

Tested device	CYCLOHNIC
Date	February 2022
Test performed	Assessment on the reduction of environmental pollutants (air quality)
Place	Air quality laboratory urn (8m ³)
Realized by	Esther Montesinos
Supervised by	Dr. Pere Monagas

PROCEDURE

To carry out relevant tests of the product, an 8 m³ room has been used, where comfort conditions for microorganisms were maintained in terms of temperature (20 ± 3 °C) and relative humidity (50 ± 5%).

Two tests have been performed, the first one with the device turned off (as a control) and the second one with the device under normal conditions of operation, to assess its environmental pollutants reduction capacity. For each test performed, 5 samples have been taken every 30 min. At the end of the test, results obtained after 2h of operation have been taken as relevant to assess the product efficiency against environmental pollutants.

COLLECTED DATA

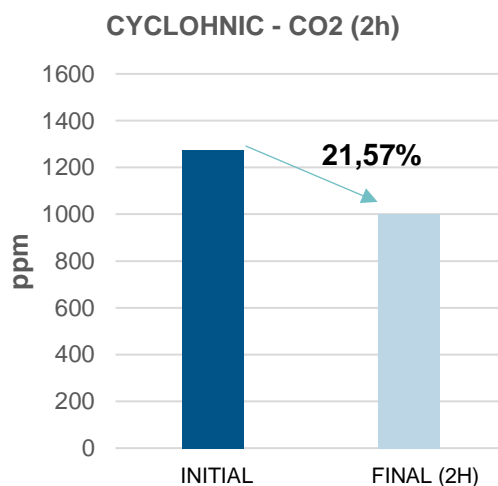
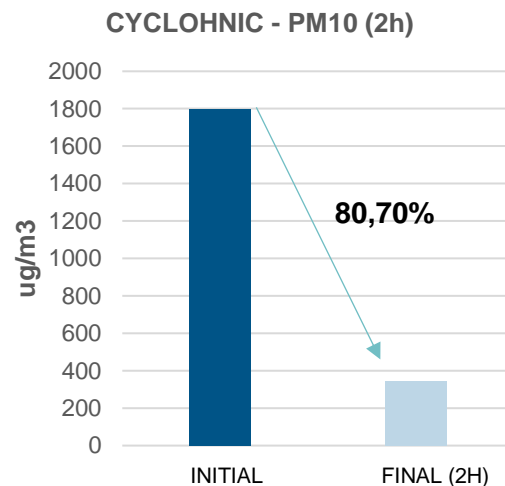
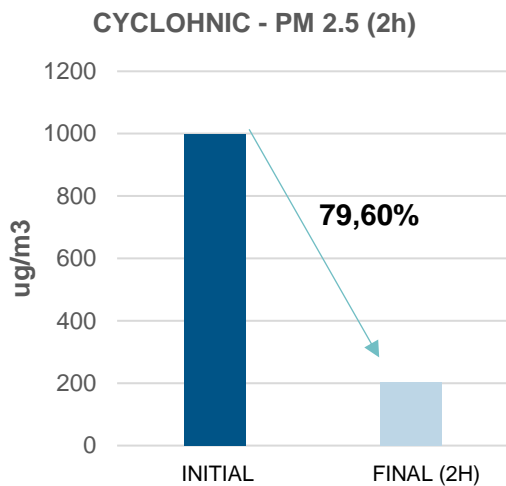
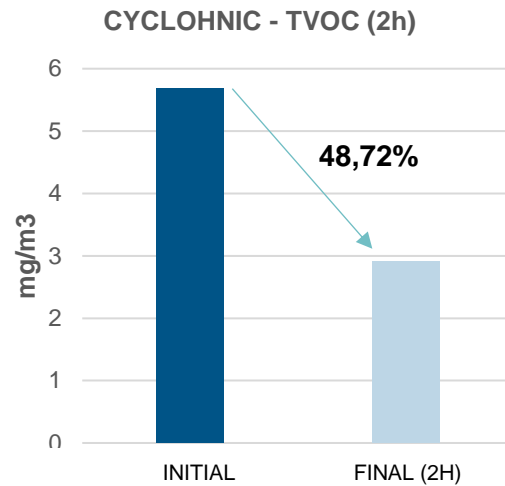
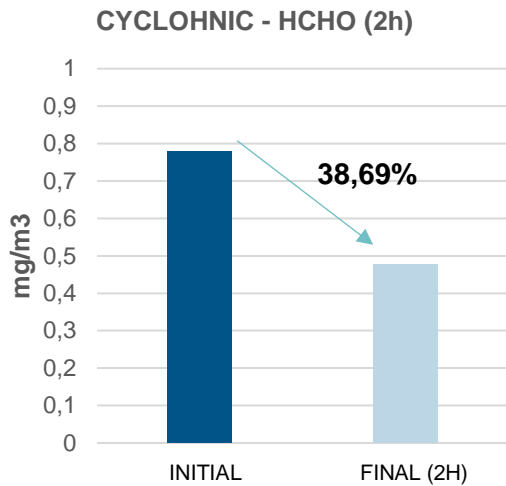
TEST	SAMPLE	HCHO (mg/m ³)	TCOV (mg/m ³)	PM 2.5 (µg/m ³)	PM 10 (µg/m ³)	CO2 (ppm)
TEST 1 – Device turned off (Control)	0h	0,629	4,572	1000	1798	1340
	30min	0,585	4,254	1000	1798	1395
	1h	0,533	3,874	1000	1798	1387
	1h 30min	0,601	4,349	1000	1798	1372
	2h	0,628	4,545	1000	1798	1340
TEST 2 – Device operating (Cyclohnic)	0h	0,778	5,679	1000	1798	1275
	30min	0,662	4,628	1000	1798	1179
	1h	0,598	4,081	210	336	1113
	1h 30min	0,539	3,527	255	387	1058
	2h	0,477	2,912	204	347	1000

RESULTS

In order to evaluate the results obtained, the initial values were those measured at 0 hours and the final values were those measured at 2 hours.

TEST	SAMPLE	HCHO (mg/m ³)	TCOV (mg/m ³)	PM 2.5 (µg/m ³)	PM 10 (µg/m ³)	CO2 (ppm)
1 (Control)	0h	0,629	4,572	1000	1798	1340
	2h	0,628	4,545	1000	1798	1340
Reduction (%)		0,16	0,59	0,00	0,00	0,00
2 (Nuvohla)	0h	0,778	5,679	1000	1798	1275
	2h	0,477	2,912	204	347	1000

Reduction (%)	38,69	48,72	79,60	80,70	21,57
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CONCLUSIONS

It has been possible to validate the efficiency of the Cyclohnic device for the improvement of air quality in a space of 8m³, obtaining values of reduction of around **38% in formaldehyde (HCHO), 48% in**

components volatile organic compounds (VOCs), and about 80% for suspended particles (PM2.5 and PM10). There has also been a 21.5% reduction in CO2.