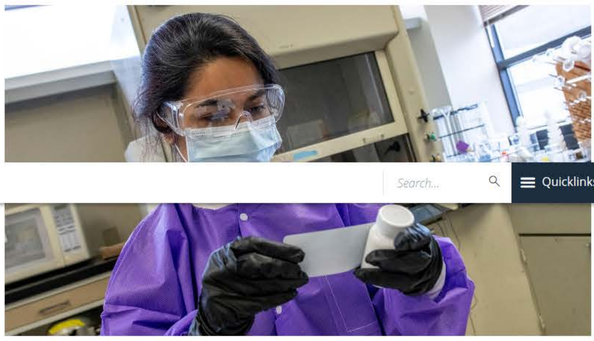
5-15-2020

COVID-19_UMaine News_N95 Mask Testing Materials

University of Maine Division of Marketing and Communications



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UMaine Today

State partnership overcomes urgent shortage of key N95 mask testing materials

May 15, 2020

The University of Maine has manufactured more than 2,200 bottles of testing solutions required to perform aerosol fit tests of N95 masks in accordance with the U.S. Occupational Safety and Health Administration protocols for testing Personal Protective Equipment. Maine public sector enforcement guidance requires that state and local government health care employers perform an initial qualitative fit test for employees using an N95 mask for respiratory protection.

University of Maine production of the solutions came at the request of the Maine Center for Disease Control and Prevention in response to a national shortage of fit-testing kits and test solutions. The initiative is part of an agreement between the University of Maine System and the Maine Emergency Management Agency to coordinate resources and efforts in support of the state's COVID-19 response.

The University of Maine System Office of Strategic Procurement was able to source the materials needed to produce denatonium benzoate solution, more commonly known as Bitrex and one of four chemicals that can be used to conduct a qualitative fit test. The UMaine Process Development Center, the same facility that has been producing hospital-grade hand sanitizer in response to the COVID-19 pandemic, produced the solution and made its first delivery to the Maine CDC earlier this month.

"We here at the Maine CDC cannot express enough gratitude to the University of Maine System team for their help during the state's time in need," says John Hernandez, medical countermeasures manager at the Maine CDC. "The testing solution is being deployed to the Maine National Guard fit testing teams, fire departments, and other agencies that are conducting fit testing.

"These testing teams are helping many agencies ensure that their staff are properly fit tested for the correct N95 size to help reduce the spread and transmission of COVID-19 among first responders and frontline health care workers," Hernandez says.

"At UMaine we are deploying the innovation and flexibility we have developed to support our industry partners to find solutions for Maine's COVID-19 challenges," said University of Maine and University of Machias President Joan Ferrini-Mundy. "On our campus and across our university system, we are proud of the ingenuity and selflessness of the faculty, staff and students who are contributing to Maine's pandemic response.

The Maine Department of Labor, Bureau of Labor Standards issued guidance on fit testing March 23 and provided links to tutorial videos. Follow these links to university images of masks and materials involved in fit testing and a member of the UMS safety management team demonstrating how a fit test is conducted.

Maine CDC Deployment of Solution and Maine National Guard Fit Testing Teams

The Maine CDC is currently deploying the testing solutions produced by the University of Maine to agencies and employers across the state to meet demand. The Maine National Guard has 24 soldiers and airmen from medical job specialities who have received N95 training provided by the Maine CDC. They typically work in four-person teams when conducting fit testing.

"Since we began fit-testing missions at the end of April, our Soldiers and Airmen have tested over 700 individuals, and we're prepared to continue that mission as needed," said Brig. Gen. Donald Lagace, Maine's deputy adjutant general. "The Maine National Guard is proud to be working alongside the Maine CDC, MEMA, the University of Maine System, the Department of Transportation and all interagency partners. As community members ourselves, we are glad to play a part in helping and protecting Mainers."

Follow this link to an April 30 Maine National Guard release on fit test training with images of soldiers and airmen receiving training from the Maine CDC. Agencies and providers seeking additional information about testing or access to testing materials should be in touch with their county emergency management office.

Background on Fit Testing and UMaine Production

UMaine produced the chemicals at Maine CDC's request in response to the national shortage of testing materials and the expanded need for respiratory protections in health care and other settings.

Fit testing, which tests the seal between the facepiece on a respirator mask and the wearer's face, is required by the U.S. Occupational Safety and Health Administration. The test must be conducted when a worker is first fitted for a respirator, such as an N95. The fit test ensures there is a tight seal to prevent contaminated air from leaking in around the facepiece.

UMaine has produced and delivered denatonium benzoate solution, more commonly known as Bitrex, one of four chemicals that can be used to conduct a qualitative fit test. In a qualitative fit test, the test subject is outfitted with a respirator mask of the same make, model, style and size that they would wear at work, and a hood is placed over the head. A chemical that the test subject could taste or smell, or that would cause irritation, is released into the hood. The test is pass/fail – if the subject can detect the chemical, the seal is not adequate.

The denatonium benzoate, which leaves a bitter taste in the mouth, is being blended at UMaine's Process Development Center in Jenness Hall on campus, the same facility in which the university has been producing hospital-grade hand sanitizer in response to the COVID-19 pandemic.

PDC is UMaine's commercial-scale pilot plant, established four decades ago to primarily support the pulp, paper and bioproducts sector with research, development, demonstration and commercialization services. The fit test chemical production is overseen by Seongkyung Park, analytical chemist at the facility, and staff chemist Nayereh Dadoo.

UMaine has made two deliveries of denatonium benzoate to Maine CDC this month. The PDC team is now turning its production to saccharin-based solution (sweet tasting) and with the assistance of the university's procurement team is in the process of securing the raw materials.

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