characterisation (such as VST, DCMT resistance, tensile testing, etc.);
- Leaktightness of piping systems;
- Other PVC related testing works.



Plastics Pipe Testing

Hot & Cold (indoor piping systems)

Kiwa can perform almost all tests applicable for Hot & Cold piping system materials and products. This relates to materials like PP-R, PE-X, PE-RT, PB and engineering polymers like PPSU and PVDF. Kiwa has a highly recognised reputation on testing multilayer piping systems in accordance with ISO 21003 and other evaluation guidelines such as Germany's DVGW approval scheme. Multilayer include both plastics barrier pipes (EVOH) and metal multilayer pipes.

Typical product standards for material and pipe evaluations are:

- ISO 15874 (ASTM F2389) for PP-R piping systems;
- ISO 15875 (ASTM F877) for PE-X piping systems;
- ISO 22391 (ASTM F2769) for PE-RT piping systems;
- ISO 15876 for PB piping systems;
- ISO 21003 for multilayer pipes.

Testing works involve a.o.:

- Pressure testing;
- Design pressure calculations;
- Thermal stability testing;
- Impact testing;
- Material characterisation (such as MFR, tensile testing, degree of crosslinking, etc.);
- Leaktightness of piping systems;
- Thermal cycling, pressure cycling, dynamic cycling, etc.;
- Pull-out resistance;
- Oxygen permeability;
- Other Hot & Cold related testing works.

Sewerage and waste water

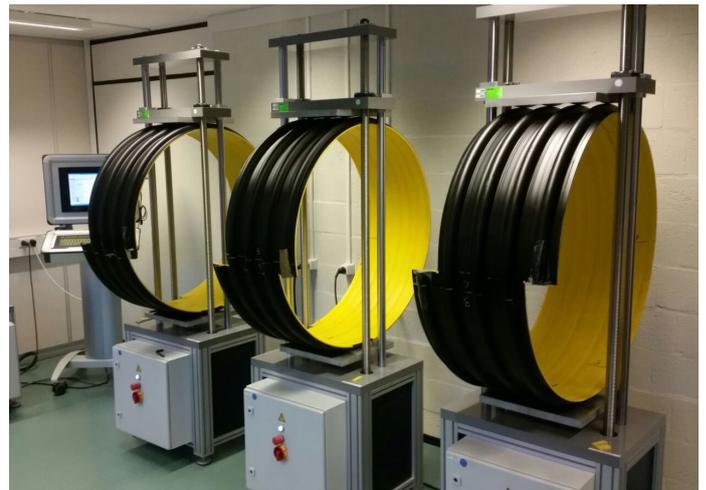
Kiwa can perform many tests applicable for sewerage and waste water systems. The testing works can be performed on a wide range of typical pipe materials and constructions such as solid wall pipes but also sandwich pipes and structured and corrugated pipes. The application can both be pressure pipes, pressure less and low or elevated temperatures.

Typical product standards for material and pipe evaluations are:

- ISO 1452 (EN 1329-1) for PVC-U systems
- ISO 8773 (EN 1451-1, EN 1852-1) for PP systems;
- ISO 8772 (EN 1519-1) for PE systems;

Testing works involve a.o.:

- Pressure testing;
- Ring stiffness and creep ratio;
- Impact testing;
- Material characterisation (such as MFR, VST, OIT, etc.);
- Leaktightness (under (angular) deflection);
- Temperature cycling at elevated temperatures,
- Other sewerage related testing works.



Other testing works

Next to above described piping systems Kiwa can also perform testing works on other materials, types of pipes and piping systems and plastics products used in the chain of water and gas distribution.

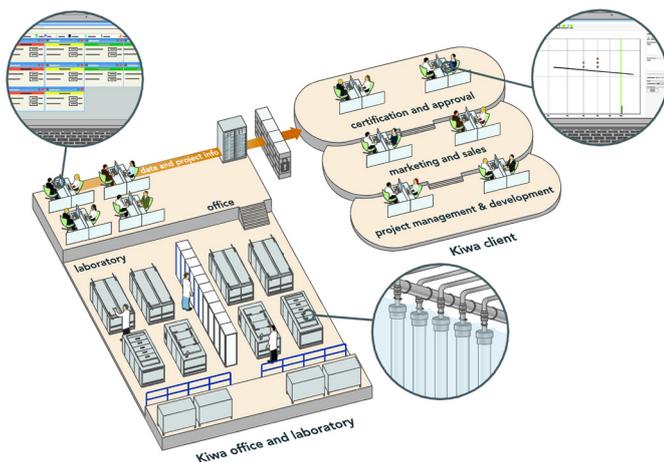
To name a few of these examples:

- District heating systems;
- Valves for piping systems;
- Storm water boxes;
- Irrigation piping systems;
- Full testing options on rubber and TPE materials and products;
- Hygienic testing works such as KTW/W270, ANSI NSF 61, EU drinking water regulations.

Plastics Pipe Testing

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 access via a secured and personal plug-in the latest 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 and UK's WRAS Approval. 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. German (KTW) regulations, ANSI-NSF 61 and nowadays European drinking water regulations.



SAI GLOBAL

DIN CERTCO



Kiwa's testing activities are EN ISO/IEC 17025 accredited by the Dutch accreditation Council since 1989.

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.com.

You are always welcome to visit our lab facilities!

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