

Osaamista
ja oivallusta
tulevaisuuden
tekemiseen

Research report

Chemical resistance testing of CovidSafe basic membrane

- total membrane thickness 340 μm
- membrane with adhesive surface 190 μm

membrane with additive

- total membrane thickness 340 μm
- membrane with adhesive surface 190 μm

Chemical resistance testing

The membranes were tested in accordance with the standard SFS-EN ISO 2812-4:2017. The assessment was performed in accordance with the standard SFS-EN ISO 4628-2:2016.

The following substances were used as test chemicals:

- Chlorite
- Sulphuric acid 10 p-%
- Ethanol 70 t-%
- Diesel
- Gasoline
- Detergent pH 5.5

5 drops of the chemical were dropped onto the test surface ($d = 6 \text{ cm}$). The surface was then covered with a protective hood. Of the substances studied, chlorite, sulphuric acid and diesel remained on the surface in droplet form, other substances spread on the surface. The test time was 24 h. The first inspection was performed one hour after the start of the test, and the next after 24 hours.

Figures 1 to 7 show the effect of chemicals on the surface after 1 hour and figures 8 to 14 show the effect after 24 hours after the chemical has been washed off the surface.



Figure 1. Chlorite after 1 hour. Chlorite reacts with the coating.

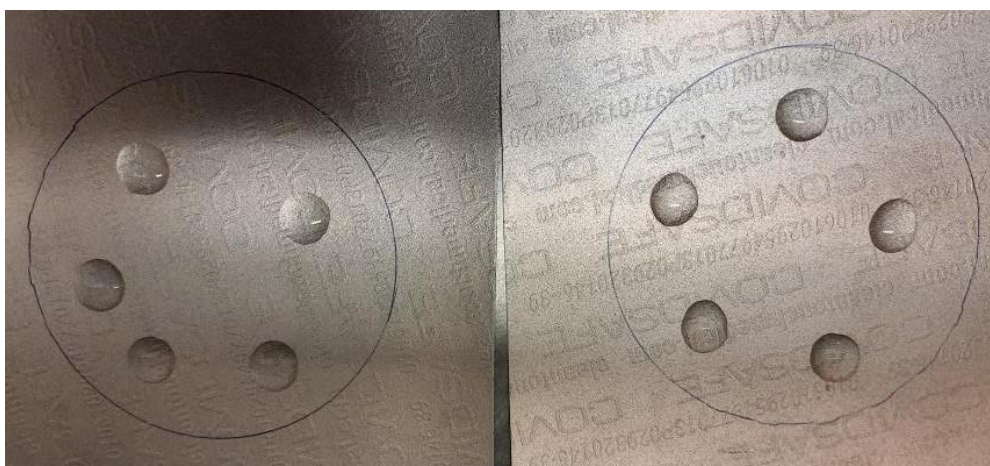


Figure 2. Sulphuric acid 10 p-% after 1 hour. No visible changes.



Figure 3. Membrane with additive, ethanol 70 t-% after 1 hour. No visible changes. The liquid appears to have evaporated from the surface.



Figure 4. Ethanol 70 t-% after 1 hour. No visible changes. The liquid appears to have evaporated from the surface.



Figure 5. Diesel after 1 hour. No visible changes.

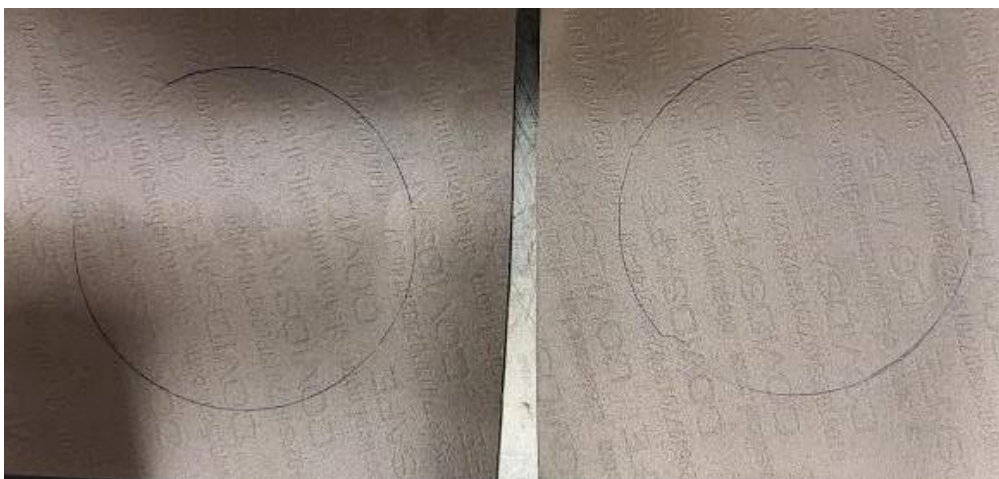


Figure 6. Gasoline after 1 hour. No visible changes. The liquid appears to have evaporated from the surface.

