

SUMMARY REPORT

Client:	Generion LTD. Alave ABBA, Israel	Work Order:	22MIS070
		Date Received:	January 12, 2022
		Date Analyzed:	January 17-19, 2022
		Date Reported:	January 22, 2022
Submitted By:	Ari Cohen	Analysis:	Hydrogen Peroxide
Client's reference:	Test of Hydrogen Peroxide Emission	Reference Procedure:	OSHA 1019

Introduction:

LCS Laboratory Inc. (Laboratory), was commissioned to measure accumulation of Hydrogen Peroxide in air during operation of "D6 Chip" Sterionizer D6 Series, Model No: IG3-025V-C33.Rev.C. Batch No.116 Client specified that testing should be performed in accordance to OSHA 1019 method. Generion LTD. provided the device for testing.

Experimental Setup:

Laboratory assembled aluminum lined environmental chamber with dimensions of 120x120x120cm

The device was placed inside the chamber, connected to the power line, and tested to be operational. A household fan was placed at the distance of about 1m from the device to provide forced air circulation. The equipment was sealed inside the chamber for the duration of the test.

Samples of air were collected at a flow rate of 2 L/min for a duration of 2 hours each. For quality control purposes, one sample of the laboratory air was collected to demonstrate absence of the hydrogen peroxide in the ambient air.

In a separate experiment, the device was running inside a 12 L enclosure. In both experiments, the Hydrogen Peroxide in air was collected through the sampling port of the environmental chambers.

Environmental Conditions: Samples were collected on December 9 and 10, 2021. Ambient temperature was T=22°C and relative humidity was RH=20%

Pump calibration and duration of sampling: Air sampling pump was calibrated before and after sampling. The following volumes of air were collected

Table 1.

Client Sample ID #	Laboratory Sample ID #	Pre-Calibration L/min	Post-Calibration L/min	Duration min	Client Sample ID #
Sample 1	22MIS070-HP-1	1.99	2.19	120	Sample 1
Sample 2	22MIS070-HP-2	1.99	2.19	126	Sample 2

Client Sample ID #	Laboratory Sample ID #	Pre-Calibration L/min	Post-Calibration L/min	Duration min	Client Sample ID #
Sample 3	22MIS070-HP-3	1.99	2.19	125	Sample 3
Sample 4	22MIS070-HP-4	1.99	2.19	120	Sample 4
Sample 5	22MIS070-HP-5	1.99	2.19	120	Sample 5
Sample 6	22MIS070-HP-6	1.99	2.19	120	Sample 6
Sample 7	22MIS070-HP-7	1.99	2.19	120	Sample 7
Sample 8	22MIS070-HP-8	1.99	2.19	115	Sample 8

Experimental Results:

Laboratory results are provided on the certificate of analysis.

Test in a Larger Chamber (Air Volume 1728L)

To achieve the desirable sensitivity samples were collected for 2 hours. Once the first sample was collected the cassette was replaced with a fresh one. This was repeated for the duration of 8 hours.

Table 2.

Client Sample ID #	Description	Air Volume L	Hydrogen µg/sample	Peroxide ppm in air
Sample 1	Ambient air	251	<RL	<0.008
Sample 2	0-126 min of operation	263	<RL	<0.008
Sample 3	126-251 min of operation	261	<RL	<0.008
Sample 4	251-371 min of operation	251	<RL	<0.008
Sample 5	371-491 min of operation	251	<RL	<0.008
Reporting Limit (RL)		-	RL=3	-
Laboratory Blank		-	<RL	-

Test in a Smaller Chamber (Air Volume 12L)

In a different experiment, 3 more samples were collected from the device operating in a 12L enclosure. Once the first sample was collected the cassette was replaced with a fresh one. This was repeated for the duration of 7 hours.

Table 2.

Client Sample ID #	Description	Air Volume L	Hydrogen µg/sample	Peroxide ppm in air
Sample 6	0-120 min of operation	251	<RL	<0.008
Sample 7	120-240 min of operation	251	<RL	<0.008
Sample 8	240-355 min of operation	240	<RL	<0.008
Reporting Limit (RL)		-	RL=3	-
Laboratory Blank		-	<RL	-

Conclusions:

- Hydrogen peroxide concentration in air did not exceed 0.008 ppm in any given test.
- Concentrations of the Hydrogen Peroxide during the test were at least 100 times lower than Occupational (Industrial) exposure limit of 1 ppm as defined in: Ontario Canada (2019, Occupational Exposure Limits for Ontario Workplaces, Regulation 833); USA (2019, OSHA PEL, OSHA Annotated Table Z-1)



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