

**NORTH ATLANTIC TREATY ORGANIZATION
ORGANISATION DU TRAITE DE L'ATLANTIQUE NORD**

**NATO STANDARDIZATION AGENCY (NSA)
AGENCE OTAN DE NORMALISATION (AON)
1110 BRUSSELS**

27 November 2001

NSA/1479-SILCEP/3747

See Distribution List: EAPC(NPC-AVIATN FLWP)

STANAG 3747 SILCEP (EDITION 5) -GUIDE SPECIFICATIONS (MINIMUM QUALITY STANDARDS) FOR AVIATION TURBINE FUELS (F-34, F-35, F-40 AND F-44)

References:

- a. MAS(AIR)396-IF&L/3747 dated 23 November 1994 (Edition 4)
- b. LOG/SUPP.P(99)309/3747 dated 26 November 1999 (Edition 5)(Ratification Draft)

1. The enclosed NATO Standardization Agreement which has been ratified by nations as reflected in page (iii) is promulgated herewith.
2. The references listed above are to be destroyed in accordance with local document destruction procedures.
3. AAP-4 should be amended to reflect the latest status of the STANAG.

ACTION BY NATIONAL STAFFS

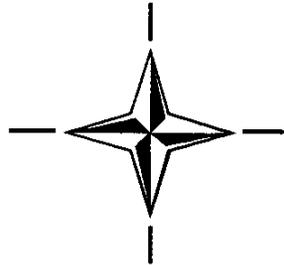
4. National staffs are requested to examine page (iii) of the STANAG and, if they have not already done so, advise the Chairman, NATO Pipeline Committee (AC/112) through their national delegation as appropriate of their intention regarding its ratification and implementation.



Jan H ERIKSEN
Rear Admiral, NONA
Director, NSA

Enclosure:
STANAG 3747 (Edition 5)

**NORTH ATLANTIC TREATY ORGANIZATION
(NATO)**



**NATO STANDARDIZATION AGENCY
(NSA)**

**STANDARDIZATION AGREEMENT
(STANAG)**

SUBJECT: GUIDE SPECIFICATIONS (MINIMUM QUALITY STANDARDS) FOR
AVIATION TURBINE FUELS (F-34, F-35, F-40 AND F-44)

Promulgated on 27 November 2001

A handwritten signature in black ink, appearing to read 'Jan H ERIKSEN', is positioned above the printed name.

Jan H ERIKSEN
Rear Admiral, NONA
Director, NSA

Agreed English/French texts

STANAG 3747
(Edition 5)

NAVY/ARMY/AIR

NATO STANDARDIZATION AGREEMENT
(STANAG)

GUIDE SPECIFICATIONS (MINIMUM QUALITY STANDARDS) FOR AVIATION
TURBINE FUELS (F-34, F-35, F-40 AND F-44)

WARNING (see paragraph 7)

- Annexes: A. NATO Guide Specification for Aviation Turbine Fuel: NATO Code N° F-34
B. NATO Guide Specification for Aviation Turbine Fuel: NATO Code N° F-35
C. NATO Guide Specification for Aviation Turbine Fuel: NATO Code N° F-40
D. NATO Guide Specification for Aviation Turbine Fuel: NATO Code N° F-44

Related

- Documents: STANAG 1135 – ANNEX C – INTERCHANGEABILITY CHART OF
SILCEP NATO STANDARDIZED FUELS, LUBRICANTS AND
ASSOCIATED PRODUCTS
STANAG 3390 – INSPECTION STANDARDS FOR FUEL SOLUBLE
SILCEP CORROSION INHIBITORS/LUBRICITY
IMPROVERS

AIM

1. The aim of this agreement is to provide the minimum quality standards of aviation turbine fuels used in service operations by NATO Forces.

