

The background image shows a medical imaging suite, likely an MRI room, with a blue overlay. It features a patient table on wheels, medical equipment, and a person in a lab coat. The ceiling has large, curved air ducts. A central blue rectangle contains the text.

# airPHX | SPORTS (“air-fix”)

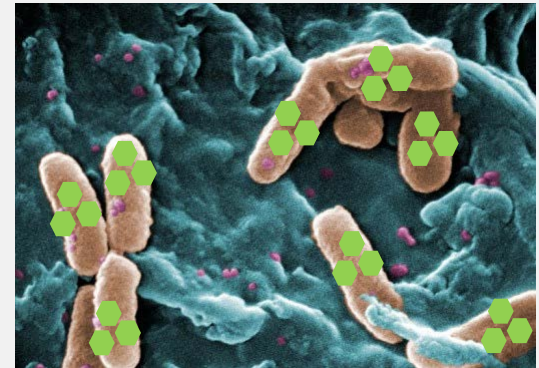
*Air & Surface Sanitation System*

## airPHX - *The most effective approach*

### A unique spectrum of Reactive Oxygen Species (ROS)

- Reactive, charged Oxygen derivatives
- Neutralize pathogens even deep in surfaces
- Destroys bacteria and viruses indiscriminately. MRSA, norovirus, athletes foot ... and over 28 additional pathogens tested effective
- Eliminates odors
- ROS has a finite half-life and is neutralized as it destroys bio-matter

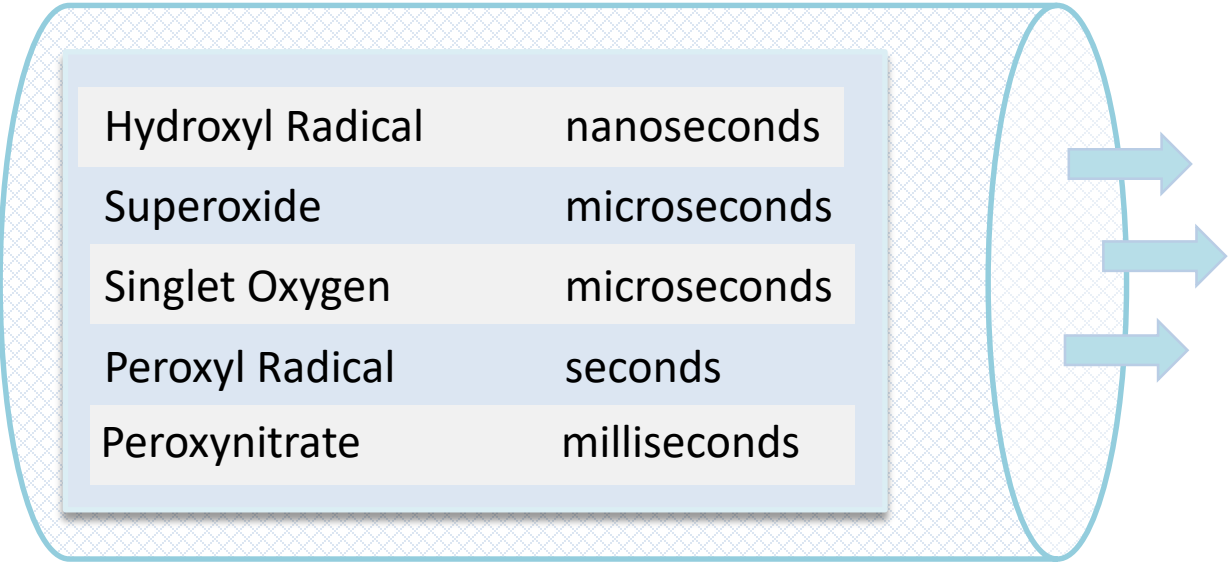
#### ROS kills from the inside, out:



1. ROS de-stabilizes cellular membrane
2. Disrupts enzymatic process
3. Halts multiplication
4. Destroys organisms by oxidative stress

# Half-lives of Reactive Oxygen Species

In reactor – short half-life Reactive Oxygen Species



A light blue rounded rectangle with a fine grid pattern represents a reactor. Three light blue arrows point horizontally from the right side of the rectangle towards the right.

