

Common Asked Questions

Ozone

What is Ozone?

Ozone is a gas that occurs both in the Earth's upper atmosphere and at ground level. Ozone occurs naturally in the Earth's upper atmosphere-10 to 30 miles above the Earth's surface where it shields us from the sun's harmful ultraviolet rays. It can occur near ground level which can be harmful at high levels to your health, but is also nature's way of controlling bacteria that is present in our environment. Ozone triatomic oxygen(O₃) is an unstable gas which decomposes to biatomic oxygen (O₂) at normal temperatures. As a disinfectant it ranks ahead of hydrogen peroxide, bleach, and iodine without leaving any residue or odor. It is a colorless gas at all concentrations and has an odor usually associated with thunder storms. This odor is generally detectable by the human nose at concentrations between .02 ppm and .05 ppm.

What are the occupational exposure limits?

OSHA (Occupational Safety and Health Administration) has set the limit at .1 ppm for regular exposure for up to 8 hours per day, and .3 ppm for 15 minutes at a time. There are numerous other organizations that set the exposure limits, but the OSHA limits are typically quoted in USA.

Why is ozone associated with smog levels?

Ozone levels in the environment can be measured. Typical ambient ozone levels will be around .015 ppm to .051 ppm in American cities. Ozone is formed naturally by the UV rays emitted from the sun in the upper atmosphere changing the oxygen we breathe O₂ to ozone O₃. Since ozone is heavier than air, it will move down into our lower atmosphere. It is our environment's way of producing ozone which keeps our bacteria levels balanced in nature. During this process, ozone is unstable and will revert back to O₂ and naturally begin to climb back to the upper atmosphere. Our industries and motor vehicles release pollutants such as nitrogen oxides and other chemical compounds that when exposed to the sunlight will convert it into ozone causing an imbalance of ozone levels in nature which we call smog. EPA has set the allowable level of ozone at .075 ppm before triggering a smog alert.

If Ozone is a natural substance and very effective as a disinfectant, why is high levels consider dangerous?

Ozone is a strong oxidizing agent and at high levels, can cause respiratory symptoms. Like many natural goods that are available to us, moderation can be beneficial and excess can cause us harm.

What are the concentration levels of ozone that electronic air cleaners put out?

The Federal Food, Drug and Cosmetic Act list .05 ppm maximum ozone concentration produced by electronic air cleaners and similar residential devices.

Are electronic air cleaners effective at controlling bacteria in my home or the school's locker room?

According to the EPA, ozone used at concentrations that do not exceed public health standards applied to indoor air does not effectively remove viruses, bacteria, mold, or other biological pollutants. Ozone concentrations would have to be 5 – 10 times higher than public health standards allow before the ozone could decontaminated the air sufficiently to prevent survival and regeneration of the organisms once the ozone is removed.

If electronic air cleaners are ineffective at controlling bacteria, why is the Sports-O-Zone unit effective?

The Sports-O-Zone unit is a controlled chamber, therefore a person is not exposed to the high limits of ozone present inside the chamber. The ozone concentration is more than 400 times the electronic air cleaner. It is a therapeutic level that is very effective at removing viruses, bacteria, mold, and other biological pollutants inside the chamber.

How do you know that the ozone level is below OSHA regulatory limits when the machine is opened?

Every Sports-O-Zone unit has smart technology. The ozone levels inside the chamber is being measured every 5 seconds. The magnetic lock on the chamber will not release until the ozone present inside the machine is below OSHA regulatory limits.

Why can't I use a disinfectant off the shelf to control viruses, bacteria, and mold on my athletic equipment?

Disinfectants are effective on nonporous surfaces like tables and hard surfaces. They are designed, if used properly, to kill many types of bacteria and viruses. You have to follow the labeling on the disinfectant to achieve the desired results. Many times disinfectants are not used properly. They are typically not designed for porous surfaces which the Sports-O-Zone system was designed for. Most athletic equipment is made of porous material.

Does ozone work the same as the disinfectants that you purchase?

Yes, except it is more effective at killing viruses, bacteria, and molds than the majority of the disinfectants for the following reasons:

First, ozone ranks above the majority of products offered on the market for its disinfecting properties.