AGREEMENT

2. Participating nations agree that this Guide Specification represents the minimum quality acceptable under the appropriate NATO Code Numbers.
3. It is agreed that nations' specifications shall comply with these minimum requirements before being acceptable as standardized products under the appropriate NATO Code Number. The test methods shown in this STANAG are for reference only. The fuel shall comply with the specified limiting values. The specified limiting values must not be changed. This precludes any allowance for the test method precision and adding or subtracting digits.
4. It is agreed that in order to promote product development, any nation's specifications may include additional tests or improved quality requirements to those in the Guide Specification. However nations are not allowed to add additives to F-34, F-35, F-40 and F-44 unless approved in this STANAG.

5. It is agreed that this Guide Specification shall be subject to review with the object of improving product quality as required by operational use.

GENERAL

6. STANAG 1135, Annex C, lists under individual product descriptions, national specifications which have been agreed as interchangeable.

7. The quality standards contained in this document are to be used by Member Nations (MNs) in the preparation and maintenance of their individual procurement specifications and standards. A MNs' individual procurement document may be more stringent depending upon its equipment. This STANAG is not designed to be used in the direct procurement of products.

IMPLEMENTATION OF THE AGREEMENT

8. This STANAG is implemented when nations have published or revised their specifications in sufficient detail to comply with the requirements of the STANAG.

NATO GUIDE SPECIFICATION FOR AVIATION TURBINE FUEL: NATO CODE N° F-34

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
1	Appearance	Visual		Clear & bright at ambient temperature	
2	Total Acid N°	mg KOH/g	ASTM D3242	0.015 Max	
3	Aromatics	% v/v	ASTM D1319	25.0 Max	
4	Mercaptan Sulphur or Doctor Test	% m/m	ASTM D3227 ASTM D4952	0.003 Max Negative	For routine purposes Doctor Test may be performed in lieu of Determined Mercaptan Sulphur. Doctor positive fuels must comply with mercaptan sulphur limit.
5	Sulphur, Total	% m/m	ASTM D1266, D129, D2622, D3120, D4294, or D5453	0.30 Max	

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N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
6	Distillation Initial B.P. 10% Recovered 20% Recovered 50% Recovered 90% recovered Final Boiling Point Residue Loss	 °C °C °C °C °C °C % v/v % v/v	ASTM D86	 Report 205 Max Report Report Report 300 Max 1.5 Max 1.5 Max	Use Group 4 test conditions. A condenser temperature of 0°C to 4°C should be used.
7	Flash Point	°C °C	ASTM D56 OR ASTM D3828, IP 170, ASTM D93	40 Min 38 Min	ASTM D56 results in a higher flash point than other listed methods
8	Density at 15°C	kg/m ³	ASTM D1298 or ASTM D4052	775 - 840	
9	Freezing Point	°C	ASTM D2386, D5901, or D5972	-47 Max	
10	Viscosity at -20°C	mm ² /s	ASTM D445	8.0 Max	
11	Heating Value Net Heat of Combustion	MJ/kg	ASTM D3338 or D4809	42.8 Min	

NATO UNCLASSIFIED

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
12	Smoke Point or Smoke Point & Naphthalenes	mm mm % v/v	ASTM D1322 ASTM D1322 ASTM D1840	25 Min 19 Min 3.5 Max	
13	Copper Corrosion	Classification	ASTM D130	1 Max	2 Hours at 100°C
14	Thermal Stability Delta P Tube Deposit Rating	mm Hg (kPa) Classification	ASTM D3241 ASTM D3241	25.0 (3.33) Max Less than 3	No Peacock or abnormal deposits
15	Existent Gum	mg/100 cm ³	ASTM D381	7 Max	
16	Water Reaction Interface Rating	Classification	ASTM D1094	1b Max	
17	Microseparometer (MSEP)		ASTM D3948	85 Min	If SDA, FSII, or CI/LI is present singly at point of manufacture, a MSEP rating of 70 or better is consistent with 85 for untreated product. When SDA and CI/LI are present together, no meaningful MSEP can be obtained.

