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01 February 2023

**NOTICE**

AC/112(NFLWG)N(2023)0004  
AC/112(AVIATN-FLWP)N(2023)0002  
AC/112(ARMY-FLWP)N(2023)0001  
AC/112(NAVAL-FLWP)N(2023)0001

**PETROLEUM COMMITTEE (PC)  
NATO FUELS AND LUBRICANTS WORKING GROUP (NFLWG)  
AVIATION FUELS & LUBRICANTS WORKING PARTY (AVIATN FLWP)  
ARMY FUELS & LUBRICANTS WORKING PARTY (ARMY FLWP)  
NAVAL FUELS & LUBRICANTS WORKING PARTY (NAVAL FLW)**

**STUDY DRAFT 1 of AFLP-7036 (EDITION C) - FUELS TO BE INTRODUCED INTO AND  
DELIVERED BY THE NATO PIPELINE SYSTEM (NPS)**

**Note by the Staff Officer**

Reference: AC/112(AVIATN-FLWP)DS(2022)0001, paragraph 6

1. Further to reference, the United States' Custodian prepared Study Draft 1 of AFLP-7036 (Edition C) – Fuels to be introduced and delivered by the NATO Pipeline System (NPS) at Enclosure 1 for nations' consideration and comment. A summary of the changes made are attached at Enclosure 2.

2. Nations' are invited to send their comments to the United States' Custodian ([miguel.acevedo@us.af.mil](mailto:miguel.acevedo@us.af.mil)), copy Staff Officer ([van-exem.philippe@hq.nato.int](mailto:van-exem.philippe@hq.nato.int)) by close of business on **31 March 2023**.

(Signed) Philippe Van Exem

2 Enclosures

Action Officer: Mr. Van Exem, Ext 4564  
Original: English

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# **NATO STANDARD**

## **AFLP-7036**

# **FUELS TO BE INTRODUCED INTO AND DELIVERED BY THE NATO PIPELINE SYSTEM (NPS)**

**Edition C Study Draft 1  
January 2023**



**NORTH ATLANTIC TREATY ORGANIZATION**

**ALLIED FUELS AND LUBRICANTS PUBLICATION**

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**NORTH ATLANTIC TREATY ORGANIZATION (NATO)**

**NATO STANDARDIZATION OFFICE (NSO)**

**NATO LETTER OF PROMULGATION**

January 2019

1. The enclosed Allied Fuels and Lubricants Publication AFLP-7036, Edition C, Version 1, FUELS TO BE INTRODUCED INTO AND DELIVERED BY THE NATO PIPELINE SYSTEM (NPS), which has been approved by the nations in the Petroleum Committee, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 7036.
2. AFLP-7036 Edition C, Version 1 is effective upon receipt and supersedes AFLP-7036, Edition B, Version 2, which shall be destroyed in accordance with the local procedure for the destruction of documents.
2. No part of this publication may be reproduced, stored in a retrieval system, used commercially, adapted, or transmitted in any form or by any means, electronic, mechanical, photo-copying, recording or otherwise, without the prior permission of the publisher. With the exception of commercial sales, this does not apply to member or partner nations, or NATO commands and bodies.
3. This publication shall be handled in accordance with C-M(2002)60.

Edvardas MAŽEIKIS  
Major General, LTUAF  
Director, NATO Standardization Office

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## RECORD OF RESERVATIONS

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**RECORD OF SPECIFIC RESERVATIONS**

[nation]	[detail of reservation]

Note; The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Documents Database for the complete list of existing reservations.

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<b>SECTION 1      GENERAL</b>
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0101. The purpose of this AFLP-7036 is to:

- a. Designate the grades of fuels to be introduced into and delivered by the NATO Pipeline Systems (NPS).
- b. Define the quality of fuels entering and exiting the NPS. Quality characteristics given herein may vary from those of the guide specification. For pipeline operational reasons and to ensure a suitable quality of products, the limits can be more severe at the entry of the NPS, but for deliveries, only specified deterioration limits are permitted.

NOTE: This agreement is intended for use by the NATO forces when using the NPS.

0102. The minimum standards established in this AFLP-7036 are valid for fuels introduced into and delivered by the NPS. The fuels shall comply with the specified values. The specified limiting values must not be changed. This precludes any allowances for the test method precision and significant figures.

0103. The pipeline office of each pipeline has the responsibility to accept or reject a product which will be transported by their pipeline.

0104. The NPS consists of the following nine separate military pipeline and storage systems.

- a. The Norwegian Pipeline System (NOPS) is not fully integrated but consists of distribution systems, storage facilities and sea terminals which are connected by short pipelines and supplied by coastal tankers.
- b. The North European Pipeline System (NEPS) is located in Denmark and Germany.
- c. The Central Europe Pipeline System (CEPS) located in Belgium, France, Germany, Luxembourg and the Netherlands.
- d. The Northern Italy Pipeline System (NIPS).
- e. The Greek Pipeline System (GRPS).
- f. The Turkish Pipeline System (TUPS) comprises two separate pipeline systems known as the Western Turkey Pipeline and the Eastern Turkey Pipeline.
- g. The Portuguese Pipeline System (POPS).
- h. The Icelandic Pipeline System (ICPS).

0105. The policy control, organization and peacetime use of the NPS is covered in the Charter of the Organization of the NATO Pipeline System and Associated Fuel facilities<sup>1</sup>.

