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Washing Respirators in Buckets or Sinks

First, determine the volume of each sink or bucket in gallons. How to do this is listed at the end.

Water temperature does not affect the cleaning performance of D-Lead® Respirator and Laundry Detergent or D-Bact™ Disinfectant so you can use cold or warm water. Please note: According to OSHA 1910.134, Appendix B-2, they state: "Wash components in warm (43 °C [110 °F] maximum) water…" and "Rinse components thoroughly in clean, warm (43 °C [110 °F] maximum) water…"

First remove the filters and any other parts that are not water washable. Filter cartridges can be cleaned quickly with D-Wipe® Towels, or alternately vacuum with a portable HEPA vacuum. To reduce the possibility of cross contamination, filters should be bagged separately from the cleaned mask for return to the user.

Your starting point for Respirator cleaning will be 1 oz of D-Lead® Respirator and Laundry Detergent (3235ES) per gallon of water (10 mL per liter). We suggest you mark the water level in the container and standardize it. It is expected that you can do a full shift with one fill, depending on how many respirators you have to do and how dirty they are on any given day. You may need to adjust the quantity of cleaner up or down and / or the number of dump-fill cycles per shift depending on the results. Respirators can also be scrubbed with a stiff (not wire) brush. Respirators also need to be rinsed after cleaning and prior to sanitizing. This is done with clean, preferably warm water.

Note: For extremely dirty respirators or if you are washing in very hard water, you may wish to use D-Lead Extra Strength Laundry Detergent (3236ES).

Our recommended procedure for testing respirator cleaning is to have a D-Lead® Test Kit on hand and periodically test a respirator. Pick one respirator after it is washed, sanitized, rinsed and dried, and test it. The D-Lead® Test Kit will give a visible yellow color on the test pad if 20 micrograms or more of lead is recovered from the mask. You will also want to test the respirator before drying if the dried respirator result is high.

1. Spray a test pad with solution 1.
2. Wipe the entire respirator inside and out.
3. Spray the test pad with solution 2. If any lead is present on the wipe, it will immediately turn yellow. The intensity of the yellow color is proportional to the amount of lead present.
4. The detection limit is 20 micrograms total lead. That is the minimum amount of lead present that the average person can see.
5. Use this as your pass / fail criteria for evaluating the respirator laundry performance and to see if you need to adjust the wash time, scrub effort or concentration of cleaner.

D-Lead® Test Kit Instruction Sheet (pdf) (link)

Sanitizing:

The D-Bact™ Disinfectant (7102ES) is an EPA registered sanitizer. Use 2 ounces per gallon of water (20 mL per liter). Follow the label directions and assure the respirator remains wetted with disinfectant solution for 10 minutes.

Fortunately, one fill will sanitize 12 to 24 hours worth of respirators. 24 hours is a true maximum batch usage time for the disinfectant. You use a log on the Sanitizing step to keep this straight between shifts. The respirators must remain wet for 10 minutes in order to sanitize, but they don't have to soak. So you can cut your fill level and Disinfectant usage by implementing a procedure of dunking so that every surface is completely wetted and then after 10 to a maximum of 15 minutes, rinse thoroughly with clean water, preferably warm water.

Respirator Drying:

Air drying can lead to dust settling on the respirators during the drying time and re-contaminate them. The best way to dry respirators is with filtered air. We frequently use a steel storage cabinet with wire mesh shelves and mount a small exhaust blower and air intake filters.

Really Dirty Respirators:

We have had success with this procedure. When a respirator comes to the laundry really dirty, it is bagged instead of washed. The operator is issued a new respirator the next day and the dirty mask is handed to their supervisor for discussion with the worker. When it comes back it is then washed and re-issued.

Determining Sink Volume:

For rectangular containers the volume is length x width x water depth in inches/1,728 = cubic feet.

For round containers the volume is 3.14 x radius x radius x depth / 1,728.

Cubic feet x 7.48 = gallons.