Second, because it is a gas, the ozone can circle around the equipment and get into the crevices that most disinfectants will not reach. Any disinfectant has to come in contact with the bacteria to kill it.

Ozone can be used for on porous and non porous surfaces unlike most disinfectants. In fact the ozone gas will penetrate into porous material to disinfect, where most disinfectants will stay on the surface.

It does not leave a residue on the surface that can leach onto a person's skin after the disinfecting process is complete.

Lastly, the Sports-O-Zone system's smart technology controls the time and concentrations levels for effectively killing the viruses, bacteria, and mold on the surfaces that you are disinfecting.

Staph and MRSA

What are Staph and MRSA?

Staph is *Staphylococcus aureus* or a type of bacteria that can cause infections ranging from skin to severe blood infections. MRSA or Methicillin-resistant *Staphylococcus aureus* is a type of staph that is resistant to certain antibiotics. Staph and MRSA in the community usually cause skin infections that often first look like spider bites or bumps that are red, swollen, and painful. They might also be filled with pus. Cuts and scrapes and areas of the body that are covered by hair, like the back of your neck, groin, buttock, armpit, or inner thighs are common places where these skin infections appear. Both staph and MRSA skin infections are able to be treated.

How is Staph and MRSA spread?

Staph and MRSA infections are usually spread by having contact with someone's skin infection or personal items they have used, like towels, bandages, or razors that touched their infected skin. These infections are most likely to be spread in places where people are in close contact with others — for instance, schools and locker rooms where athletes might share razors or towels.

What is the role of the environment in the spread of staph and MRSA?

The role of environment in the spread of staph and MRSA in community settings is unclear. They are found on people and not naturally found in the environment. Staph and MRSA could get into the environment if your hands can pick up them by touching infected skin or certain areas of the body where these bacteria can live (like the nose). Then, if you touch a surface or item like a towel, your hands can pass the bacteria on to these items you have touched. Another way that items can be contaminated with staph and MRSA is if they have direct contact with a person's skin infection. Keeping skin infections covered with bandages is the best way to reduce the chance that surfaces will be contaminated with staph and MRSA.

What is the difference between Community Associated MRSA (CA-MRSA) and Healthcare Associated MRSA (HA-MRSA)?

HA-MRSA occurs most frequently among persons in hospitals and health care facilities and accounts for 1.7 million infections and 99,000 associated deaths each year. CA-MRSA are infections not acquired by people through hospitalization or medical procedures. Typically CA-MRSA infections manifest themselves as pimples or boils, and occur in otherwise healthy people. They mostly attack the skin and soft tissue.

One major difference between CA-MRSA and HA-MRSA is a toxin called Panton-Valentine Leukocidin (PVL clone). According to the CDC, 97% of the CA-MRSA are PVL-positive (also known as the USA300 clone). The PVL clone is not found in HA-MRSA strains. It is a toxin that attacks your infection-fighting white blood cells called leukocytes. This is why it is becoming more critical to treat CA-MRSA infection early.

If staph and MRSA gets onto a surface, will I get an infection?

Even if surfaces have staph and MRSA on them, this does not mean that you will definitely get an infection if you touch these surfaces. Staph and MRSA are most likely to cause problems when you have a cut or scrape that is not covered. That's why it's important to cover your cuts and open wounds with bandages. MRSA can also get into small openings in the skin, like the openings at hair follicles. The best defense is good hygiene. Keep your hands clean, use a barrier like clothing or towels between you and any surfaces you share with others (like gym equipment), and shower immediately after activities that involve direct skin contact with others. These are easy ways to decrease your risk of getting a staph or MRSA infection.

How long does staph and MRSA survive on surfaces?

As with other germs, staph and MRSA can survive on some surfaces for hours, days or even months, but it all depends on factors like temperature, humidity, the amount of germs present, and the type of surface (is it porous like a sponge or nonporous like plastic?). It also depends on whether these surfaces have nutrients to allow it to survive longer. When surfaces aren't cleaned and conditions are good for bacterial growth, staph and MRSA is more likely to survive for longer periods.

What can I do to keep surfaces free from staph and MRSA?

Cover your infections. Covering infections with bandages or dressings is the best way to keep surfaces from becoming contaminated with staph and MRSA.

