



# *Catalytic Air Cleaning System*

*Your building's air may be filtered, but is it really clean?*



# Neutralize and reduce organic contaminants in your air with the Trane Catalytic Air Cleaning System

Stand in your building's lobby and take a deep breath. You followed all building codes. Your ventilation system is bringing outside air into your building. But does it feel fresh? Is it as clean as you want it to be?



Outside air can contain contaminants. People bring germs into the building. And any new furnishings added to the building often introduce odor and volatile organic compounds (VOCs).

Even though your HVAC system has filters, you may still be circulating germs, viruses, VOCs and other gases that are too small to be captured.

Equipping your air handler with a Trane Catalytic Air Cleaning System (TCACS) can help reduce biological organisms such as spores, bacteria and even the tiniest viruses.

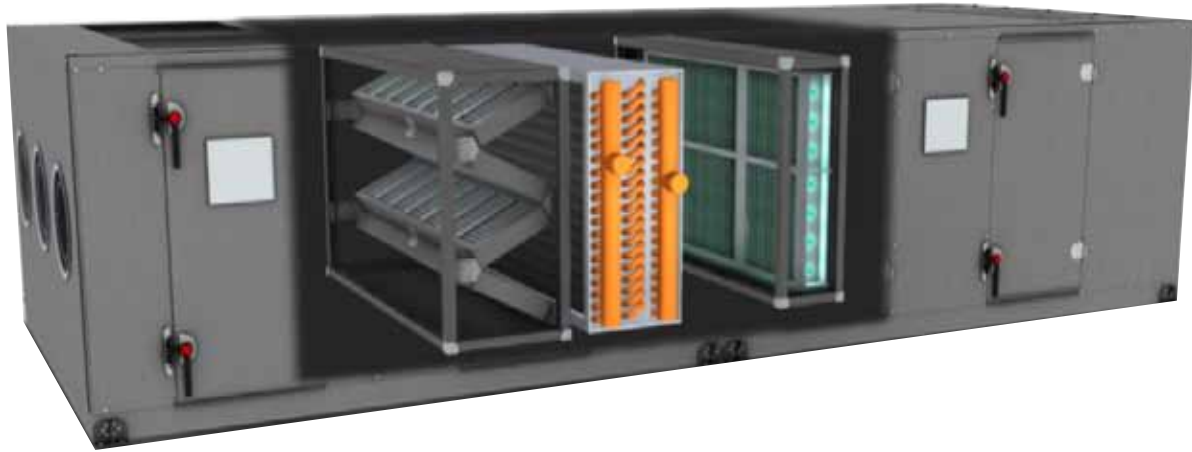
It can also reduce irritating odors from organic compounds such as fumes from paint, glue and cleaning chemicals, and capture airborne particulates like dust and mold.

## **Airborne contaminants are captured, sterilized and vaporized**

The TCACS is far more than an air filter. It's a one-of-a-kind blend of three technologies: filtration, germ-killing ultraviolet light, and a photocatalytic oxidation (PCO) process.

### **Here's how it works:**

Air entering the TCACS passes first through a MERV 13 high-efficiency particulate filter, which captures many of the larger biological contaminants and small airborne particles such as mold spores and pollen.

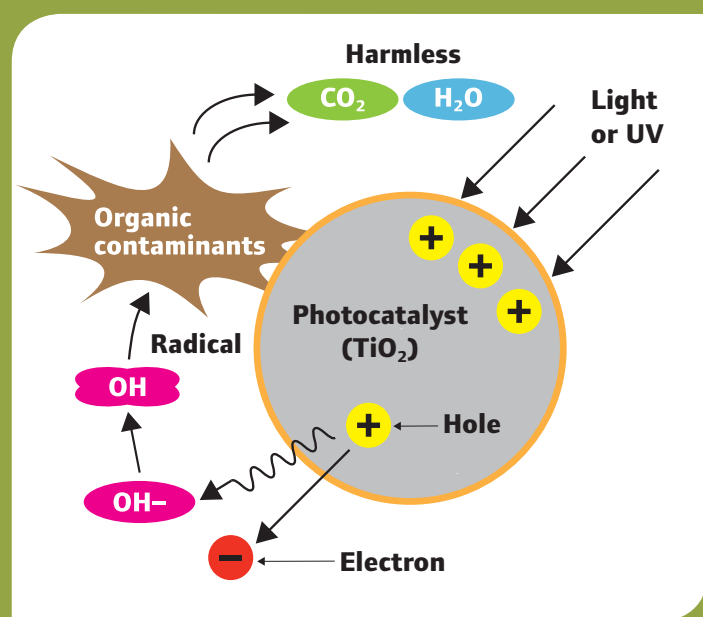


Viruses, odors, VOCs and micro-organisms pass through the filter and into the TCACS' ultraviolet germicidal irradiation (UVGI) area, where they are exposed to a high-intensity ultraviolet light. This UV radiation penetrates micro-organisms such as fungi, bacteria and viruses and damages their DNA bonds, sterilizing them.

As the air is being exposed to UVGI, it's also passing through a mesh panel coated with titanium dioxide ( $\text{TiO}_2$ ). When subjected to ultraviolet photons,  $\text{TiO}_2$  creates hydroxyl radicals, one of the most powerful oxidizing agents in nature. As air passes through this ultraviolet-powered catalyst, the radicals oxidize gaseous organic compounds, such as odors and VOCs, reducing them to minute amounts of harmless carbon dioxide and water. The radicals and UV light work together to inactivate and decompose organic contaminants.

In short, if it's organic, TCACS can reduce, oxidize or destroy it.

### Photo Catalytic Oxidation



UV photons energize a photocatalyst media panel creating highly reactive hydroxyl radicals. Hydroxyl radicals convert organic compounds into simpler compounds and ultimately into water ( $\text{H}_2\text{O}$ ) and carbon dioxide ( $\text{CO}_2$ ).

**An elegant, low maintenance solution to provide clean air**

Maintaining the TCACS is simple. You change the MERV 13 filter as you normally would with any conventional particle filter in an air handler.

The rest of the system is low maintenance, because the UVGI and PCO processes do not collect matter like a filter does—instead, they convert contaminants to water vapor that evaporates. Just change the UV lights periodically - typically around every 18 months.



The TCACS media panel is uniquely designed to continually renew itself and has an expected life of 15 years under normal use.

The TCACS media also has an energy-saving low-pressure drop, allowing it to be used in many applications without system redesign.\*

If your building has a high density of occupants or areas of congestion—schools, fitness centers, healthcare facilities, theaters, airports, etc.—you can make a difference in the productivity and comfort of the people who occupy it by adding a factory-engineered and installed Trane Catalytic Air Cleaning System to your air handler.

TCACS is available on many Trane air moving products. Ask your Trane representative for more information. We'd be happy to discuss all of your indoor air quality improvement options and help design the best solution for you.

\*TCACS media panel has a 0.03" pressure drop at 500 fpm, the typical air velocity in an air handler.



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