



THE
PROFESSIONAL SPRAYERS
PEOPLE

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Cleaning & Disinfecting

Brochure

INTRODUCTION

The use of liquid disinfectant to combat the spread of pathogens such as Covid-19 is a common application for spray nozzles and there are many types of disinfecting systems. Depending on the type of pathogen and the environment, however, different types of spray nozzle will be required.

The Professional Sprayers People (PSP) along with our sister company the Spray Nozzle People (SNP) can advise on the best disinfecting system for your business. We supply a range of proven fogging and spraying equipment as well as a large range of air atomising and misting nozzles. We work with engineers and designers across all sectors of industry to develop innovative spray solutions for disinfecting premises and equipment.



DISINFECTION: THE BASIC PRINCIPLES & WHAT WE ARE LOOKING TO ACHIEVE IN AN IDEAL WORLD

While Covid-19 is still a new virus about which not everything is yet known or understood, research indicates that the main transmission mode of the virus is by direct human to human contact. Secondary transmission modes would seem to be through contact with contaminated surfaces and possibly through contaminated air space.

In an ideal world we therefore need to get good contact between an antiviral agent and all places the virus may be lurking. As such, good contact time with the air along with a uniform coating of all surfaces would be the perfect scenario.

Other considerations

Of course, in the real world we need to consider a variety of other factors such as:

- Damage caused by the over wetting of surfaces
- Health risks posed by continued aerosolised disinfectants
- The cost of the spray dispersion system
- The time and manpower it takes to complete the process

These limiting factors need to be taken into account as does desire for the idealised "perfect" spray distribution system. For example, it would be great to be able to fog a room with a disinfecting mist that hangs around in the air for hours and at the same time slosh copious amounts of high strength disinfectant over all surfaces. This would definitely do a great job in making the environment safe from viral pathogens, but it might completely ruin the workplace and make it unsafe for people to work in or customers and clients to enter for hours or even days due to the new chemical hazard introduced. Finding a balance between all these factors to provide safe and usable environments is key to choosing the correct disinfecting system. What is suitable for one business, or work, public or residential space may not be the best route for another

Note that disinfection is not a substitute for cleaning. Cleaning must always precede disinfecting operations.

The role of atomisation & droplet size

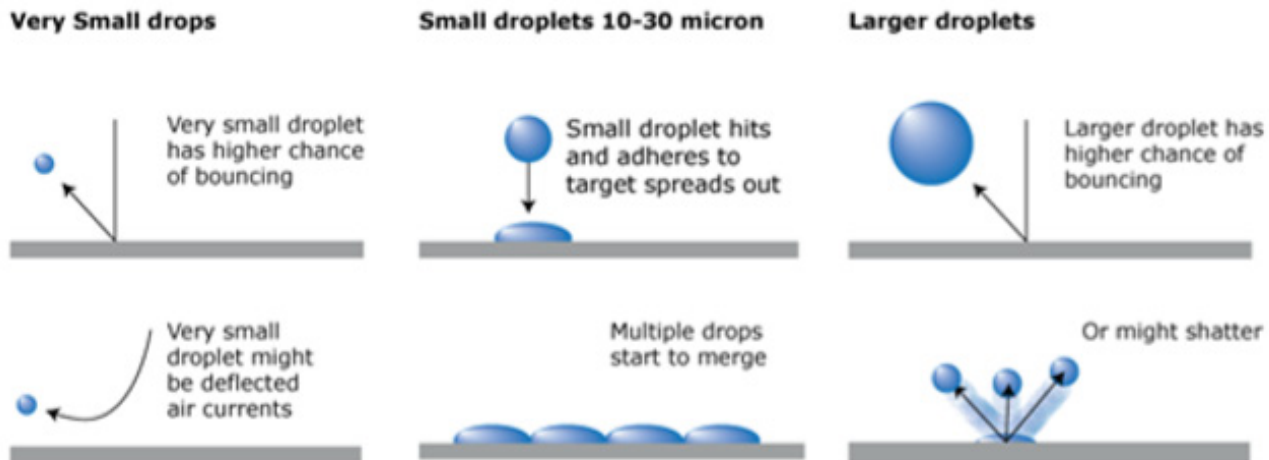
Droplet size plays an important role in both the treatment of both air spaces and the formation of microsurface coatings on surfaces.