NATO UNCLASSIFIED

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
18 a. b. c. d. e. f. g.	Corrosion Inhibitor Apollo PRI-19 or Octel DCI-4A or Hitec 580 or Nalco/Exxon 5403 or Mobilad F800 or TOLAD 4410 or TOLAD 4445	g/m ³		18.0 – 23.0 9.0 – 23.0 15.0 – 23.0 12.0 – 23.0 12.0 – 23.0 9.0 – 23.0 19.0 – 23.0	Only additives approved in STANAG 3390 under NATO Code S-1747 may be used. Annex C to STANAG 3390 gives a method of determining a known corrosion inhibitor in fuel.
19	Antioxidant			As required by national specification	Approved antioxidant required if fuel has been hydro processed.
20	Metal Deactivator			Max treat rate 5.7 mg/L	* See Note
21	Fuel System Icing Inhibitor	% v/v	ASTM D5006	0.10 – 0.15	Shall conform to one of the specifications under NATO Code S-1745
22	Electrical Conductivity at the Point, Time & Temperature of Delivery to the User	pS/m	ASTM D2624 or ASTM D4308 or I.P. 274	50 – 600	Electrostatic Dissipator Additive (SDA) (Octel Stadis 450) as limited by national specification

***Note:** "A Metal Deactivator (MDA), NN'-disalicylidene 1,2 propane diamine, may be added to fuel to counteract the effects of metals known to be deleterious to thermal stability, such as Copper, Cadmium, Iron, Cobalt and Zinc, provided that the nature of the contamination is reported. MDA may be added in amount not to exceed 2.0 mg/L (not including weight of solvent) on initial fuel manufacture at the refinery. Higher initial concentrations are permitted in circumstances where metallic contamination is suspected to occur during distribution. Cumulative concentration of MDA when retreating the fuel shall not exceed 5.7 mg/L. The addition of MDA in aviation turbine fuel is only authorized by agreement between the supplier and the user."

NATO GUIDE SPECIFICATION FOR AVIATION TURBINE FUEL: NATO CODE N° F-35

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
1	Appearance	Visual		Clear & bright at ambient temperature	
2	Total Acid N°	mg KOH/g	ASTM D3242	0.015 Max	
3	Aromatics	% v/v	ASTM D1319	25.0 Max	
4	Mercaptan sulphur or Doctor Test	% m/m	ASTM D3227 ASTM D4952	0.003 Max Negative	For routine purposes Doctor Test may be performed in lieu of Determined Mercaptan Sulphur. Doctor Positive Fuels must comply with Mercaptan Sulphur Limit.
5	Sulphur, Total	% m/m	ASTM D1266, D129, D2622, D3120, D4294, or D5453	0.30 Max	

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
6	Distillation I.B.P. 10% Recovered 20% Recovered 50% Recovered 90% Recovered F.B.P. Residue Loss	°C °C °C °C °C °C % v/v % v/v	ASTM D86	Report 205 Max Report Report Report 300 Max 1.5 Max 1.5 Max	Use Group 4 test conditions. A condenser temperature of 0°C to 4°C should be used.
7	Flash Point	°C °C	ASTM D56 OR ASTM D3828, IP 170, ASTM D93	40 Min 38 Min	ASTM D56 results in a higher flash point than other listed methods
8	Density at 15°C	kg/m ³	ASTM D1298 or ASTM D4052	775 - 840	
9	Freezing Point	°C	ASTM D2386, D5901, or D5972	-47 Max	
10	Viscosity at -20°C	mm ² /s	ASTM D445	8.0 Max	
11	Heating Value Net Heat of Combustion	MJ/kg	ASTM D3338, or D4809	42.8 Min	

NATO UNCLASSIFIED

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
12	Smoke Point or Smoke Point & Naphthalenes	mm mm % v/v	ASTM D1322 ASTM D1322 ASTM D1840	25 Min 19 Min 3.5 Max	
13	Copper Corrosion	Classification	ASTM D130	1 Max	2 Hours at 100°C
14	Thermal Stability Delta P Tube Deposit Rating	mm Hg (kPa) Classification	ASTM D3241 ASTM D3241	25.0 (3.33) Max Less than 3	No Peacock or abnormal deposits
15	Existent Gum	mg/100 cm ³	ASTM D381	7 Max	
16	Water Reaction Interface Rating	Classification	ASTM D1094	1b Max	
17	Microseparometer (MSEP)		ASTM D3948	85 Min	If SDA, FSII, or CI/LI is present singly at point of manufacture, a MSEP rating of 70 or better is consistent with 85 for untreated product. When SDA and CI/LI are present together, no meaningful MSEP can be obtained.

