

Portland (Gresham) company on quest to make millions of N95 masks

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A Portland packaging design-and-manufacturing company believes it's close to producing desperately needed masks that meet N95 standards, and at a volume that could rival the largest U.S. manufacturers.

D6 Inc., which uses 3D printing technology at a large scale, is already making face shields. But as founder and CEO Ed Dominion put it, "the mask is the holy grail."

And what's crucial, a San Francisco neurologist working with the company said, is that the masks be certified by the CDC.

"There are a lot of people pitching in to make shields and masks, but what health care providers need is a solution that meets safety standards," Dr. Claire Clelland, a clinical fellow at the UC San Francisco Weill Institute for Neurosciences, said. "We will not go into production if we don't meet those standards."

The D6 mask has been dubbed the Halo N95, and one is on the way to an Ohio lab that does third-party testing of prototypes. If it passes muster there, it would go on to the CDC for official certification that it meets standards set by the National Institute for Occupational Safety and Health.

"I'm cautiously optimistic that we will pass this pending test," Clelland said. "But I'm very optimistic that if we don't, Ed and his team will keep quickly prototyping to get the solution."

D6 has grown from its founding in 2014 to a company now "poised to eclipse \$100 million in revenue," Dominion said, with rapid prototype turnaround and manufacturing that has a heavy recycled-materials component. Much of its work is in food packaging. It has a total workforce of about 800, around 80 in Portland. Regular production is continuing as it pursues the PPE project.

Halo N95 development has challenged the team, Dominion said.

"We've had failures, and it's been emotional," he said. "We're used to getting it right the first time, and there have been tears along the way."

Also, significant investment. One of the roadblocks to making N95 masks is the lack of availability of a key filtering material. Unable to find a reliable supply, D6 spent \$400,000, Dominion said, on an extruding line and process development to source its own.

D6 also designed the mask to use about one-fifth of that material compared to masks made by big manufacturers such as 3M, Dominion said. Much of the rest of the material comes from recycled water bottles.

Dominion figures the company has put \$600,000 into the project so far. Its goal is to sell wholly-made-in-the-U.S. masks at cost — \$3 or \$4 apiece to start, but less with scaling.

"We're leading with our hearts, not our business heads," he said.

D6 is looking for grants, and also hoping to get more orders — and payments — for face shields that it is making and selling. That will help with cash flow and in bringing on workers in preparation for N95 production. The company has already hired 10 to 15 extra people in Portland, and is eyeing a total of 40-75 new workers for initial Halo N95 production. Dominion figures mask-making could begin within six days of certification of the prototype.

He sees production starting around 25,000 a day, building to 10 times that within a week with the addition of a leased 150,000-square-foot facility. Ultimately, Dominion envisions up to 1,100 workers in Portland making the masks. Daily production could soar well into the millions with the addition of D6 facilities in Chicago, California and possibly Texas, he said.

3M, a leading manufacturer of N95 masks, said on Monday that it “expects to be producing N95 respirators at a rate of 50 million per month in June, a 40 percent increase from current levels.”

Staff at Oregon Health & Sciences University contributed to the Halo N95 project by testing the mask for fit and the feasibility of cleaning and reuse.

Kevin O'Brien, a Portland-based principal at the wine M&A firm Zepponi & Co. has also been key in the effort, Dominion said. A former college classmate of Clelland's at the University of Portland, he connected the San Francisco doctor and Dominion, and has helped in negotiating red tape along the way.