

Environmental Considerations for Disinfection

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Disinfectant products can affect marine flora and fauna, so ensure that you properly use and dispose of them. Photo by Stephen Frink

Divers, dive operators and dive professionals must continue to practice good hygiene and disinfection of scuba equipment during the COVID-19 pandemic. With the significant increase in gear disinfection and more specific attention on effective disinfectants, many people wonder about the environmental impact of these products.

Disinfectant products kill microorganisms. When discharged into the environment, even in diluted form, they can continue to kill or cause harm until they break down. The following are a few important points to consider when planning environmentally friendly disinfection procedures:

- Check the safety data sheet (SDS) for the product you're using, and never discharge a disinfectant solution into the environment. The SDS includes information such as environmental and human toxicity, proper disposal and other important information.
- Thoroughly rinse disinfected scuba equipment with fresh water, and allow it to dry. Small amounts of disinfectant will be in your rinse water, so that also requires responsible disposal.
- Use only disinfectants registered with the U.S. Environmental Protection Agency (EPA) and that are effective against any specific or local microorganisms of concern. Look up the EPA registration in the Pesticide Product and Label System (iaspub.epa.gov/apex/pesticides/f?p=PPLS:1) to determine if you can use the product on scuba equipment, respirators or other breathing equipment.
- Ensure that you can manage the manufacturer's waste disposal requirements.

Green Seal's *Guidelines for Safer COVID-19 Cleaning and Disinfection* lists eight active ingredients that are safer for the environment than other chemicals and are suitable for scuba equipment if you strictly adhere to the dilution requirements (greenseal.org/disinfecting-guidelines).

Even if cleaning products are labeled as environmentally friendly, never dump them overboard or pour them onto the ground. Dispose of them as specified on the product's SDS.

For Divers

Sanitization — such as with soap, water and mechanical agitation — is likely sufficient for personal equipment, but occasional disinfection is never a bad idea. Soaking hard, nonporous equipment for one minute in a solution of one-third cup of bleach per gallon of cold water will kill most harmful microorganisms. Thoroughly rinse the equipment in fresh water, and allow it to dry completely.

Most of the sodium hypochlorite, the active ingredient in bleach, will react with organic matter and decompose when poured down the drain. If a bleach solution stands for 24 hours, the active ingredient will break down.

For Dive Operators

Always disinfect rental equipment between users. Most environmentally friendly disinfectants come as ready-to-use solutions, but some are concentrated solutions that need dilution. There will be variation in product availability depending on your location's specific environmental laws or regulations.

Unfriendly Ingredients

Quaternary ammonium compounds (quats) are the most common active ingredients in cleaning products. Many cleaners labeled as antimicrobial, antibacterial or all-purpose contain quats.

When properly disposed of, about 90 percent of quats are removed from wastewater before that water reenters the environment. Responsibly dispose of these chemicals (such as down a drain that will lead to a wastewater treatment plant), as they can negatively affect marine life, especially algae and microorganisms.

Bottom Line

Disinfecting scuba equipment that contacts the eyes, nose and mouth should be routine for all dive operators. Know the composition of the products you use, and be aware of the potential impacts of disposal. It is our responsibility as divers and dive operators to care for and preserve the aquatic environment. For more information, please contact DAN's Risk Mitigation department.

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