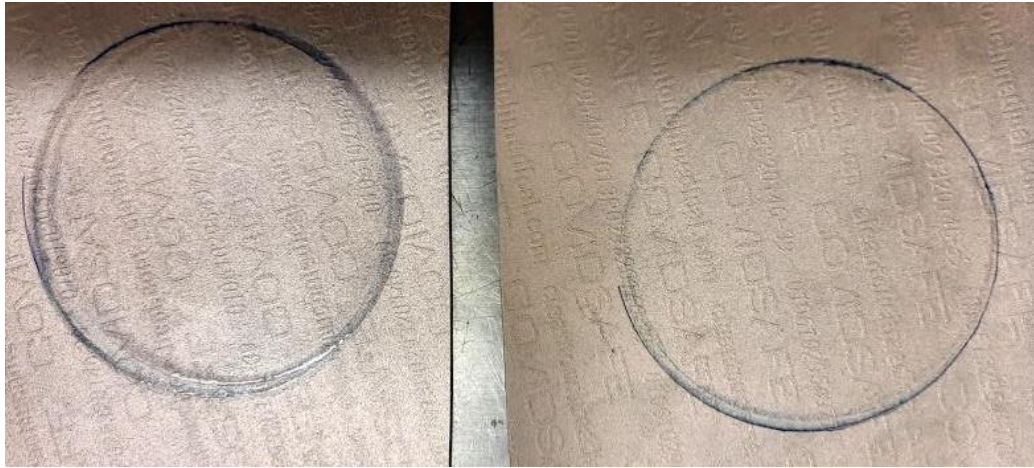


Figure 7. Detergent pH 5.5. The substance has spread on the surface and left a mark of the edge of the hood.

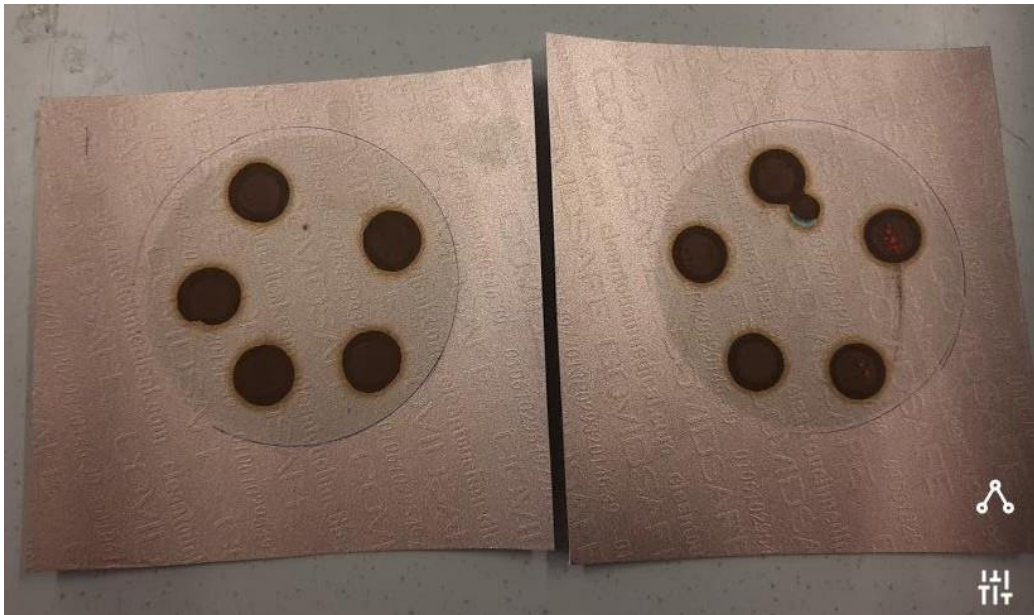


Figure 8. Chlorite after 24 hours after washing off the chemical. Chlorite reacts with the coating, corroding it. No blisters according to standard SFS -EN ISO 4628-2.

