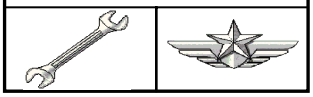
No. 3764-I-28

# Information Notice

**SUBJECT: FUEL**

## Use of alternative Sustainable Aviation Fuel (SAF)

**For the attention of**



| AIRCRAFT CONCERNED | Version(s) | |
|---|---|---|
| | Civil | Military |
| EC120 | B | |
| AS350 | B, BA, BB, B1, B2, B3, D | L1 |
| AS550 | | A2, C2, C3, U2 |
| AS355 | E, F, F1, F2, N, NP | |
| AS555 | | AF, AN, SN, UF, UN, AP |
| EC130 | B4, T2 | |
| SA365 / AS365 | C1, C2, C3, N, N1, N2, N3 | F, Fs, Fi, K, K2 |
| AS565 | | MA, MB, SA, SB, UB, MBe |
| SA366 | | GA |
| EC155 | B, B1 | |
| SA330 | J | Ba, L, Sm |
| SA341 | G | B, C, D, E, F, H |
| SA342 | J | L, L1, M, M1, Ma |
| ALOUETTE II | 313B, 3130, 318B, 318C, 3180 | |
| ALOUETTE III | 316B, 316C, 3160, 319B | |
| LAMA | 315B | |
| EC225 | LP | |
| EC725 | | AP |
| AS332 | C, C1, L, L1, L2 | B, B1, F1, M, M1 |
| AS532 | | A2, U2, AC, AL, SC, UE, UL |
| EC175 | B | |
| H160 | B | |
| EC339 | | KUH/Surion |
| BO105 | C (C23, CB, CB-4, CB-5), D (DB, DBS, DB-4, DBS-4, DBS-5), S (CS, CBS, CBS-4, CBS-5), LS A-3 | E-4 |
| MBB-BK117 | A-1, A-3, A-4, B-1, B-2, C-1, C-2, C-2e, D-2, D-2m, D-3, D-3m | D-2m, D-3m |
| EC135 | T1, T2, T2+, T3, P1, P2, P2+, P3, EC635 T1, EC635 T2+, EC635 T3, EC635 P2+, EC635 P3, T3H, P3H, EC635 T3H, EC635 P3H | |

# No. 3764-I-28

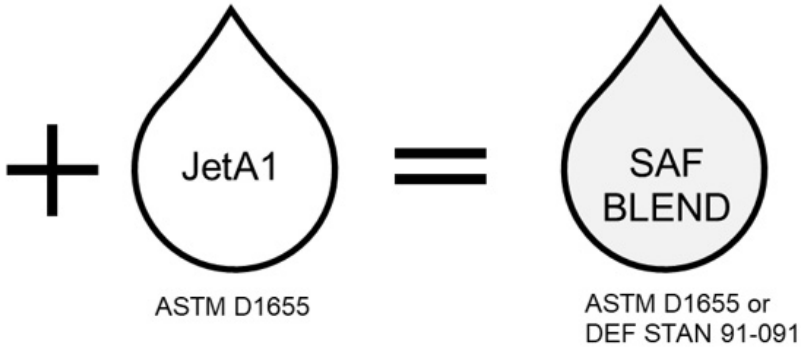
Airbus Helicopters has recently received several questions about the alternative fuel known as SAF (Sustainable Aviation Fuel), its use and the associated regulations.

With this Information Notice, Airbus Helicopters would like to provide a basic insight into the use of alternative fuels.

If you have any further questions, please get in touch with your usual Airbus Helicopters contacts.

Summarized explanation diagram:

| ASTM D7566 approved pathways | | Blend limit |
|---|---|---|
| FT | Fischer-Tropsh Synthesized Paraffinic Kerosene (FT-SPK) | 50% |
| HEFA | Hydroprocessed Esters and Fatty Acids (HEFA-SPK) | 50% |
| SIP | Hydroprocessed Fermented Sugars Synthesized isoparaffins (HFS-SIP) | 10% |
| FT-A | FT SPK with Aromatics (FT-SPK/A) | 50% |
| ATJ | Alcohol to Jet Synthesized Paraffinic Kerosene(ATJ-SPK) isobutanol and Ethanol | 50% |
| CHJ | Catalytic hydrothermolysis jet fuel (CHJ), a type of synthetic kerosene | 50% |
| HHC | HHC-SPK: similar to HEFA but utilizes biological derived hydrocarbons from algae | 10% |




# SUSTAINABLE AVIATION FUELS (SAF)
# AIRBUS HELICOPTERS STATUS

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# SUSTAINABLE AVIATION FUELS
# Airbus Helicopters view and status

Sustainable Aviation Fuels (SAF) are kerosene fuels obtained from **non-fossil sources**, and compliant with **sustainability** criteria (Land use change, competition with food industry,…)

SAF are currently still the primary solution to decarbonize aviation. SAF can also reduce some non-CO2 emissions such as Sulphur Dioxide and Particulates, and improve Air Quality at and around airports, and in cities, where helicopters are often operated.

Several blends of SAF and conventional fuel are already certified against JET A/A-1 specification (up to 50% blending ratio). Certification of SAF blends is done through an ASTM process.

The certified blends meet the ASTM D 1655 specification and their physical properties are similar to fossil JET A or JET A-1. Therefore, they can be used without any modification of the aircraft system, and do not bring any limitations . Hence the name “**drop-in fuels**”.

The use of SAF at higher concentrations (from 50 to 100%), that allow to further reduce the emissions, is under study by oil and aircraft industries, and not certified at the moment.