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
18 a. b. c. d. e. f. g.	Corrosion Inhibitor Apollo PRI-19 or Octel DCI-4A or Hitec 580 or Nalco/Exxon 5403 or Mobilad F800 or TOLAD 4410 or TOLAD 4445	g/m ³		18.0 – 23.0 9.0 – 23.0 15.0 – 23.0 12.0 – 23.0 12.0 – 23.0 9.0 – 23.0 19.0 – 23.0	May be added at the discretion of the procuring agency. Only approved additives (as listed in STANAG 3390) may be added. annex C to STANAG 3390 gives a method of determining a known corrosion inhibitor in fuel.
19	Antioxidant			As required by national specification	Approved antioxidant required if fuel has been hydro processed.
20	Metal Deactivator			Max treat rate 5.7 mg/L	* See Note
21	Electrical Conductivity at the Point, Time & Temperature of Delivery to the User	pS/m	ASTM D2624 or ASTM D4308 or I.P. 274	50 – 450	Electrostatic Dissipator Additive (SDA) (Octel Stadis 450) as limited by national specification

***Note:** "A Metal Deactivator (MDA), NN"-disalicylidene 1,2 propane diamine, may be added to fuel to counteract the effects of metals known to be deleterious to thermal stability, such as Copper, Cadmium, Iron, Cobalt and Zinc, provided that the nature of the contamination is reported. MDA may be added in amount not to exceed 2.0 mg/L (not including weight of solvent) on initial fuel manufacture at the refinery. Higher initial concentrations are permitted in circumstances where metallic contamination is suspected to occur during distribution. Cumulative concentration of MDA when retreating the fuel shall not exceed 5.7 mg/L. The addition of MDA in aviation turbine fuel is only authorized by agreement between the supplier and the user."

NATO GUIDE SPECIFICATION FOR AVIATION TURBINE FUEL: NATO CODE N° F-40

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
1	Appearance	Visual		Clear & bright at ambient temperature	
2	Total Acid N°	mg KOH/g	ASTM D3242	0.015 Max	
3	Aromatics	% v/v	ASTM D1319	25.0 Max	
4	Olefins	% v/v	ASTM D1319	5.0 Max	
5	Mercaptan Sulphur or Doctor Test	% m/m	ASTM D3227 ASTM D4952	0.003 Max Negative	For productive purposes Doctor Test may be performed in lieu of Determined Mercaptan Sulphur. Doctor positive fuels must comply with mercaptan sulphur limit.
6	Sulphur, Total	% m/m	ASTM D1266, D2622, D3120, D4294, or 5453	0.40 Max	

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
7	Distillation I.B.P. 10% Recovered 20% Recovered 50% Recovered 90% Recovered F.B.P. Residue Loss	°C °C °C °C °C °C % v/v % v/v	ASTM D86	Report Report 145 Max 190 Max 245 Max 270 Max 1.5 Max 1.5 Max	Use Group 3 test conditions.
8	Vapour Pressure at 38°C	kPa	ASTM D323, D4953, D5190, or D5191	14 - 21	
9	Density at 15°C	kg/m ³	ASTM D1298 or ASTM D4052	751 - 802	
10	Freezing Point	°C	ASTM D2386, D5901, or D5972	-58 Max	
11	Heating Value Net Heat of Combustion	MJ/kg	ASTM D3338 or D4809	42.8 Min	

