



Acron International Technology Limited

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HKUST Entrepreneur

Air Cleaner Test Report

Applicant : RHT Industries Limited

Address : Block B, 2/F, Goodwill Industrial Building, No. 36-44 Pak Tin Par
Street, Tsuen Wan, New Territories, Hong Kong

Application Number : KJ2005002 – 11

Report Number : REPAP20064101

Report Issue Date : 19 Jun 2020

Total Page : 8 Pages (including this page)

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Acron International Technology Limited

IAQ Contractor, IAQ Control Facilities Supplier, IAQ Consultant

Subsidiary company of the Hong Kong University of Science and Technology

Under the Entrepreneurship Program

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1. Sample Description

Product	: Air Cleaner
Brand Name	: b-MOLA
Model No.	: BM100
No. of Sample Received	: 1
Test Date	: 16 Jun 2020 – 16 Jun 2020
Test Item(s)	: Pollutants Removal Efficiency
Test Requested	: Formaldehyde
Test Reference(s)	: In-house method SOP200 (for VOC removal rate)
Test Equipment	: PPM technology instrument Formaldemeter™ (htV-M)
Equipment no.	: E023 – 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



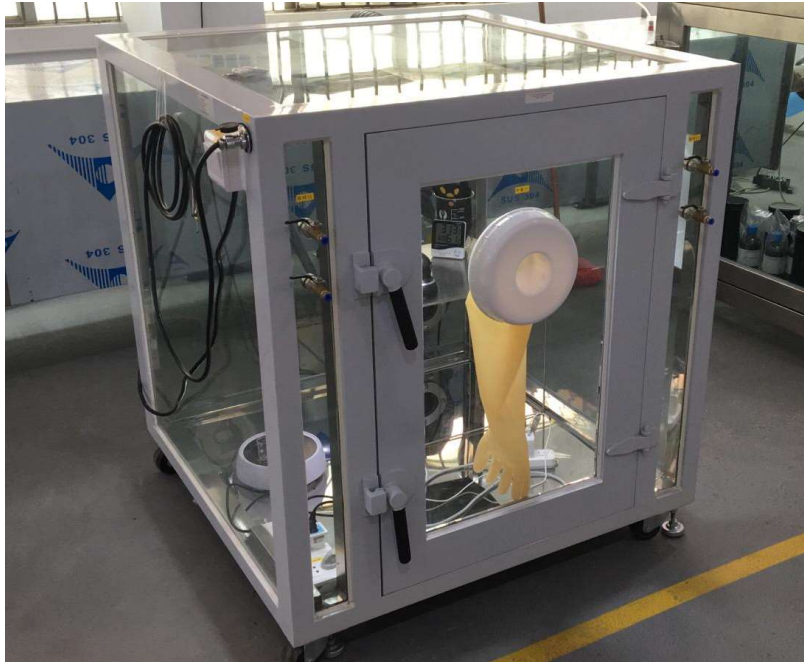
b-MOLA/ BM100



NCCO Reactor (NA213020300) and Activated Carbon HEPA

3. Testing Environment

Temperature	: 27.1°C
Relative Humidity	: 46%
Testing Chamber	: 1m ³ Testing Chamber
Size (W × H × D) mm	: 1000 × 1000 × 1000



1m³ Testing Chamber

4. Testing Method of Removal Efficiency

In a 1m³ 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 1.00 (± 0.20) 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 again 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	Formaldehyde	1.08

Initial Concentration (mg/m ³)	Natural Decay, k_n (min ⁻¹)	Total Decay, k_e (min ⁻¹)	Removal Efficiency (%)
0.16	0.004	0.032	95.6

Remark: Initial concentration is set within $100 \pm 10 \text{ mg/m}^3$.

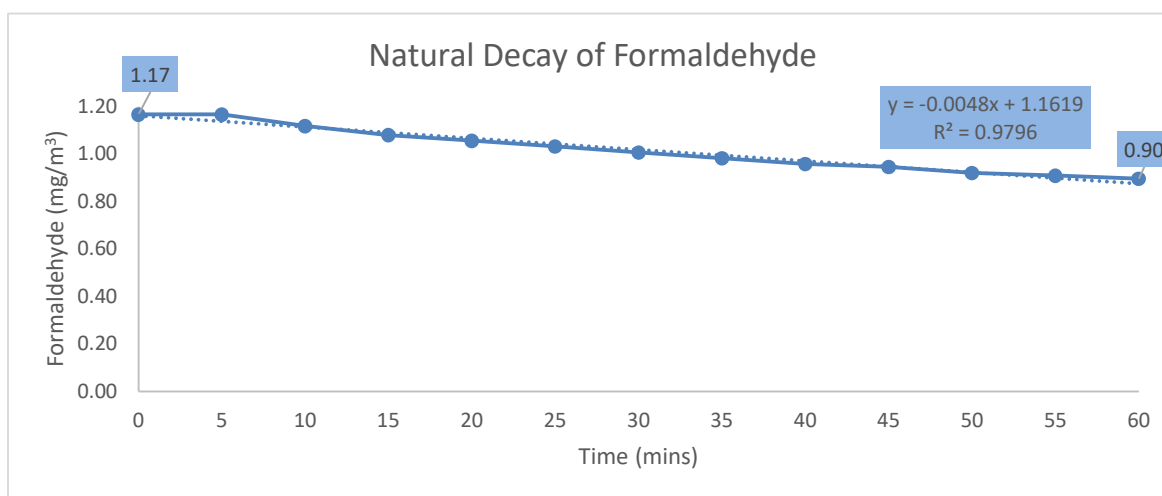


Figure a. Natural Decay of Formaldehyde

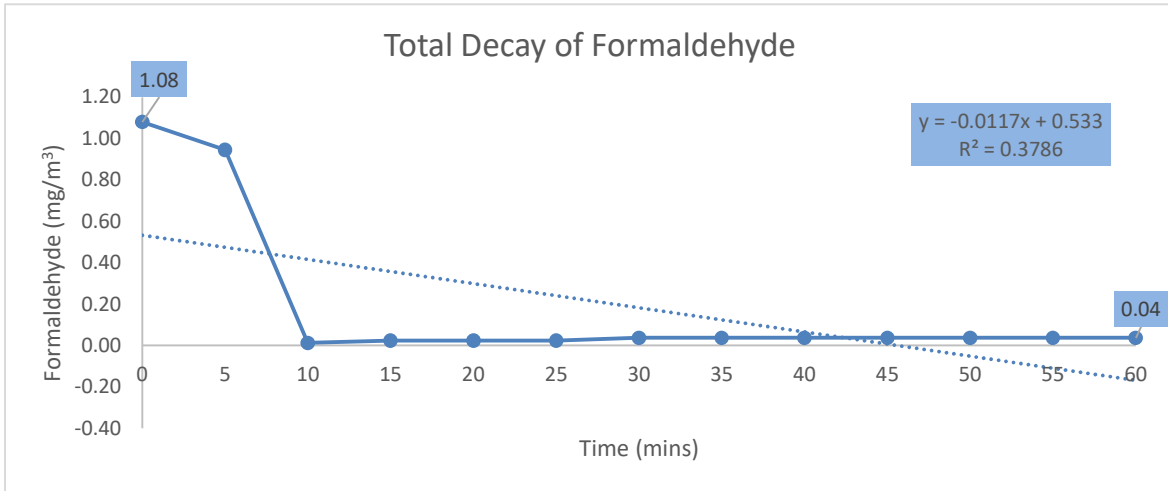


Figure b. Total Decay of Formaldehyde

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 ***