

# busworld®

***SAFE and SENSIBLE  
SURFACE DISINFECTING  
FOR TRANSPORTATION FLEETS***



SALUS PRODUCT GROUP, LLC  
[www.saluspg.com](http://www.saluspg.com)



# Overview

Salus Product Group, LLC is a Distributor of PURE® Hard Surface Disinfectant, as well as various Mist Spray Applicators



During the last year there was a lot of “Reactionary” and “Comfort” Buying. While intentions were good, in some cases it led to toxic and dangerous chemicals being used on Transportation Vehicles

This presentation is meant to bring awareness to some of the Safety Practices surrounding Surface Disinfecting

General Awareness

Federal and State Regulations

Brand Named Products

Spray Applicators

On-Board Systems



# General Awareness

## ▪ **What are the Differences – Cleaning, Sanitizing, Disinfecting**

- According to the EPA
  - Cleaning - Removes Dirt and other Organic Matter from Surfaces using soap and detergents
  - Sanitizing - Kills Bacteria on Surfaces using chemicals, but does not kill Viruses
  - Disinfecting - Kills Bacteria and Viruses on Surfaces using chemical

## ▪ **How do you know if it's Effective**

- EPA List - N Registration No.
  - Products that have been registered with the EPA, are tested and approved to be effective against SARS-Co-V-2 (COVID 19)
- “Hospital Grade” is not an actual rating. Look for the Log Reduction Measurement or Kill Log, which is used to indicate the percentage of bacteria or virus killed.
  - 99.9% - 99.9999% - every digit represents a 10-fold reduction (a reduction by 90%)
- Make sure the product is registered with the EPA, and not just the Active Ingredients

## ▪ **How do you know if it's Safe**

- OSHA/NFPA - Safety Data Sheet
- EPA Toxicity Rating - Category I, II, III, IV (IV being Least Toxic)
- EPA Ecolabel Program - Safer Choice Products
- NSF International Approval - Health and Safety of a Product
- FDA GRAS Rating - Generally Recognized As Safe



## ▪ **Ready to Use (RTU)/Ready to Pour (RTP) vs Concentrate**

- RTU/RTP Products are Pre-Mixed to the proper ratio, maximizing the product's effectiveness, however they are more expensive
- Concentrates are usually cheaper, but require mixing, thus increasing the risk of incorrect ratios and potentially impacting the product's effectiveness or causing damage

## ▪ **Residual Protection**

- Be wary of Products offering Residual Protection over 24 Hours
  - Microban 24 is one of the only Disinfectants on the market that offers Residual Protection, and that is only against Bacteria
- EPA Residual Protection Requirements have eliminated a lot of fake claims
- Do your own Testing

***Do the Research,  
Know what you are Using,  
Don't take it for Granted***



# Federal and State Regulations

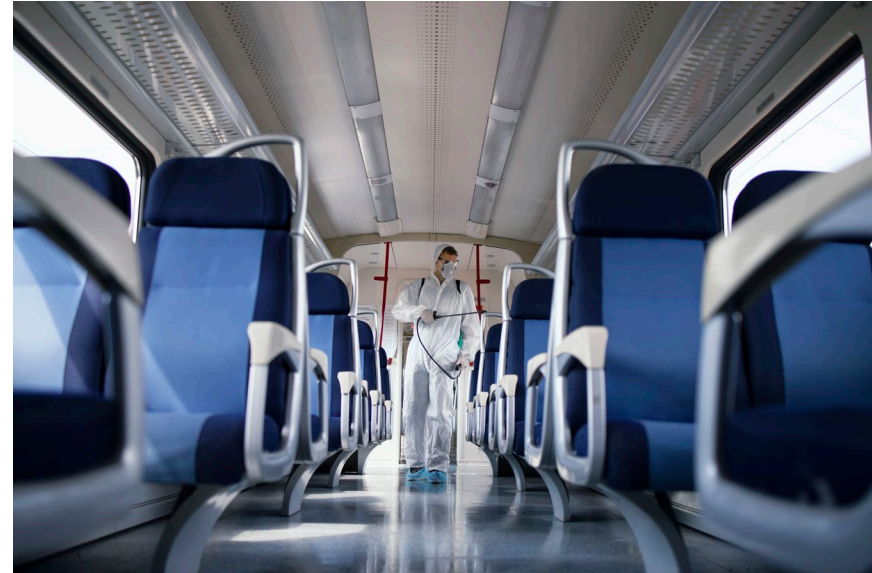
## Federal Agencies that Oversee Workplace Health and Safety for both Public Agencies and Private Corporations

- OSHA - Dept of Labor
- NIOSH - CDC
- POSHA - Public Employees

### Protecting Workers Who Use Cleaning Chemicals

Workplaces, such as schools, hospitals, hotels, restaurants and manufacturing plants, use cleaning chemicals to ensure the cleanliness of their buildings. Workers who handle these products include building maintenance workers, janitors and housekeepers. Some cleaning chemicals can be hazardous, causing problems ranging from skin rashes and burns to coughing and asthma. Many employers are switching to green cleaning products because they are thought to be less hazardous to workers and the environment. This INFOSHEET provides information to employers on practices to help keep workers safe when working with cleaning chemicals, including green cleaning products.