Airspaces

In order to treat airborne virus the disinfectant must remain airborne long enough to come into contact with the pathogen. Large droplets will very rapidly fall out of the air and settle. Smaller droplets remain in the air for a much longer period of time. Very small droplets below about 10 microns in diameter will tend to remain airborne for a very long time as they will bounce from surfaces they come into contact with and not settle at all. This makes sub 10 micron, dry fogs highly suited to decontaminating air spaces of pathogens but, for obvious reasons, less suited for coating surfaces.

Surfaces

In order to treat surfaces the ideal scenario is to form a uniform coating on all areas. Obviously, a heavy spray will tend to coat anything it comes into contact with by soaking the entire surface but this is far from efficient and far from practical in many real world situations. Viruses generally only require a very small amount of disinfectant to kill them. The ideal coating scenario is to form a very thin micro layer of disinfectant on all surfaces. This is best achieved by finely atomised spray.



Droplet behaviour

- Droplets below 10 microns in size are unlikely to be optimal for disinfecting surfaces. They will be excellent for disinfecting air spaces and will remain airborne for hours. This may mean they are impractical for public space fumigation due to being an ongoing hazard to health.
- Droplets between 10 and 25 microns will settle out of the air fairly quickly but will still have good distribution around a room from a single point fogging system.
- Droplets above 25 microns are unlikely to be optimal for distribution from a single point fogger but would be suitable for mobile foggers that can be directed where needed.
- Droplets above 60 microns are likely to cause significant wetting and should be considered as a spray rather than a fog. They will be effective in disinfecting but will require more fluid in order to get a complete coating and will need to be applied locally by mobile sprayers. Research shows that this may offer additional benefits in mechanical action cleaning and penetrating biofilms especially when combined with wiping.

Equipment for Mobile Disinfecting

Manually operated sprayers

Backpack, compression and handheld sprayers will produce wet sprays. These will typically be above 100 micron average drop size and so are definitely sprays rather than fogs. The surfaces treated by these sprayers will become wet. They have the advantage of being cheap, versatile and fully mobile. They require no power source as pressure is obtained via the user pumping and pressurizing the tank manually.

Nebulisers

These wet foggers produce a fine mist which treats pathogens in the air and on surfaces. There are a number of different types of machine:

- Motorised Nebuliser

These produce a powerful, directed fog of finely atomised disinfectant over 12 meters vertically and 18 metres horizontally making them ideal for large premises or for outdoor use. They come with a variety of distribution nozzles for different flow rates.

- Electric Foggers/Nebulisers

These devices require an electric power supply so their mobility is restricted to areas where a power cable can be run. They will run off a household power supply so this means they can still be used in a wide variety of workplaces with the use of power extension cables.

- Compressed Air Foggers

Machines such as Disinfectant Fogging Guns use compressed air which makes them an ideal product for the disinfection of warehouses, factories and other workplaces that have an existing compressed air system. The fog produced by these guns is a wet fog which, depending on the model used, can be projected up to 8 metres.

PSP supplies the following cleaning and disinfecting products

Guarany Electric Disinfectant Fogger

Guarany's Electric Disinfectant Fogger is used across the world for disinfecting and disease control. Its easy-to-use, portable design makes it suitable for use in a range of facilities such as offices, clinics, waiting rooms, schools, gyms etc.



Features

- Variable flow rates
- Targets pathogens in air and on surfaces
- Light, easy to use
- Requires mains electricity
- Good for small-medium areas

Guarany Power Motorised backpack Nebuliser

A powerful motor driven nebuliser that can deliver a wide range of flow rates. The powerful Kawasaki engine can project a fine fog as much as 18 meters horizontally and 12 metres vertically making this an idea tool for the fogging and disinfecting of large warehouses, industrial units or outside areas.



Features

- Runs on two stroke petrol
- Adjustable flows between 0.2 and 2.5l/min
- Vertical reach 12 metres
- Horizontal reach 18 metres

Guarany Manual sprayers

Backpack and compression sprayers will produce wet sprays. The low flow rates and pressures from these units mean they are not really usable for rinse and wash-down (which requires large volumes of fluid) but they are ideal for the spraying of disinfectants and detergent chemicals to areas that may be hard to reach with more conventional wash down systems. **Also available in our bioplastic Katu range.**



20 litre Backpack Sprayer



Duck handheld 1 litre compression sprayer



7 litre Compression Sprayer

Features

- Cost effective
- No power needed
- Produce a low impact spray
- Range of models to suit different situations

Compressed Air Fogging guns

Lafferty Fogging Guns

Lafferty Fogging Guns use compressed air to entrain a low volume of fluid. Flow rates can be controlled by utilizing a number of plastic flow restrictors.