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N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
12	Smoke Point or Smoke Point & Naphthalenes	mm mm % v/v	ASTM D1322 ASTM D1322 ASTM D1840	25 Min 20 Min 3 Max	
13	Copper Corrosion	Classification	ASTM D130	1 Max	2 Hours at 100°C
14	Thermal Stability Delta P Tube Deposit Rating	mm Hg (kPa) Classification	ASTM D3241 ASTM D3241	25.0 (3.33) Max Less than 3	No Peacock or abnormal deposits
15	Existent Gum	mg/100 cm ³	ASTM D381	7 Max	
16	Water Reaction Interface Rating	Classification	ASTM D1094	1b Max	
17	Microseparometer (MSEP)		ASTM D3948	85 Min	If SDA, FSII, or CI/LI is present singly at point of manufacture, a MSEP rating of 70 or better is consistent with 85 for untreated product. When SDA and CI/LI are present together, no meaningful MSEP can be obtained.

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N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
18 a. b. c. d. e. f. g.	Corrosion Inhibitor Apollo PRI-19 or Octel DCI-4A or Hitec 580 or Nalco/Exxon 5403 or Mobilad F800 or TOLAD 4410 or TOLAD 4445	g/m ³		18.0 – 23.0 9.0 – 23.0 15.0 – 23.0 12.0 – 23.0 12.0 – 23.0 9.0 – 23.0 19.0 – 23.0	Only additives approved in STANAG 3390 under NATO Code S-1747 may be used. Annex C to STANAG 3390 gives a method of determining a known corrosion inhibitor in fuel.
19	Antioxidants			As required by national specification	Approved antioxidant required if fuel has been hydro processed.
20	Metal Deactivator			Max. treat rate 5.7 mg/L	* See Note
21	Fuel System Icing Inhibitor	% v/v	ASTM D5006	0.10 – 0.15	Shall conform to one of the specifications under NATO Code S-1745

***Note:** "A Metal Deactivator (MDA), NN'-disalicylidene 1,2 propane diamine, may be added to fuel to counteract the effects of metals known to be deleterious to thermal stability, such as Copper, Cadmium, Iron, Cobalt and Zinc, provided that the nature of the contamination is reported. MDA may be added in amount not to exceed 2.0 mg/L (not including weight of solvent) on initial fuel manufacture at the refinery. Higher initial concentrations are permitted in circumstances where metallic contamination is suspected to occur during distribution. Cumulative concentration of MDA when retreating the fuel shall not exceed 5.7 mg/L. The addition of MDA in aviation turbine fuel is only authorized by agreement between the supplier and the user."

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
22	Electrical Conductivity at the Point, Time & Temperature of Delivery to the User	pS/m	ASTM D2624 or ASTM D4308 or I.P. 274	150 – 600	Electrostatic Dissipator Additive (SDA) (Octel Stadis 450) as limited by national specifications. The minimum limit of 150 pS/m need not be mandatory at the time of procurement, providing nations can guarantee a conductivity minimum of 100 pS/m upon delivery to aircraft.

NATO GUIDE SPECIFICATION FOR AVIATION TURBINE FUEL: NATO CODE N° F-44

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
1	Appearance	Visual		Clear & bright at ambient temperature	
2	Total Acid N°	mg KOH/g	ASTM D3242	0.015 Max	
3	Aromatics	% v/v	ASTM D1319	25.0 Max	
4	Olefins	% v/v	ASTM D1319	5.0 Max	
5	Mercaptan Sulphur or Doctor Test	% m/m	ASTM D3227 ASTM D4952	0.003 Max Negative	For productive purposes Doctor Test may be performed in lieu of Determined Mercaptan Sulphur. Doctor positive fuels must comply with mercaptan sulphur limit.
6	Sulphur, Total	% m/m	ASTM D1266, D2622, D3120, D4294, or D5453	0.40 Max	

