

RESPIRATOR CLEANING & SANITIZING PROCEDURES

Routinely used respirators should be collected, cleaned and disinfected as frequently as necessary to ensure that proper protection is provided. Emergency use respirators should be cleaned and disinfected after each use.

Respirator users maintaining their own respirators should be thoroughly briefed on cleaning and disinfecting them. Although these individuals may not be required to maintain their own respirators, briefing on the cleaning procedures will encourage their acceptance of a respirator by providing knowledge of what is a clean, disinfected, properly maintained device. This is particularly important where respirators are not individually assigned.

Where respirators are individually assigned (highly encouraged), they should be durably identified to ensure that the respirator user always receives the same one. Identification markers must not penetrate the facepiece, block the filter, cartridge parts or exhaust valves.

The following procedures are recommended for cleaning and sanitizing respirators unless specified differently by the manufacturer.

Respirator Disassembly

Used respirators should be collected and disassembled in a location where the filters, cartridges or canisters can be removed and discarded. Canisters should be damaged to prevent accidental reuse.

When necessary, remove the following components of the respirator-inlet covering assemblies before cleaning and sanitizing:

- a) Filter, cartridge, canisters;
- b) Speaking diaphragms;
- c) Demand and pressure demand valves assemblies; and
- d) Any components recommended by the respirator manufacturer

Cleaning & Sanitizing Procedures

The actual cleaning may be done in a variety of ways: hand wash, commercial dishwasher, or a standard domestic clothes washer (if a rack is installed around the agitator to hold the facepieces in fixed positions. If the facepieces are placed loose in the washing machine, the agitator may damage them). A standard domestic dishwasher may be used, but it is not preferred because it does not immerse the facepieces.

- a) Wash the respirator in warm water (110°F maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- b) Rinse respirator components in clean, warm water.
- c) Drain all water from the respirator components.
- d) Clean and sanitize all respirator components as recommended by the manufacturer.
- e) Hand-wipe respiratory-inlet covering assemblies, all parts, and all gaskets and surfaces with damp lint-free cloth as needed to remove all water residue and all foreign materials and let air dry.
- f) Inspect parts and replace any, which are defective.



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- g) Reassemble respirator components.
- h) Attach new filters, cartridges, and canisters to the respirator.
- i) Visually inspect and, where possible, test parts and respirator components for proper function.
- j) Place assembled respirators in appropriate containers for storage.

Ultrasonic cleaners and commercial dishwashers have been successfully used for cleaning and drying respirators. Exposure to temperatures above those recommended by the manufacturer is likely to damage the respirator. Cleaner sanitizers that effectively clean the respirator and contain a bactericidal agent are commercially available. The bactericidal agent frequently used in a quaternary ammonium compound.

Strong cleaning and sanitizing agents and many solvents can damage rubber or elastomeric respirator parts. These materials must be used with caution. Alternatively, respirators may be washed in detergent solution and then sanitized by immersion in sanitizing solutions. Some solutions, which have proven effective, are:

1. Hypochlorite solution (50 ppm Chlorine), two (2) minute immersion
2. Aqueous iodine solution (50 ppm Iodine), two (2) minute immersion
3. Quaternary ammonium solution (200 ppm of Quaternary Ammonium compounds in water with less than 500 ppm total hardness), two (2) minute immersion.

Different concentrations of quaternary ammonium salts may be required based on water hardness to develop a proper sanitizing solution. Inflammation of the user's skin may occur if the quaternary ammonium compounds are not completely rinsed from the respirator. The hypochlorite and iodine solutions are unstable and break down as time progresses; they may cause deterioration of rubber or elastic and may be corrosive to metallic parts. Immersion times should not be extended beyond the recommended time periods, and the sanitizers must be thoroughly rinsed from the respirator components.

Decontamination Procedures

Respirators may become contaminated with toxic materials. If the contamination is light, normal cleaning procedures should provide satisfactory decontaminations; otherwise, separate decontamination steps may be required before cleaning. Follow manufacturer's recommendations.

Rinsing Procedures

When cleaning and disinfecting respirators, they should be rinsed thoroughly in water (140oF maximum) to remove all traces of detergent and disinfectant. This is very important for preventing dermatitis.

Drying Procedures

Respirators may be allowed to dry in room air on a clean surface. They may also be hung from a horizontal wire, like drying clothes, but care must be taken not to damage or distort the facepieces. Another method is to equip a standard steel storage cabinet with an electric heater that has a built-in circulating fan, and to replace the solid steel shelves with steel mesh.



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Reassembly and Inspection

The clean, dry respirator facepieces should be reassembled and inspected in an area separate from the disassembly area to avoid contamination. During the inspection process special emphasis should be given to inspecting the respirators for detergent or soap residue left by inadequate rinsing. This appears most often under the seat of the exhalation valve and can cause valve leakage or sticking.

The respirator should be thoroughly inspected, and all defects corrected. New or retested cartridges and canisters should be installed, and the completely reassembled respirator should be tested for leaks.

For SCBA devices, the facepiece should be combined with the tested regulator and the fully charged cylinder, and an operational check performed.

