

Two Teknik ApS
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4660 Store Heddinge
Attn. Tim Warner

Brøndby, January 30, 2025

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lru/lavi

REPORT

Investigation of fire properties using SPS Fiber Sealant



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Samples received date:	24-9-2024 SPS Fiber
Sample ID (Customer's):	Sealer 5 liters
Analyses and tests performed in:	Brøndby
Analyses performed by:	LRU
Analyses performed date:	29-1-2025

1 Test and task description

TWO teknik wanted to test whether SPS Fiber Sealant can burn or in any way affect a fire. Therefore, the following tests were performed:

- 1) Flammability of concentrated product.
- 2) Flammability of product in use solution.
- 3) Impact on structural elements treated with SPS fiber sealant.

2 Investigation

2.1 Flammability of SPS Fiber Sealant

Examination of points 1 and 2 was carried out by placing 25 grams of the liquid in a ceramic bowl and then burning the surface with a Bunsen burner for 10 minutes to see if heating the liquid could release flammable vapors. The SPS Fiber Sealer was tested in a 1:3, 1:5 solution and as a concentrated product.

The result of these studies is that the liquid begins to boil, but there is no possibility of steaming. The pens ignite.

2.2 Fire test

Point 3 was carried out by applying the SPS fibre sealant to corrugated cardboard sheets in a solution of 1:3 and 1:5, respectively, which is the recommended solution for use. The fibre sealant was applied so that the surface was 100% wet and completely covered. The product was then cured and the sheets were dried for 48 hours in the laboratory.

The fire test is carried out according to ISO 15025:2016 with a standard flame length of 25 mm and a distance to the plate. the 17 mm. The test was performed with a horizontal flame (see Appendix A), which was held constant for 10 seconds. After 10 seconds, the flame was removed and the plates were extinguished as quickly as possible with water spray.

All test plates were made from the same cardboard to make the results as comparable as possible. On the the following images show 4 reference plates and 3 test plates with SPS fiber sealant in a 1:3 solution and 3 test plates with a 1:5 solution.



Photo 1 Reference test plates.



Photo 2 Test plates with SPS Fiber Sealer mixture 1:3



Photo 3 Test plates with SPS Fiber Sealer mixture 1:5

If the burned area is compared between the reference panels and the test panels treated with SPS Fiber-seal, there is virtually no difference in size.

In videos of the fire tests performed, it can be seen that the flames are more bluish on the reference panels and more yellowish on the panels with fiber sealant.

When we look at ignition speeds, there is no difference to be detected, all plates are ignited after 10 seconds and burn when the gas flame is turned away

During the test, the flame is turned onto the plate when the stopwatch shows 10 seconds, and away when it shows 20 seconds. As quickly as possible, the flame is extinguished with water spray. Photos 4, 5 and 6 are excerpts taken from the video of the fire tests performed.

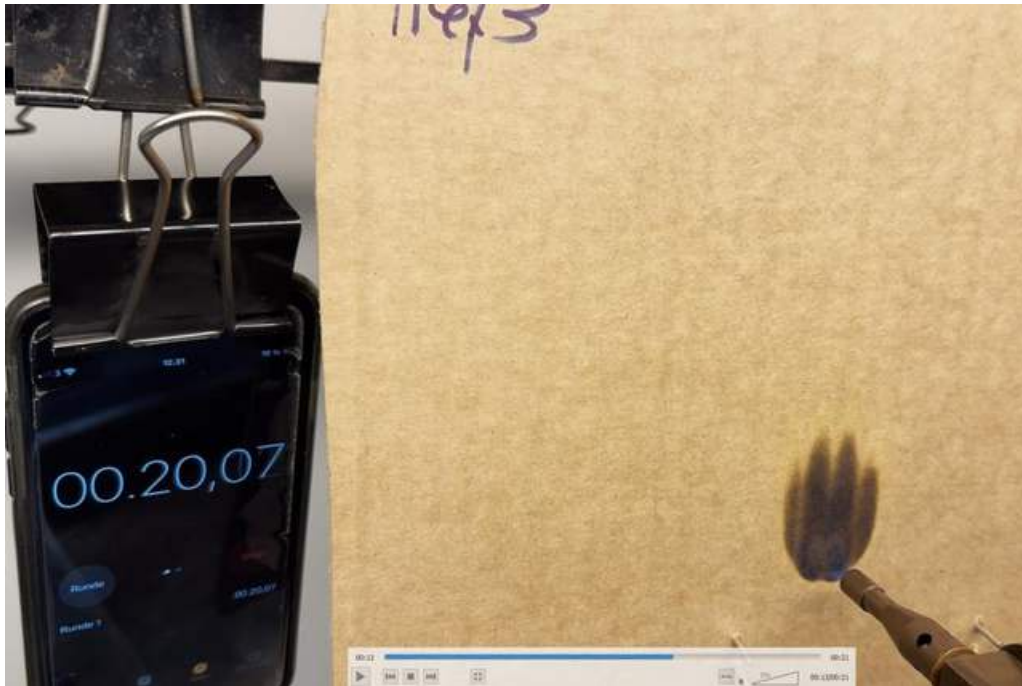


Photo 4 Testing Reference Plate 3



Photo 5 Testing of plate "1:3-3"



Photo 6 Testing of plate "1:5-2"

3 Conclusion

The conclusion of the tests performed is that SPS Fiber Sealer is completely non-flammable in concentrated form and also in diluted form, ready for use.

During the fire tests, it was found that the burned area on the reference cardboard sheets is comparable to the burned area on the cardboard sheets treated with SPS Fiber Sealer.

There is no difference in the rate at which the cardboard board ignites. However, the development of a more yellowish flame on the test boards applied with SPS Fiber Sealer indicates that something is burning with the cardboard board. In comparison, the yellowish flame is much smaller than if the board had been painted with a wall paint.

Appendix A Iso 15025:2016 standard for flame length.

