



Osaamista
ja oivallusta
tulevaisuuden
tekemiseen

Research report

Abrasion resistance testing of CovidSafe

basic membrane

- total membrane thickness 340 μm
- membrane with adhesive surface 190 μm
- coating thickness 20-40 μm

The membranes were tested in accordance with the standard SFS-EN ISO 7784-2.

- testing equipment Taber 5131
- test samples 1 + 2 replicates
- force 10 N

Test

The test was performed on C10 grinding wheels recommended by the equipment manufacturer for testing metallic coatings.

The first test piece shows traces of puncture-abrasion after 160 revolutions. In this case, the metal surface has worn away at the outer edge of the grinding wheel groove and the white base is visible (figure 1).

The second test piece shows traces of puncture-abrasion after 110 revolutions at the outer edge of the grinding wheel groove (figure 2).

The third test piece shows traces of puncture-abrasion after 156 revolutions at the inner edge of the grinding wheel groove (figure 3).

Mass losses are shown in table 1.



Figure 1. Test piece 1. Puncture-abrasion visible at 160 rpm.



Figure 2. Test piece 2. Puncture-abrasion visible at 110 rpm.



Figure 3. Test piece 3. Puncture-abrasion visible at 156 rpm.

Results

Table 1. Masses of test pieces at the beginning, end and difference

| | revolutions | mass beginning (g) | mass end (g) | Difference (g) |
|----|-------------|--------------------|--------------|----------------|
| N1 | 160 | 49.1092 | 49.0507 | 0.0585 |
| N2 | 110 | 49.1788 | 49.1342 | 0.0446 |
| N3 | 156 | 49.1459 | 49.0858 | 0.0601 |
| | | | average | 0.0544 |

The average mass loss is 54.4 mg. The deviation in rpm is probably due to variation in layer thicknesses. With a thin layer thickness, the mass loss can be the same, but puncture-abrasion occurs faster.

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