

## **Air Cleaner Test Report**

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*IAQ Contractor, IAQ Control Facilities Supplier, IAQ Consultant*  
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## 1. Sample Description

Product	: Air Cleaner
Brand Name	: b-MOLA
Model No.	: BP50
No. of Sample Received	: 1
Test Date	: 15 May 2023– 15 May 2023
Test Item(s)	: Pollutants Removal Efficiency
Test Requested	: Tetrachloroethylene
Test Reference(s)	: In-house method SOP200 (for VOC removal rate)
Test Equipment	: Honeywell instrument ppbRAE 3000
Equipment no.	: E002 - 002
Test Result	: See the attached sheets
Remark	: Client claimed that model BP50 same as IA20/BM50 in terms of power, parts, components and structures. Only different is the selling platform.

## 2. Detail Description of the sample



**b-MOLA/BP50**

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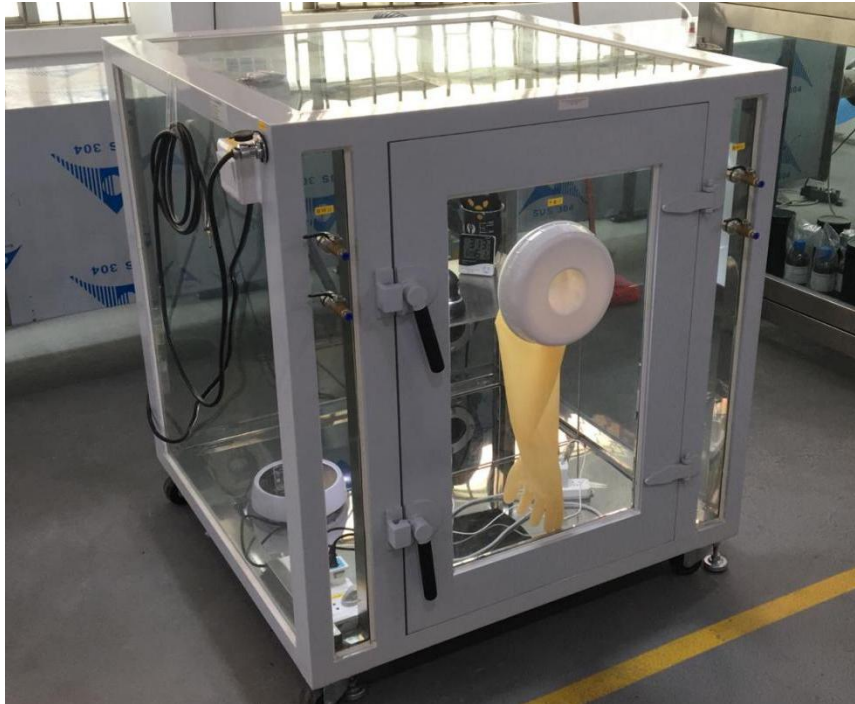
**NCCO Reactor (NA213020300) and Normal HEPA**

### 3. Testing Environment

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Temperature	: 25.4 °C
Relative Humidity	: 48 %
Testing Chamber	: 1m <sup>3</sup> Testing Chamber
Size (W × H × D) mm	: 1000 × 1000 × 1000

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**1m<sup>3</sup> Testing Chamber**

#### 4. Testing Method of Removal Efficiency

In a 1m<sup>3</sup> 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 ( $\pm 10$ ) mg/m<sup>3</sup>. 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

