European Union Aviation Safety Agency

Safety Information Bulletin

Airworthiness / Operations / Aerodromes

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Subject: **Aviation Turbine Fuel – Use of Jet A Grade Fuel in a Jet A-1 Environment**

Ref. Publications:

- Regulation (EU) 2018/1139, dated 04 July 2018.
- Commission Regulation (EU) 965/2012, dated 05 October 2012.
  Commission Regulation (EU) 1321/2014, dated 26 November 2014.
- Commission Regulation (EU) No 139/2014, dated 12 February 2014.
- Commission Regulation (EU) No 748/2012, dated 03 August 2012.
- ASTM International ASTM D1655-25A, dated 17 December 2025.
- United Kingdom Ministry of Defence, Defence Standard (Def Stan) 91-091 Issue 18, dated 28 December 2024.
- JIG Aviation Fuel Quality Requirements For Jointly Operated Systems (AFQRJOS) Issue 36B, dated 07 May 2026
- Energy Institute / Joint Inspection Group (JIG) EI/JIG 1530 Standard, dated May 2019.
- Joint Inspection Group JIG 1, dated September 2021.
- Joint Inspection Group JIG 2, dated September 2021.
- Joint Inspection Group JIG 4, dated September 2021.

Applicability:

Aviation fuel suppliers and producers, organisations involved in storing and dispensing of aviation fuel at aerodromes, National Competent Authorities (NCAs), aircraft operators, aerodrome operators, Design Approval Holders (DAH).

This SIB is addressing a transitory situation and provides recommendations and guidance. It shall not be interpreted as an authorisation or endorsement, nor shall it be construed to promote the transition towards turbine jet fuel of Jet A grade in Europe. Before the start of the winter season this SIB will either be revised to provide updated recommendations and guidance or cancelled depending on the evolution of events.

Description:

Due to recent events in the global aviation fuel supply chains, availability of aviation turbine jet fuel of Jet A-1 fuel grade (hereafter referred to as “Jet A-1” in this SIB) on certain markets might be constrained. Aviation and fuel supply stakeholders are reviewing the feasibility of introducing aviation turbine jet fuel of Jet A grade (hereafter referred to as “Jet A” in this SIB) at locations traditionally supplied with Jet A-1. In Europe and many other parts of the world (as example

Africa, Australia, India, South East Asia) Jet A-1 is predominantly used, typically supplied in accordance with Def Stan 91-091 and ASTM D1655, often harmonised through the Jet A-1 Aviation Fuel Quality Requirements For Jointly Operated Systems (Jet A and Jet A-1 AFQRJOS) checklist requirements.

The introduction of ASTM D1655 Jet A into a system historically operating on Def Stan Jet A-1 may introduce operational, airworthiness and human factor risks, particularly when both grades are accepted for use. These risks relate to:

- Differences in fuel properties (in particular reduced freezing point margins of Jet A compared to Jet A-1 and lower electrical conductivity);
- Air operators change management for the transition from Jet A-1 to Jet A operations;
- Fuel handling controls for aerodromes and ground handling organisations;
- Aerodrome change management, in particular communication between ground handling organisations and air operators to prevent incorrect fuel grade information being provided to, or assumed by, air operators.
- Differences between Def Stan 91-091 and ASTM D1655 quality assurance frameworks, including product integrity management, certification, traceability, and Sustainable Aviation Fuel (SAF) blending provisions

The introduction of ASTM D1655 Jet A into a Def Stan 91-091 Jet A-1 environment requires coordination among fuel suppliers, infrastructure operators, and airports. To ensure consistency, fragmented and site-specific agreements should be avoided.

Applicable requirements

Jet A and Jet A-1 are aviation turbine fuel grades defined under internationally recognised specifications: ASTM D1655 for Jet A and Jet A-1 and Def Stan 91-091 solely for Jet A-1. The fuel specifications and grades permitted for use on an aircraft/engine are established through aircraft/engine type certification and documented in the Type Certificate Data Sheet and Aircraft Flight Manual (AFM). For many aircraft, type certification permits the use of both Jet A and Jet A-1, subject to manufacturer documentation and operator procedures. In most jurisdictions, regulators do not mandate the exclusive use of Jet A-1; rather, they require the use of an approved fuel and appropriate communication to flight crews of the fuel grade used.

It is the responsibility of the aircraft operator to ensure that the fuel used for its operation is in accordance with the specifications and limitations listed in the AFM (Regulation 965/2012, Annex IV, CAT.OP.MPA.175, (b) (7)).

In accordance with ADR.OPS.B.055 on fuel quality and related AMC/GM of Regulation (EU) 139/2014, aerodrome operators should verify that the organisations involved in storing and dispensing of fuel to aircraft have procedures ensuring the provision of uncontaminated fuel with the correct specifications, by taking fuel samples at appropriate stages during the storing and dispensing of fuel to aircraft and marking installations and equipment in a manner appropriate to the grade of the fuel.

