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Testing of sewer lateral liners

The inspection of renovation of sewer lateral connections offers security for engineering offices, building management companies and property management companies - e.g. housing associations.

Small diameters, greater curvatures: Standard testing methods for pipe liners reach their limits when it comes to sewer lateral connections. With little space the collection of representative samples is difficult.

Existing regulations offer the possibility of alternative test methods with small sample sizes. This document provides you with all the information you need in a compact form.

How is the success of sewer lateral lining assessed?

Step 1: Visual inspection of the wall structure - assessment of the porosity and impregnation of the substrate material

Step 2: Determining the wall thickness

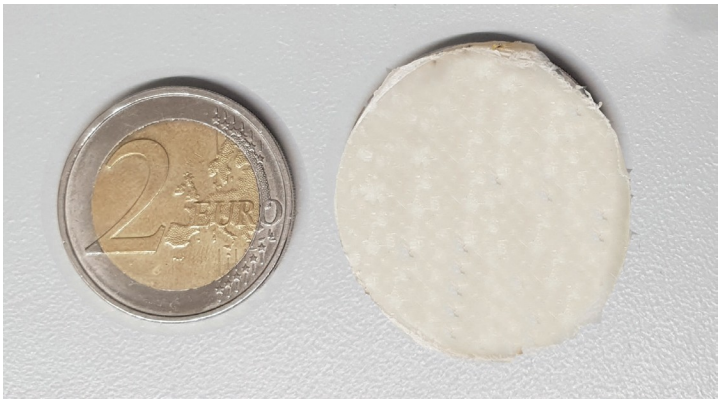
Step 3: Analysis depending on the resin used

Details of the analysis procedures are given on the back page.

EP resins	DSC analysis
UP, VE and PUR	DMA analysis
Resins containing styrene or acrylate	GC analysis

Tips for material removal

- Remove material from an accessible area of the hardened liner using a drill bit (2 cm for DSC analysis, 5 cm for DMA analysis). The old pipe should be **undamaged** at this point.
- Always **seal** the sampling area **properly** (e.g. with an epoxy filler).
- If it is not possible to take a sample from the pipe, an **extension of the liner** must be made from which the sample is to be taken. The diameter, wall construction and wall thickness must correspond to the installed liner.



By the way: Construction products are used on private property must be approved by the German Institute for Building Technology in Berlin (DIBt). Twice a year, the manufacturing plants of the renovation system manufacturer must be inspected by a monitoring and certification body recognised by the DIBt. The Ü Sign (left) shows that it is an approved rehabilitation system.

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DSC analysis

- Verification of the curing and mixing quality of sewer lateral lining samples
- Thermal analysis for the determination of the glass transition temperature (EP resins)
- DSC = Differential Scanning Calorimetry

Result:	**Applicable standards / regulations:**
Glass transition temperature	DIN EN ISO 11357-2
Enthalpy	DWA-A 143-3

Dynamic Mechanical Analysis (DMA)

- Verification of the curing quality of sewer lateral lining samples
- Determination of the mechanical parameters
- Suitable for all resin systems

Result:	**Applicable standards / regulations:**
Bending storage modulus E'_f	ISO 6721-5
	DWA-A 143-3

Gas chromatography (GC)

- Verification of the curing quality of sewer lateral lining samples
- Reactive resin moulding materials contain reactive solvents that function as reaction partners and are bound in the resin matrix after curing. The proportion of free, unbound monomers provides information about the curing of the component.
- Suitable for most unsaturated polyester resin systems (UP) and vinyl ester resin systems (VE)

Result:	**Applicable standards / regulations:**
Content of monomeric residual styrene / acrylate	DIN 53394-2, ISO 4901
	DWA-A 143-3

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