NATO UNCLASSIFIED

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
7	Distillation I.B.P. 10% Recovered 20% Recovered 50% Recovered 90% Recovered F.B.P. Residue Loss	°C °C °C °C °C °C % v/v % v/v	ASTM D86	Report 205 Max Report Report Report 300 Max 1.5 Max 1.5 Max	Use Group 4 test conditions. A condenser temperature of 0°C to 4°C should be used.
8	Flash Point	°C	ASTM D93, ASTM D3828	60 Min	
9	Density at 15°C	kg/m ³	ASTM D1298 or ASTM D4052	788 – 845	
10	Freezing Point	°C	ASTM D2386, D5901, or, D5972	-46 Max	
11	Viscosity at -20°C	mm ² /s	ASTM D445	8.5 Max	
12	Heating Value Net Heat of Combustion	MJ/kg	ASTM D3338 or D4809	42.6 Min	
13	Smoke Point	mm	ASTM D1322	19 Min	
14	Copper Corrosion	Classification	ASTM D130	1 Max	2 Hours at 100°C

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
15	Thermal Stability Delta P Tube Deposit Rating	mm Hg (kPa) Classification	ASTM D3241 ASTM D3241	25.0 (3.33) Max Less than 3	No Peacock or abnormal deposits
16	Existent Gum	mg/100 mL	ASTM D381	7 Max	
17	Water Reaction Interface Rating	Classification	ASTM D1094	1b Max	
18	Microseparometer (MSEP)		ASTM D3948	85 Min	If SDA, FSII, or CI/LI is present singly at point of manufacture, a MSEP rating of 70 or better is consistent with 85 for untreated product. When SDA and CI/LI are present together, no meaningful MSEP can be obtained.

NATO UNCLASSIFIED

N°	REQUIREMENT	UNIT OF MEASURE	TEST METHODS	LIMITS	NOTES
(a)	(b)	(c)	(d)	(e)	(f)
19 a. b. c. d. e. f. g.	Corrosion Inhibitor Apollo PRI-19 or Octel DCI-4A or Hitec 580 or Nalco/Exxon 5403 or Mobilad F800 or TOLAD 4410 or TOLAD 4445	g/m ³		18.0 – 23.0 9.0 – 23.0 15.0 – 23.0 12.0 – 23.0 12.0 – 23.0 9.0 – 23.0 19.0 – 23.0	Only approved additives (as listed in STANAG 3390) may be used. Annex C to STANAG 3390 gives a method of determining a known corrosion inhibitor in fuel.
20	Antioxidants			As required by national specification	Approved antioxidant required if fuel has been hydrotreated.
21	Metal Deactivator			Max. treat rate 5.7 mg/L	* See Note
22	Fuel System Icing Inhibitor	% v/v	ASTM D5006	0.10 – 0.20	Shall conform to one of the specifications under NATO Code S-1745
23	Electrical Conductivity at the Point, Time & Temperature of Delivery to the User	pS/m	ASTM D2624 or ASTM D4308 or I.P. 274	As required by national specification	Electrostatic Dissipator Additive (SDA) (Octel Stadis 450) as limited by national specifications.

* Note: "A Metal Deactivator (MDA), NN'-disalicylidene 1,2 propane diamine, may be added to fuel to counteract the effects of metals known to be deleterious to thermal stability, such as Copper, Cadmium, Iron, Cobalt and Zinc, provided that the nature of the contamination is reported. MDA may be added in amount not to exceed 2.0 mg/L (not including weight of solvent) on initial fuel manufacture at the refinery. Higher initial concentrations are permitted in circumstances where metallic contamination is suspected to occur during distribution. Cumulative concentration of MDA when retreating the fuel shall not exceed 5.7 mg/L. The addition of MDA in aviation turbine fuel is only authorized by agreement between the supplier and the user."

