



# CONSUMERS ASSOCIATION OF SINGAPORE

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## MEDIA RELEASE

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**For Immediate Release**

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### **CASE test on air purifiers and price survey on N95 face masks**

#### **Test on Air Purifiers**

A test on ten air purifiers by the Consumers Association of Singapore (CASE) found that all of them performed efficiently in cleaning the air under haze condition. In addition, CASE's survey on N95 face masks showed that there are a wide variety of face masks in the market with reasonable prices ranging from \$1.38 to \$3.90 for each mask. We hope that the results of the test and survey will help consumers in making a more informed purchase decision when buying air purifiers and face masks during the haze period.

Last year, CASE conducted a test on air purifiers to ascertain that the performance of the air purifiers matched the representation in their advertisements with regards to bacteria, mould and yeast elimination. This year, CASE commissioned another series of testing on a different set of air purifiers, this time round to determine the effectiveness of these air purifiers in cleaning contaminated particles from the air during the haze period.

Ten different brands of air purifiers were randomly purchased off the shelves from electrical retailers such as Courts Singapore, NTUC FairPrice, Harvey Norman and Parisilk Electronics & Computers Pte Ltd. Two tests were conducted on the air purifiers in April 2014 to determine their efficiency in cleaning Respirable Suspended Particles (RSP) and Volatile Organic Compounds (VOC) during times of haze (see *Annex A: What are RSP and VOC*).

The test results showed that all ten air purifiers tested are able to efficiently clean the air during haze conditions, with an average elimination rate of 98.37% and 99.78% for RSP and VOC respectively (see *Annex B: Results of Air Purifiers (Haze) Test*).

For the RSP removal test, Whirlpool AP628W performed the best with an elimination rate of 99.21% and the model with the lowest elimination rate of 96.42% is EuropAce EPU 166C. For the VOC removal test, Whirlpool AP628W, EuropAce EPU 166C and Philips AC4025/01 were ranked first in performance with a 100% elimination rate. The lowest performer for the VOC test is LG PS-S209WC with an elimination rate of 99.55%.

According to the haze microsite ([www.haze.gov.sg](http://www.haze.gov.sg)), several models of air cleaners have been found to be able to reduce the level of fine particles in a typical bedroom to an acceptable level during a smoke haze. The list of portable air cleaners can be found at <http://www.haze.gov.sg/haze-update/Portable-Air-Cleaners.aspx>

CASE would like to advise consumers to compare prices and performance of air purifiers between brands before deciding on which brand and model to purchase. Consumers are also encouraged to read instruction manuals or user guides on the correct way to use the air purifiers to ensure that they are able to function at their optimal level.

## **Survey on N95 Face Masks**

In anticipation of the haze returning, CASE also conducted a survey on N95 face masks to determine their availability in the market and to monitor the current retail prices. The survey was triggered by feedback we received about the drastic increase in prices of face masks during the haze period last year, where the price of a N95 face mask shot up to as high as \$8.

A N95 face mask is certified by the US National Institute for Occupational Safety and Health (NIOSH) to have 95% filter efficiency. The leading brands of N95 face masks in the market are 3M, Kimberly-Clark and Paul-Boye and their authorised retailers are Cold Storage, Guardian, NTUC FairPrice, Unity and Watson. CASE thus conducted our face mask survey from 13 to 15 June 2014 with a random sampling of 57 different authorised retailers island-wide to find out the availability and prices of these three brands of face masks (see *Annex C: Results of N95 Face Masks Survey*).

The results showed that the N95 face masks are readily available from authorised retailers with unit prices ranging from \$1.38 to \$3.90, depending on the type of mask. The most expensive face mask is the 3M 9210 model retailing at \$3.90 each at a Guardian outlet in Woodlands and the cheapest mask is the 3M 9105 V-Flex model retailing at \$11 for 8 pieces (\$1.38 each) at a Unity outlet in Jurong East and Clementi.

Although there are a large variety of cheaper face masks offered for sale online or at unauthorised retailers, CASE would like to advise consumers to be cautious and refrain from purchasing from these unreliable sources, especially when the quality of the face masks is not assured.

Furthermore, the N95 face masks sold in Singapore have not been certified for use for children by the United States Food and Drug Administration. The N95 face masks sold in Singapore are not designed to fit children as the faces of children may be too small for the masks to fit properly. Parents should take precaution to ensure that their children reduce their outdoor activities when the air quality is unhealthy. For more information on haze in Singapore, the public can visit [www.gov.sg/haze](http://www.gov.sg/haze).

CASE is committed to protect the interest of consumers. We will continue to highlight any unfair/unsafe practices in the marketplace. At the same time, we also urge consumers to be more discerning and exercise caution to protect their own interests.

Lim Biow Chuan  
President  
Consumers Association of Singapore

## **Annex A**

### **What are RSP and VOC**

Respirable Suspended Particles (RSP) refer to atmospheric particles with diameter of 10 micrometres or less. Volatile Organic Compounds (VOC) are organic chemicals that have a high vapour pressure at ordinary room temperature.

