



Notice ref. 11291-1

Engineering workshop air disinfection

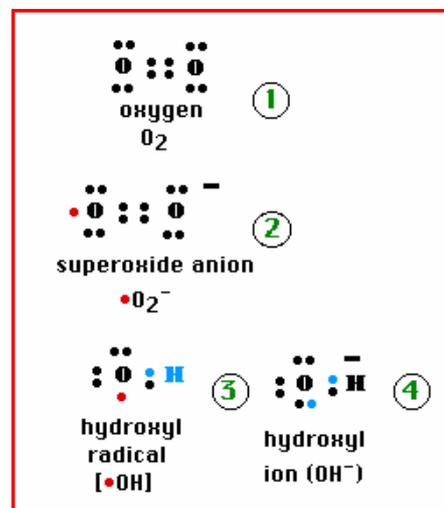
Industrial premises air disinfection

« Hoppal R&D SA» air disinfection process

The disinfection process is based on production of oxygen reactive by products (*Reactive oxygen species, ROS*) in mineralized water proceeding from a catalytic reaction between water dissolved ions (natural water minerality) and high purity metallic charge (of a so called electronic quality among the applications of semiconductors), grafted onto a porous support with a specific strong surface (active coal).

The DRO/ROS have a very strong reactivity capable of oxidizing proteins, DNA and cell membranes (attacking constitutive lipids – lipid peroxidation).

The process is of using either water or an aerosol containing DRO/ROS.



Hoppal R&D has proposed in a first stage indoor air disinfection tests, by applying the germicide properties of ROS produced by a catalytic reaction on ions in aqueous solution, proceeding exclusively from the natural minerality of network water, for example, without adding any metallic salts what so ever.

Taking into account these properties, the DRO/ROS are powerful germicides against bacteria and viruses.

The Hoppal R&D air disinfection process is made out of a ROS generator and a diffusion system into the ambient air.

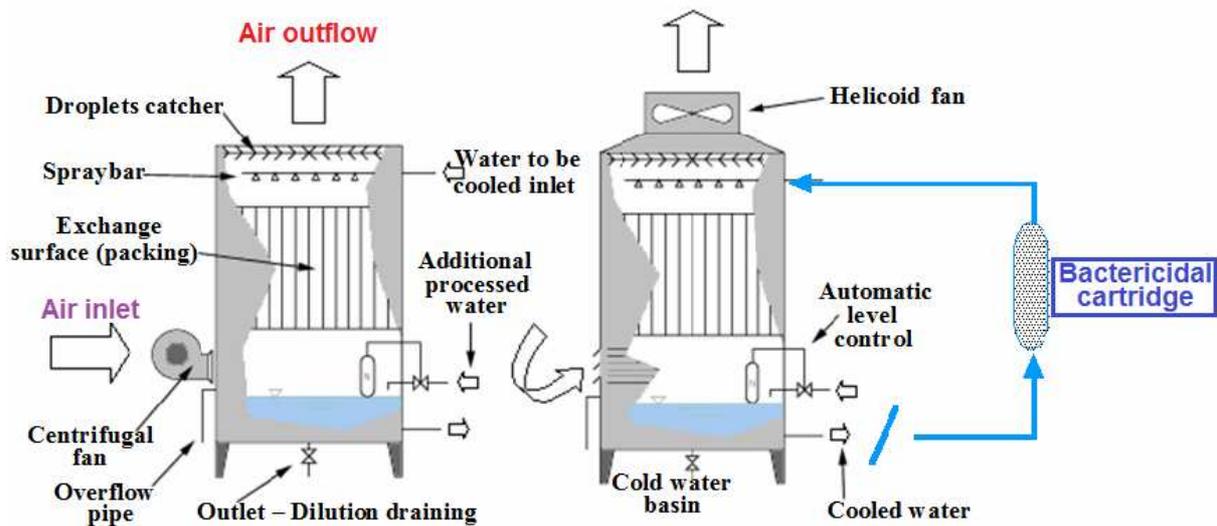
The DRO/ROS generator includes:

- A constant level water tank,
- A catalytic reactor generating the production of DRO/ROS in a defined aqueous flow,
- A water circulation pump.

