We will help you with our experience

We carry out failure analyses for the following categories of interest, among others:

- Manufacturers of pipes and semi-finished products
- Operators (e.g. public utility companies)
- Experts
- Insurance companies
- Courts of law

The address – when it comes to plastics.

As the largest plastics institute in Germany we offer practical solutions – tailored exactly to your requirements. For the past 55 years now we have seen ourselves as a partner to the plastics industry providing extensive system expertise. By means of Testing and Quality Assurance we support your product policy, supplying you with valuable arguments for your key markets. With more than 10,000 participants each year, we are the market leader for Training and the Transfer of Knowledge in the field of plastics. Our Research division bets on the development and improvement of production technologies in line with the market requirements. With the Certification of Management Systems we offer you the best prerequisite for efficiency and economic success.

Become part of a strong community!

With more than 400 members, the association for the promotion of the SKZ currently constitutes the most important and dynamic network in the field of plastics. Benefit from the numerous opportunities for cooperation achieved through the networking of experts from all areas of the plastics industry. Our network reflects the wide spectrum of the industry and offers excellent opportunities for the cooperation of economy, science and politics. For further information, please visit www.skz.de or contact us at fskz@skz.de

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Expertise reports and failure analyses for plastic pipes

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Empirical values
For more than 30 years, failure analyses have been carried out and expert reports drawn up at the SKZ. More than 200 failure analyses per year have accumulated a comprehensive experience.

Expert reports
Our expert reports provide a holistic and systematic consideration of root causes. This ranges from the plastic material itself to processing or assembly through to the environmental influences during application.

Our recognized experts (including court-appointed experts) have been specialised in their fields of expertise for many years. SKZ reports are prepared in accordance with VDI Guideline 3822 „Failure analysis“. All possible stress situations in plastic products are considered in detail in each individual case. Furthermore, in addition to statements on the root cause of failure, SKZ expert reports also include recommendations for avoiding damage in the future.

Fractography
Fractography is an essential part of failure analysis at the SKZ. Fragmentation pattern analysis helps detect the locations of crack initiation and makes it possible to provide statements as to the course of cracks, and the direction and velocity of crack propagation among other things.

Analytic methods
An essential institution for failure analysis, is our accredited test laboratory according to DIN EN ISO 17025. The test laboratory offers a wide range of services and includes all major testing procedures for plastics. Among other things, these include analytical material tests and mechanical tests such as:

- Technological bending tests according to DVS 2203-5
- Torsion shear tests according to DVS 2203-6 BB1
- Assessment of welding joints according to DVS 2202
- Determination of welding factors (short-time tensile tests or tensile creep tests) according to DVS 2203-2 or DVS 2203-4
- Determination of oxidation induction time (OIT)
- High pressure autoclave ageing
- Strain hardening tests
- Full notch creep tests (FNCT)
- Internal pressure tests
- Microscopic analyses for failure investigation using scanning electron microscopes
- and much more

Further services
Construction appraisals on site
To assess possible laying errors, SKZ experts carry out construction site inspections as a part of their failure analyses. In such cases, samples are usually taken during the preparation of the report in hand.

Assessing the welding process on site
Should process-related deviations be detected during damage analysis, the range of SKZ services also includes application-related advice directly at the welding machine.

Condition assessments of plastic pipes in operation
(30 years and longer)
The SKZ can look back on many years of experience in the field of ageing in plastic pipelines, thus public utility companies and pipeline operators can make use of our comprehensive tests of pipeline conditions, which helps them in their decision-making processes – whether they should continue operation or refurbish the piping network.

Newly developed methods for testing materials and pipeline parts are also used in this context.