Both VOC and RSP are evident in haze conditions and may cause chronic and acute effects to human health at high levels as they can penetrate deep into the lungs and cause respiratory problems. The ability to remove these particles and compounds is therefore an essential function for air purifiers during haze period.

## Annex B

### Results of Air Purifiers (Haze) Test

No.	Air Purifier (Brand/Model)	Cost	Elimination Rate	
			RSP	VOC
1	Bionaire BAP600B	\$128	98.52%	99.73%
2	Coway AP-1008CH	\$599	98.50%	99.60%
3	Delonghi AC150	\$449	98.76%	99.69%
4	EuropAce EPU 166C	\$299	96.42%	100.00%
5	LG PS-S209WC	\$299	97.90%	99.55%
6	Mistral NAC1201i	\$348	99.09%	99.74%
7	Novita NAP 611-i	\$599	98.62%	99.79%
8	Philips AC4025/01	\$229	97.64%	100.00%
9	Samsung AX022HC	\$399	99.05%	99.65%
10	Whirlpool AP628W	\$329	99.21%	100.00%

## Results of N95 Face Masks Survey

No.	Area	Store / Outlet	Location	Type of Face Mask		
				Model	Sold In	Unit Price
1	Aljunied	Guardian	Aljunied MRT	3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
2	Ang Mo Kio	Fairprice	AMK Hub #B2-26	3M 8210	\$2.25/ Pc	\$2.25
3	Ang Mo Kio	Unity	AMK Hub #B2-21/22	3M 9105 V-Flex	\$6.15 for 4 Pcs	\$1.54
4	Bedok	Guardian	Bedok Mall #B2-45/46/47	3M 8210	\$12.50 for 5 Pcs	\$2.50
5	Bedok	Watsons	Bedok Mall #B2-12/13	Paul-Boye	\$14 for 10 Pcs	\$1.40
6	Bishan	Fairprice	Junction 8	3M 8210	\$43 for 20 Pcs	\$2.15
7	Bishan	Guardian	Junction 8 #B1-08	3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
8	Bishan	Watsons	Junction 8 #02-45/46	Paul-Boye	\$1.40/ Pc	\$1.40
9	Bishan	Unity	Block 510 Bishan Street 13 #02-520 (Fairprice Entrance)	3M 8110	\$2.50/ Pc	\$2.50
				3M 8210	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$11.10 for 2 Packs (8 Pcs)	\$1.39
					\$6.15 for 4 Pcs	\$1.54
10	Bugis	Cold Storage	Bugis Junction #B1-16	3M 8210	\$56 for 20 Pcs	\$2.80
				Paul-Boye	\$70 for 50 Pcs	\$1.40
11	Bugis	Guardian	Bugis MRT #B1-01	3M 8210	\$7.50 for 3 Pcs	\$2.50
12	Buona Vista	Fairprice	Block 36 Holland Drive #01-03/05	Kimberly-Clark 46727	\$1.40/ Pc	\$1.40
13	Buona Vista	Guardian	Block 36 Holland Drive #01-06	3M 8110	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
14	Clementi	Fairprice Finest	Clementi Mall #B1-12/13/14	3M 8210	\$43 for 20 Pcs	\$2.15
15	Clementi	Guardian	Clementi Mall #03-56/60/61	3M 8110	\$2.50/ Pc	\$2.50
				3M 8210	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
16	Clementi	Unity	Clementi Mall #B1-10/11	3M 9105 V-Flex	\$11 for 2 Packs (8 Pcs)	\$1.38
					\$5.95 for 4 Pcs	\$1.49
17	Clementi	Watsons	Clementi Mall #B1-37/38/39	3M 8110	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
				Paul-Boye	\$1.40/ Pc	\$1.40
18	Dhoby Ghaut	Watsons	Plaza Singapura #04-50/51	3M 8210	\$2.50/ Pc	\$2.50
19	Expo	Cold Storage	Changi Business Park #B1-08	3M 8210	\$56 for 20 Pcs	\$2.80
20	Expo	Guardian	Changi Business Park #B1-08/09/10	3M 8210	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
21	Expo	Watsons	Changi Business Park #B1-14/15	Paul-Boye	\$1.40/ Pc	\$1.40
22	Farrer Park	Fairprice	City Square #B1-09/10	3M 8210	\$2.25/ Pc	\$2.25
				Kimberly-Clark 46727	\$1.40/ Pc	\$1.40
23	Farrer Park	Guardian	City Square #B1-18/19	3M 8210	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
24	Holland Village	Guardian	Holland Road Shopping #01-10/11	3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
				Paul-Boye	\$1.40/ Pc	\$1.40
25	Holland Village	Unity	Holland Village MRT #B1-05/06/07	3M 9105 V-Flex	\$11.10 for 2 Packs (8 Pcs)	\$1.39
26	Hougang	Fairprice	Hougang Mall #B1-07	3M 8210	\$43 for 20 Pcs	\$2.15
27	Hougang	Unity	Hougang Mall #B1-35/36	3M 9105 V-Flex	\$11.10 for 2 Packs (8 Pcs)	\$1.39
					\$5.95 for 4 Pcs	\$1.49
28	Hougang	Watsons	Hougang Mall #03-02	3M 8210	\$2.50/ Pc	\$2.50
				Paul-Boye	\$14 for 10 Pcs	\$1.40
29	Jurong East	Fairprice	Block 135 Jurong Gateway Rd #01-337	3M 8210	\$43 for 20 Pcs	\$2.15
30	Jurong East	Guardian	JEM #B1-16/17	3M 8210	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
				3M 8110	\$50 for 20 Pcs	\$2.50
31	Jurong East	Unity	JEM #B1-37	3M 8210	\$43 for 20 Pcs	\$2.15
				3M 9105 V-Flex	\$11.10 for 2 Packs (8 Pcs)	\$1.39
					\$5.95 for 4 Pcs	\$1.49
32	Jurong East	Watsons	JEM #B1-07	3M 8210	\$2.50/ Pc	\$2.50
				Paul-Boye	\$14 for 10 Pcs	\$1.40
33	Jurong East	Guardian	Westgate #01-20	3M 8210	\$2.50/ Pc	\$2.50
				3M 1860S	\$3.15/ Pc	\$3.15
34	Jurong East	Unity	Westgate #B1-21	3M 8210	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$11 for 2 Packs (8 Pcs)	\$1.38
					\$5.95 for 4 Pcs	\$1.49
35	Jurong East	Watsons	Westgate #B1-15	Paul-Boye	\$1.40/ Pc	\$1.40
36	Jurong West	Fairprice Xtra	Jurong Point #03-01	3M 8210	\$43 for 20 Pcs	\$2.15
37	Jurong West	Guardian	Jurong Point #B1-27/28	3M 8210	\$2.25/ Pc	\$2.25
					\$2.50/ Pc	\$2.50
38	Jurong West	Unity	Jurong Point #B1-09	3M 8110	\$2.50/ Pc	\$2.50
				3M 8210	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$5.95 for 4 Pcs	\$1.49