Hydroxyl Radical	nanoseconds
Superoxide	microseconds
Singlet Oxygen	microseconds
Peroxyl Radical	seconds
Peroxynitrate	milliseconds

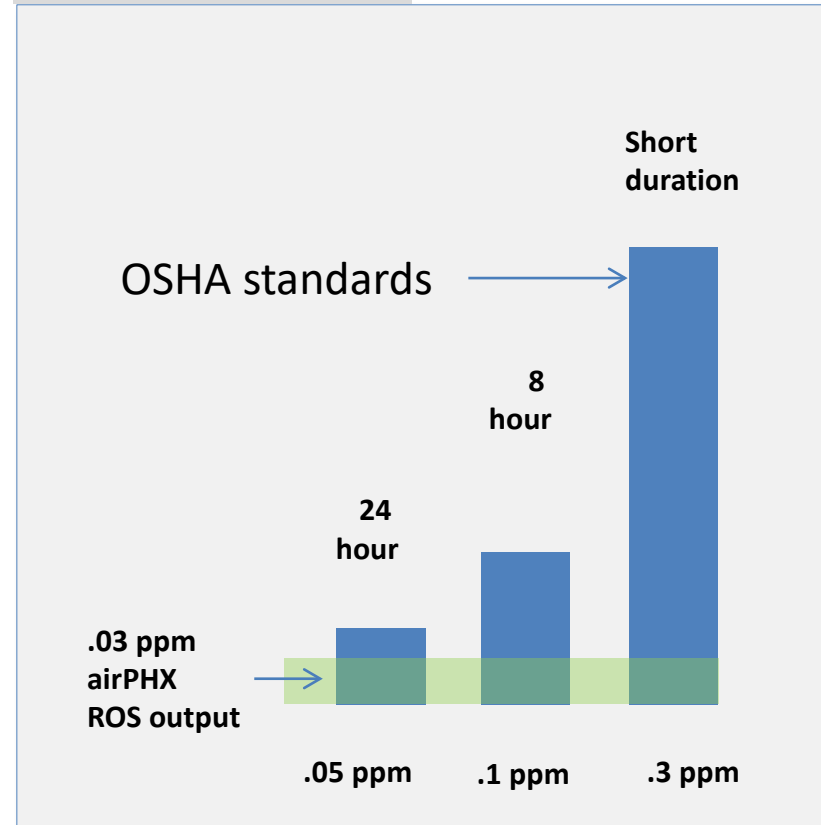
Air & surface cleaning molecules

Hydrogen Peroxide	stable
Ozone	Seconds-minutes
Organic hydroperoxides	stable

# Safety

- OSHA Compliant
- Operating in over 400 sites for over a decade
- Most reactive ROS molecules exist for fractions of a second, killing pathogens in the reactor
- Output ROS is not harmful to humans, neutralizing airborne and surface pathogens

airPHX operates well below OSHA standards, even for continuous exposure



airPHX uses Ozone as a “tracer” to determine the ROS density in the environment

## Identification of Substance and Company

**Hydrogen Peroxide (H<sub>2</sub>O<sub>2</sub>)**

The low level Hydrogen peroxide byproduct of the clean process that takes place within an AirPHX unit is not hazardous according to the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Produced as a byproduct of ambient air entering a reaction chamber in AirPHX equipment, where an electrical field temporarily stabilizes low levels of this molecule within an environment where an AirPHX air purification system is installed.

The AirPHX AMS technology is comprised of electromechanical air purification equipment that relies on electricity and the oxygen present in ambient air to produce marginal levels of reactive oxygen species where H<sub>2</sub>O<sub>2</sub> is stabilized (average less than 0.07 ppm) within a treated area or space. Such treated area(s) should have consistent/constant airflow to provide a uniform distribution of the sanitizer.

**Manufacturer/ Supplier****North America Distributor(s)**

Product Name	Description	Use
airPHX ROS system	Air purification unit	Antimicrobial intervention
<i>Equipment produces reactive oxygen species (ROS) through capturing ambient air and passing it through a controlled sealed reaction chamber that is powered by standard 110V electricity without the addition of any chemicals or additives. The production of ROS is marginal, measured in very low concentrations (parts per million/ppm) and when not reacting with carbon based compounds the remainder of the species revert back to oxygen. The AMS series has self-limiting power modules that are factory calibrated and fine-tuned in the field and include a PLC controller that further regulates the system according to the application.</i>		

The following is an excerpt from the OSHA Permissible Exposure Levels for Hydrogen Peroxide

<b>General Description</b> Synonyms: High-strength hydrogen peroxide; Peroxide; Hydrogen dioxide; H <sub>2</sub> O <sub>2</sub> OSHA IMIS Code Number: 1470 Chemical Abstracts Service (CAS) Registry Number: 7722-84-1
<b>Exposure Limits</b> OSHA Permissible Exposure Limit (PEL): <b>General Industry: 29 CFR 1910.1000 Table Z-1 -- 1 ppm, 1.4 mg/m<sup>3</sup> TWA</b> Construction Industry: 29 CFR 1926.55 Appendix A -- 1 ppm, 1.4 mg/m <sup>3</sup> TWA Maritime: 29 CFR 1915.1000 Table Z-Shipyards -- 1 ppm, 1.4 mg/m <sup>3</sup> TWA American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 1 ppm, 1.4 mg/m <sup>3</sup> TWA National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 1 ppm, 1.4 mg/m <sup>3</sup> TWA

