



EMIRATES OPERATED A380 DEMONSTRATION FLIGHT WITH 100% SUSTAINABLE AVIATION FUEL

News / Airlines



Emirates became world first airline to operate an A380 demonstration flight using 100% Sustainable Aviation Fuel. The flight took off from Dubai International Airport with one of four engines powered on 100% SAF, helping demonstrate its potential as a drop-in replacement that matches jet fuel's technical and chemical requirements, while being a more sustainable alternative. SAF can reduce carbon emissions by up to 85% over the fuel's life cycle when compared to conventional jet fuel. Demonstration flights like the one conducted today pave the way for future standardisation, qualification and adoption for 100% SAF flying, as governments adopt broader strategies to support the production and scale up of SAF.

The A380 demonstration flight underlines the performance and compatibility of SAF, making it a safe and reliable fuel source, and contributes to the growing body of research carried out by the industry to evaluate the beneficial effects of 100% SAF on aircraft performance. SAF is currently capped at a 50% blend limit in engines for commercial flights. The Emirates A380 demonstration flight comes as the aviation industry, international organisations, regulatory bodies and high-level officials driving policy-related decisions converge in Dubai for the Third International Civil Aviation

Organization (ICAO) Conference on Aviation and Alternative Fuels (CAAF/3). Dedicated collaborators from Airbus, Engine Alliance, Pratt & Whitney, Neste, Virent and ENOC have been working on the testing, technical assessments and data analysis for today's flight.

The 100% drop-in SAF used on today's flight includes renewable aromatics and closely mimics the characteristics of conventional jet fuel. This is the first time that drop-in SAF has been used on an A380 aircraft, with the expectation of full compatibility across the aircraft's existing systems. The flight carried four tonnes of SAF, comprised of HEFA-SPK provided by Neste (hydro processed esters and fatty acids synthetic paraffinic kerosene) and HDO-SAK from Virent (hydro deoxygenated synthetic aromatic kerosene). ENOC helped to secure the neat SAF comprised of HEFA-SPK, and blended it with Sustainable Aviation Kerosene (SAK) at its facility in Dubai International Airport ahead of the demonstration, and also carried out into-plane services.

The 100% SAF was used in one Engine Alliance GP7200 engine, while conventional jet fuel was used in the other three engines. The PW980 auxiliary power unit (APU) from Pratt & Whitney Canada also ran on 100% SAF. Last week, robust engine testing for one A380 Engine Alliance GP7200 engine using 100% SAF was carried out, with the objective of validating the engine's capability to run on the specially blended 100% drop-in SAF without affecting its performance or requiring any modifications. Ground engine testing took place at the state-of-the-art Emirates Engineering Centre in Dubai.

Adel Al Redha, Chief Operating Officer, Emirates Airline commented: "Emirates is the first passenger airline in the world to operate an A380 with 100% drop-in SAF powering one of four Engine Alliance GP7200 engines. This is another proud moment for Emirates and our partners, as we put words into action with the research into and the trialling of higher concentrations of SAF to eventually lead to industry adoption of 100% SAF flying. This marks another significant step in validating the use of SAF in one of the engines of the A380, a wide-body aircraft with four engines. The growing global demand for lower-emission jet fuel alternatives is there, and the work of producers and suppliers to commercialise SAF and make it available will be critical in the coming years to help Emirates and the wider industry advance our path to lower carbon emissions."

Julie Kitcher, Airbus Executive Vice President Communications and Corporate Affairs stated: “Seeing Emirates flying an A380, the world's largest airliner, powered by an engine running on 100% Sustainable Aviation Fuels is a symbolic moment. These fuels are the most effective way to address CO2 emissions in the aviation industry today and that they are supported increasingly by the world's leading airlines. SAF is vital to meeting the sector's target of net-zero emissions in 2050, but needs the backing of the whole industry. At Airbus, we are working to make all our aircraft 100% SAF-capable by 2030. We're also working with partners to grow the global SAF market in the coming years. Airbus's purpose as a company is to pioneer sustainable aerospace for a safe and united world. Through our partnership with Emirates, we're matching ambition with action.”

Amy Johnston, president of Engine Alliance, a 50-50 joint company between GE Aerospace and Pratt & Whitney, said: “Engine Alliance and Emirates have a strong relationship that dates back 15 years to the A380 entry into service. We are proud to power Emirates' latest SAF demonstration flight – and share a commitment to more sustainable aviation looking forward.”

Aziz Koleilat, Vice President of Global Sales and Marketing for the Middle East, Eastern Europe, and Turkey at GE Aerospace, commented: “Innovation and collaboration are the keys to reaching net zero carbon emissions by 2050 as this 100% SAF demonstration flight shows. GE Aerospace congratulates Emirates on this major achievement, and we are proud to be powering industry efforts toward a more sustainable future. All GE Aerospace and Engine Alliance engines can operate on approved SAF blends today and through extensive research and testing, GE Aerospace is helping lead the approval and adoption of 100% SAF in the aviation industry.”

“Increasing the use of SAF is critical to achieving the goal of net-zero carbon emissions for aviation, and we are dedicated to ensuring all of Pratt & Whitney's engines and APUs are compatible with current and future SAF specifications, up to 100%,” said Pratt & Whitney Chief Sustainability Officer Graham Webb. “This in-flight demonstration on an Emirates A380 continues to build momentum towards establishing future standards for 100% SAF, which will help maximize

the potential lifecycle emissions reduction for all commercial aircraft flying in the decades ahead.”

"Sustainable Aviation Fuel plays a crucial role in reducing the emissions of air travel, but to fully leverage its decarbonisation potential we need to enable 100% SAF use. Test flights like this Emirates A380-flight using Neste's SAF are an important step towards 100% SAF certification and we applaud Emirates for its efforts to help pave the way forward. Neste is working closely together with partners to accelerate the availability and use of SAF and we look forward to growing the supply of SAF also to Dubai," said Jonathan Wood, Vice President Commercial Management and Business Development from the Renewable Aviation business at Neste.

"Virent congratulates Emirates Airline on another successful demonstration flight using 100% sustainable aviation fuel featuring Virent's cleaner-burning BioForm SAK", said Virent President and General Counsel Dave Kettner. "With Virent's plant-based fuels technology, this test flight showed that 100% renewable fuel can meet current specifications and work flawlessly in today's commercial airline engines. It's critical that a consortium of companies, like this group, come together to bring sustainable aviation fuel into more widespread use. Virent will continue to collaborate with future-focused companies, and through this collaboration we can continue to reduce emissions and power a more fuel-efficient airline industry."

His Excellency Saif Humaid al Falasi, Group CEO, ENOC, said: "At ENOC, we recognize the importance of working collaboratively with strategic partners and industry experts to realise a more sustainable future for all. We are pleased to have contributed to fueling Emirates' first 100% sustainable aviation fuel demonstration flight on an Airbus A380, which brings us a step closer to decarbonising the UAE's aviation sector and transforming it into a regional hub for low carbon aviation fuels. We remain committed to supporting the UAE's efforts in the aviation sector to ensure continued sustainable growth."

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