No.	Area	Store / Outlet	Location	Type of Face Mask		
				Model	Sold In	Unit Price
39	Novena	Fairprice	Novena Square 2 #04-46/47	3M 8210	\$43 for 20 Pcs	\$2.15
40	Novena	Guardian	Novena Square #01-31	3M 9105 V-Flex	\$6 for 4 Pcs	\$1.50
41	Novena	Watsons	Novena Square #02-47/09	Paul-Boye	\$14 for 10 Pcs	\$1.40
42	Novena	Guardian	Novena Hospital #01-08/09/10	3M 8210	\$2.50/ Pc	\$2.50
43	Pasir Ris	Fairprice	White Sands #B1-10	3M 8210	\$2.25/ Pc	\$2.25
44	Pasir Ris	Unity	White Sands #01-12/12A	3M 8210	\$2.50/ Pc	\$2.50
					\$49.50 for 20 Pcs	\$2.48
45	Seng Kang	Watsons	Compass Point #02-12	Paul-Boye	\$1.40/ Pc	\$1.40
46	Serangoon	Fairprice	NEX #03-42	3M 8210	\$43 for 20 Pcs	\$2.15
				Kimberly-Clark 46727	\$1.40/ Pc	\$1.40
47	Serangoon	Guardian	NEX #B1-62/63	3M 8210	\$50 for 20 Pcs	\$2.50
48	Serangoon	Unity	NEX #03-37/38	3M 9105 V-Flex	\$6.15 for 4 Pcs	\$1.54
49	Serangoon	Watsons	NEX #02-57	Paul-Boye	\$14 for 10 Pcs	\$1.40
50	Tampines	Fairprice	Tampines Mall #B1-12	3M 8210	\$43 for 20 Pcs	\$2.15
				3M 8110	\$2.50/ Pc	\$2.50
51	Tampines	Unity	Tampines Mall #B1-12	3M 8210	\$2.50/ Pc	\$2.50
					\$49.50 for 20 Pcs	\$2.48
52	Tiong Bahru	Unity	Tiong Bahru Plaza #B1-11	3M 8210	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$5.95 for 4 Pcs	\$1.49
53	Toa Payoh	Unity	Block 192 Toa Payoh Lor 4 #01-670	3M 8210	\$2.50/ Pc	\$2.50
				3M 9105 V-Flex	\$6.15 for 4 Pcs	\$1.54
54	Toa Payoh	Watsons	HDB Hub #01-510	3M 8210	\$2.50/ Pc	\$2.50
				Paul-Boye	\$1.40/ Pc	\$1.40
55	Yishun	Watsons	Northpoint #B1-64/65/66/67	3M 8210	\$2.50/ Pc	\$2.50
56	Woodlands	Guardian	Causeway Point #B1-28/29/30	3M 8210	\$2.50/ Pc	\$2.50
				3M 9210	\$3.90/ Pc	\$3.90
57	Woodlands	Watsons	Causeway Point #B1-14/15	Paul-Boye	\$14 for 10 Pcs	\$1.40