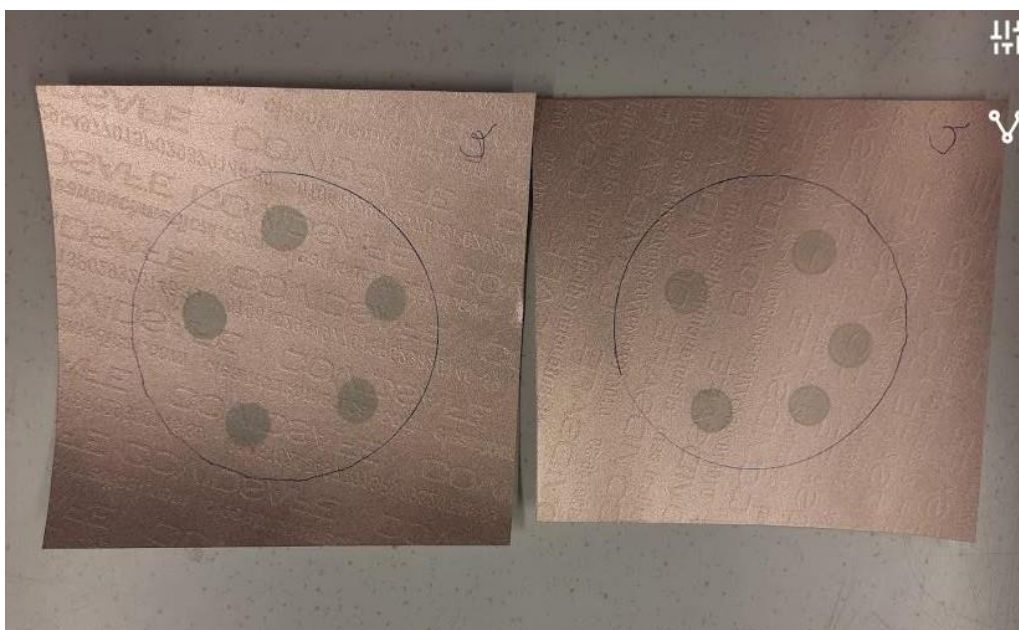


Figure 9. Sulphuric acid 10 p-% after 24 hours after washing off the chemical. Sulphuric acid reacts with the coating, corroding it. No blisters according to standard SFS -EN ISO 4628-2.

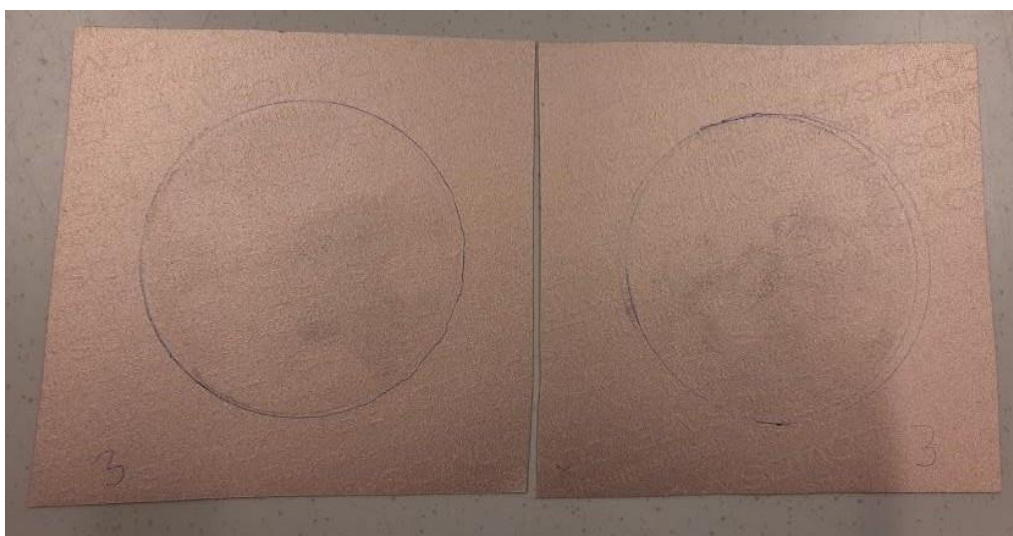


Figure 10. Membrane with additive, ethanol 70 t-% after 1 hour. No visible changes. No blisters according to standard SFS -EN ISO 4628-2.

