

Pune's odour-killing tube makes a mark in city, Delhi Metro



Using odour-killing UV technology, city-based IITian Dr Avinash Kulkarni has developed light bulbs that help improve the air quality in various places. Namita Shibad reports on this technology deployed by the Delhi Metro Rail Corporation and a number of establishments in Pune

"Kulkarni's Aeropure UV Systems Pvt Ltd is the only company in India that manufactures UV lamps (actually UV lamps are made by another Chakan based group company, Arklite Speciality Lamps Ltd) to improve air quality and stench removal.

Currently Mainland China, off Senapati Bapat Rd, Persistent Systems, Hinjewadi companies' STPs, Delhi Metro Rail Corporation (DMRC), Inlaks Hospital are some of the clients using one of the two UV technologies that destroy odour and improve air quality. Says Kulkarni "Ultra Violet rays are germicidal. They do not let organisms grow. We produce two types of lamps. One which emits UV rays of only 254 nanometre (nm) wavelengths and the other which emits 185 nm along with 254 nm.

Both these UV lamps of specific wavelengths produce different results. Explains Kulkarni, "All odours are formed by Volatile Organic Compounds (VOC). In fact so is perfume. A 185 nm UV ray is a high energy radiation that will split oxygen (O₂) in the air. These 'split' oxygen atoms are unstable so they go and attach themselves to other O₂ molecule which converts it into Ozone i.e. O₃ or oxygen with one extra atom. Ozone oxidises the VOC to CO₂ and water, thereby destroying odour."

Individual STPs set up by various office buildings in the out skirts of Pune do pose a problem of stench to the people working in there. But many of them have made their office buildings workable by using Kulkarni's 185nm UV lamps known as Duct Zapper. Mainland China has found the Duct Zapper useful for its kitchen odours.

Besides odours these UV lamps can also purify the air. "When we increase the wavelength of the UV rays to 254nm the lamp can act as a powerful germicide. This UV ray can penetrate into the cell walls of bacteria and destroy the DNA.

In case of viruses, they have no cell wall and the UV rays kill them as well." This should obviously be a top priority with chiefly hospitals where there are several sick people with an abundance of bacteria and viruses floating in the air. "In offices," says Kulkarni "when there is an epidemic of H1N1 of Swine Flu which is very contagious this UV lamp which we call Watmizer is very useful. When Persistent Systems installed the Watmizer in their air conditioning ducts they saw a 70% reduction in microbe content in the air."

The USA, in March 2003 mandated that all Federal Govt buildings must have UV Germicidal Irradiation of cooling coils. But in India strangely companies do not use the Watmizer for its germicidal action but for another advantage - reduced power consumption. The Watmizers reduces HVAC power consumption by 10 to 15% and requires no maintenance. This should be of vital importance to hospitals, pharma companies and even hotels and offices. Improving air quality can go a long way in employee health since mould and mildew formation in a/c ducts is completely stopped.

So far the Marriot and Mainland China are using the Duct Zapper while hospitals in Mumbai such as Seven Hills, Lilavati, KEM, Hiranandani are using the Watmizer. 90% of Aeropure's sales come from the Watmizer and only 10% from Duct Zapper. "People are strange, they find a mild smell of Ozone offensive but not a public urinal. Maybe it's because they are used to it," says Kulkarni with a smile. Whatever be the reasons for use, lower power bills or odour reduction, Kulkarni is smiling, all the way to the bank.

TGS NEWS SERVICE

SMELL THE AIR, IT'S CHANGING

How do you deal with Sewage Treatment Plants (STPs) that spew offensive gases or commercial kitchen chimneys that often are the cause of spats in various societies because of kitchen odours?

Up until now, all this would have seemed like a dream but with Dr Avinash Kulkarni who has been in the business of Lighting has shown it is possible to destroy odours. It is possible for a light bulb to kill odour. How? Says Dr. Kulkarni who is an IITian with a PhD in Metallurgy from University of Pennsylvania "to the common man lamps are synonymous with lighting, but for many years now bulbs are used with different technologies to give out heat like in InfraRed lamps used in body aches but also for industrial use. UV lamps are commonly used to purify water. So using the knowledge that UV rays can be used in varied ways, I set about to develop the technology which was available abroad but not here in India.

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