



**MEASUREMENT PROTOCOL 2 (measurements 2 and 3)**

Measuring instrument: See below

Object: ABB, Figeholms Bruk (Oskarshamn) production unit in old factory

Activity/number of people in space: 7–10 people during measurements

Date: 22/03/2010

Time: Measurement no. 2 (before ionization): More normal activities between 13.00–14.00.

Comparative readings after ionization approx 14:30–15:00 approx are shown in brackets.

Measurement carried out by: Hasse Salomonsson, Inni Powerflex, Vislanda on assignment from Matseco, Gbg

Space *	Qty ions+/cm <sup>3</sup> Alphalab AirIonCount	Qty ions-/cm <sup>3</sup> Alphalab AirIonCount	VOC ppm PID HNU 102	Carbon monoxide ppm (CO) Testo 400	Carbon dioxide ppm (CO <sub>2</sub> ) Testo 400	Remarks
Pos. 1						
Pos. 2			0.9			
Pos. 3			0.9			
Pos. 4			0.7			
<b>Rem.</b>						
Space *	Relative humidity % Testo 400	Temp. Celsius Testo 400	Sibata Part. mass µg/m <sup>3</sup>			Remarks
Pos. 1	18	21	(47) 93			
Pos. 2	18	21	(53) 91			
Pos. 3	16	21	(41) 65			
Pos. 4	24	8	32			
<b>Rem.</b>						

Space *	Particle meas. Hiac/Royco Port. Plus	>0.3 micrometre Qty/litre	>0.5 micrometre Qty/litre	>5 micrometre Qty/litre	>10 micrometre Qty/litre	Remarks
Pos. 1		(21785) 43293	(8551) 25513	(160) 1050	(15) 134	<i>Cumulative</i>
Pos. 2		(25088) 39480	(10476) 21760	(280) 736	(34) 61	<i>values</i>
Pos. 3		(16925) 64435	(6007) 14750	(83) 313	(3) 16	<i>Values re-</i>
Pos. 4						<i>calculated from</i>
<b>Rem.</b>						<i>M<sup>3</sup> to litres</i>



*Note. \**

*Position 1: In centre of space*

*Position 2: Northern section west side*

*Position 3: Northern section west side*

*Position 4: Outdoors, north wall*

*All readings taken at approx height of 2 m.*

**Comments/analysis:**

**Outdoors, sunshine, slight chilly breeze. Low particle count in outdoor air is reflected indoors as the particle count was relatively low there too, which was further reinforced by the low level of activity at the factory. The occasional machine was in use. Indoor dust average was 50% greater than outdoors. The number of particle fractions indoors was 2–5 times higher than outdoors. VOCs (volatile organic compounds in the air) were comparable indoors and out, i.e. relatively low values.**

**Reading no. 2 was taken after the ionization unit was installed but before it was switched on in order to achieve a more comparable measurement in normal conditions once activities had been under way for about 30 minutes at normal levels, i.e. not semi-idle as previously.**

**Once ionization was running reading no. 3 (in brackets) was taken after approx 30 minutes to compare with reading no. 2. Reading no. 1 is appended as well but is not representative due to the low level of activity at that time.**

**Comparisons are therefore only made between readings 2 and 3. The average quantity of dust during measurement was 2.83 µg/m<sup>3</sup> air. The average quantity of dust (particle mass) in air after the ionization unit had run in the ventilation for approx 30 minutes, was 47 µg/m<sup>3</sup> air. **If these two values are compared it will be noted that the dust level in the air after approx 30 minutes was reduced by 43%.****

**If the numbers of particles of various sizes are compared we arrive at the following:**

	<u>Reduction %</u>
Particles > 0.3 µm	57
Particles > 0.5 µm	60
Particles > 5.0 µm	75
Particles > 10.0 µm	75

Vislanda 26/03/2010

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