Clean your hands often. Wash your hands often with soap and water or use an alcohol-based hand rub when a sink is not available. Always clean your hands after changing bandages or touching infected skin.

Keep the environment clean. Regularly clean frequently touched surfaces and other items that come into direct contact with infected skin.

In gyms, locker rooms, and other places where many people come and go, repair or throw out equipment and furniture with damaged surfaces cannot be thoroughly cleaned.

What surfaces should be the focus of my cleaning efforts?

Focus on surfaces that touch people's bare skin each day and any surfaces that could come into contact with uncovered infections. For example, surfaces such as benches in the weight room or locker room. Large surfaces such as floors and walls have not been directly involved in the spread of staph and MRSA.

There is no evidence that spraying or fogging rooms or surfaces with disinfectants will prevent staph and MRSA infections more effectively than the targeted approach of cleaning frequently touched surfaces and any surfaces that have been exposed to infections.

Cleaning and Disinfecting

What's the difference between cleaners, sanitizers, and disinfectants?

Cleaners or detergents are products that are used to remove soil, dirt, dust, organic matter, and germs (like bacteria, viruses, and fungi). Cleaners or detergents work by washing the surface to lift dirt and germs off surfaces so they can be rinsed away with water. The same thing happens when you wash your hands with soap and water or when you wash dishes. Rinsing is an important part of the cleaning process. Use these products for routine cleaning of surfaces.

Sanitizers are used to reduce germs from surfaces but not totally get rid of them. Sanitizers reduce the germs from surfaces to levels that considered safe.

Disinfectants are chemical products that destroy or inactivate germs and prevent them from growing. Disinfectants have no effect on dirt, soil, or dust. Disinfectants are regulated by the U.S. Environmental Protection Agency (EPA). You can use a disinfectant after cleaning for surfaces that have visible blood or drainage from infected skin.

Which disinfectants should I use against staph and MRSA?

Disinfectants effective against *Staphylococcus aureus* or staph are most likely also effective against MRSA. These products are readily available from grocery stores and other retail stores. Check the disinfectant product's label on the back of the container. Most, if not all, disinfectant manufacturers will provide a list of germs on their label that their product can destroy. Use disinfectants that are registered by the EPA (check for an EPA registration number on the product's label to confirm that it is registered).

Remember not all products kill all virus, bacteria, and molds. Just because a disinfectant states they kill 99.9% of bacteria does not mean they kill 99.9% of all bacteria. It means they kill 99.9% of the list of germs on their label.

How should cleaners and disinfectants be used?

Read the label first. Each cleaner and disinfectant has instructions on the label that tell you important facts:

- How to apply the product to a surface.
- How long you need to leave it on the surface to be effective (contact time).
- If the surface needs to be cleaned first and rinsed after using.
- If the disinfectant is safe for the surface.
- Whether the product requires dilution with water before use.
- Precautions you should take when applying the product such wearing gloves or aprons or making sure you have good ventilation during application.

What is “contact time,” and why is it important?

Contact time is the time needed for the disinfectant to inactivate or kill germs to the extent as indicated by the manufacturer. For example, if a disinfectant label says that the product will inactivate 99.99% of germs, and the contact time of 1 minute is in the instructions, this means that this disinfectant will inactivate or kill 99.99% of germs in 1 minute **if you follow the instructions**.

Most instructions will note that the disinfectant must remain wet on the precleaned surface being treated for the entire contact time in order to be most effective. Typical contact times are 10 minutes to kill Staph and MRSA.

My disinfectant says you can let dry on the surface, does the product work while it is dry?

Yes, but the level of bacteria may overwhelm the disinfectant, unless you previously followed the instruction label by keeping the surface wet for the entire contact time before letting it dry. That is why most people use disinfectants improperly, they wet the surface and walk away.

Do surfaces need cleaning before using a disinfectant?

It depends on the product, so **read the label first**. Soil, dirt, dust, and organic matter all can often interfere with the active ingredients of disinfectants. Removing dirt from a surface by cleaning the surface before using a disinfectant will make sure it is most effective. Follow the product label's instructions. Most products will use the words “precleaned surface” to point out that a surface should be cleaned before using the disinfectant.

