

KITCHEN AEROSOL TREATMENT WITH UV-OZONE

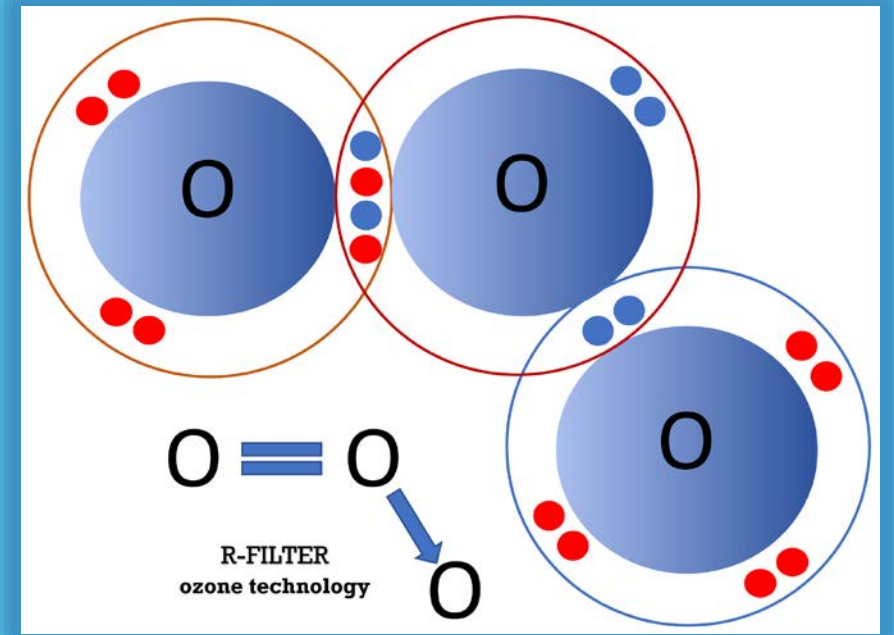
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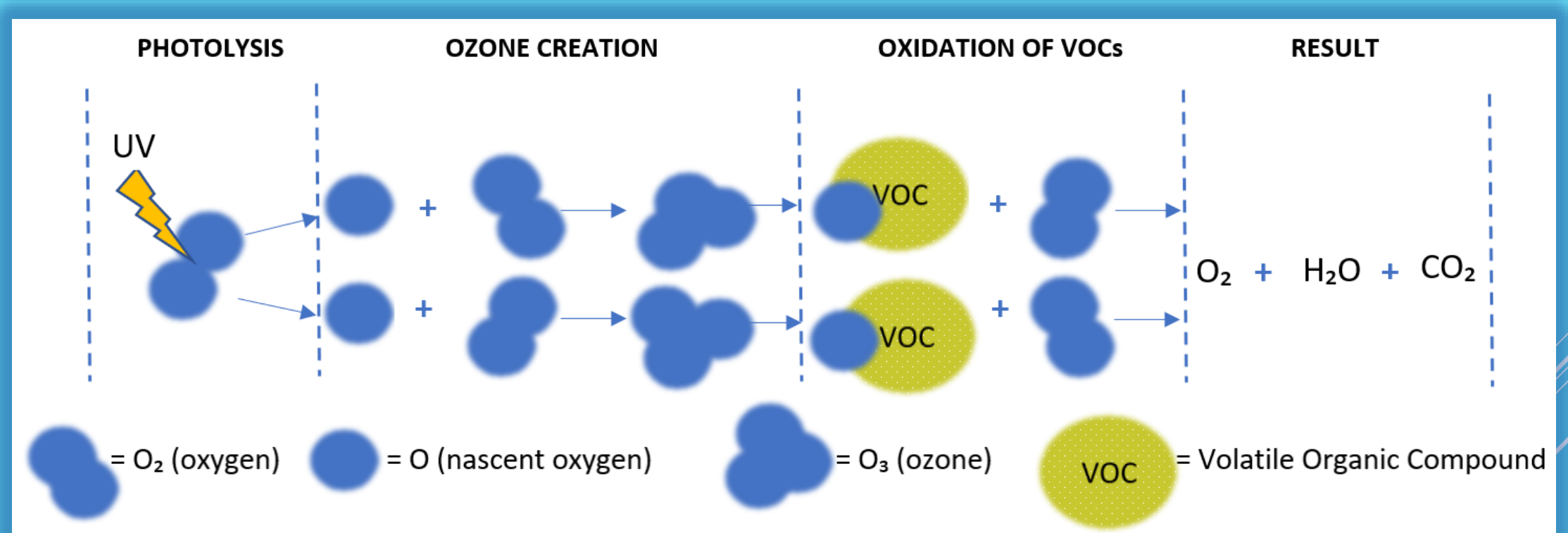
Have you ever heard this phrase „cold burning“? This is the process used by our devices to treat kitchen extract air with ozone.