Features

- Produces a fog
- Variety of spray patterns
- Can achieve very small drop sizes
- Requires compressed air supply
- Used in small scale industrial facilities

Eva-mist air atomising fog gun

An advanced stainless steel air atomising nozzle that gives a consistent even dry fog. All that is required is a suitable compressed air supply.



Features

- Produces a dry mist
- Suitable for use on surfaces including on fabrics and electronics
- Requires compressed air supply

Table: Mobile Spraying Equipment Characteristics

	Backpack & compression sprayers	Air fog gun	Motorised Nebuliser	Electric fogger
Drop size	100 microns plus	20-30 microns	10-40 microns	29-63 microns
Spray reach	Poor 500mm max.	Average Up to 5 meters.	Excellent Up to 12 m vertically and 18 m horizontally	Good 8 m vertically 11 m horizontally
Coating quality	Average Patchy coating may require secondary wiping	Good Generally good coverage	Good But might be patchy with very low volume at extremes of range	Good
Wetting level	High The surfaces will experience wetting. With low volume nozzles this can dry quickly but a secondary drying process may be needed.	Low - Average With low flow rates there will be no significant wetting. Higher flows may cause slight dampness.	Low – Average With low flow rates there will be no significant wetting. Higher flows may cause slight dampness.	Low – Average With low flow rates there will be no significant wetting. Higher flows may cause slight dampness.
Complexity and cost of use	Very low Simple devices that require no power source.	Low No moving parts, no power source (other than the air line)	Average Quite heavy equipment. Requires some training. Motorised unit requires fuel and some maintenance.	Average Requires power supply. Requires some operator training.
Waiting time between re-entry by non PPE wearers	Very low The fluid settles out of the air within seconds.	Average – Long The damp fog will settle out within 30 minutes. Good ventilation will reduce the time.	Average The high distribution length will help disperse the fog but in enclosed area will take 30 minutes to settle	High May take over an hour to settle out completely. Good ventilation will help reduce this.
PPE required by operator	Basic Mask and protective clothing	Average Good quality activated carbon mask, eye protection and protective clothing.	Average Good quality activated carbon mask, eye protection and protective clothing.	High Good quality activated carbon mask, eye protection and protective clothing.
Recommended applications	Gyms, salons, floors, public transport, walls & other areas that can tolerate wetting.	Warehouses and industrial sites with a compressed air supply.	Outdoors areas large industrial units and warehouses.	Offices, public transport, any areas where wetting is a big concern and quick re-entry by the public is not required.

FACTORS TO CONSIDER WHEN SELECTING THE RIGHT EQUIPMENT FOR DISINFECTING

1. **Turnover of people**

Is the area busy? Do you have a lots of people traffic be they customers or staff? For example, a salon or treatment centre which has to get treatment table/couches or equipment clean between customers would have high turnover whereas an office with the same group of people working all day would be low turnover?

2. **Wetting hazard**

Are you able to leave areas to dry or could this cause slipping? If you are a high turnover business, you are likely to need facilities to dry as soon as possible.

3. **Size of area**

How big is the space you need to disinfect?

4. **Complexity of area**

Is the area relatively straightforward to clean or are there lots of equipment/obstacles/high touch areas? Does it get dusty/dirty frequently?

5. **Ventilation**

Do the premises have good ventilation. Is there good air movement? Good ventilation is essential for using equipment such as foggers/nebulisers.

6. **Availability of water**

Is a water source easily available and is it quick and easy to refill sprayers?

7. **Availability of power**

Is electricity available easily and can you reach all areas?

8. **Availability of air**

Are you already using compressed air in your business?

9. **Do you outsource your cleaning?**

Do you have a professional cleaning firm come in? How often? Are there times you will have to do your own cleaning / disinfecting e.g. of high touch areas?