The diffusion system does vary in accordance with the modes being used.

1 – The wet aero-cooling towers (evaporative cooling circuits).

The process does inhibit proliferation of bacteria in water and air. Thus the water containing DRO/ROS does disinfect the air at the time of air / water exchanges.



- 2 - Disinfection of ventilation shafts and air conditioning networks in buildings

Air conditioning network



Aerosol containing ROS
Reactive oxygene series

Production device of
germicide aerosol
containing ROS

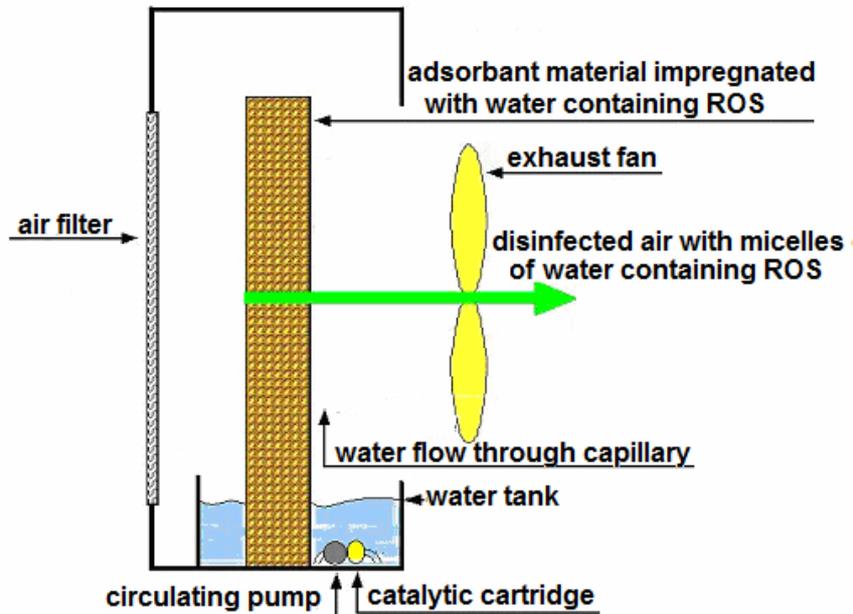
A germicide aerosol production station is connected to a ventilation / air conditioning circuit.

The aerosol allows also controlling the air humidity.

3 - Humidifier, private and industrial applications

Specific equipment for humidifier :

The material being used for the exchange between water and air is in permanent contact with the humidifying water processed with ROS and the humidified air is free of bacteria. The system is bactericidal when it is running and bacteriostatic when it is shut down.

