

Translation of Report from BST, Esbjerg, to K.L. Import ApS, Kolding, dated October 9th 2002, Ref. No. 0555-2/8312

Measuring Ozone Concentration by using the JIMCO OZ500 Compact Cleaner

As per agreement with Mr. Erik Christiansen from “SiO” (The Safety Organisation), “BST” Esbjerg (Occupational Health Service in Esbjerg) represented by the undersigned, has carried out an indicative measurement of the ozone concentration in small rooms during the use of the air cleaner, model JIMCO OZ500.

The result will be used to evaluate whether the ozone produced by the air cleaner will be close to or exceeds the current limiting values for ozone – that is the suitability of the air cleaner in smaller offices where there at the same time will be people around.

We will have no objections against passing on the result to the supplier and using the results for marketing– as long as the material is used in its full context.

Basically, the air cleaner model OZ500 **causes no reason for concern** as to load of ozone in a 15 m² non-ventilated standard room. A rather steady room concentration of 0.02 ppm has been measured, making a total of approximately 20% of the stipulated limiting value.

Furthermore, the value of the measured concentration in the room is at a level with the threshold of our understanding of the ozone smell – which in it self may seem unpleasant, but in the measured concentrations is not harmful to the health.

In regard to open office landscapes or more ventilated conditions, the result will always be better than measured in this case.

Detailed measurement results and comments follow enclosed – 3 pages in total.

An evaluation of the compact cleaner's ability to decompose / convert odours has not been made – instead, we refer to the common / accessible knowledge of the consequence of ozone where the effect is generally accepted.

Yours faithfully,
BST Esbjerg

Jørgen Jacobsen
Measure Technician

Nis Rasmussen
Engineer

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Valuation:

The measurement results are valued as follows:

1. **The room concentration** for ozone is measured to 0.02 ppm on the average and is rather steady – in this way it is **at no point critical** in proportion to the limiting value of 0.1 ppm.
2. **The room concentration** for ozone lies furthermore at the **threshold of smelling** – which by it self may seem unpleasant.
3. During tests of long duration in **a smaller room**, the point value for the room concentration was measured to 0.04 ppm which **does not seem acceptable** – this indicates that **usage ought to be done in larger rooms** / offices or open landscapes. Or the alternative usage will be without any persons present in the room.
4. The concentration for **ozone in the exhaust** reaches rather quickly a level of 0.6 ppm, which is far above the limiting value – however, the level is quickly decreasing to the room concentration in a distance of less than 5 cm – for that reason it can be objectively **ignored** completely.

Generally, the use should be based on the size of the room and the ventilation of the same – if the use demands the presence of persons in the room.

As starting point, the evaluation can also be used for a compatible size of room.

To remark:

An evaluation of the compact cleaner's ability to decompose / transform odours, has not been made – instead we refer to common knowledge of the effects of ozone, where the effect is approved.

The measurements are guiding and performed in October 2002
By Measure Technician Jørgen Jacobsen, BST Esbjerg.

Measuring Ozone Concentration by using the JIMCO OZ 500 Compact Cleaner

Measuring object

The compact cleaner: Air Clean OZ 500
 Type: 100500
 No.20007

Measuring position: A 15 m² non-ventilated standard office

Method:

Calibrated ozone indicator No. 251109 / Eurofins Danmark A/S.

All measurements are made respectively in the compact cleaners exhaust inlet and in a for the room concentration representative spot in the room.

The compact cleaner was placed in a presumed polluted “standard office” and was set to approximately 4 hours operation, where measurements of the ozone concentration were taken currently.

Subsequently, measuring series in a similar but concerning the pollution a neutral room were taken out – the measuring series were terminated after 2 hours, as the concentration had not changed.

Finally, a point measure after approximately 7 hours constant operation of the compact cleaner was made.

Temperatures during the measuring periods were between 20 and 24⁰C.

Results:

Room	Measuring time 2002.10.01	Measure in ppm	
		In the room	In the exhaust - Distance app. 2 cm (*)
Polluted room	08:47 (start)	0.00	0.00
	08:49	0.00	0.10
	09:10	0.01	0.60
	09:27	0.02	0.60
	10:00	0.02	0.60
	10:17	0.02	0.55
	11:17	0.02	-
Non polluted neutral room	12:08 (start)	0.00	0.00
	12:47	0.01	0.60
	13:25	0.01	0.60
	13:49	0.02	0.60
	14:03	0.02	0.60
7 hours in a polluted room	-	0.04	-

In The Danish Working Environment Service's (Arbejdstilsynet) list of limiting values, the limiting value for ozone is 0.1 ppm.

*) At a distance of beyond 5 cm from the exhaust lamellas, the ozone concentration has fallen to the average level for the concentration in the room.