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Air Cleaner Test Report

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Application Number	:	KJ2005002 – 13
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1. Sample Description

Product	:	Air Cleaner
Brand Name	:	b-MOLA
Model No.	:	BM100
No. of Sample Received	:	1
Test Date	:	15 Jun 2020 – 15 Jun 2020
Test Item(s)	:	Pollutants Removal Efficiency
Test Requested	:	Toluene
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 BM100 same as IA30, IA1019 and IA1019S. Only difference are the selling platforms.

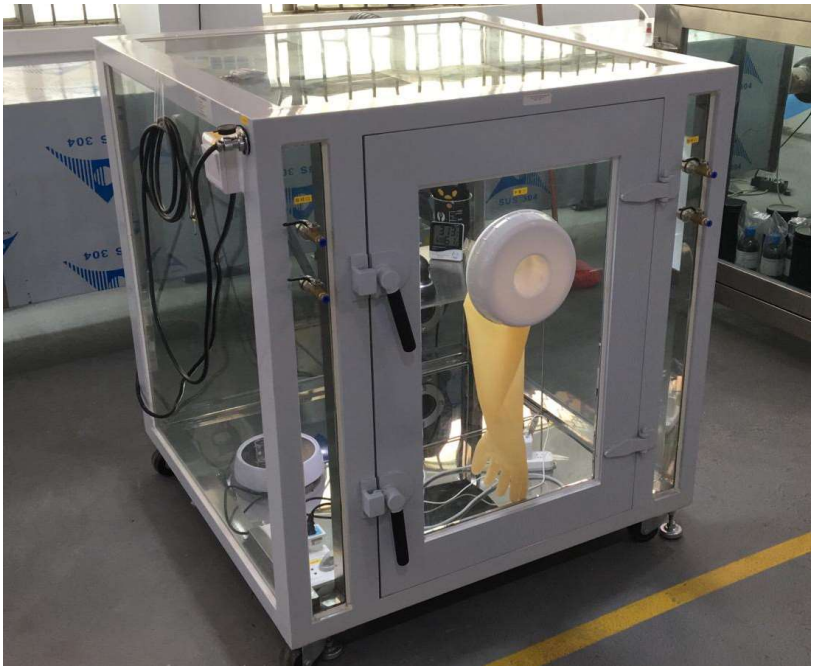
2. Detail Description of the sample

b-MOLA/ BM100

NCCO Reactor (NA213020300) and Activated Carbon HEPA

3. Testing Environment

Temperature	:	26.8℃
Relative Humidity	:	47%
Testing Chamber	:	$1m^3$ Testing Chamber
Size (W × H × D) mm	:	1000 × 1000 × 1000



$1m^3$ Testing Chamber

4. Testing Method of Removal Efficiency

In a $1m^3$ 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/m^3. 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/ BM100	SS	Toluene	0.38

Initial Concentration (mg/m^3)	Natural Decay, k_n (min^{-1})	Total Decay, k_e (min^{-1})	Removal Efficiency (%)
100.90	0.003	0.072	99.8

Remark: Initial concentration is set within 100±10mg/m^3.

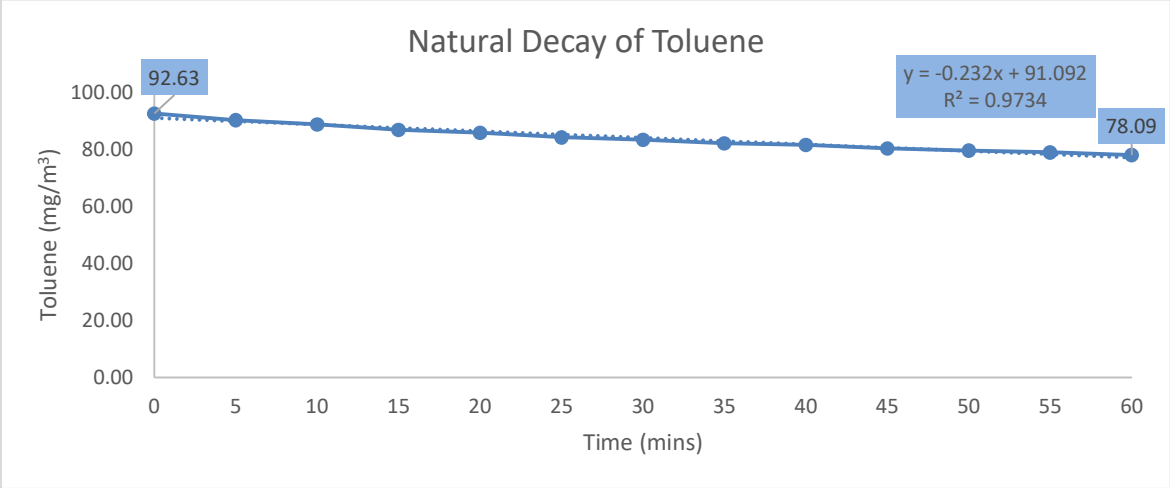


Figure a. Natural Decay of Toluene

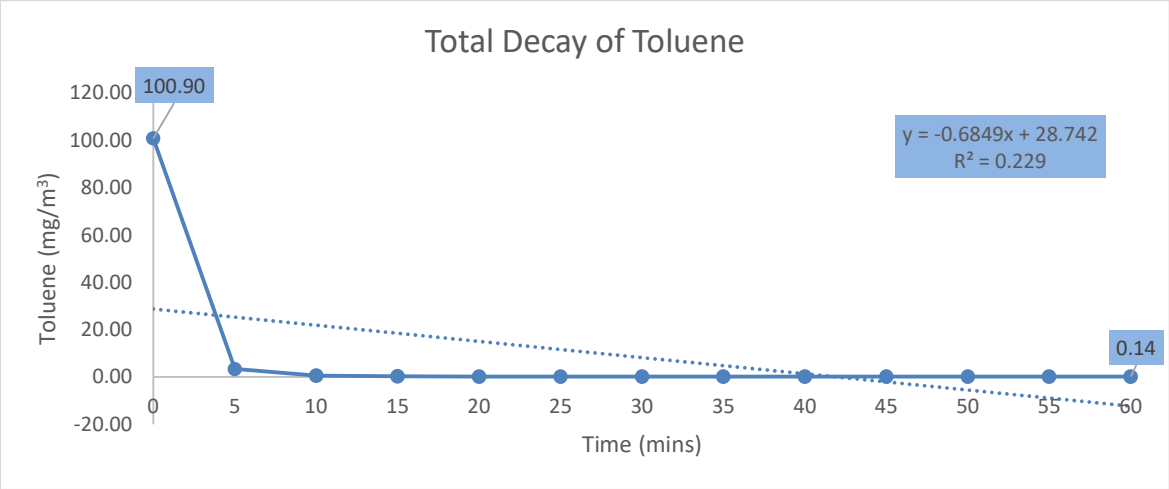


Figure b. Total Decay of Toluene

Calculation:

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

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

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

A_1:	Removal rate	(%)
A_2:	Natural decay rate	(%)
C:	Concentration of testing subject	(mg/m^3)

***** End of Report *****