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Neste enables Emirates to operate world's first Airbus A380 demonstration flight with one engine powered with 100% SAF

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Photo: Emirates A380 taking off on 100% SAF. Source: Emirates

Emirates, one of the world's largest international airlines, has become the first airline to operate an Airbus A380 demonstration flight with one of the aircraft's four engines powered with Neste's sustainable aviation fuel (SAF). Emirates' flight demonstrates the potential of SAF as a more sustainable drop-in replacement for fossil-based jet fuel, matching its technical and chemical requirements. SAF can currently be used in up to 50% blends with conventional fossil jet fuel.

The A380 demonstration flight took off on 22 November from Dubai International Airport and is the result of close cooperation between Neste, Emirates, Airbus, Engine Alliance, Pratt & Whitney and Virent, with ENOC supporting the delivery of Neste's SAF. The flight underlines the performance and compatibility of SAF as a safe and reliable fuel and contributes to the growing body of research carried out by the industry to study the beneficial effects of 100% SAF usage on aircraft emissions and performance.

The 100% SAF used on today's flight also includes renewable aromatic content. The fuel's characteristics are similar to conventional jet fuel, making it a so-called "drop-in" fuel, requiring no modifications to the aircraft or its engines before use. This is the first time that 100% drop-in SAF is used on an A380 aircraft, with the expectation of full compatibility across the aircraft's existing systems.

Neste provided its Neste MY Sustainable Aviation Fuel™ (HEFA-SPK*), to which the aromatic component from Virent** was added by ENOC to produce a 100% renewable jet fuel that meets a jet fuel requirements. 100% SAF made from renewable raw materials then powered one Engine Alliance GP7200 engine in the aircraft, while conventional fossil jet fuel was used in the

other three engines. The PW980 auxiliary power unit (APU) from Pratt & Whitney Canada, providing power to aircraft systems when engines are not running, also ran on 100% SAF.

“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,” said Adel Al Redha, Chief Operating Officer, Emirates Airline.

"Sustainable aviation fuel plays a crucial role in reducing the emissions of air travel, but to fully leverage its decarbonization potential, we need to enable the use of 100% SAF. 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 into Dubai," said Jonathan Wood, Vice President Commercial Management and Business Development from the Renewable Aviation business at Neste.

The demonstration flight using Neste's SAF follows the recent expansion of the partnership between Emirates and Neste for the supply of over 9,000 tons (3 million gallons) of blended Neste MY Sustainable Aviation Fuel™ over the course of 2024 and 2025 for Emirates' flights departing from Amsterdam Schiphol and Singapore Changi airports.

Sustainable Aviation Fuel

Sustainable aviation fuel is a renewable aviation fuel providing a more sustainable alternative to conventional, fossil-based jet fuel. Using Neste MY Sustainable Aviation Fuel™ reduces greenhouse gas emissions by up to 80%*** over the fuel's life cycle, compared to using conventional jet fuel. Neste's SAF is made from sustainably sourced, 100% renewable waste and residue raw materials, such as used cooking oil and animal fat waste. SAF is blended with conventional jet fuel before use and works seamlessly with existing aircraft engines and fueling infrastructure.

**) HEFA-SPK: Hydroprocessed Esters and Fatty Acids - Synthetic Paraffinic Kerosene; one of the seven approved pathways for the production of SAF and currently the only commercially viable production pathway and the pathway Neste uses to produce SAF.*

****) Virent supplied HDO-SAK: Hydro Deoxygenated Synthetic Aromatic Kerosene. SAK produced by Virent is made from plant-based feedstocks. It provides the aromatics in the fuel necessary in order to ensure the proper swelling of the elastomeric seals in the fuel systems and prevent leakage.*

****) When used in neat form (i.e. unblended) and calculated with established life cycle assessment (LCA) methodologies, such as CORSIA methodology*

Further information:

Neste: Please contact Neste's media service, tel. +358 800 94025 / media@neste.com (weekdays from 8.30 a.m. to 4.00 p.m. EET). Please subscribe to Neste's releases at <https://www.neste.com/for-media/releases-and-news/subscribe>.

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Neste in brief

Neste (NESTE, Nasdaq Helsinki) creates solutions for combating climate change and accelerating a shift to a circular economy. The company refines waste, residues and innovative raw materials into renewable fuels and sustainable feedstock for plastics and other materials.

As the world's leading producer of sustainable aviation fuel and renewable diesel and a forerunner in developing renewable and circular feedstock solutions for polymers and chemicals, Neste helps its customers to reduce their greenhouse gas emissions by at least 20 million tons annually by 2030.

The company's ambition is to make the Porvoo oil refinery in Finland the most sustainable refinery in Europe by 2030. Neste is committed to reaching carbon-neutral production by 2035, and will reduce the carbon emission intensity of sold products by 50% by 2040. Neste has also set high standards for biodiversity, human rights and the supply chain. The company has consistently been included in the Dow Jones Sustainability Indices and the Global 100 list of the world's most sustainable companies. In 2022, Neste's revenue stood at EUR 25.7 billion. Read more: [neste.com](https://www.neste.com)

About Emirates

The Emirates story started in 1985 when we launched operations with just two aircraft. Today, we fly the world's biggest fleets of Airbus A380s and Boeing 777s, offering our customers the comforts of the latest and most efficient wide-body aircraft in the skies. We inspire travelers around the world with our growing network of worldwide destinations, industry leading inflight entertainment, regionally inspired cuisine, and world-class service. <https://www.emirates.com/>

Attachments:

 [Photo: Emirates A380 Taking Off on 100 SAF 20231122 - Photo courtesy of Emirates](#)

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