



JOINT FUELLING SYSTEM CHECK LIST FOR JET A-1

Embodying the requirements of the following specifications for the grade shown:

(a) British MoD DEF STAN 91-091/Issue 9, dated 03 October 2016, Jet A-1

(b) ASTM D 1655 –16a, Jet A-1.

Issue 29 – October 2016

Property	Limits	Test Method		Remarks
		IP	ASTM	
APPEARANCE				
Visual appearance	Clear, bright and visually free from solid matter and un-dissolved water at ambient fuel temperature			
Colour	Report		D 156 or D 6045	See Note 1
Particulate contamination mg/L Max	1.0	423	D 5452	See Note 2
Particulate, cumulative channel particle counts, ISO Code & Individual Channel Counts		564 or 565 or 577		See Note 3
≥ 4 µm(c)	Report			
≥ 6 µm(c)	Report			
≥ 14 µm(c)	Report			
≥ 21 µm(c)	Report			
≥ 25 µm(c)	Report			
≥ 30 µm(c)	Report			
COMPOSITION				
Total Acidity, mg KOH/g Max	0.015	354	D 3242	See Note 4
Aromatics, % v/v Max	25.0	156	D 1319	
OR Total Aromatics, % v/v Max	26.5	436	D 6379	See Note 5
Sulphur, Total, % m/m Max	0.30	336	D 1266 or D 2622	or D 4294 or D 5453
Sulphur, Mercaptan, % m/m Max	0.0030	342	D 3227	
OR Doctor Test	Negative	30	D 4952	See Note 6
Refinery Components at point of manufacture:				
Non Hydroprocessed Components, %v/v	Report (incl. 'nil' or '100%')			See Note 7
Mildly Hydroprocessed Components, % v/v	Report (incl. 'nil' or '100%')			
Severely Hydroprocessed Components, % v/v	Report (incl. 'nil' or '100%')			
Synthetic Components, %v/v	Report (incl. 'nil' or '50%')			See Note 4 for limits for synthetic components
INCIDENTAL MATERIALS				
Fatty Acid Methyl Ester (FAME), mg/kg Max	50	585 583 590 599	ASTM D7797	See Notes 8, 9 and 10
VOLATILITY				
Distillation		123	D86	or D7345., See Note 11
Initial Boiling Point, °C	Report			
Fuel Recovered				See Note 11
10% v/v at °C max	205.0			Or IP 406 or D 2887, see Note 12
50% v/v at °C	Report			
90% v/v at °C	Report			
End Point, °C max	300.0			
Residue, % v/v max	1.5			
Loss, % v/v max	1.5			
Flash Point, °C min	38.0	170 or 523	D 56 or D 3828	
Density at 15°C, kg/m ³	775.0 min to 840.0 max	160 or 365	D 1298 or D 4052	See Note 13
FLUIDITY				
Freezing Point, °C max	-47.0	16 or 435 or 528 or 529	D 2386 or D 5972 or D 7153 or D 7154	See Note 14
Viscosity at -20°C, mm ² /s(cSt) max	8.000	71	D 445	or D7042, See Note 15
COMBUSTION				
Specific Energy, net, MJ/kg min	42.80	12 or 355	D 3338 or D 4809	See Note 16
Smoke Point, mm mon	25.0	598	D 1322	See Note 17
OR				
Smoke Point, mm min	18.0	598	D 1322	See Note 17
AND Naphthalenes, % vol. max	3.00		D 1840	

CORROSION					
Corrosion, Copper strip, classification (2 hours +/- 5 min. at 100 °C +/- 1°C)	max	1	154	D 130	
STABILITY					
Thermal Stability (JFTOT)			323	D 3241	See Note 18
Control temperature, °C	min	260			
Filter Pressure Differential, mm Hg	max	25			
One of the following requirements shall be met: (1) Annex B VTR		Less than 3, no 'Peacock' or 'Abnormal' colour deposits			
(2) Annex C ITR or Annex D ETR, average over area of 2.5mm ²	nm max	85			
CONTAMINANTS					
Existent Gum, mg/100ml	max	7	540	D381	
Microseparator (MSEP), rating		70		D 3948	See Note 19
Fuel with Static Dissipator Additive	min				
OR					
Fuel without Static Dissipator Additive	min	85			
CONDUCTIVITY					
Electrical Conductivity, pS/m		50 min to 600 max	274	D 2624	See Note 20
LUBRICITY					
BOCLE wear scar diameter, mm	max	0.85		D 5001	See Note 21
ADDITIVES (Names and approval code from DEF STAN 91-091/9 should be quoted on quality certificates).					
Antioxidant , mg/l (in final batch	max	24.0			See Note 22
in hydroprocessed & synth. fuels (Mandatory)	min	17.0			See Note 23
in non-hydroprocessed fuels (Optional)	max	24.0			See Note 24
Metal Deactivator , mg/l (Optional) *	max				
First Doping		2.0			
Cumulative concentration after field re-doping		5.7			
Static Dissipator , mg/l *	max				
First Doping		3.0			
Cumulative concentration after field re-doping		5.0			
Antioxidants are mandatory in hydroprocessed fuels and synthetic fuels and shall be added prior to or during release from the manufacturing site.					
Fuel System Icing Inhibitor is not permitted unless agreed by all the participants in a joint system (see also Note 25).					
Corrosion Inhibitor/Lubricity Improver (CI/LI) additive may be added to the fuel without prior consent of the joint system participants (see also Note 21)					
					The types and concentrations of all additives used shall be shown on the original Certificates of Quality and on all other quality documents when they are added downstream of the point of manufacture. When additives are diluted (with hydrocarbon solvent only) to improve handling properties prior to addition, it is the concentration of active ingredient that shall be reported. See Annex A of DEF STAN 91-091/9 for detailed advice
					See Note 26 about requirements for management of change in refineries
					* When the original dosage of additives is unknown, it has to be assumed that first doping was applied at maximum dose rate.

SYSTEMS (AFQRJOS): Issue 29 – Oct 2016 (supersedes Issue 28 – Mar 2015)

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