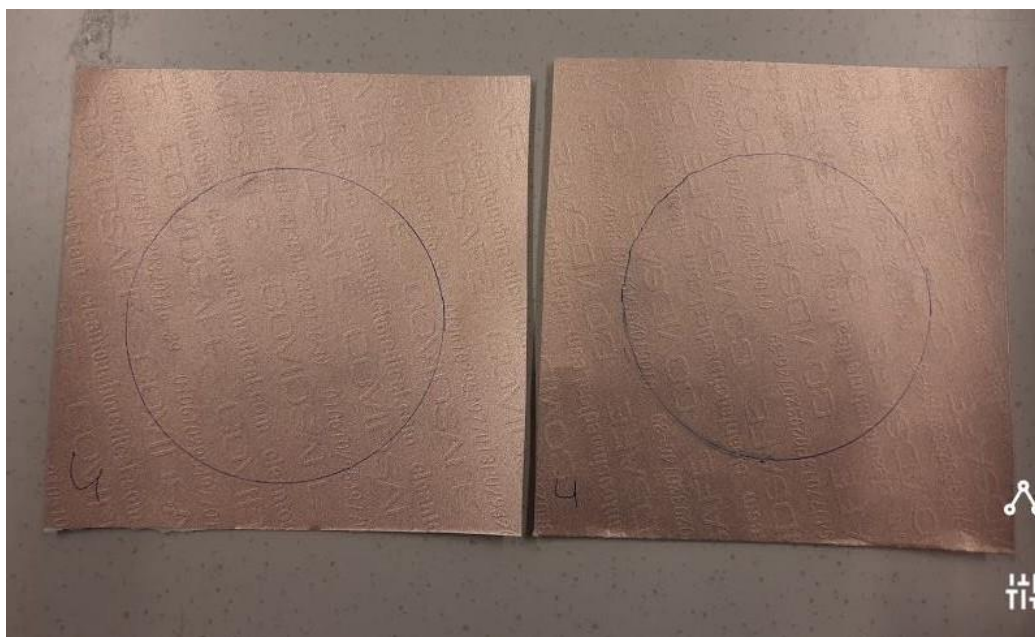


Figure 11. Ethanol 70 t-% after 24 hours after washing off the chemical. No visible changes. No blisters according to standard SFS -EN ISO 4628-2.

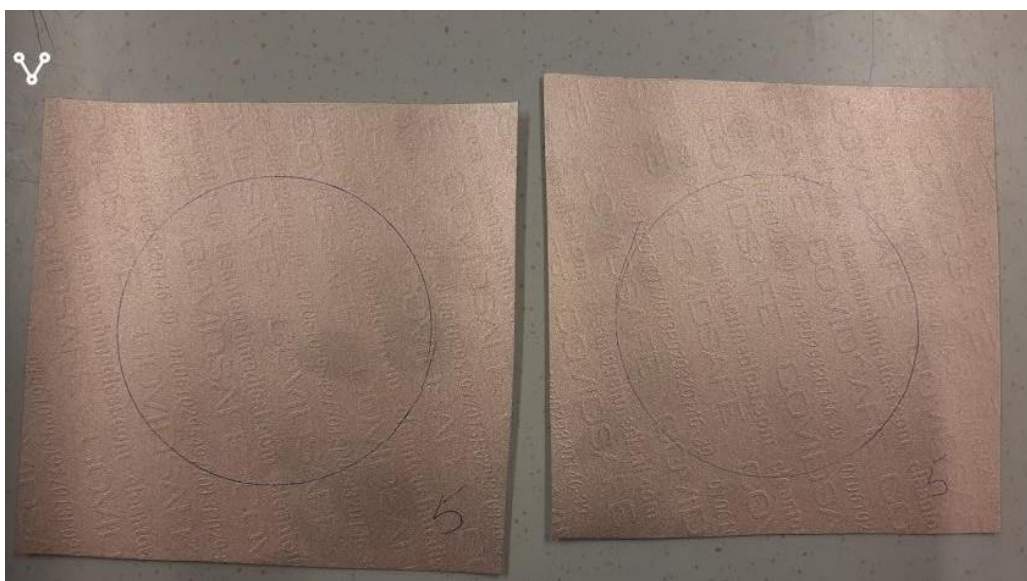


Figure 12. Diesel after 24 hours after washing off the chemical. No visible changes. No blisters according to standard SFS -EN ISO 4628-2.