It is the responsibility of the supply chain to ensure for specification compliance by maintaining fuel quality and cleanliness at each stage of the supply chain in accordance with recognised

industry standards (for example, JIG standards and EI/JIG 1530). Fuel is typically supplied in accordance with Def Stan 91-091 and ASTM D1655, often harmonised through the Jet A-1 AFQRJOS requirements, before delivery into airport fuelling systems.

Safety considerations

Jet A is used daily for flights from and within the USA and Canada. A potential introduction of Jet A in Europe or in other parts of the world would not generate safety concerns provided that its introduction is properly managed. The transition to Jet A in a Jet A-1 environment, when not properly managed, creates risk of fuel grade confusion, particularly in the communication between fuel suppliers, flight crews, and airlines. This may lead to a mismatch between the actual fuel properties and the assumptions used for flight planning, fuel temperature monitoring, and crew procedures. Consequences may include reduced freezing point margins, delayed or inappropriate crew response to low fuel temperature conditions, and potential engine performance degradation or fuel system restrictions. For example, the incorrect electronic transmission of a Jet A-1 ticket when Jet A has been delivered could result in an aircraft flying outside of its safe operating limits. These risks may be further exacerbated by inconsistent fuel grade availability across airports, increasing the likelihood of mixing fuel grade and associated assumption mismatches.

Fuel handling systems and procedures in Europe are generally based on the assumption that Jet A-1 has a minimum level of fuel electrical conductivity at the point of delivery to the aircraft, which is typically achieved through the addition of Static Dissipator Additive (SDA) where needed throughout the supply chain. The introduction of Jet A without SDA could result in lower electrical conductivity which may create a mismatch with these assumptions. Although North America operates without a defined minimum conductivity limit, it cannot be assumed that European infrastructure has been fully risk-assessed for this change, as it has been designed for fuels with specific conductivity characteristics. In particular, it is not clear to what extent existing European infrastructure, procedures, and electrostatic hazard controls across the supply chain would remain fully effective for low conductivity fuels.

From a human factors perspective, the wrong assumption that “jet fuel grades are interchangeable”, in combination with insufficient training on fuel grade differences, may lead to incorrect assumptions and inappropriate flight crew operational decisions. In addition, in operational conditions, fuel grade information may not always be sufficiently visible or clearly identified, which may contribute to incorrect assumptions.

Furthermore, fuel scarcity or uptake limits at certain airports, compounded with airspace restrictions calling for longer routes, may induce additional operational complexity and limitations, leading to potential impact on route planning, selection of alternates and fuel contingency margins and increased stress on flight crew.

This SIB is published to raise awareness of the risks associated with the introduction of Jet A fuel in a Jet A-1 environment, in particular potential mismatches between fuel properties and existing operational, technical, and procedural assumptions.

At this time, the safety concern described in this SIB is not considered to be an unsafe condition that would warrant Airworthiness Directive (AD) action under Commission Regulation (EU) 748/2012, Part 21.A.3B, nor the issuance of a Safety Directive under Commission Regulation (EU) 965/2012, Annex II, ARO.GEN.135 or Regulation (EU) 139/2014, Annex II, ADR.AR.A.040.

Recommendation(s):

EASA recommends for **all affected stakeholders** that:

- To minimise potential disturbances to established quality assurance processes in Europe, Jet A is continued to be handled in alignment with Def Stan 91-091 requirements, except for the following parameters:
  - Freezing point: maximum −40 °C (ASTM D1655 Jet A)
  - Total acidity: maximum 0.10 mg KOH/g (ASTM D1655)

  No other deviations from Def Stan 91-091 requirements are accepted. In particular, electrical conductivity should remain within the range of 50–600 pS/m, and there is the expectation for traceability of fuel batches.
- AFQRJOS Checklist (Issue 36B) is used, which includes the parameters mentioned above in order to support harmonised fuel quality control and handling practices at airports, and across the supply chain. Fuel certification remains based on ASTM D1655 or Def Stan 91-091. AFQRJOS acts as a harmonised operational overlay and is not a certification standard.
- Where the AFQRJOS checklist is not applied, equivalent fuel quality control and handling procedures are demonstrated, including evidence that key safety-relevant parameters are controlled to an equivalent level.
- In commingled systems, fuel is used in accordance with the most limiting specification; where applicable, this may result in the fuel being designated and handled as Jet A. Any changes are kept as simple as possible, limiting the impact on existing procedures, and avoiding unnecessary complexity that could increase operational risk.
- For the safe introduction of Jet A into a commingled system, all stakeholders connected to that system are consulted.
- Training and operational support material is updated to address fuel-grade differences, mixed-grade conditions, and the limitations of assuming that “jet fuel is jet fuel”.

