

RAF's first synthetic fuel drone flight

Under Project Vermeer, the Royal Air Force has enhanced their ground-breaking work in using sustainable aviation fuel by successfully flying a four-meter drone with synthetic fuel.

Synthetic kerosene is entirely fossil fuel-free, made by mixing raw materials with high sugar levels, such as food waste, with bacteria to create an oil substance that is then converted into aviation fuel using chemicals and heat.

As the process does not require large-scale infrastructure, synthetic kerosene can be made anywhere, making it an attractive option for military deployments around the world.

The breakthrough signifies the RAF's commitment to creating a more sustainable future as it can be used across all platforms from remotely piloted air systems to fighter jets, with a significantly reduced carbon footprint compared to traditional fossil-based fuels.

Defence Procurement Minister Jeremy Quin said:

"This is an exciting moment for the RAF and British industry as they continue to develop pioneering solutions to help address climate change. These new approaches will maintain our world-class fighting forces whilst reducing our carbon footprint."

Air Vice Marshal Lincoln Taylor said:

"The RAF needs to ensure that we are at the forefront of technology to safeguard our own resilience and operational capability, whilst minimising our damage to the environment. Fuel scarcity and cost will only ever increase in its impact on our operations and synthetic fuels for our aircraft are one potential solution to this situation as we look to secure the objectives of the next generation RAF of tomorrow."

Working with British company C3 Biotechnologies Ltd and the US Navy, the initial trial created 15 litres of fuel in laboratory conditions. Following successful engine testing, the fixed-wing drone completed a 20-minute test flight in Wiltshire, providing valuable data that indicates the fuel performs consistently to a high standard.

Chief of US Naval Research Rear Adm Lorin C. Selby said:

"It is exciting and game-changing to work with our allies in the UK to develop a more efficient synthetic aviation fuel.

"The U.S. Navy is committed to finding innovative solutions to operational challenges, and the ability to manufacture this fuel without large

infrastructure requirements would be ground-breaking for deployed forces.”

The RAF and partners are continuing with the next phase of the project, with work underway to refine the process and develop deployable manufacturing facilities.

This is the second big win for the RAF as they secured a Guinness World Record four months ago with a [successful flight on synthetic fuel](#).

Project Vermeer began in summer 2021 and demonstrates the RAF’s commitment to investing in emerging technology, as highlighted in the Integrated Review and Defence Command Paper.