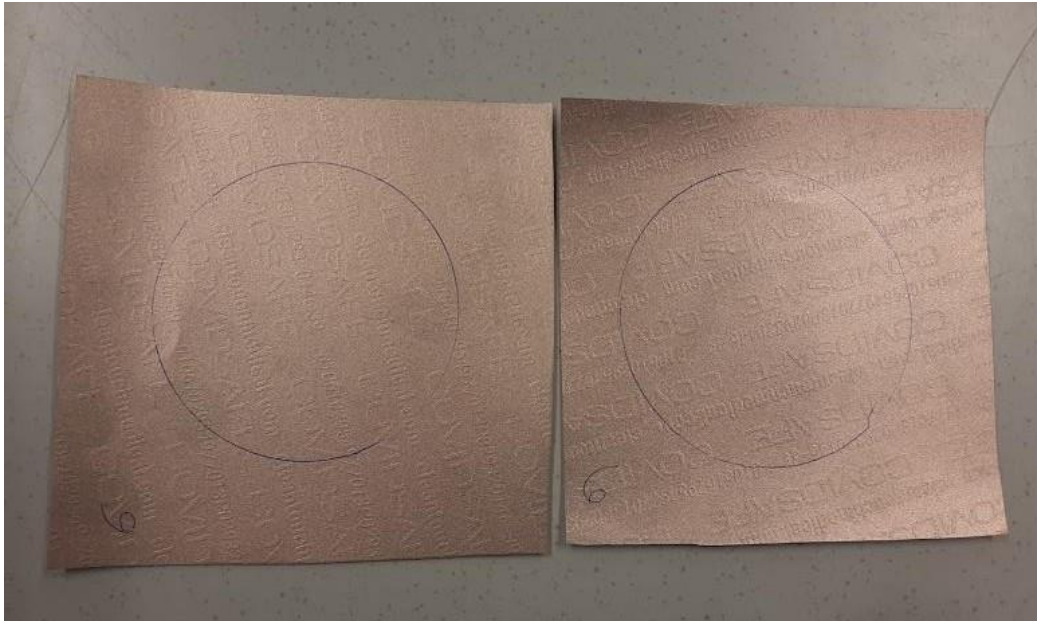


Figure 13. Gasoline after 24 hours after washing off the chemical. No visible changes. No blisters according to standard SFS -EN ISO 4628-2.

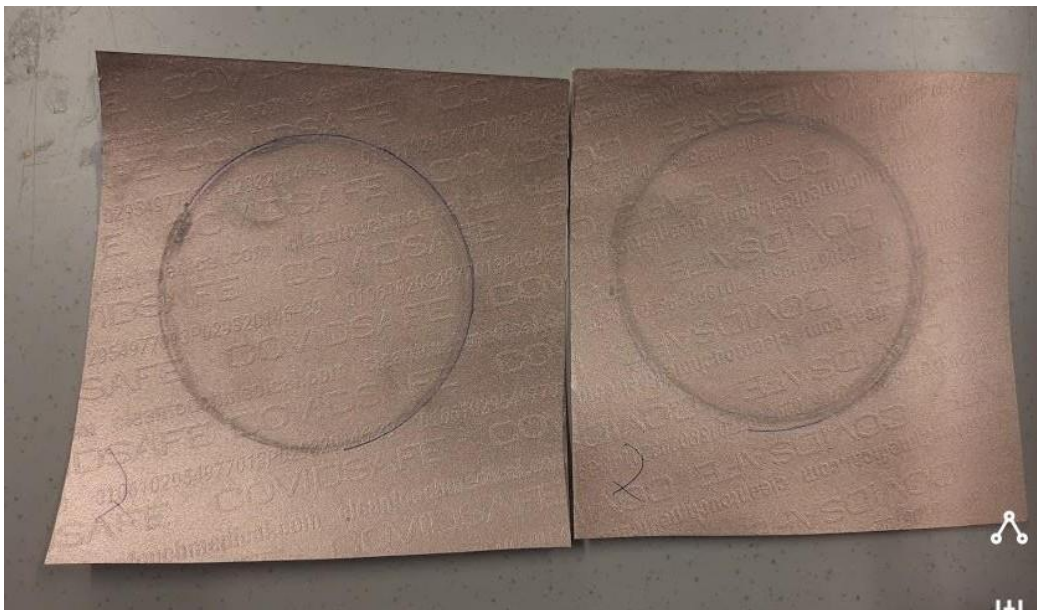


Figure 14. Detergent pH 5.5 after washing off the chemical. The substance has spread on the surface and left a mark of the edge of the hood. No blisters according to standard SFS -EN ISO 4628-2.

Test summary

CovidSafe membrane did not react with any of the chemicals to form blisters according to standard SFS-EN ISO 4628-2. Chlorite and sulphuric acid corroded the surface. The slightly acidic detergent left a mark of the protective hood, but otherwise no detergent remained. Ethanol, diesel, and gasoline had no effect on the CovidSafe basic membrane. Ethanol had no effect on the additive-enriched CovidSafe membrane.

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