

You can now breathe easy

IN Malaysia, air pollution has been a growing concern in recent years. Three main sources of air pollution have been identified and they are exhaust gas from automobiles and motorbikes, primarily in urban areas; haze presumably caused by weather conditions and forest fires in Malaysia and neighbouring countries; and pollutants generated through industrial activities.

This air pollution is continuously measured by more than 50 general environmental air-monitoring stations operating throughout Malaysia. Air quality is measured on a dedicated scale – the Air Pollution Index (API) – and is reported to the public.

The API includes five parameters (PM10, CO, NO₂, SO₂ and O₃ [ozone]) and classifies air quality into five levels – good, moderate, unhealthy, very unhealthy and hazardous. When it comes to controlling air pollution in the country, one of the biggest challenges is haze.

This problem is not limited to Malaysia, it also affects countries throughout South-East Asia.

The worst haze readings so far in 2014 were recorded in the Klang Valley on March 14, when API readings reached the “hazardous” level in Port Klang (352) as well as in Banting, Selangor (316).

That day, in other parts of the Klang Valley and Negri Sembilan, “unhealthy” API readings were noted in 12 locations, such as Kuala Selangor (152), Petaling Jaya (186), Shah Alam (165), Batu Muda

(176), Cheras (147) and Putrajaya (176). The major source of haze was reportedly 1,441 cases of open burning that occurred nationwide that day.

In March 2014, Sharp collaborated with University Putra Malaysia, a prestigious institution in the field of environmental science, to collect and analyse haze samples from various areas in Malaysia and to study the particle size distribution and organic chemicals found in haze.

In terms of particle size distribution, the study found that PM_{2.5} (particles measuring 2.5 µm or smaller) accounted for an average of 73% of the particles in samples with “unhealthy” API levels (those scoring from 101 to 200) and for almost 100% in samples with “hazardous” API ratings (those scoring above 300).

The smallest particles identified in this study were 0.0633 µm in size, which is about 40 times smaller than PM_{2.5}.

Particles with diameters smaller than PM_{2.5} are said to pose the greatest health risk, as they are fine enough to lodge deeply in the lungs through inhalation.

Through analysis of the organic chemicals contained in haze, the study also found that only small amounts of organic chemicals were present in samples with “moderate” API levels (those scoring from 51 to 100), whereas samples with “hazardous” API levels (those scoring over 300) contained over 10 times the amount of organic chemicals, which included



FP-F40L-T

Recommended area 30m²

FP-F30L-W

Recommended area 21m²

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toluene, a component of agrichemicals and petroleum designated as a harmful substance; and 2-Pentanone, 4-hydroxy-4-methyl (also known as pentanone), a component of diesel and jet fuel.

With the above analysis in mind, Sharp proceeded to examine how effectively the air treatment technologies incorporated into Sharp's

Plasmacluster Ion (PCI) air purifiers could counteract haze.

Five Sharp PCI air purifier models – the KC-D60, KC-D40, FP-E50, FP-F40L and FP-F30L – were installed in separate 25.6 cubic-metre spaces and set to Haze Mode.

The air purifiers required around 22 minutes, 38 minutes and 25 minutes respectively to

remove 99% of haze particles with sizes of 0.0633 µm or larger.

A further experiment with the Plasmacluster devices showed that they worked to effectively reduce two components found in haze – toluene and pentanone.

After 24 hours, they had removed 91% of toluene and 44% of pentanone, with those numbers increasing to 98% and 70% after 48 hours.

This study, the first of its type in the world, successfully demonstrated that the air treatment technologies employed in Sharp air purifiers could provide excellent protection from haze.

With the goal of creating a healthy environment in Malaysia, Sharp will continue to advance its Plasmacluster Ion technology and air purifier technologies through ongoing research, while also communicating the effectiveness and efficiency of these technologies.

About Sharp-Roxy Sales & Service Company (M) Sdn Bhd (SRSSC)

Established in 1985, SRSSC is the marketing arm of the Sharp Group in Malaysia and is responsible for the sales, marketing and promotion of all Sharp products in the country which includes consumer electronics, office automation equipment, document solution business and photovoltaic power system.

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