10. **Manpower**

How many people do you have available to do cleaning (see also no 11. Budget/cost)?

11. **Budget / cost**

What is your budget for cleaning? How does this balance with the number of employees needed to clean and could you reduce the number of staff involved in cleaning if you had different equipment e.g. a backpack sprayer rather than a hand sprayer?

12. **Client / staff reassurance**

What levels of activity do you need to undertake to ensure employees and customers feel safe and reassured?

FAQS

1. Is cleaning necessary if you are spraying disinfectants?

Yes, cleaning should always be a first step in your sanitising operations. Cleaning uses soap or other detergents and water to remove stains, bacteria, dust etc from a surface. This removes material that might shield the virus and the virus itself. Disinfecting uses disinfectants to kill any remaining viruses or bacteria which may be on surfaces or in the air.

2. What is the difference between fogging and spraying disinfecting?

The basic difference is in the droplet size produced by the sprayer or fogger. Sprayers deliver larger droplets which will cause more 'wetting' while foggers produce a finer spray. Disinfecting operations, whether by spraying or fogging, should follow cleaning. It is not a substitute for cleaning.

3. What is fogging?

Disinfectant fogging is creating a fog or mist (basically a very, very fine spray) that can treat an area against pathogens e.g. viruses and bacteria or, say, vector-borne diseases.

4. Why do you recommend wet fogging?

Wet fogging machines deliver droplet sizes between 10-40 microns. The mists produced can hang in the air, treating airborne viruses, and can also settle on surfaces, killing viruses which may be there. As such, they represent a good balancing act. The fog dries quickly on surfaces. Dry foggers produce even finer droplets, sub 10 microns, that are designed to hang in the air. As such, they may not have the secondary function of treating surfaces. While they may reach every nook and cranny in the air, they require more stringent PPE and it will be longer before the area can be entered safely as breathing in these tiny droplets can be extremely dangerous to health.

5. What about electrostatic spraying?

Electrostatic sprayers create a strong positively charged spray. This electrically charged spray has the benefit of adhering better to any negatively charged surface it comes into contact with. It provides a very good coating and coverage of disinfectant on surfaces. However, many sprayers deployed for disinfection produce quite large droplets and so electrostatic charges will be ineffective. To combat this, air assisted or high pressure electrostatic sprayers may be used but these are often very expensive and bulky pieces of kit meaning they are impractical for most businesses and research hasn't yet proven they do a better job than other methods.

6. What disinfectants should i use?

For full details, consult user manual for each individual machine. Broadly speaking, our fogging machines can be used with commercial chemicals (ready to use) with permitted concentrations as follows: Hydrogen Peroxide 0.5%, and quaternary ammonium compounds 0.1% and 0.2% . Do NOT use alcohol based products with fogging machines as this presents an explosion risk. Always check product manufacturer details before using. Alcohol based products can be used with regular sprayers but check disinfectant product manufacturer details before use.

7. What PPE do i need for disinfecting?

This depends on what equipment you are using. See Table.

8. How long before it is safe to enter the premises after disinfecting?

This depends on what equipment you are using. See Table.



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ABOUT PSP

As our name would suggest, we are a specialist supplier of professional spraying equipment. We are part of the Spray People Group (SPG) which supplies spray nozzles and spray nozzle solutions. Our products are used in many different industries and by companies of all sizes. We as are comfortable dealing with large projects for blue chip food, beverage, chemical and petrochemical giants as well as dealing with start-ups or single person operations.



Key Suppliers

BETE[®]

Guarany

Lafferty
EQUIPMENT MANUFACTURING INC.

Dasic
group

Uni-Spray
Systems Inc.

We hold the exclusive distribution rights for the Guarany range of professional spraying equipment and supply the Lafferty Equipment range of compressed air foggers. To see the range visit www.prosprayers.co.uk

Through SNP, we distribute the BETE spray nozzle range, air atomisers and tank cleaning heads and have access to BETE's spray fabrications services, spray systems and advanced spray engineering solutions. Visit www.spray-nozzle to find out more.

We also supply Dasic tank cleaning heads and the Uni-Spray range of specialist injection-moulded plastic spray nozzles.

The Group

PSP is part of the Spray People Group which consists of business units focusing on specialist products and solutions.

SPG

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Spray nozzles and spray nozzle solutions

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