EASA recommends **Fuel supplier and producers** to**:**

- Use the Jet A AFQRJOS checklist to ensure harmonised fuel quality control and handling across the supply chain; it aligns with the Jet A-1 checklist, except for the following parameters: freezing point (−40 °C) and total acidity (maximum 0.10 mg KOH/g). Electrical conductivity remains within 50–600pS/m and all other requirements remain equivalent to maintain existing quality assurance processes.
- Ensure that primary fuel grade markings critical to fuel quality assurance and, where applicable, grade segregation, are correctly aligned to the grade being supplied.
- Apply a structured management of change process, proportionate to the local infrastructure and operational arrangements, when introducing Jet A into supply chains that are traditionally used for Jet A-1.
- Ensure that all documentation across the fuel supply chain clearly identifies Jet A grade fuel and is consistently communicated and traceable throughout the supply chain.
- Ensure that Jet A fuel is dosed with Static Dissipator Additive (SDA) in accordance with AFQRJOS checklist requirements to achieve and maintain the required electrical

conductivity limits (Note: this may be added at the main import terminal if not added at point of manufacture. See EI/JIG 1530).

EASA recommends **Aerodrome operators** to:

- Manage the transition of fuel grades by clearly defining responsibilities for coordination, communication, and change management across all involved organisations.
- Ensure that measures are in place to identify that the minimum electrical conductivity requirements are being met.
- Ensure that fuel grade markings are adjusted to the grade being supplied, in particular at the point of refuelling to ensure correct identification by flight crews.
- Verify that organisations involved in storing and dispensing of fuel have procedures that ensure that, in case of mixing of Jet A with Jet A-1, fuel is designated and handled as Jet A.
- Ensure that the actual Jet fuel grade is published via the Aeronautical Information Publication (AIP) or NOTAM; and, in case of mixing, to declare Jet A grade in the AIP or NOTAM.
- Require fuel suppliers to inform the aerodrome when it is planned to switch from Jet A-1 to Jet A fuel.
- Only permit the switch when fully satisfied that all the fuel suppliers on the aerodrome have introduced appropriate grade markings and delivery information as detailed below.
- Inform the NCA when the aerodrome has switched operations from Jet A-1 to Jet A.

EASA recommends **Organisations involved in storing and dispensing of aviation fuel** to:

- Apply a structured management of change process, proportionate to the local infrastructure and operational arrangements, when introducing Jet A into supply chains that are traditionally used for Jet A-1.
- In case of Jet A usage, adjust the fuel delivery tickets to aircraft operator from Jet A-1 to Jet A.
- Ensure that fuel delivery confirmation, either by paper or electronic means, correctly states the jet fuel grade being supplied.
- Ensure that the supplied Jet-A complies with minimum electrical conductivity requirements.
- Train relevant personnel on the differences between Jet A and Jet A-1, change-of-grade procedures, correct fuel grade identification and documentation, electric conductivity controls, and communication with aircraft operators and aerodrome operators.
- Ensure all above conditions are met and have received aerodrome agreement before implementing change of grade procedures.

EASA recommends **Aircraft operators** to:

- Ensure, through their contractual arrangements with the fuel suppliers, that those suppliers have introduced the necessary fuel quality adjustments when delivering Jet A.
- Ensure that all flight crew and personnel assigned to, or directly involved in, ground and flight operations are properly informed of the actual fuel grade in use, using established mechanisms (as example, flight documentation and NOTAMs, where applicable) and that this information is presented in a clear and easily recognisable manner.
- Ensure that the safety considerations described in this SIB relating to fuel grade identification – especially freezing point – are addressed within their safety risk

management and management of change process. It is recommended that this process consider the following aspects:

i. Operators should inform their crews where Jet A fuel grade becomes available at aerodromes that have historically supplied Jet A-1, and ensure that their operational documentation contains clear instructions on the use of Jet-A fuel grade (e.g. higher freezing temperatures).
ii. Operators should identify any required updates to training programmes and standard operating procedures, particularly where the use of Jet A has not previously been considered.
iii. Where the use of Jet A is prohibited by the aircraft manufacturer, operators should ensure that contracted suppliers are duly informed of these limitations.
iv. Operators should ensure that flight crews are instructed in the handling of flights operated with Jet A fuel, including relevant contingency procedures.
v. Operators should assess impact on route planning in case of using Jet-A fuel.

Note - The simultaneous availability of two fuel grades on environments traditionally using exclusively Jet A-1 may lead to the mixing of the two grades. Operators should apply the instructions offered by the DAH in the AFM to cope with this mixing. In case such information is not provided, operators should apply the most conservative limits.

EASA recommends **Design Approval Holders** to:

- Assess the safety implications of a wider range of Jet A / Jet A-1 mixture ratios in aircraft tanks, including ratios other than those historically considered, with particular attention to freezing-point behaviour, warning thresholds, and procedural applicability, and amend published instructions as needed.
- Provide operators with explicit guidance on how fuel grade should be reflected in dispatch, flight planning, and crew decision-making.

EASA recommends **National Competent Authorities** to:

- Focus oversight activities on air operators and locations with higher exposure (e.g. mixed-grade air operations, cold-weather operations, frequent cross-regional flights).
- Focus oversight activities on the application of adequate management of change at aerodromes.
- Promote reporting of occurrences related to fuel grade confusion, low fuel temperature events, or unexpected system behaviour.

EASA reminds **all affected stakeholders** that:
Any occurrence and safety-relevant information related to fuel quality, handling, and use shall be reported to NCAs and to EASA, as applicable, via EU aviation safety reporting system.

Contact(s):

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