

# FIREDBYCORONA

## HCP USE OF HOMEMADE MASKS

In settings where facemasks are not available, HCP might use homemade masks (e.g., bandana, scarf) for care of patients with COVID-19 as a last resort. However, homemade masks are not considered PPE, since their capability to protect HCP is unknown. Caution should be exercised when considering this option. Homemade masks should ideally be used in combination with a face shield that covers the entire front (that extends to the chin or below) and sides of the face.

## MATERIALS NEEDED

1. 3d Printer with appropriate material (flexible and hard materials work)- the material just needs to be solid and as non-porous as possible.
2. HEPA filter material
3. Rubber Band
4. Polyvinyl Siloxane (must visit dentist for custom fit) or an equivalent material to seal the rim of the mask
5. Elastic Straps

**\*\*\*Remember, the mask is only as good as the filter material and the two seals (one around the filter material and one around the face.)**

## How to Instructions:

Use the link on our website [firedbycorona.com](http://firedbycorona.com) to download the framework. Using a 3D printer, print the framework with ring touching the build plate to eliminate the need for support arms. Make sure the material is non-porous and able to be soaked in alcohol or disinfectant.

Once the framework is printed and cleaned, you will need HEPA filter material. I found mine at a hardware store- a filter for a shop vac. HEPA material can be found in HVAC filters, vacuum bags, etc.. Make sure that it is HEPA material as it filters 99% of materials 0.3 microns or less. The next best thing would be merv 16 which would be a close equivalent to N95. I cut the filter and stretched out the material. Once the material was stretched out, I marked approximately 2 inches MORE in diameter than the hole of the mask (I used a Cavicide wipe bottle to mark outline). Then cut out material. Once the material is cut, place a rubber band around the neck of the framework (I doubled mine over)— this must form as tight a seal as possible- the mask is only as good as the seal.

Once the mask has the framework and filter in place, then you can start working on the seal of the face. As a dentist, I am familiar with PVS (polyvinyl siloxane) as we use it to “border mold” impression trays to create an accurate seal. First, paint a layer of VPS tray adhesive along the edge of the inner and outer seal. Then I used a mixing tip gun to place heavy body PVS along the rim and held to my face for 3-5 minutes. This will create a seal that will contour the face. I trimmed off excess using an X-acto knife—make sure that the material flows as smoothly as possible to the framework to prevent places for material to accumulate. I then went and added light body PVS along the edge—I do NOT think this step is necessary.

Once the border-molding is complete, you are ready to add a strap. Any elastomeric material will work. Originally, I removed one from an old mask that was laying around. Later, I bought materials from Joann crafts store.

Again, this is NOT FDA approved for use. However, in theory, this mask will filter more and smaller particle sizes than a standard N95 due to the filter medium being HEPA. The mask should be able to be disinfected regularly with alcohol or hydrogen peroxide and the filter should also be replaced regularly.

These masks are not NIOSH (National Institute of Occupational Health & Safety) approved.