

# Video Clip: The cabin hygiene clean team

This is a special feature from *PAX Tech's* [July 2021 Cabin Hygiene, Seating & IFEC digital edition](#).

Hygiene is no less important in the cabin today as it was a year ago. Advancements in technology are making new processes possible, like the 3D printing of face shields and autonomous sanitization robots. High-quality products are becoming more accessible to the industry at large – but research findings revealed at the FTE APEX Virtual Expo suggest that passenger confidence in cleanliness of cabins still has a way to go.

## 3D dedicated

Throughout the pandemic, [Etihad Engineering](#) has been researching and developing COVID-19 solutions at its facility in Abu Dhabi, from social distancing and disinfecting products to protection kits and cargo equipment. With a dedicated 3D printing lab on site, Etihad Engineering can print solutions for testing immediately. The 3D-printed face shield for crew and passengers is reusable and lightweight, and can be customized with the airline logo. Two-hundred pieces are available to customers 10 days after signing order contract.



Etihad Engineering 3D printing lab at facility in Abu Dhabi

Other aircraft parts available to print include wall plug, seat cup holder, rubstrip and many more. 3D printing is up to 25 percent cheaper than paying market price for products, reduces lead time by more than 88 percent and can produce up to 150 aircraft parts in a single print. In 2020, Etihad Engineering 3D printed upwards of 10,000 aircraft parts. 3D printing reduces waste by using residual power for every print.

The company uses the latest design software used by OEMs such as [Boeing](#) and [Airbus](#), Ahmad Rajei, Vice President Design, Engineering and Innovation at Etihad Engineering tells *PAX Tech*. CATIA V5 “3D” imaging shows and simulates a complete design within the cabin. NATSTRAN/PATRAN is used to substantiate strength of installed items. The facility also houses a Flame Lab to test flammability and qualify the designed/installed items. This is to ensure designs meet regulations required by EASA and other local authorities for the customer and to manufacturer it to the expected Etihad standard.

Etihad Engineering has other COVID-19 solutions available, including social distancing partitions and curtains, disinfecting products, protection kits and cargo equipment.

“Yes, there are vaccines, but the solutions should still be on the table because they will encourage passengers to fly,” says Rajei. “We don’t see that the pandemic is disappearing soon. With these innovations, passengers will view the cabin in a way that builds confidence.”

And for crew disinfection, airlines can convert lavatories to decontamination chambers with Etihad’s hydrogen peroxide atomization (fog) unit. Implementation depends on LOPA and operations acceptance, but takes only five days from signing the contract. It offers onboard crew disinfection convenience, is a lightweight solution and can be refilled and recharged on the ground.

## Proficient partnership

Florida-based aircraft cleaning product supplier [Mirandy](#) has partnered with Avgroup Inc to continue expanding its customer base. Avgroup provides a variety of products and services to the global aviation industry, as well as avionics support and 24/7 AOG support, thus helping Mirandy reach a more complete clientele.



Gel hand sanitizer from Mirandy Products

In light of the pandemic, Mirandy expanded its product range of lavatory, interiors, exteriors and airport runway products to include [disinfectants, hands soap and hand sanitizers](#).

Demand for these products hit its peak last year when customers stocked up, Lindsey Mendelson, President of Mirandy, tells *PAX Tech*. “While it has declined, I don’t think that demand will ever go away because the world changed in the past year. People have a new sense and appreciation for cleanliness and hygiene. I think our minds will always have this filter over it from COVID.”



5-gallon Mirabowl Q from Mirandy Products

Among its most popular products is Mirabowl Q, a lavatory deodorant, cleaner and disinfectant. With quaternary disinfectant, it has fungicidal, bactericidal and virucidal capabilities. Mirabowl Q has low toxicity and effectively kills microbes and pathogens within a variety of pH ranges. It controls odor up to 15 hours, removes scale from tank walls, keeps flush rings clear, burnishes toilet bowls and splash pans, lubricates o-rings and keeps sludge from pump filters.

### **Ray of hope**

Self-proclaimed “aviation geeks and enthusiasts” at [aero hygenx inc.](#), in Ottawa, Canada, introduced [RAY](#), an autonomous UV-C disinfecting robot, [last summer](#).



RAY autonomous UV-C disinfecting robot from aero hygenx

“I have witnessed how deeply and negatively COVID-19 has impacted our beloved aviation and transportation industries. I have seen friends, colleagues and family members furloughed and laid-off and can empathize with how lives have been upturned and affected during these difficult times,” Arash Mahin, CEO at aero hygenx, tells *PAX Tech*. “Witnessing and experiencing this catastrophic wave led to the creation of RAY.”

RAY disinfects 99.9 percent of surfaces using UV-C light with proven success against MERS-CoV, SARS-CoV1, Ebola, and CoV2 (COVID-19). UV-C has been used for decades in disinfecting food, air and water by 'killing microorganisms and destroying the cell nucleic acid. Strategically designed for the transportation industry, RAY does not use chemicals and provides consistent results. The robot takes less than seven minutes to disinfect a narrow-body cabin such as a 737 or A320 and can easily be transported. Being autonomous eliminates the risk of exposure to crew, staff and passengers. RAY also streams and provides relevant data to the operator via its digital platform hygenxStream to help

mitigate travel risks.

Customers such as [Calm Air](#) are using RAY between flights to reduce the transmissibility of pathogens and keep passengers, staff and crew safe.

“RAY is strategically designed for the transportation industry; however, this technology holds the potential for many other broad applications,” says Mahin.

“Aero hygenx believes the focus on transportation hygiene is not only necessary but essential. We continue to diligently work on sustainable disinfection technologies that help to prevent the devastating emotional, psychological, and economic impact of future pandemics,” he says.

The company plans to continue building its digital platform hygenxStream, providing data and insight to operators geared toward mitigating travel risks beyond the current pandemic.