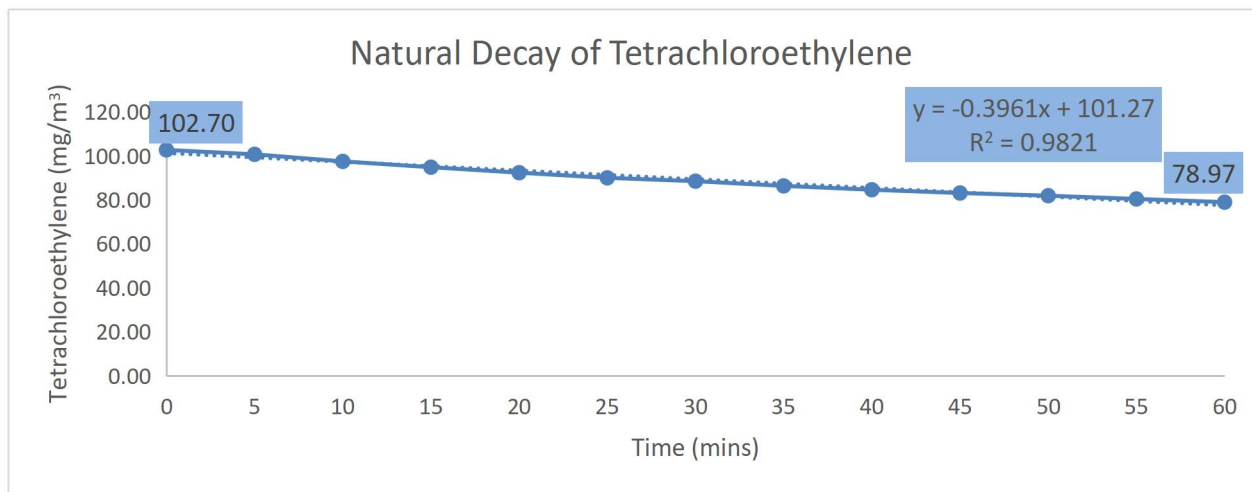
New filters and HEPA have been used for each chemical test.

## 5. Results of Removal Efficiency

Brand/ Model No.	Operation Mode	Test Chemical	Volume (mL)
B-MOLA/BP50	SS	Tetrachloroethylene	0.09

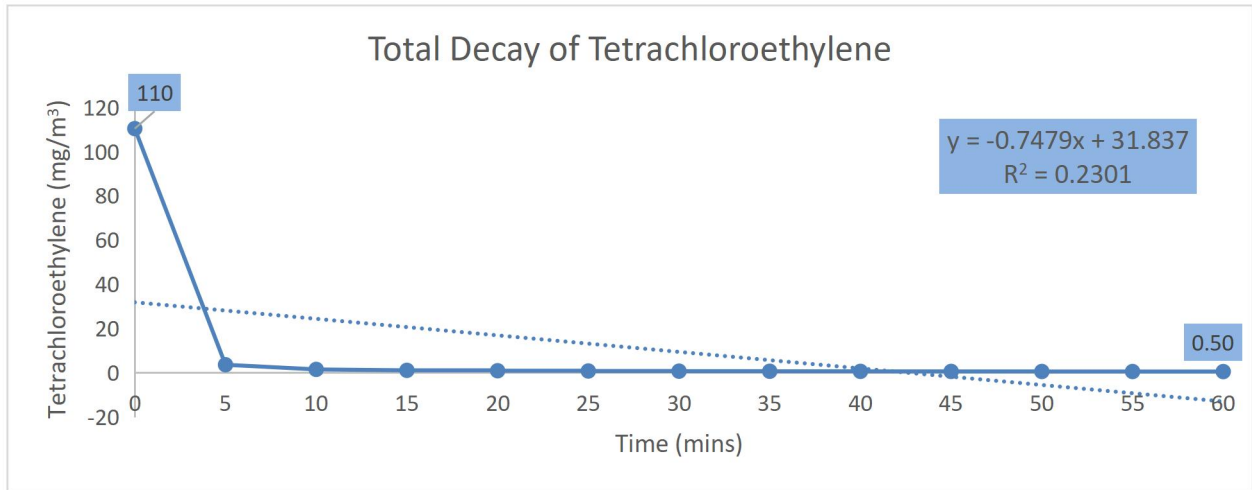
Initial Concentration (mg/m <sup>3</sup> )	Total Decay, k <sub>e</sub> (min <sup>-1</sup> )	Total Decay, k <sub>e</sub> (min <sup>-1</sup> )	Removal Efficiency (%)
110	0.004	0.054	99

Remark: Initial concentration is set within 100±10mg/m<sup>3</sup>.



**Figure a. Natural Decay of Tetrachloroethylene**





**Figure b. Total Decay of Tetrachloroethylene**

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<sub>1</sub>: Removal rate (%)  
 A<sub>2</sub>: Natural decay rate (%)  
 C: Concentration of testing subject (mg/m<sup>3</sup>)

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