

Goals and Aspirations

- 1.) The Mask Project is intended to recycle the used masks and make them as useful as possible. The number of masks of the N95 made by the U.S alone almost exceeds 1 billion. There has been news about marine life getting harmed because of the masks, and there seems to be a surplus amount of masks left and going in the trash. Luckily for us, the mask filter is made up of polypropylene, a type of plastic that can be recycled. Our mission is to collect all the disposable masks from the students and faculties and make furniture, gadgets, chairs, or even bracelets that we can use, or even donate to charity. It is perfect for this time, setting, as Woodberry Forest is a 100% boarding school, and for its convenience. The procedure of this project is somewhat simple, as all we're doing is melting the disposable masks with the heat gun, and molding them to form whatever we want. This is demonstrated through a video, where actually the inspiration came from. The link is: <https://www.youtube.com/watch?v=j4CZ4vIDwKE> We hope to accomplish this throughout the Winter Term and the Spring Term as soon as possible. We are also hoping to set up bins/boxes throughout the campus to collect masks from students and faculties to make this come true. Funding for items such as for the heat gun, bins, and mold may also be very helpful for this project.

Lab Safety Considerations and Supervision

- 2.) We're hoping to be able to work outside, or inside if possible
 - a.) The plastic used in common surgical masks is a "blown" polypropylene, which is currently one of the safest kinds of plastics around today
 - i.) Plastic in masks
[\(1\) Here](#)
 - ii.) Polypropylene "Plastics #5 Polypropylene (PP) is considered to be the safest of all plastics, this is a robust plastic that is heat resistant. Because of its high heat tolerance, Polypropylene is unlikely to leach even when exposed to warm or hot water. This plastic is approved for use with food and beverage storage. Polypropylene plastics can be reused safely and with hot beverages."
[\(1\) Here](#)
 - b.) We can wear goggles, gloves, and masks, although the need for such protective gear is almost overkill due to the overwhelming evidence in support of the safety of Polypropylene.

Precautions

- 3.) You will be working with used masks. What health and safety precautions will be in place to be sure not one is exposed to a pathogen and this work is all done with proper sanitation?
- a.) There was a recent empirical analysis done, to show the effects, and benefits of cleaning masks... we can follow their extremely simple instructions prior to the melting process...
 - b.) The abstract reads
 - i.) “Masks have become one of the most indispensable pieces of personal protective equipment and are important strategic products during the coronavirus disease 2019 (COVID-19) pandemic. Due to the huge mask demand–supply gap all over the world, the development of user-friendly technologies and methods is urgently needed to effectively extend the service time of masks. In this article, we report a very simple approach for the decontamination of masks for multiple reuse during the COVID-19 pandemic. Used masks were soaked in hot water at a temperature greater than 56 °C for 30 min, based on a recommended method to kill COVID-19 virus by the National Health Commission of the People’s Republic of China. The masks were then dried using an ordinary household hair dryer to recharge the masks with electrostatic charge to recover their filtration function (the so-called “hot water decontamination + charge regeneration” method). Three kinds of typical masks (disposable medical masks, surgical masks, and KN95-grade masks) were treated and tested. The filtration efficiencies of the regenerated masks were almost maintained and met the requirements of the respective standards. These findings should have important implications for the reuse of polypropylene masks during the COVID-19 pandemic. The performance evolution of masks during human wear was further studied, and a company (Zhejiang Runtu Co., Ltd.) applied this method to enable their workers to extend the use of masks. Mask use at the company was reduced from one mask per day per person to one mask every three days per person, and 122 500 masks were saved during the period from 20 February to 30 March 2020. Furthermore, a new method for detection of faulty masks based on the penetrant inspection of fluorescent nanoparticles was established, which may provide scientific guidance and technical methods for the future development of reusable masks, structural optimization, and the formulation of comprehensive performance evaluation standards.”

(1) HERE

Collections for Masks regarding Health

We will be collecting and accepting masks from the whole school, including the students, and faculty. The process will be done with a box or bin in each dorm and building. For the dorms, each bin will be located in the common rooms, or each floor. Each week, after collecting the masks, Reed and Gene will sanitize the boxes and bins.

MSDS Sheet:

https://www.acplasticsinc.com/techsheets/Polypropylene_MSDS.pdf