Background:

- Even the most efficient aerosol separators used in the exhaust hoods above the cooking and frying surfaces are not capable of separating fat molecules less than 5 microns. They continue to flow and contaminate the elements of the ventilation system.
- Consequences: fire hazard and the cleaning costs a lot of money
- Cleanliness of ventilation systems is considered important for human comfort and health, energy consumption, system service life
- The European Standard EN 15780:2012 specifies the general requirements and procedures necessary in assessing and maintaining the cleanliness of ducted ventilation



- UV-ozone cleaning technique is proven to be effective against also smaller grease particles
- The „cold burning” process in our Kitchen Aerosol Treatment Device:

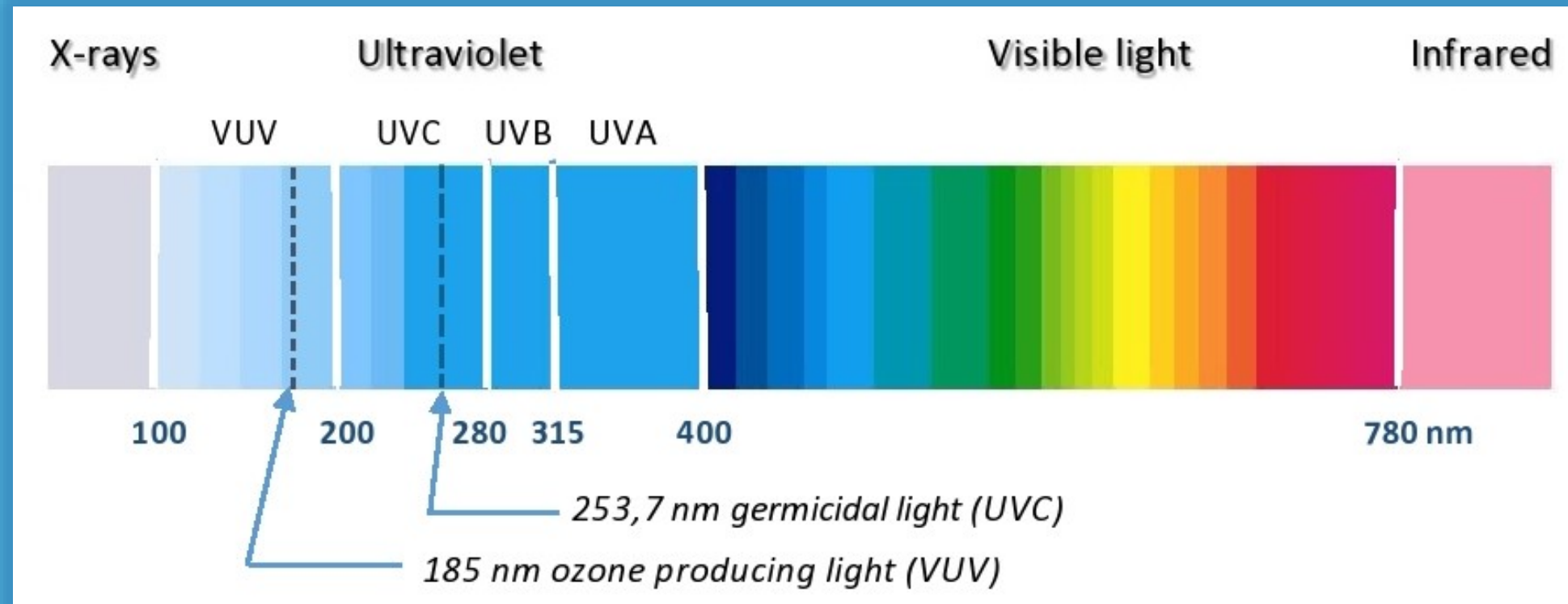


- Highest total aldehyde (e.g. CH_2O) emissions in cooking methods are produced by deep frying, followed by pan frying then by stir frying. Example for the decomposition of organic compound:



