

IKT LinerReport 2020: CIPP liners meeting target values at six-year low



The results for all four test criteria dropped in comparison to previous years.

For the 17th time, IKT presents its **annual LinerReport**. This LinerReport for 2020 considers the short-term test results from a total of 2,613 **cured in place pipe (CIPP) liner samples**. The overall test results for 2020 are the **lowest in the past six years**. One CIPP liner sample in eight did not achieve its expected target value for at least one test criterion. However, the requirement is clear and unambiguous: **all four test criteria must be met** simultaneously by a sample. In 2020, this was achieved in only 87.5% of samples.

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But, even when looking at the four test criteria individually, the 2020 results are the lowest in six years. In 2018, the **mean results** for wall thickness were slightly lower than in 2020; otherwise, all the mean results from 2015 to 2019 were better than those of 2020.

2020 test results weaker than 2019

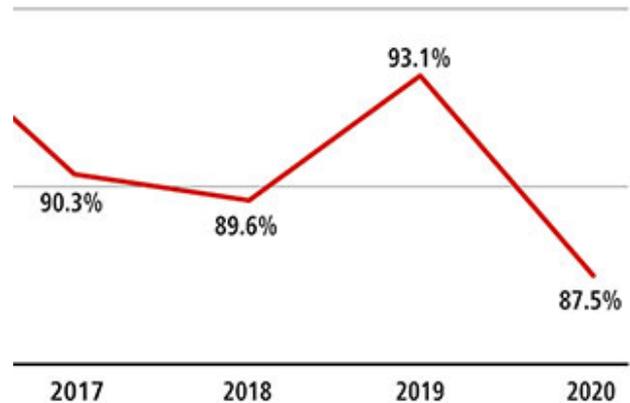


Figure 1: Percentage of CIPP liner samples that met their target values for all four test criteria (click to enlarge)

Overall there is a **downward trend** for all four test criteria, for both glass fibre liners and needle felt liners. On average, the pass rates across all four tests were lower than 2019: by -1.6 percentage points (%P) for **water tightness**, by -1.5%P for **modulus of elasticity**, by -1.1%P for **flexural strength** and even by -2.9%P for **wall thickness**.

All four test criteria must be fulfilled

It makes little sense to consider the test criteria individually for a CIPP liner sample. Rather, it is important to a network owner that for each sample **all four test criteria are fulfilled**, according to the declared or designed target value for that installed liner. Only then can they be very certain that the liner that was delivered and installed actually achieved the material characteristics promised.

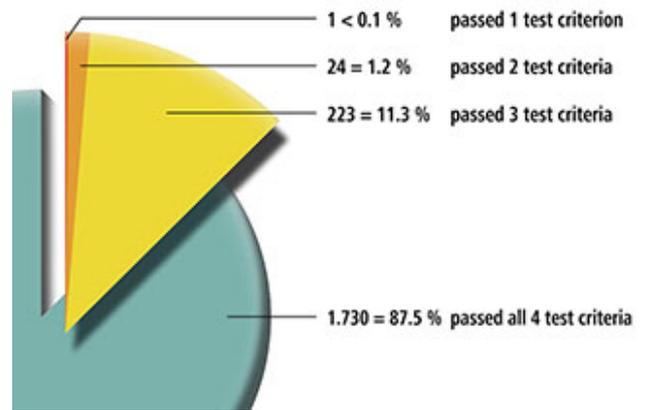


Figure 2: Liner samples by numbers of tests passed (click to enlarge)

Of the samples for which all four target values were provided for all four tests:

- < 0.1% passed only one test criterion
- 1.2% passed only two test criteria
- 11.3% passed three test criteria
- 87.5% passed all four test criteria

Top performers: the “100% Club”

A **high-quality liner** must fulfil all four test criteria simultaneously. In most cases, the target values against which test results were compared derive from declared values in a product approval and in a few cases they were provided by the site-specific static calculations from the customer’s specification. In 2020, five out of 27 rehabilitation companies achieved the target values in all four test criteria for all their samples (the previous year it was three out of 23), so they **meet the quality requirements in full** at each of their installation sites.



Table 3: The 100 % club of 2020 (click to enlarge)

This “100% Club” of 2020 comprises:

- **Bluelight** (D) with the PAA-F-Liner
- **Hamers Leidingtechniek** (NL) with Alphaliner
- **Jeschke Umwelttechnik** (D) with Alphaliner
- **Kanaltechnik Agricola** (D) with Brandenburger Liner 2.5
- **Umwelttechnik und Wasserbau** (D) with Brandenburger Liner 2.5

In Figure 3, these companies receive a star for each year that they have been in the “100% Club”, to highlight their achievements.

As a testing institute, we can only report the findings, but cannot speculate about the reasons for these developments, as we are unable to interpret them in an evidence-based manner. One thing is clear, however: despite the **very high technological development** of the CIPP lining method, despite its position as the leading renovation method and despite intensive staff training, an ever-higher level of samples **meeting target values** in tests is not a given. On the contrary, it has been shown that these can also go down. Therefore, strict application of **quality controls** continues to be necessary, both on the rehabilitation sites and in the testing laboratory.

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Rehabilitation contractors and liner systems matter

Six of the 27 **rehabilitation companies** in this year's LinerReport appear more than once, as they submitted two or three different **CIPP liner systems**. The other 21 appear with one type of CIPP liner system. The six companies with multiple CIPP liner systems achieved **differing test results** with different liners. This shows that the **success of the rehabilitation** depends not only on the rehabilitation company, but also on the CIPP liner system used.