

Ionics Air AB
Trädgårdsgatan 22, 8 tr
172 38 Sundbyberg

Handläggare, enhet / <i>Handled by, department</i>	Datum / <i>Date</i>	Beteckning / <i>Reference</i>	Sida / <i>Page</i>
Johan HP Johansson, Energy Technology Tel +46 (0)33 16 55 16	2001-10-08	ETs P1 04514B	1 (2)

Ozone concentration in unventilated test chamber when running an air cleaner

Item tested

Air cleaner: Vitalair (August 2001) with stainless steel collector (diameter ca 139 mm) was delivered to SP on September 20, 2001 by Ionics Air AB. The air cleaner is of ionization type (carbon brush) and is equipped with a collector. The test results apply only for the item tested.

Place and date of testing

The tests of particle reduction efficiency were carried out at SP's Energy Technology / HVAC laboratory in Borås on September 21, 2001.

Test procedure

The air cleaner was placed in an unventilated test chamber, 5,0 x 4,2 x 3,0 m³ in size. The walls, ceiling and floor are made of varnished plywood. The air in the test chamber was indoor air (not cleaned). The background ozone concentration in the test chamber was measured for 45 minutes before starting the air cleaner. The air cleaner was then started and ran for 2 hours and 45 minutes. Four fans circulated the air in the chamber during the measurement to create normal air movements. The temperature and humidity in the room were also measured during the test. The ozone sampling probe was mounted at a height of 1,2 m above floor level in the test chamber 1,2 m from the test object. The air cleaner was placed in the middle of the chamber on the floor (ionisation point ca 80 cm above the floor).

Results

The relative humidity of the air in the test chamber was 49 %, the temperature was 23 °C and the atmospheric pressure was 1000 mbar.

	Ozone Air cleaner off (background) [ppb]	Ozone Air cleaner on (after 30 minutes) [ppb]	Ozone Air cleaner on (after 2 hours and 45 minutes) [ppb]
Vitalair (August 2001)	0	0	0

Table 1. Ozone concentration in the test chamber prior and during the test

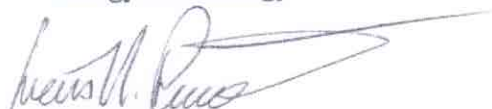
Measurement equipment

- Ozone meter: Environics, Sahlgrenska Universitetssjukhuset, Yrkes- och miljömedicin, Inventory No. 165 (calibrated prior to the test)
- Temperature and humidity meter: TESTO 610 (SP's inventory No. 201 392)
- Barometer: Druck DPI-260, (SP's inventory No. 201 637)

Estimated uncertainties of measurement

- Ozone concentration ± 3 ppb
- Relative humidity ± 3 %-RH
- Dry temperature ± 1 °C

**SP Swedish National Testing and Research Institute
Energy Technology**



Svein Ruud
Technical Manager



Johan HP Johansson
Technical Officer