



# REPORT

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## **Ozone test of an air cleaner according to standard IEC/EN 60335-2-65** (1 appendix)

On behalf of Nanopas AB, SP has evaluated an air cleaner related to ozone production according to IEC/EN-standard 60335-2-65, § 32.

### **Item tested**

Nanopas AB, model Nanopas Base 1.0, the model name was provided by Nanopas on November 30, 2015.

Pictures of the air cleaner are presented in appendix 1.

The air cleaner was handed to SP by Nanopas AB on November 20, 2015, and was without visible defects.

### **Place and date of testing**

The test was carried out at SPs Laboratory of Energy and bioeconomy in Borås on November 26-27, 2015.

### **Method**

The test was performed in a closed chamber with the dimensions 3,0 x 3,5 x 2,5 meters (width x length x height) with walls covered by polyethylene foil. The air cleaner was placed in the upper middle (approximate 1.75 m from the ground) of the chamber and the measurement was sampled approximate 20 cm above the air cleaner.

Concentration of ozone was measured with a calibrated ozone monitor with UV detection (Environment, model O<sub>3</sub> 42M, SP inventory no 301185). The calibration is traceable to NIST. Immediately prior to the test period of 24 hours, background level of ozone in the chamber was measured. Thereafter the ozone concentration was measured continuously 20 cm above the air cleaner, through an ozone-conditioned PTFE tubing. The ozone concentration during 24 hours was recorded.

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## Results

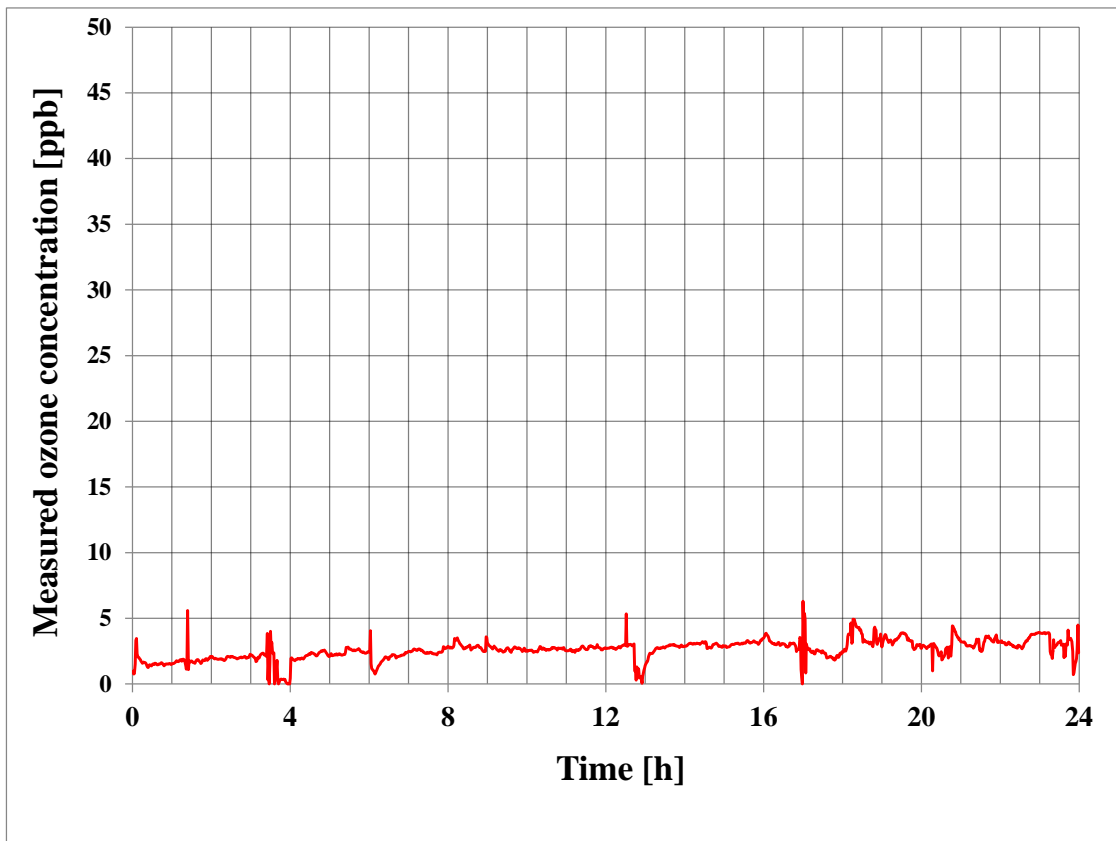
The results are presented in a table and in a diagram.

During the tests, the test chamber air temperature was 21.7 – 22.3 °C, and the relative humidity 40.1-59.8 %. The operating voltage of the air cleaners was  $230 \pm 1$  V.

**Table 1.** Results

Background ozone concentration	Maximum concentration in the outlet air during 24 hours of operation (single peaks are excluded)
< 2 ppb	< 6 ppb

Uncertainty of the measurement is estimated to  $\pm 1$  ppb.



**Fig 1.** Results, measured ozone concentration over time.

The results are valid only for the tested item

## Summary

The measurements showed no ozone production or very little (< 10 ppb from the air cleaner tested. According to the standard, the appliance is not allowed to produce more than 50 ppb ozone (0.05 ppm) in the air outlet during the test set up. Thus, the air cleaner did comply with the standard.

## SP Technical Research Institute of Sweden Energy and bioeconomy - Building Services Engineering

Performed by

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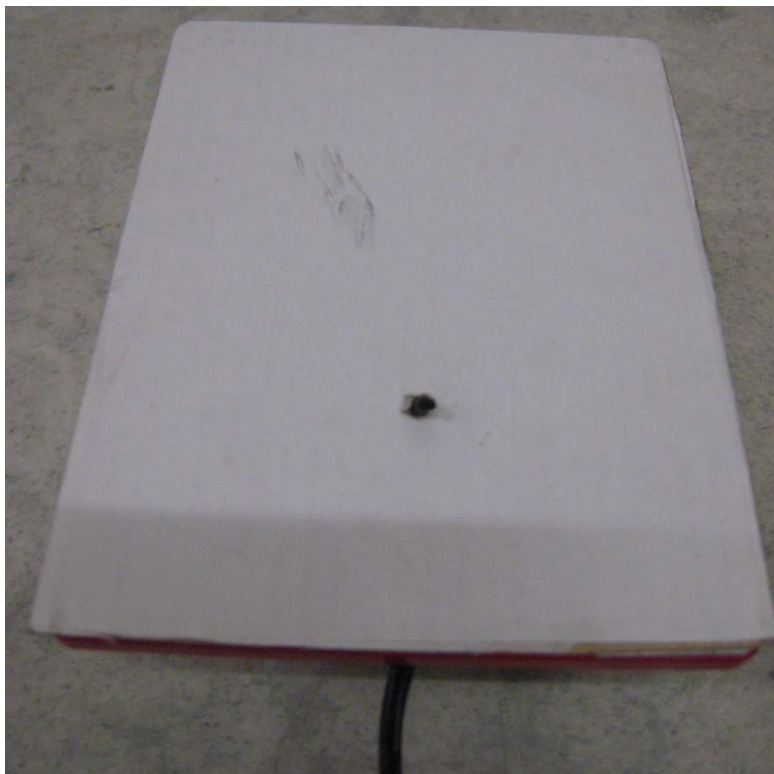
## Appendix

### 1. Pictures of the air cleaner

Appendix 1



**Fig 1.** Overview of the air cleaner, from above.



**Fig 2.** Overview of the air cleaner, from beneath,