- The UV light inside the device splits oxygen molecules (O_2) into two highly reactive single oxygen atoms (O).
- This single atoms combined with normal oxygen molecules (O_2) form ozone (O_3).
- Ozone is introduced into the extract air duct through a flexible tube, which strongly oxidizes the volatile organic compounds (VOCs), eliminating odors and disinfecting the air.
- The final result is oxygen, water vapor and carbon dioxide
- The extract air duct remains practically clean and free of grease.
- The "R-FILTER" model "UVO-C" is a DMT (TÜVNORDGROUP) certificated Kitchen Aerosol Treatment Device according to the European Standard EN 16282-8:2017 for commercial kitchens.

- The location of the ozone generating radiation of 185 nm in the light spectrum:



Type of UVO-C devices:

Model	Air treatment capacity* (m ³ / h)	Dimensions LxWxH (mm)	Spigot (mm)	Weight (kg)	Voltage (VAC)	V-UV lamps	Power (W)	Current (A)	Safety interlocks to
									Pressure sensor Extract air fan Door opening
UVO-C 380K	1500-4500	900x340x222	∅ 100	19	230/50	4x95W	380	1,9	✓
UVO-C 570K	3500-7500	900x380x272	∅ 150	22	230/50	6x95W	570	2,85	✓
UVO-C 760K	5500-9500	900x380x272	∅ 150	22,5	230/50	8x95W	760	3,8	✓
UVO-C 950K	6500-12500	900x380x272	∅ 150	23	230/50	10x95W	950	4,75	✓

*Lower capacity for higher cooking intensity and higher capacity for lower intensity

Areas of use:

Typical applications of the device are catering, canteen kitchens, fast food restaurants, show kitchens, the food industry, as well as places where grease and oil are heated and the grease-laden air causes deposits in the extract air duct system and the neighbourhood can smell cooking smells.

Installation conditions:

- ❖ The outlet flexible tube of the device is to be connected in the low pressure section of the extract air duct in the near of the aerosol separator of the kitchen ventilation hood.
- ❖ The customer shall use effective aerosol separator in the hood accordance with EN 16282-6:2020.
- ❖ Differential pressure switch as safety device ensures that no ozone is released into the kitchen. The pressure switch needs to be set up so that the UV system is automatically shut down should the differential pressure fall below 20 Pa.
- ❖ The device is to be connected with the extract air fan via the controller and is only permitted to operate when the extract air fan is running.
- ❖ There is a safety switch prevents to switch the UV-device back on in an open state.

- ❖ The length of the extract air duct located after the device shall be dimensioned so that the residence time of ozone from the device to the extract fan should be at least 3 seconds.
- ❖ The temperature of the inlet air should be about 20-30°C and the humidity <70%.
- ❖ If the exhaust air is discharged in a confined area or at street level, it is essential that the ozone emission level measured at the outlet of the building does not exceed the local ozone safety levels for working areas. An active carbon filter should be used at the end of the extract air duct.
- ❖ The concentration of ozone in the exhaust air without kitchen operation shall not exceed 10 ppm measured at the outlet of the building (unless national laws and regulations provide stricter requirements.) Measurements shall be taken under full kitchen operation (maximum load) and without kitchen operation.

Advantages of use:

- ❖ UV-lamps do not come into contact with the greasy extract air
- ❖ Effectively removes the grease and odors from the extract air
- ❖ Significantly reduces the cleaning and maintenance work of the extract air system
- ❖ Significantly reduces the risk of fire
- ❖ Higher life of the extract air system
- ❖ No more odor pollution for the neighbourhood
- ❖ Chemical-free operation
- ❖ Residues are 100% biodegradable
- ❖ No environmental pollution
- ❖ No nitrogen-oxide production as at the corona discharge ozone generator
- ❖ Destroys effectively the bacteria and mold spores
- ❖ Rated average life of UV lamps: 9000 hours
- ❖ Stainless steel housing, no risk of corrosion
- ❖ Very low operating costs