ensavior

Energy • Environment • Sustainability

ULTRAVIOLET
Photo Catalytic Oxidation

It is an advanced process by which volatile organic compounds (VOCs), bacteria, molds and fungus are destroyed by incorporating photon and ultraviolet (UV) energy activating a catalyst thereby creating the photo catalytic oxidation (PCO) process. UVPCO often utilizes a honeycomb configured, reactor coated with titanium dioxide (TiO2 or titania) as the photo-oxidative catalyst. This design potentially can have high conversion rates with low pressure drop making it suitable for use in building HVAC systems.

The coated screen is irradiated with UV light near 254 nm UVC. Air containing organic pollutants flows through the screen , where the VOCs adsorb on the catalyst. The UV light interacting with the catalyst in the presence of oxygen and water vapor, produces hydroxyl radicals. Hydroxyl radicals are highly chemically reactive and, in-turn, breakdown the adsorbed VOCs, ideally producing only carbon dioxide and water as bye products.

- Destroys molds, viruses, bacteria and allergens etc.
- Flexible design, Easy to retrofit
- Adequate controls for safety
- No harmful emissions
- Reduces all odorous and hazardous air pollutants
- Prevents corrosion / breakdown of electronic equipment

Stage 1 – Pre-Filtration

- Air entering the system passes first through a MERV 8 high-efficiency particulate filter, which captures many of the larger biological contaminants and small airborne particles such as mold spores and pollen.
- Bag Pre-Filters are provided with 95% efficiency (MERV 14, EU 8), bag filter made of 100% dual layer synthetic fibers to capture finer particulates.

Stage 2 – Radical Chemistry (PCO)

- Viruses, odors, VOCs and micro-organisms 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.
- This air passing through a panel coated with titanium dioxide (TiO2), when subjected to ultraviolet photons, creates hydroxyl radicals. The radicals oxidize gaseous organic compounds, e.g. odors and VOCs

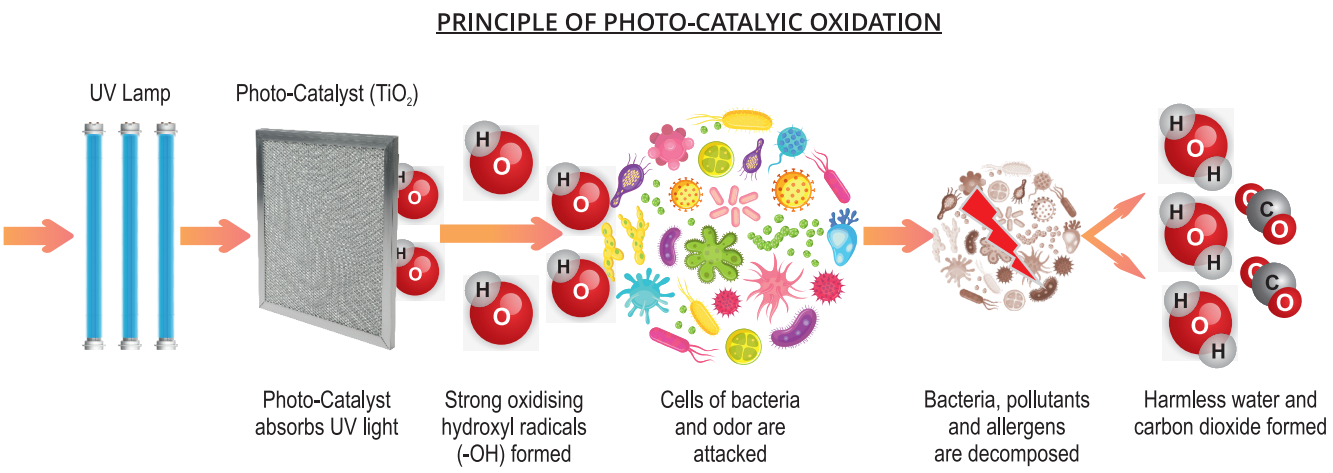
Stage 3 – Gas Phase Media

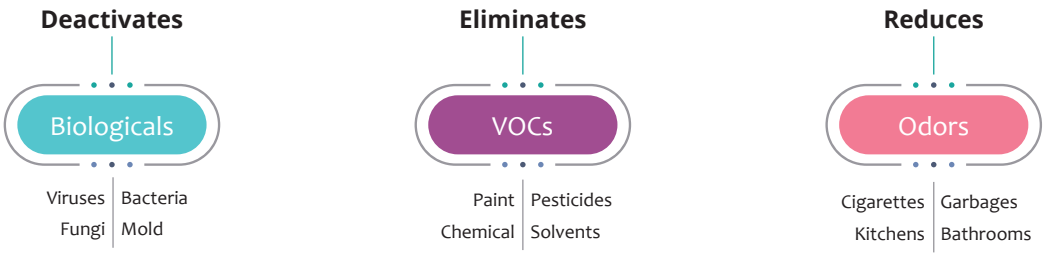
- The system media panel is uniquely designed to continually renew itself and has a very long life, under normal use.
- Media is in the form of granular pellets that are made of binders and activated alumina or other elements. Potassium permanganate is used as media, as it boosts the adsorption rate for a longer duration. The filtration media generally targets contaminants such as sulphur oxides, hydrocarbons, formaldehyde, organic acids, hydrogen sulphide, nitric oxide, and VOC's.

Model	CMH	Height	Width
EUVPCO – 1	3500		
EUVPCO – 2	7000		
EUVPCO – 3	10500		
EUVPCO – 4	14000		
EUVPCO – 5	17500		

Photo-Catalytic Oxidation

Photo-Catalytic Oxidation (PCO) is a reaction that occurs when Titanium Dioxide (TiO2) is exposed to ultraviolet (UV) light rays. VOCs, gaseous contaminants, and odors gets converted to odorless, harmless water vapor and Carbon Dioxide when they come into contact with the catalytic surface making the air ultra purified. The titanium dioxide catalyst is activated by UV light which neutralizes biological contaminants such as bacteria, viruses, mold and fungi. When used properly, PCO is a powerful element ideal for controlling air quality.





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