OSHA - NIOSH Infosheet



## States with Anti-Tox Laws related to products safe to use around children

- Illinois, New York, Connecticut, Hawaii, Maryland, Nevada, Maine, Missouri, Massachusetts, California, Oregon, Rhode Island, Vermont, and Wisconsin



# Brand Named Products

- All have Caution or Danger Warnings
- All have harsh and toxic Chemicals
  - Bleaches
  - Ammonias
  - Quaternaries
- All can cause Skin, Eye or Throat Irritations
- Most require Eye Protection and Respirators if spraying as a Fine Mist or Aerosol in close spaces
- The majority are Concentrate Products that require mixing



# Spray Applicators

## ▪ **Ultra Low Volume (ULV) Sprayers**

- Cold Atomization Units that create a Fine Mist (droplet size 20-50 microns)
- Ideal in confined spaces, blankets over the surfaces
- Does not cause Disinfectant Product to Vaporize
- Work great with RTU/RTP Products



## ▪ **High Pressure Sprayers**

- Great for Wide Open Areas - Garages, Transit Centers
- Typically generate higher pressures than ULV Sprayers and able to cover open areas better than ULV Sprayers
- Will cause overspray if not used properly



## ▪ **Handpump or “Garden” Sprayers**

- Good for Outdoor Applications
- Usually cannot create small enough droplets
- Overspray usually occurs



## ▪ **Electrostatic Sprayers (ESS)**

- ESS Units positively charge the Disinfectant which then bonds to a surfaces that has a negative charge and therefore are potentially ineffective in Bus Environments since most surfaces are either plastic or fabric and don't naturally carry a negative charge
- The Electrostatic Charging Elements can have an adverse affect on Disinfectant Solutions
  - Potentially making the Active ingredient ineffective
  - Potentially creating a Toxic Vapor depending on the Disinfectant Product used
- Make sure the ESS Unit and the Disinfectant Product will work together and follow guidelines for PPE Protection



# On-Board Systems

- ***Existing Ventilation is only partially effective for removing Bacteria and Viruses from the air, which in turn has little affect on surfaces***
  - Air Purification Systems whether Stand-Alone or Integrated into the existing HVAC Systems are becoming more prevalent, but again primarily focus on Airborne Bacteria and Viruses
  - Ionizing and Hydrogen Peroxide Generating Systems claim to “Sanitize and Disinfect” both the air and surfaces, but those technologies are still being evaluated. The amount of time it takes for the entire Vehicle to be disinfected is subjective, and the long term affects of constant exposure are still being reviewed. In some States like New York, these types of units are not allowed to be used on State Funded Vehicles (including Public Transit and School Buses)
  - Surface Disinfectant Systems are beginning to emerge, but there are a few key points to be aware of
    - Environmental - If using a “Green” Disinfectant, or a Water-soluble Disinfectant, depending on the Climate, it may be susceptible to Freezing Conditions
    - Operation - Keyed Activation to prevent accidental discharge, System Status Indicators
    - Disbursement - Depending on the size of the Vehicle ensuring there are enough Misting Nozzles to evenly cover the vehicle surfaces and that the nozzles create small enough droplets, not to over saturate
    - Amount - Understand the amount of Disinfectant Product required for maximum efficacy
    - Integration with other On-Board Systems - CAD/AVL, Maintenance, CAN Data or Digital I/O’s



# Reference Information

1. EPA Coronavirus - <https://www.epa.gov/coronavirus>
2. OSHA/NIOSH Info Sheet - <https://www.osha.gov/sites/default/files/publications/OSHA3512.pdf>
3. EPA List-N - <https://www.epa.gov/coronavirus/about-list-n-disinfectants-coronavirus-covid-19-0>
4. EPA Safer Choice - <https://www.epa.gov/saferchoice>
5. NSF International - <https://www.nsf.org/>
6. FDA GRAS - <https://www.fda.gov/food/food-ingredients-packaging/generally-recognized-safe-gras>





# ***Thank You***

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OF YOUR COMMUNITY***

