



MEDIA RELEASE

The National Food Lab and Allpax Upgrade a Retort Once Used to Develop Shelf-Stable Food for the Space Shuttle

The rejuvenated retort will produce thousands of servings of foods and beverages for R&D, consumer studies, and test marketing.

COVINGTON, La, and LAFAYETTE, Co., July 12, 2022 — In the mid-1990s, NASA worked with The National Food Lab (NFL) to make an old Truxton steam-air retort new again with the latest in control technology. The NFL's mission was to produce shelf-stable food pouches for astronauts traveling on the space shuttle. Now in 2022, staff at The National Food Lab's pilot plant in Lafayette, Colorado, along with partner Allpax, are engaged in a new mission – rejuvenating the same steam-air retort once again, except this time for continued use in processing R&D, large-scale consumer study, and test market samples.

Decades ago, when NASA wanted to use The NFL steam-air retort to determine the optimum balance between extended shelf life, excellent taste, and high nutrition for shelf-stable meals, there was a problem. The large-capacity retort, which was designed for pilot-level production, simply did not offer the flexibility, ease of use, precision, and data recording capabilities required.

NASA engineers designed and built a new control cabinet for the steam-air retort featuring the latest 1990's electronic and pneumatic components along with a computerized controller. The components were paired with a state-of-the-art operator interface – a screen with pushbutton controls. The team at The National Food Lab's pilot plant then used the refurbished retort to develop and produce shelf-stable meals such as beef tips with mushrooms, tomatoes and eggplant, and chicken à la king, among others for the astronauts.

“Following the successful NASA project, the updated retort continued to give The NFL pilot plant the essential capabilities for processing thousands of containers per shift of shelf-stable foods and beverages for product and process development, consumer evaluation, and test marketing,” said Terry Berman, Senior Technical Manager, Process Development, [The National Food Lab](#). “Over the years, it became increasingly difficult to find replacement components, and the cost of parts was astronomical. Only a few people on our staff had the expertise to operate the steam-air retort, which was not an efficient use of staff resources. More importantly, the control capabilities and flexibility, along with the process records, simply were not on par with today's industry standards.”



The relocation of the National Food Lab pilot plant from Livermore, Calif., to a 10,000 square-foot facility in Lafayette, Colo., was the opportune moment for a second rejuvenation – during plant startup. The upgraded steam-air retort features the latest in computerized control, new electric and pneumatic components, touchscreen interface, new wiring, and state-of-the-art software. Importantly the components are off-the-shelf devices and are readily available at market-based competitive prices.

“A key piece of thermo-processing equipment at the pilot lab is our Allpax 2402 all-in-one laboratory retort for static and rotational processing,” explained Adam Reichert, Process Engineer, The National Food Lab. “It made operational sense to give the steam-air retort the identical software. That would mean the same nationally recognized level of documentation for both retorts. Any staff member trained to use one would be able to operate both. It was also the most cost-effective and sustainable option as we would be reusing, not abandoning, a perfectly good pressure vessel.”

The new control panel was jointly designed by [Allpax](#), a leading retort and retort room automation company located in Covington, Louisiana, and National Food Lab. The control panel was built and installed by Allpax. The Allpax processing software, now on the steam-air retort, was designed by computer scientists who closely followed the instruction of thermal process authorities. The interface is feature-rich, intuitive to use, and meets or exceeds the requirements of 21 CFR Part 11. The software installed on the steam-air retort features:

- Multi-level security
- Advanced recipe editing
- Ball formula and table lookup method
- Detailed process batch reports
- Analog input trending reports
- Machine alarm reports
- Transaction reports showing operator actions
- SQL server database backend

“The Allpax control system allows us to simulate temperature gradients and zone temperatures to provide customers a pasteurization process similar to a tunnel pasteurizer,” said Berman. These capabilities are important due to the large volume of carbonated beverages we pilot at National Food Lab.”

For more information on The National Food Lab capabilities in development and piloting, visit www.thenfl.com. For information on Allpax, a ProMach brand, laboratory, and production retorts as well as the advantages of controls and other upgrades, visit www.allpax.com.



Photo Captions

Allpax-NFL data collection

The retrofitted steam-air retort's massive product basket holds cans that are being wired for data collection at the NFL Lafayette, Colorado, facility.

Allpax-NFL manual reading

NFL staffer Adam Reichert takes manual readings of temperature and pressure during a run in the Allpax multi-mode retort. The much larger retrofitted steam-air retort is to the left.

Allpax-NFL programming

The compact Allpax multi-mode unit is being programmed for a run at NFL in Colorado.

About The National Food Lab

The National Food Lab, a Eurofins Scientific company, is America's leading food and beverage product development consultancy, specializing in product formulation, pilot plant services, consumer insights and sensory science. Our mission is to provide tailored solutions that help food and beverage companies deliver safe, healthy, and successful products to their consumers. We seek to make a positive impact in the advancement of food safety, quality, and nutrition, all while fulfilling our promise – to improve health and improve lives. For more information, please visit www.thenfl.com.

About Allpax

Allpax, a product brand of ProMach, is a global leader in the design and fabrication of food sterilization (cookers/retorts/autoclaves), material handling automation equipment, and systems for the refrigerated foods and low acid, shelf-stable food, beverage, and pharmaceutical/nutraceutical industries. Learn more about Allpax at www.allpax.com.

About ProMach

ProMach is a family of best-in-class packaging solution brands serving manufacturers of all sizes and geographies in the food, beverage, pharmaceutical, personal care, and household and industrial goods industries. ProMach brands operate across the entire packaging spectrum: filling and capping, flexibles, pharma, product handling, labeling and coding, and end of line. ProMach also provides Performance Services, including integrated solutions, design/build, engineering services, and productivity software to optimize packaging line design and deliver maximum uptime.

ProMach designs, manufactures, integrates, and supports the most sophisticated and advanced packaging solutions in the global marketplace. Its diverse customer base, from Fortune 500 companies to smaller, privately held businesses worldwide, depends on reliable, flexible, technologically advanced equipment and integrated solutions. ProMach is headquartered near Cincinnati, Ohio, with manufacturing facilities and offices throughout the United States, Canada, Mexico, Brazil, Europe, United Arab Emirates, and China. For more information about ProMach, visit www.promachbuilt.com.

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