

Decontamination and reuse of masks when faced with a shortage of PPE

From Daniel Van Durme, MD, MPH

NOTE: From the CDC [guidance](#) on the Decontamination and Reuse of Filtering Facepiece Respirators. "Disposable filtering facepiece respirators (FFRs) are not approved for routine decontamination and reuse as standard of care. However, FFR decontamination and reuse may need to be considered as a crisis capacity strategy to ensure continued availability. . . CDC and NIOSH do not recommend that FFRs be decontaminated and then reused as standard care. This practice would be inconsistent with their approved use, but we understand in times of crisis, this option may need to be considered when FFR shortages exist. (furthermore) . . . given the uncertainties on the impact of decontamination on respirator performance, these FFRs should not be worn by HCPs when performing or present for an aerosol-generating procedure."

"Vaporous hydrogen peroxide, ultraviolet germicidal irradiation, and moist heat are the most promising decontamination methods."

Moist heat requires 15-30min of treatment at a minimum of 60°C (140°F) and 80% relative humidity.

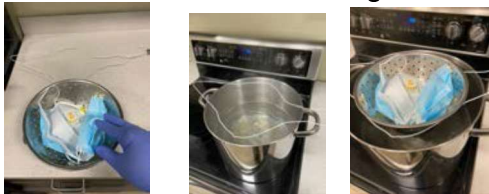
This method for achieving these parameters caused no apparent degradation after multiple cycles. It is imperative that the mask be carefully inspected after each cycle of decontamination with attention to the fit and seal, elastic straps and nose piece, and breathability.



1. Fill a large pot (8-12 quarts) with 4-8 quarts of water and bring to a vigorous or rolling boil.



2. Place masks in metal strainer (or colander) and suspend over the water in the pot. Masks should NOT come into contact with the water. (Wire coat hanger can work well to suspend the strainer.)
 - a. NOTE – handle masks with gloves – they may be infected with COVID-19



3. Place pot lid loosely over the strainer. Test temperature with meat thermometer to confirm that it is at least 60°C (140°F).



4. Keep over boiling water for 15-30min (be careful not to boil away all the water).
5. Remove strainer and masks and allow masks to air-dry (this took less than 30min).

References:

- 1) Bergman, M., et al., *Evaluation of Multiple (3-Cycle) Decontamination Processing for Filtering Facepiece Respirators*. Journal of Engineered Fibers and Fabrics, 2010. **5**(4): p. 33-41.
- 2) Bergman, M., et al., *Impact of Three Cycles of Decontamination Treatments on Filtering Facepiece Respirator Fit*. Journal of the International Society for Respiratory Protection, 2011. **28**(1): p. 48-59.
- 3) Heimbuch, B.K., et al., *A pandemic influenza preparedness study: use of energetic methods to decontaminate filtering facepiece respirators contaminated with H1N1 aerosols and droplets*. American Journal of Infection Control, 2011. **39**(1): p. e1-e9.
- 4) Viscusi, D.J., et al., *Impact of three biological decontamination methods on filtering facepiece respirator fit, odor, comfort, and donning ease*. Journal of Occupational and Environmental Hygiene, 2011. **8**(7): p. 426-36.