Jet Fuel A1 Specifications - Technical Specifications for DEF STAN 91-091 / ASTM D1655 / AFQRJOS Standards

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The details are already published on the main website ***https://EN590Diesel.com*** *and the* ***Jet Fuel A1 Product Information & Specifications Page****.*

This specification file contains the Jet Fuel A1 Product Specifications for common variants - DEF STAN 91-091 / ASTM D1655 / AFQRJOS Stanards (Bulk / Wholesale and Small Volumes).



Jet Fuel A1 & Jet A Technical Parameters (DEF STAN 91-091 / ASTM D1655 / AFQRJOS Standard)

The following specification matrix details the mandatory physical, chemical, thermal stability, and cold-flow property limits for bulk wholesale **Jet Fuel A1 (International Standard)** and **Jet A (North American Domestic Standard)** traded across international hubs and airport storage facilities:

Property / Characteristic	ASTM / IP Test Method	Jet Fuel A1 (DEF STAN 91-091 / AFQRJOS)	Jet A (ASTM D1655 Standard)
Appearance & Visual Clarity	Visual / ASTM D4176	Clear, bright, free from solid matter & undissolved water	Clear, bright, free from solid matter & undissolved water
Total Acidity (max)	ASTM D3242 / IP 354	0.015 mg KOH/g max	0.10 mg KOH/g max
Aromatics Content (max)	ASTM D1319 / D6379	25.0% vol max (26.5% total aromatics via D6379)	25.0% vol max (26.5% total aromatics via D6379)

Total Sulfur Content (max)	ASTM D4294 / D5453	0.30% mass (3,000 ppm) max (≤ 500 ppm typical)	0.30% mass (3,000 ppm) max
Mercaptan Sulfur (max)	ASTM D3227 / IP 342	0.0030% mass (30 ppm) max (or Doctor Test Negative)	0.0030% mass (30 ppm) max
Distillation: 10% Recovered (max)	ASTM D86 / IP 123	205.0°C max	205.0°C max
Distillation: Final Boiling Point (FBP) (max)	ASTM D86 / IP 123	300.0°C max	300.0°C max
Flash Point (Abel / Tag Closed Cup) (min)	IP 170 / ASTM D56	38.0°C (100.4°F) min	38.0°C (100.4°F) min
Density at 15°C	ASTM D4052 / IP 365	775.0 – 840.0 kg/m³	775.0 – 840.0 kg/m³

Freezing Point (max)	ASTM D2386 / D5972	**-47.0°C (-52.6°F) max**	-40.0°C (-40.0°F) max
Kinematic Viscosity at -20°C (max)	ASTM D445 / IP 71	8.000 mm^2/s (cSt) max	8.000 mm^2/s (cSt) max
Net Specific Energy (Calorific Value) (min)	ASTM D3338 / D4809	42.80 MJ/kg min (~43.15 MJ/kg typical)	42.80 MJ/kg min
Smoke Point / Naphthalenes	ASTM D1322 / D1840	25.0 mm min (or 18.0 mm min + 3.0% vol max Naphthalenes)	25.0 mm min (or 18.0 mm min + 3.0% vol max Naphthalenes)
Thermal Stability (JFTOT at 260°C)	ASTM D3241 / IP 323	Filter $\Delta P \leq 25$ mmHg; Tube Deposit Rating < 3 (No Peacock/Abnormal)	Filter $\Delta P \leq 25$ mmHg; Tube Deposit Rating < 3

Existent Gum (max)	ASTM D381 / IP 540	7 mg/100 mL max	7 mg/100 mL max
Water Separation (MSEP Rating) (min)	ASTM D3948 / D7224	85 min (without SDA) / 70 min (with SDA)	85 min (without SDA) / 70 min (with SDA)
Copper Strip Corrosion (2h at 100°C)	ASTM D130 / IP 154	Class 1 max	Class 1 max
Electrical Conductivity (with SDA)	ASTM D2624 / IP 274	50 – 600 pS/m (Stadis 450 Static Dissipator)	50 – 600 pS/m (when SDA added)
Lubricity (BOCLE Wear Scar Diameter) (max)	ASTM D5001	0.85 mm max (for hydroprocessed fuels)	0.85 mm max (where required)

Civil, Defense & Sustainable Aviation Fuel (SAF) Variants (AFQRJOS / NATO / ASTM D7566)

For international commercial airlines, military air forces, extreme-arctic operations, and low-carbon aviation mandates, **Jet Fuel A1** is supplied with precision-certified additive packages and synthetic blending pathways:

Aviation Fuel Grade / Variant	Governing Standard & Additive Package	Key Specification Highlights	Primary Market & Operational Application
Civil Jet Fuel A1 (AFQRJOS Joint Checklist)	DEF STAN 91-091 & ASTM D1655 + Static Dissipator (SDA) + Antioxidant	Freezing point ≤ -47.0°C; Flash point ≥ 38.0°C; Electrical conductivity 50–600 pS/m; JIG-certified batch traceability.	International commercial passenger airlines, air cargo hubs, and global airport hydrant fuel farms.
Military Aviation Turbine Fuel (JP-8 / NATO F-34)	MIL-DTL-83133 / DEF STAN 91-091 + FSII + CI/LI + SDA	Jet A1 base fortified with Fuel System Icing Inhibitor (DiEGME 0.07–0.10% vol) and Corrosion/Lubricity Improver.	Allied air forces, defense ministries, military airbases, tactical rotorcraft, and expeditionary fuel bladders.

Arctic / Extreme Cold Jet Fuel (TS-1 / Jet A1 + FSII)	GOST 10227 (TS-1) / ASTM D1655 with DiEGME Icing Inhibitor	Ultra-low freezing point (-50°C to -60°C for TS-1); Flash point ≥ 28°C (TS-1) or ≥ 38°C (Jet A1 + FSII).	Transpolar routes, Siberian/Central Asian airfields, sub-zero defense bases, and high-altitude helicopters.
Sustainable Aviation Fuel (SAF / Jet A1 Bio-Blend)	ASTM D7566 (HEFA-SPK / FT-SPK) blended up to 50% with Jet A1	Drop-in fungible Jet A1 once certified to ASTM D1655; reduces lifecycle carbon emissions by up to 80%.	EU ReFuelEU Aviation mandate compliance, corporate aviation ESG programs, and green airline corridors.

About JET FUEL A1

Jet Fuel A1—widely recognized across global aviation and energy markets both under the commercial nomenclature ***Jet A-1*** and the formal technical classification ***Aviation Turbine Fuel (ATF)***—stands as the premier, high-energy kerosene-type distillate powering international commercial airlines, cargo carriers, defense fleets, and executive aviation worldwide.

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