

Permeation



The resistance against permeation of gases and water through pipe walls and other separation components such as films, is for many practical applications a very important property. In this area, Kiwa Technology has gained vast knowledge and experience, which we are also pleased to use to provide you with the correct solutions for your problems.

We work for central and local government, manufacturers of materials, plastic processing industry and power, heat and water companies.

The developments in plastic pipe systems follow each other rapidly. For example, for the distribution of gases new materials like polyamide (PA) enter the market, next to the more traditional PE and PVC pipes. More and more multi-layer pipe systems are being developed, which are made from layers with differing functional properties. There are also newly developed pipe systems which, regarding their strength, can resist constantly rising gas pressures. Moreover, next to natural gas, other gases are increasingly being transported through plastic pipeline systems, such as LPG, biogas and hydrogen (H₂).

With the application of new materials and systems for transport and distribution of gases, it is crucial to research the permeation of gases, gas components and possibly water (moisture) in depth, especially at higher gas pressures.

For example, it appears that the permeation can accelerate at even a tenfold rate after the initial saturation period. It is therefore critical to determine this breaking point. Kiwa Technology can be of excellent service in this regard.

We have for this the right test equipment and expertise, as well as for other permeation problems such as:

- What is the rate of permeation of a gas or a component therefrom?
- Which components/gases do permeate and which do not?
- What is the relationship between the gas pressure and the permeation rate?
- How far can I raise my gas pressure?
- What is the influence of temperature on the permeation of a gas?
- What is the resistance against moisture permeation from the outside?

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