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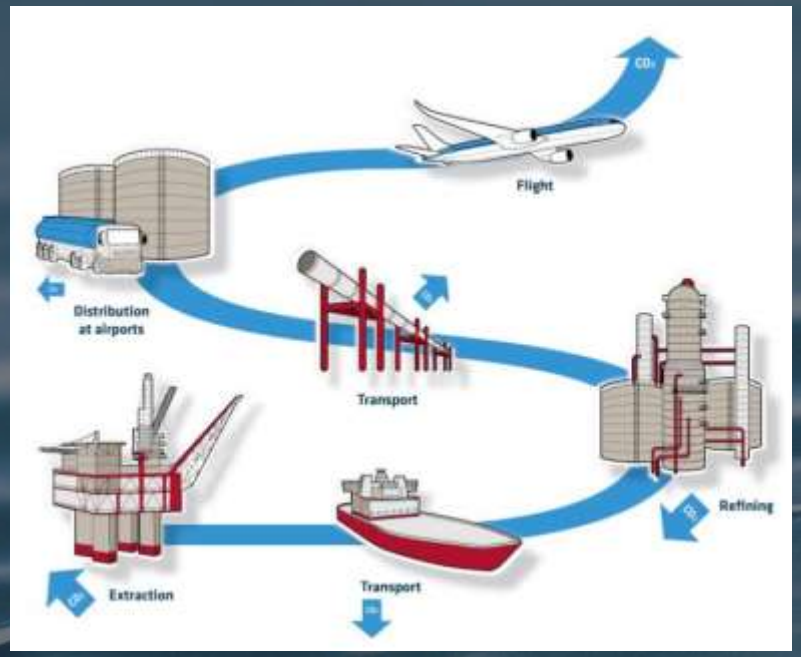
# SAF Principle

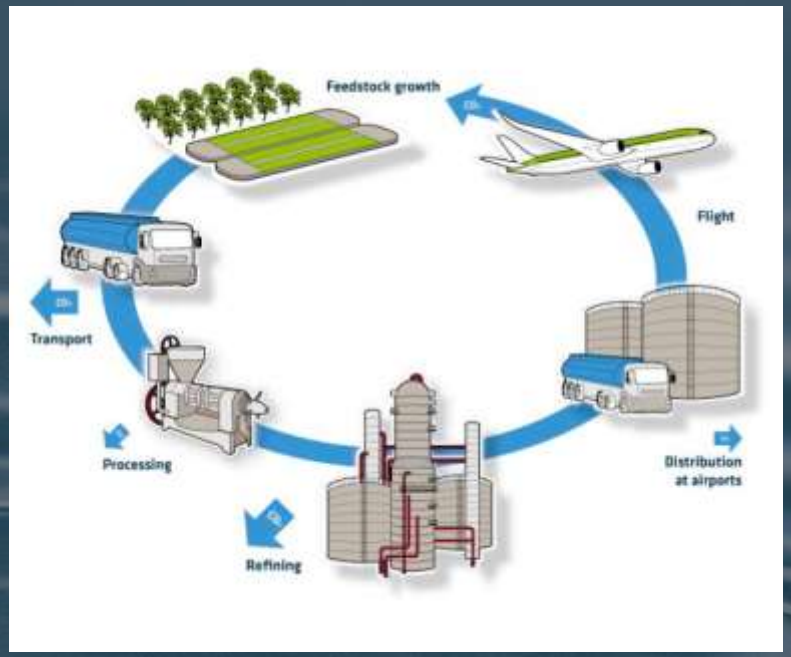
*Pictures : Source ATAG*

## Lifecycle of conventional fuel




At each stage in the distribution chain, carbon dioxide is emitted through energy use by extraction, transport, etc.

## Lifecycle of SAF




Carbon dioxide resulting from the combustion will be reabsorbed as the next generation of feedstock is grown.

Todays sustainable fuels are mainly produced from used cooking oil, municipal waste, or vegetal residues. The Power to Liquid (PtL) is a promising pathway for the future (still very expensive at the moment)

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# The challenges of SAF

The use of SAF in aviation can strongly contribute to the emissions reduction at the following conditions:

- The **SAF production** must increase : the SAF production represents today less than 1% of the global jet fuel production. Strong investments and efforts from oil industry and governments will be necessary to increase SAF production capacity in the next years and decades.
- The produced SAF must meet sustainability criteria, defined and monitored by the RSB (Roundtable on Sustainable Biomaterials). Examples of criteria : local food security, Human and labour rights, land rights, water and soil conservation, air quality… Provided that strict sustainability standards and criteria are met, ALL sustainable aviation fuel pathways and feedstocks need to be supported and further developed. This includes sustainable biofuels, advanced biofuels and in the future “e-fuels”.
- The aeronautic industry shall promote and **clears the use of SAF** on its products

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# What to do if you want to fly with SAF

All Airbus helicopters are approved for use with JET A or JET A-1 : they are consequently automatically **compatible** with the synthetic fuels blends listed in appendix of ASTM D 1655.

Due the drop-in principle, SAF may be already included in the fuel provided by the fuel station. However, quantity of SAF at the moment being very low, you should contact you fuel provider if you want to fly SAF intentionally.

Due to the low production rate and increasing demand, the cost of SAF at the moment is significantly more expensive than conventional fuel.

If you plan do to so, feel free to contact AH for any further information and support. Airbus is interested in gaining feed-back and in-service experience with SAF.

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# Related documents

- FAA Aviation Safety, Special Airwiorthiness Information Bulletin, NE-11-56R4, dated June 26, 2020, “Engine Fuel and Control - Semi-Synthetic Jet Fuel”
- EASA “ Sustainable Aviation Fuel ‘Facilitation Initiative ”
- ICAO “Sustainable Aviation Fuel Guide”, version 2, Dec 2018


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