What is a detergent/disinfectant, and how does it differ from a disinfectant?

In general, cleaners don't disinfect, and disinfectants don't clean. There are some products that include chemicals for both cleaning and disinfecting. Read the label instructions of these products carefully because there are often different directions for cleaning and disinfecting.

For example, before you use the detergent/disinfectant product to disinfect a surface, the surface should be cleaned. When using a detergent/disinfectant as a disinfectant, the product should remain wet on the surface for the indicated contact time.

Are there any health risks or hazards in using disinfectants?

Yes. Some disinfectants can be respiratory, eye and/or skin irritants. Read and follow the product label instructions. The product label is your guide to using disinfectants safely and effectively. It contains information that you should read and understand before you use the product. To [learn about reading product labels:](http://www.epa.gov/pesticides/label/) <http://www.epa.gov/pesticides/label/>

How do I know if the surfaces or equipment are properly cleaned?

Although in most situations you will not know if a surface has been cleaned, it's important to remember that most surfaces do not pose a risk of spreading staph and MRSA. If cleaning procedures are unknown, taking the appropriate precautions such as ? Using barriers like a towel or clothing between your skin and the surface.

- Showering immediately after activities where you have direct skin contact with people or shared surfaces such as after exercising at a health club.
- Cleaning your hands regularly.
- Keeping cuts and scrapes clean and covered with bandages or dressing until healed.

These precautions are especially important in settings such as in locker rooms, gyms, and health clubs.

How should shared equipment like sports gear be cleaned?

Shared equipment that comes into direct skin contact should be cleaned after each use and allowed to dry. Equipment, such as helmets and protective gear, should be cleaned according to the equipment manufacturers' instructions to make sure the cleaner will not harm the item.

Is it safe to use household chlorine bleach as a disinfectant?

In general, EPA-registered products are preferred for disinfection, but if these aren't available household chlorine bleach can be used. Chlorine bleach is a broad spectrum disinfectant that can inactivate or kill germs, including staph and MRSA. It should never be used at full strength for disinfecting. If you are using household chlorine bleach, read the label to see if the product has specific instructions for disinfection. Some bleach products are EPA-registered for this purpose. If no disinfection instructions exist, then use 1/4 cup of regular household bleach in 1 gallon of water (a 1:100 dilution equivalent to 500-615 parts per million [ppm] of available chlorine) to disinfect pre-cleaned surfaces. As with other cleaners and disinfectants, household chlorine bleach might damage some surfaces and items — for instance, some metals, plastics, and non-colorfast clothing.

Also be aware that household chlorine bleach, like other disinfectants, can be skin, eye, and respiratory irritants. Take appropriate precautions described on the product's label instructions to reduce this risk. You might need to wear protective gear such as gloves.

Never mix chlorine bleach with any other household or cleaning products. Doing so can result in different types of harmful acids and gases.

Can disinfectants be used to treat MRSA skin infections?

No. Disinfectants are registered by the EPA as pesticides and are not to be used on skin or other body parts.

Laundry

Will routine laundry processes, detergents, and laundry additives remove staph and MRSA from towels, clothes, linens, and uniforms?

Yes. Routine laundry procedures, detergents, and laundry additives will all help to make clothes, towels, and linens safe to wear or touch. If items have been contaminated by infectious material, these may be laundered separately, but this is not absolutely necessary.

What's the proper water temperature for laundry?

Read and follow the clothing and soap or detergent label instructions. Water temperatures for household laundry depend on the type of fiber or fabric of the clothing. In general, wash and dry in the warmest temperatures recommended on the clothing label. Also some modern laundry detergents are made to clean best at certain temperatures. Not following instructions could damage the clothing item or decrease the effectiveness of the detergent.

Is hot water washing and drying required for laundry?

No. Read and follow the clothing and soap or detergent label instructions. Wash and dry clothing in the warmest temperature listed on the clothing label. Hot water washing is not necessary for all household laundry.

Do we need to use bleach for each load of laundry?

No. Clean laundry produced by washing with detergent alone will be safe for wear and use. Use of bleach as a disinfectant in laundering is optional, and not all fabrics are suitable for bleach. Read the clothing label instructions.