



Specialty Products Through Innovation
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Bleach as a Cleaner/Disinfectant

Bleach is one of the mostly recognized and commonly used compounds for disinfecting, sanitizing and cleaning. Bleach is easy to obtain, cost effective, and is widely accepted by many health departments and regulatory agencies. When used at the correct concentrations Bleach will kill a broad range of molds, mildews, bacteria and viruses on contact. It is absolutely the best material available for “bleaching,” that being whitening and removing stains from mops, fabrics, and porous mineral surfaces. It does, however, present considerations that can make it a second choice for many facilities maintenance applications.

Bleach is basically chlorine gas dissolved in water to form a solution. When bleach solution is exposed to air, being volatile, the chlorine gas which is the active ingredient evaporates out of solution. If the bleach solution is left uncovered such as in a mop bucket or bottles are left partially full, over time the chlorine evaporates out of solution, the concentration drops and can render the bleach ineffective against some organisms. Killing different organisms requires different concentrations of bleach. In order to implement an truly effective program using bleach, the organisms of concern need to be identified, information regarding the effective concentration of bleach obtained, and then a system for making up and testing the appropriate concentration of available bleach implemented. These procedures can be more involved than many facilities want to or can implement effectively. This can leave many facilities simply guessing whether their bleach solutions are getting the job done. Bleach solution is also not appropriate for use on some surfaces such as finished Vinyl Composition Tile where the bleach solution will degrade floor finishes used to maintain VCT. Also, over time, the corrosive properties of higher concentrations of bleach solution can, noticeably degrade the grout which supports ceramic tiles.

In addition to questions regarding effectiveness, bleach solution can present some personnel safety considerations. “Household” bleach is approximately a 3% concentration, but commercially available bleach comes in a range of concentrations up to a level where the bleach solution becomes a corrosive liquid. Bleach solution at higher concentrations must be handled with care to avoid potential eye, and skin damage. Another health consideration is that higher concentrations of bleach solution release enough chlorine gas into the air, particularly in enclosed areas, so that the chlorine gas can cause respiratory irritation in some people. Bleach solution is a poor cleaner with almost no soil suspension or emulsifying properties when used by itself. Consequently, there can be a temptation to mix the bleach solution into other cleaning products to improve its cleaning abilities. Depending on its concentration, chlorine solution can be quite reactive with a number of substances. Almost everyone is aware of the fatalities caused by mixing bleach solution with ammonia or products containing ammonia.

These concerns often make the use of quaternary disinfectant cleaners, a safer, more easily implemented choice for cleaning, disinfecting and sanitizing. By Federal Law, all disinfectant cleaners that make claims of killing microorganisms must be registered with the U.S. Environmental Protection Agency and specifically list what organisms are killed by the recommended dilution ratio of the product. Quaternary Disinfectant Cleaners come in a broad range of formulations from ready-to-use, to highly concentrated products for almost every conceivable application that will kill almost every know organism on both food contact and non-food contact surfaces. Most are formulated with various detergents to provide a range of cleaning abilities, in a variety of fragrances and can be dispensed through a broad range of proportioning systems. This makes it much simpler and more reliable to implement an effective program.