RATIFICATION AND IMPLEMENTATION DETAILS
STADE DE RATIFICATION ET DE MISE EN APPLICATION

N A T I O N	NATIONAL RATIFICATION REFERENCE DE LA RATIFICATION NATIONALE	NATIONAL IMPLE- MENTING DOCUMENT NATIONAL DE MISE EN APPLICATION	IMPLEMENTATION/MISE EN APPLICATION					
			INTENDED DATE OF IMPLEMENTATION/DATE PREVUE POUR MISE EN APPLICATION			DATE IMPLEMENTATION WAS ACHIEVED/DATE REELE DE MISE EN APPLICATION		
			N M A E V R Y	A T R E M R Y R E	AIR	N M A E V R Y	A T R E M R Y R E	AIR
(1)	(2)	(3)	(3)	(3)	(3)	(3)	(3)	
BE	JSG-G/POL/01/6354 of/du 20.2.01	STANAG	01.01	01.01	01.01			
*CA	2441-3747(QETE 5) of/du 13.3.00	CFTO C-82-010- 007/TP-000						3.00
*CZ	6/2-44/2001-1419 of/du 25.7.01	TEMPORARY INSTRUCTION No 40068/24/2001- 8918		7.01	7.01			
DA	EKO MAM3 204.6853747 9400817-024 of/du 8.5.00	STANAG	12.01	12.01	12.01			
*FR	001294/DEF/EMA/OL.4 of/du 14.6.01	STANAG	12.01	12.01	12.01			
GE								
GR	F.073/AD 608976/D.333 of/du 19.7.00	STANAG			12.01			
HU	DAD/334/52/2001 of/du 20.6.01	STANAG		6.01	6.01			
IT	143/1678/4600/S3747 of/du 1.8.01	STANAG			12.01			
LU								
NL								
NO	MAS-70/00/FO/LST/BEE/ST3747 of/du 11.5.00	STANAG	9.02	9.02	9.02			
PL								
RO								
SP								
TU								
UK	DFG/5/1/35302 of/du 28.11.01	STANAG	6.02	6.02	6.02			
US	MIL-DTL-83133/MIL-DTL-5624 of/du 18.12.00	STANAG	12.00	12.00	12.00			

* See reservations overleaf/Voir reserves au verso

NATO UNCLASSIFIED

RESERVATIONS

CA: F-34, F-35 and F-40 available in Canada may have a total acid number of up to 0.10 mg KOH/g. F-44 available in Canada may have a total acid number of up to 0.03 mg KOH/g.

CZ: The Czech Republic uses only F-34 fuel which corresponds to quality VJS PHM No. 1-3-L. This qualitative specification makes up STANAG 3747. The Czech Republic uses F-35 fuel which corresponds to quality VJS PHM No. 1-21-L. F-35 fuel uses as corresponding compensation with additives (0,1-0.2% v/v, FS-II.) in the summer. The Czech Republic does not use F-40 or F-44 fuel.

FR: F-34 and F-35:

- Flash Point: IP 170: ASTM D3828: minimum 38°C
ASTM D56: minimum 40°C
ASTM D93: minimum 41 °C
- Naphthalene: maximum 3% volume
- Conductivity: maximum 450 pS/m
- MSEP: only on demand

F-44:

- Sulphur: maximum 0.3% volume
- MSEP: only on demand

RESERVES

CA : Les F-34, F-35 et F-40 disponibles au Canada peuvent avoir un indice d'acidité totale allant jusqu'à 0,10 mg KOH/g. Le F-44 disponible au Canada peut avoir un indice d'acidité totale allant jusqu'à 0,03 mg KOH/g.

CZ : La République tchèque n'utilise que du F-34 qui correspond à la norme VJS PHM n° 1-3-L. Cette norme de qualité répond au STANAG 3747. La République tchèque utilise du F-35 qui correspond à la norme VJS PHM n°1-21-L. En été, elle utilise du F-35 avec additifs (0,1-0,2% v/v, FSII) en compensation. La République tchèque n'utilise pas de F-40 ou de F-44.

FR : F-34 et F-35 :

- Point d'éclair : IP 170: ASTM D 3628 : minimum 38 °C
ASTM D56: minimum 40 °C
ASTM D 93: minimum 41 °C
- Naphtalène: maximum 3% voume
- Conductivité: maximum 450 pS/m
- MSEP: pratiqué uniquement sur demande

OTAN SANS CLASSIFICATION

NATO UNCLASSIFIED

F-44:

- Soufre: maximum 0,30% masse
- MSEP: pratiqué uniquement sur demande

OTAN SANS CLASSIFICATION

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