## Additional NIOSH information

<b>Physical Description</b> Colorless liquid with a slightly sharp odor
<b>Incompatibilities &amp; Reactivity</b> Oxidizable materials, iron, copper, brass, bronze, chromium, zinc, lead, silver, manganese.
<b>Exposure Routes</b> inhalation, skin and/or eye contact - <b>Symptoms</b> Irritation with levels above PEL
<b>Generic First Aid</b> Eye: Irrigate immediately Skin: Water flush immediately

## Identification of Substance and Company

**Ozone (O<sub>3</sub>)**

The low level Ozone byproduct of the clean process that takes place within an AirPHX unit is not hazardous according to the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Produced as a byproduct of ambient air entering a reaction chamber in AirPHX equipment, where an electrical field temporarily stabilizes low levels of this molecule within an environment where an AirPHX air purification system is installed.

The AirPHX AMS technology is comprised of electromechanical air purification equipment that relies on electricity and the oxygen present in ambient air to produce marginal levels of reactive oxygen species where O<sub>3</sub> is stabilized (average less than 0.03 ppm) within a treated area or space. Such treated area(s) should have consistent/constant airflow to provide a uniform distribution of the sanitizer.

**Manufacturer/ Supplier****North America Distributor(s)**

Product Name	Description	Use
airPHX ROS system	Air purification unit	Antimicrobial intervention
<i>Equipment produces reactive oxygen species (ROS) through capturing ambient air and passing it through a controlled sealed reaction chamber that is powered by standard 110V electricity without the addition of any chemicals or additives. The production of ROS is marginal, measured in very low concentrations (parts per million/ppm) and when not reacting with carbon based compounds the remainder of the species revert back to oxygen. The units has self-limiting power modules that are factory calibrated and fine-tuned in the field and include a PLC controller that further regulates the system according to the application.</i>		

The following is an excerpt from the OSHA Permissible Exposure Levels for Ozone

<b>General Description</b> Synonyms: Ozone, Triatomic oxygen, O <sub>3</sub> OSHA IMIS Code Number: 1980 Chemical Abstracts Service (CAS) Registry Number: 10028-15-6
<b>Exposure Limits</b> OSHA Permissible Exposure Limit (PEL): 0.1 ppm, 0.2 mg/m <sup>3</sup> eight (8) hour TWA General Industry: 29 CFR 1910.1000 Table Z-1 – 0.1 ppm, 0.2 mg/m <sup>3</sup> eight (8) hour TWA Construction Industry: 29 CFR 1926.55 Appendix A – 0.1 ppm, 0.2 mg/m <sup>3</sup> eight (8) hour TWA Maritime: 29 CFR 1915.1000 Table Z-Shipyards – 0.1 ppm, 0.2 mg/m <sup>3</sup> eight (8) TWA American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 0.1 ppm, 0.2 mg/m <sup>3</sup> eight (8) hour TWA National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 0.1 ppm, 0.2 mg/m <sup>3</sup> eight (8) hour TWA

## Additional NIOSH information

<b>Physical Description</b> Colorless gas with pungent characteristic odor (often associated with electrical sparks).
<b>Incompatibilities &amp; Reactivity</b> All oxidizable materials (both organic and inorganic).
<b>Exposure Routes</b> inhalation, skin and/or eye contact - <b>Symptoms</b> Irritation with levels above PEL
<b>Generic First Aid</b> Eye: Irrigate immediately Skin: Water flush immediately

Disclaimer: The information on this reference sheet is intended to provide general knowledge as to safe handling/operation of the systems based upon our product use knowledge. This reference is limited to ROS produced in gaseous form on site by an AirPHX system, in air based applications and controlled conditions as designed by an expert team, for the purposes of control of carbon-based compounds, antimicrobial use or odor abatement in a variety of applications in food handling and processing. No handling or storage is required. It is not intended to be a specification nor guarantee specific properties nor is it applicable to unusual or non-standard uses of the product or where instructions or recommendations are not followed. AirPHX makes no representations or warranties, express or implied, of the merchantability or suitability of the product for any purpose, and will not be responsible for any damages resulting from the use of, or reliance upon, this information.