

Air Cleaner Test Report

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1. Sample Description

Product	: Air Cleaner
Brand Name	: b-MOLA
Model No.	: MOLA300
No. of Sample Received	: 1
Test Date	: 12 Nov 2019 – 12 Nov 2019
Test Item(s)	: Pollutants Removal Efficiency
Test Requested	: Benzene
Test Reference(s)	: In-house method SOP200 (for VOC removal rate)
Test Equipment	: Honeywell instrument ppbRAE 3000
Equipment no.	: E002 – 001
Test Result	: See the attached sheets
Remark	: Client claimed that model MOLA300 same as IA60/BM300 in terms of power, parts, components and structures. Only different is the selling platform.

2. Detail Description of the sample



b-MOLA/MOLA300



NCCO Reactor (NA213020300) and Activated Carbon HEPA

3. Testing Environment

Temperature	: 26.2 °C
Relative Humidity	: 49 %
Testing Chamber	: 3m ³ Testing Chamber
Size (W × H × D)	: 1.40m × 1.40m × 1.50m



3m³ Testing Chamber

4. Testing Method of Removal Efficiency

In a 3m³ chamber, chemical was injected into the chamber by a syringe and evaporated by a hot plate. Internal circulation was turned on throughout the test to ensure the uniformity of chemical concentration inside the chamber. Initial concentration (C_0) of the chemical was recorded before switching on the air cleaner with a range of 100 (± 10) mg/m³. Then, the air cleaner is switched on for 60 minutes and the chemical concentration was recorded as C_{60} , the final concentration of chemical.

The test was repeated without the air cleaner to determine the natural decay of the chemical at the test chamber. Chemical was injected into the chamber by a syringe and evaporated by a hot plate with an initial concentration (C_{N0}). The final concentration (C_{N60}) was determined 60 minutes later

New filters and HEPA have been used for each chemical test.

5. Results of Removal Efficiency

Brand/ Model No.	Operation Mode	Test Chemical	Volume of use (mL)
B-MOLA/MOLA300	SS	Benzene	1.00

Initial Concentration (mg/m ³)	Natural Decay, k _n (min ⁻¹)	Total Decay, k _e (min ⁻¹)	Removal Efficiency (%)
100.60	0.001	0.0547	>99

Remark: Initial concentration is set within 100±10mg/m³.

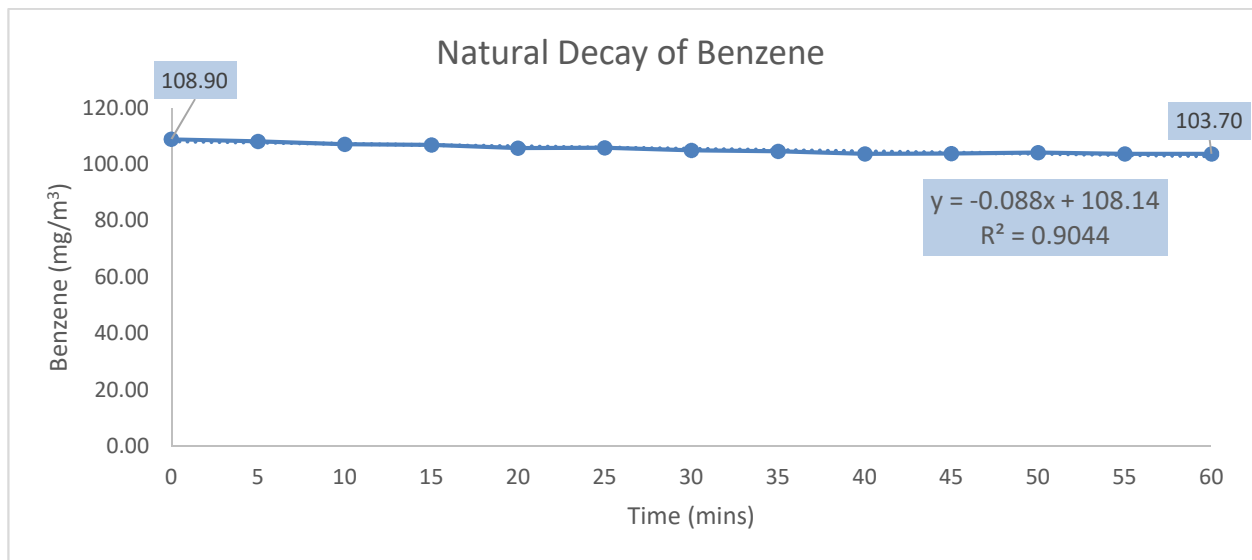


Figure a. Natural Decay of Benzene

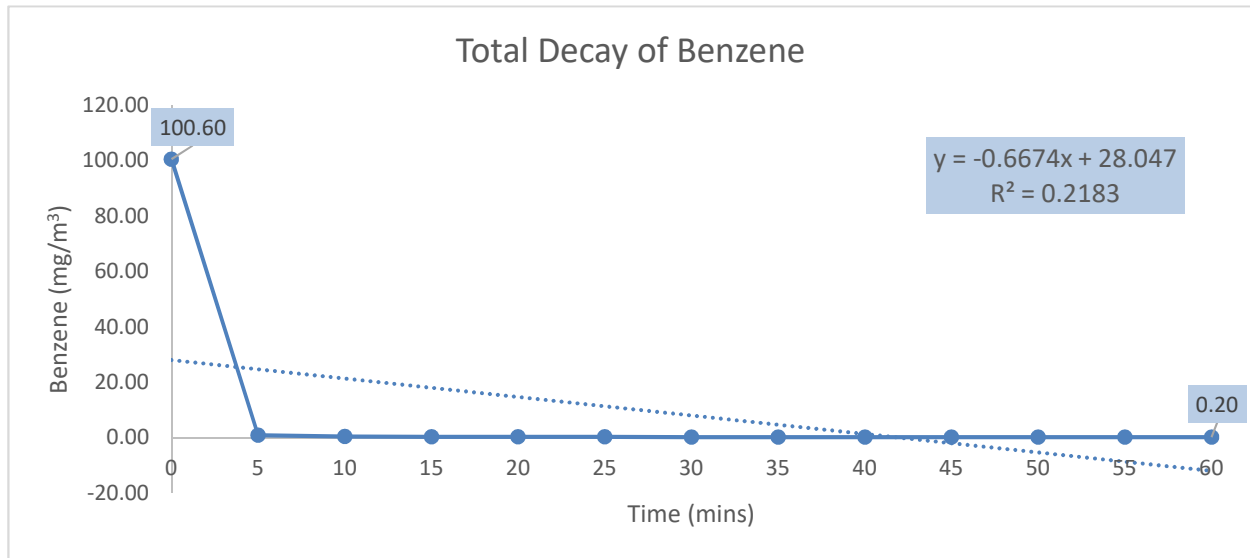


Figure b. Total Decay of Benzene

Calculation:

$$A_1 = \frac{C_0 - C_{60}}{C_0}$$

$$A_2 = \frac{C_{N0} - C_{N60}}{C_{N0}}$$

$$\text{Removal Efficiency} = \frac{C_0(1 - A_2) - C_{60}}{C_0(1 - A_2)}$$

A₁: Removal rate (%)

A₂: Natural decay rate (%)

C: Concentration of testing subject (mg/m³)

End of Report