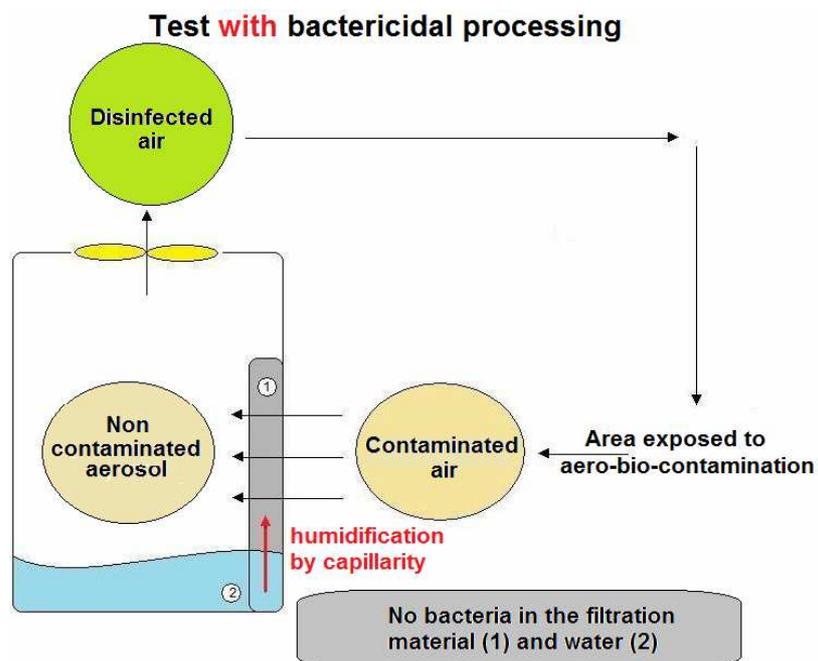
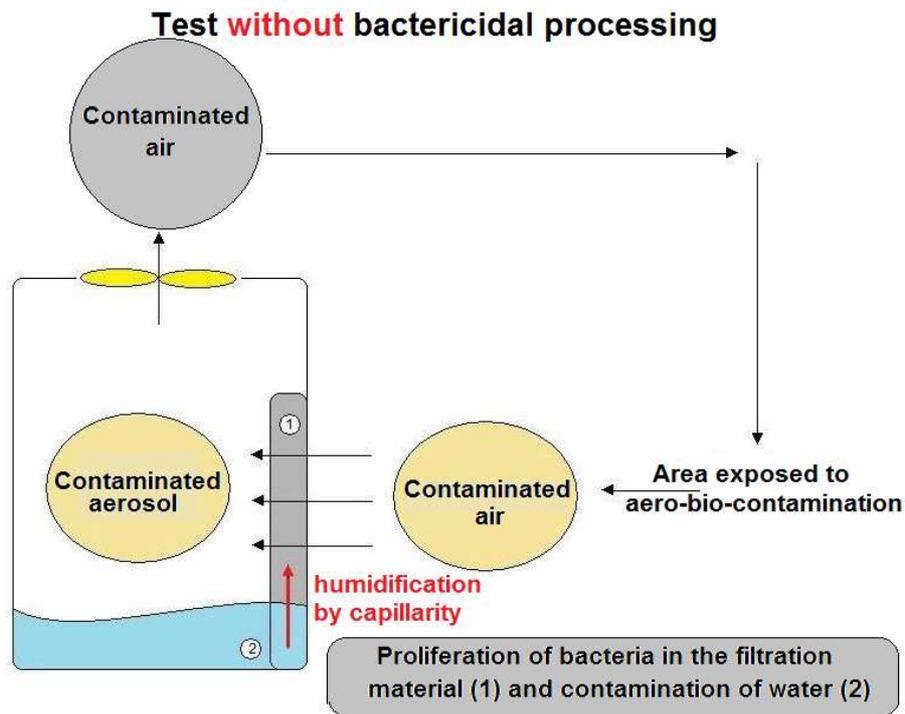


There are two different air processing configurations in public buildings:

- 1- Water processing by means of air cooling towers working on the simultaneous disinfection of the honeycomb cooler and the air processed on such support;
- 2- Autonomous air disinfection in the sensitive areas premises.

In the two cases, it is agreed that the analysis of the ROS doped water - used as a disinfectant agent - is an indicator of aero-bio-contamination. The germicidal effect acts on the water disinfection with a persistent property on the air by means of sub-micron aerosols containing ROS.

Taking into account the close exchange between air and water at the time of the different processing stages, germfree water indicates also germfree air.



One can reveal the germicide efficiency of the process by analyzing water on an air processing unit with humidification, or more simply expressed on a « lambda » humidifier working according to the already previously mentioned principle (see diagram of principle, item Nr 3 « Humidifiers » described above).

Bacteriological analyses: the results of the analyses are itemized on the website <http://www.hoppalrd.com>, section Hoppal Air.

HOPPAL R&D SA 69, rue du Rhône CH 1207 Geneva

Phone: +41 (022) 346 08 68 Fax: +41(022) 346 11 09

E-mail: hoppalrd@bluewin.ch