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## How Camfil is preventing street level pollution by removing nitrogen dioxide in Hong Kong tunnel

### World's largest air purification system

According to the United Nations Environment Programme, 92 percent of people in the Asia-Pacific region are exposed to high level of air pollution that pose significant risk to health.

Highways Department in Hong Kong came up with an incredible solution to alleviate the traffic congestion and tackle the serious problem of air pollution. The Central-Wan Chai Bypass is a 4.5km link road, comprising of a

flyover and 3.7km tunnel section that has air purification systems capable of removing at least 80 percent of key pollutants from roadside emissions. In Hong Kong, it is the first air purification system in a tunnel and the largest in the world in terms of air volume handled that removes harmful particulates, nitrogen dioxide and other key roadside pollutants.

### **What role Camfil played in the project?**

The tunnel can handle 5,4 million cubic metres of vehicle exhaust per hour and large tunnel exhaust passes air to 3 ventilation buildings along the tunnel section of the project. First step to air purification is separating respirable suspended particulates through Electrostatic Precipitators. Next, the air passes through the denitrification filter which is using activated carbon to remove nitrogen dioxide. Lastly, purified air is discharged into the adjacent atmosphere to prevent street level pollution.

Camfil provided 860 tonnes of activated carbon for the denitrification filter. The carbon was tested in our innovative advanced research lab in The Tech Centre located in Trosa, Sweden. Camfil is adept in testing the performance of molecular air cleaning media and devices for ventilation applications and uses the global standard test method described in ISO10121. To support our global activities, Camfil operate a second ISO10121 test laboratory in Malaysia.

Activated carbon is a powerful and extremely resourceful adsorbent and is used in many [molecular air purification solutions](#). A specific activated carbon can be selected to target odours, irritants and toxic gases, such as volatile organic compounds (VOC), nitrogen dioxide and ozone.

### **Effective results for Hong Kong's Highway Department**

As per Kevin Lo, Highways Department Hong Kong, "The Central-Wan Chai Bypass tunnel can reduce carbon dioxide emission up to 11,000 tonnes annually as it cuts the journey time to 5 minutes which was previously reported as 30 minutes. It will take 480,000 trees to absorb this level of carbon dioxide emission from the environment."



“Camfil is proud to have been involved in this landmark infrastructure project. The tunnel is easing congestion, making travel more efficient for thousands of motorists every day and reducing carbon footprint. Camfil, in their state-of-the-art molecular filtration laboratory evaluated and proved the ability of a filtration media to remove nitrogen dioxide. This thorough study included tests at a range of temperature and humidity conditions, to ensure filter efficiency under all seasonal conditions experienced in Hong Kong. The tests were conducted in accordance with the global test standard ISO10121. Our contribution to the Central Wan Chai Bypass tunnel is protecting the health of local residents at street level and in high-rise buildings near the tunnel exhaust points.” – Dr. Chris Ecob, Global Applications and Solutions Director, Molecular Contamination Control Division at Camfil

## Road Ahead

Camfil’s molecular air filters hold a great potential as apart from purifying the air from hazardous gases and odours, [molecular filters](#) can be made from different sustainable raw materials, in different qualities, shapes and sizes. Our innovative design and strong research and development allows us to conserve more, use less and find better ways so that purifying air becomes easier and better.

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For more than half a century, Camfil has been helping people breathe cleaner air. As a leading manufacturer of premium clean air solutions, we provide commercial and industrial systems for air filtration and air pollution control that improve worker and equipment productivity, minimize energy use, and benefit human health and the environment. We firmly believe that the best solutions for our customers are the best solutions for our planet, too. That’s why every step of the way – from design to delivery and across the product life cycle – we consider the impact of what we do on people and on the world around us. Through a fresh approach to problem-solving, innovative design, precise process control and a strong customer focus we aim to conserve more, use less and find better ways – so we can all breathe easier.

The Camfil Group is headquartered in Stockholm, Sweden, and has 30 manufacturing sites, six R&D centres, local sales offices in 30 countries, and 4,800 employees and growing. We proudly serve and support customers in a wide variety of industries and in communities across the world. To discover how Camfil can help you to protect people, processes and the environment,

visit us at [www.camfil.com](http://www.camfil.com).

## Contacts



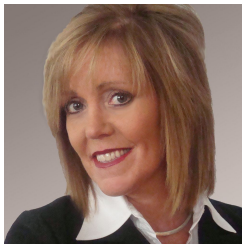
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