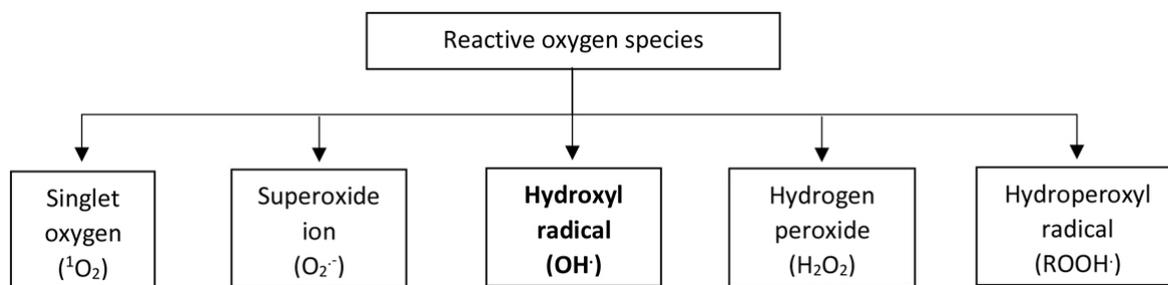


Advanced hydroxyl radicals technology for disinfection

Wellisair uses an innovative patented technology that generates and expands hydroxyl radicals (OH) that, using advanced oxidation processes (AOP) eliminate up to 99.9% of pathogenic microorganisms (viruses and bacteria) and at the same time, reduce volatile organic compounds (VOCs) and PM particles.

Using OH in the atmosphere, military defense developed this technology in the 1970s for CBR (Chemical/Biological/Radiological) warfare. It was commercialised in the 1990s in European hospitals and shows excellent results in the removal of harmful substances such as bacteria, viruses, harmful gases, mould, and respiratory allergens that cause a contaminated environment.

Within reactive oxygen species (ROS), hydroxyl radicals (OH) perform biocidal functions in viruses, bacteria, allergens and mould this enables the degradation of organic compounds in the air to mineral forms or harmless water-soluble organic compounds.



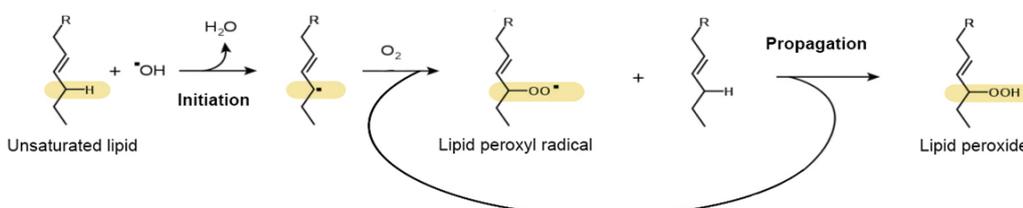
OH is the most important natural oxidant in tropospheric chemistry. It is often called "detergent" of the atmosphere, since it reacts with many pollutants, initiating the process of purifying them. It also plays an important role in the elimination of greenhouse gases such as carbon dioxide and methane.

Hydroxyl radicals have excellent advantages over the 3 main chemical disinfectants based on chlorine, alkalis and amoni-alcohol-alkali:

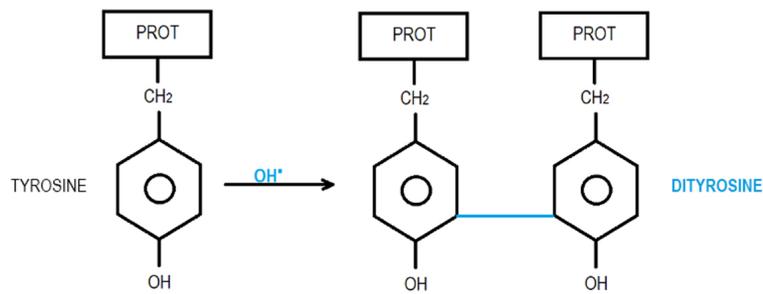
- o **Absence of selectivity** of pathogenic microorganisms due to the high oxidation potential of 2.8V (slightly less than #uorine 3.08V).
- o **OH** processing time is very short. **OH's chemical reaction rate is 107 times greater** than other oxidants such as ozone, peroxide or chlorine.
- o OH is a **green oxidant** it decompose into water (H₂O) and oxygen (O₂) without residual oxidants after their biochemical reactions.

The Wellisair's process of purification and disinfection of air and surfaces through hydroxyl radicals occurs when they come into contact with contaminants, and react as follows:

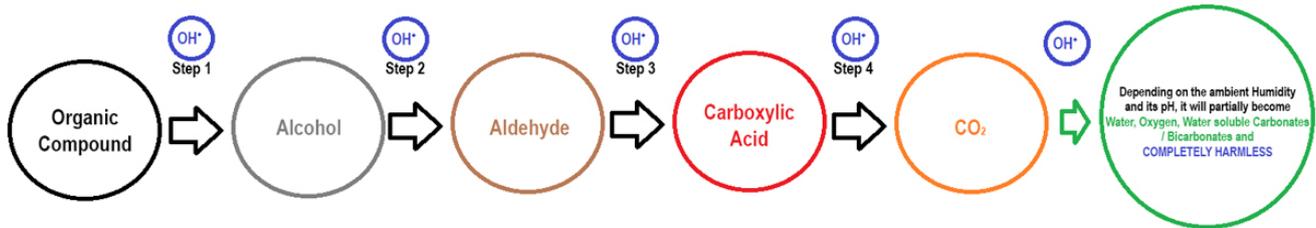
- o Breaks down the membranes of protection from viruses and bacteria (lipid reaction):



- o Alters the genetic information of viruses and bacteria (lipid peroxidation reaction)



- o Oxidizes volatile organic components VOCs in heavier products that fall to the ground:



- o Decomposes particles suspended in the air.

Once the oxidation process has started, the effect called “respiratory explosion” occurs, which consists of a series of cascade reactions that produce more hydroxyl radicals this accelerates the process of eliminating viruses and bacteria. Wellisair produces the same chain effect that efficiently purifies and disinfects the air and surfaces of an area up to 60m².

Wellisair evaporates carefully standardised amounts of a terpene such as d-limonene or hydrogen peroxide from the cartridge, which reacts with controlled emission of ozone in low concentrations (<0.02 ppm) generating constant and harmless production of hydroxyl radicals.

The ozone emission of Wellisair certified UL in an external laboratory, is below the limit concentration issued by the WHO in the environmental limit values (ELV) of the year 2000 for the general public in exposures up to 8 hours. Hydroxyl radicals, in addition to being efficient for disinfecting air and surfaces, is a harmless method for humans according to a study published in the scientific journal IJERS “International Journal of Engineering Research and Science”.