0106. A NATO nation introducing into or receiving from the NPS one of the fuels described by this AFLP will provide a product in conformity with the minimum requirements of the AFLP Data Sheets at Sections 2, 3, 4 and 5 and the appropriate guide specification.

0107. This standard does not preclude the right of any nation to request, “through the Regional Authority of a network of the NPS”, to transport products not covered in this agreement through part of the network. Requesting nations must have an adequate means of delivery and storage and guarantee that the supply and the quality of the fuels covered by this agreement to other nations is not thereby jeopardized.

0108. Quality characteristics detailed in this AFLP are applicable only to fuel transported with the NPS and may vary from those of the national specification.

0109. Each NATO Pipeline System (NPS) Regional Authority can implement this AFLP once all the user nations of that system have ratified the AFLP regardless of the ratification status in the other systems.

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<sup>1</sup> C-M(2009)0084 and AS-1

<b>SECTION 2     TURBINE FUEL, AVIATION (NATO CODES: F-34, F-35 AND F-40)</b>
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0201. The aviation turbine fuel to be delivered by the NPS are those for which the military specifications are listed in STANAG 1135 with the minimum quality standards in AFLP-3747 under the NATO Codes F-34, F-35, and F-40. It must in all cases comply with the test limits shown in the Air Product Data Sheet, "IN" column, with the exception of the characteristics shown in the "OUT" column, for which the values identified are deterioration limits acceptable to all nations receiving supplies from the NPS.

0202. The fuel shall comply with the specified limiting values. The specified limiting values must not be changed. This precludes any allowances for the test method precision and significant figures.

0203. Due to the geographical layout of the NPS, the introduction of F-34, F-35, or F-40 into the NPS and its storage within the NPS, is restricted to the area approved by the pipeline offices.



## AIR PRODUCT DATA SHEET

NATO PRODUCT.....Turbine Fuel Aviation, Kerosene Types F-34 and F-35, and Wide Cut Type F-40									
Characteristics			NPS Imposed Limit						Test Methods (1)
No	Test	Units	In			Out			
			F-34	F-35	F-40	F-34	F-35	F-40	
1	Additives		(2)	(2)	(2)				
2	Electrical Conductivity at the point, time, and temperature of delivery	pS/m	50-600 (3)	50-600 (3)	150-600 (3)	50-700 (3)	50-600 (3)	150-700 (3)	ASTM D2624 or D4308
3	Fuel System Icing Inhibitor	% v/v	0.09-0.20 (4)		0.12-0.20 (4)	0.07 Min		0.10 Min	ASTM D5006
4	Mercaptan Sulphur	% m/m	(5)	(5)	(5)				ASTM D3227
5	Filterable Solids (6)	mg/L	1 Max	1 Max	1 Max				ASTM D5452
6	Fatty Acid Methyl Esters (FAME) (7)	mg/kg	50 Max	50 Max	50 Max	50 Max	50 Max	50 Max	ASTM D7797/IP 583, IP 585 (ref), IP 590, IP 599

**NOTES**

- (1) Test Methods are given for reference, but any equivalent national method may be used.
- (2) In certain cases the addition of lubricity improving additives and/or fuel system icing inhibitor into the fuel may be carried out in accordance with procedures agreed between the supplying nation and the pipeline authority. For lubricity improvers, only approved additives (as listed in AFLP-3390) may be added. Original quality report should include additives and quantities. Refer to AFLP-3390 for allowable quantities of approved lubricity improving additives.
- (3) Static Dissipater Additive (SDA) (Innospec Fuels Specialties LLC Stadis 450).
- (4) For most NPS, injection of fuel system icing inhibitor can be accomplished either prior to entry into or before delivery from the NPS upon agreement of the supplier and the pipeline operator. Icing inhibitor shall conform to one of the specifications under NATO Code No S-1745.
- (5) Actual mercaptan sulphur results will be reported to the pipeline authority.
- (6) The 1 mg/L particulate content is a required parameter at the time of shipment from the procurement source. Where product meets all the national military specifications prescribed by the procurement authorities, and delivered by a marine vessel, the particulate content requirement will not be imposed on the vessel at the marine importing depot. Discharge may commence if all other parameters are on-specification.
- (7) Pipeline operators can impose entry/exit FAME limits depending on their standard operating procedures for those pipelines but they are not to exceed the 50 mg/kg FAME limit at the delivery point. This limit may change in response to an expected adoption of a 100 mg/kg FAME maximum limit in principal specifications. Meanwhile, incidental contamination up to 100 mg/kg FAME emergency use limits may be approved on a case-by-case basis by the appropriate authorities.

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<b>SECTION 3     DIESEL FUEL, MILITARY (NATO CODE: F-54)</b>
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0301. The military diesel fuel to be delivered by the NPS is that for which the military specifications are listed in STANAG 1135 under the NATO Code F-54 and in AFLP-7090. It must in all cases comply with the test limits shown in the Army Product Data Sheet, "IN" column, with the exception of the characteristics shown in the "OUT" column, for which the values identified are deterioration limits acceptable to all nations receiving supplies from the NPS.

0302. The fuel shall comply with the specified limiting values. The specified limiting values must not be changed. This precludes any allowances for the test method precision and significant figures.

0303. Due to the geographical layout of the NPS, the introduction of F-54 into the NPS and its storage within the NPS is restricted to the area approved by the pipeline offices.

**ARMY PRODUCT DATA SHEET**

NATO PRODUCT.....Diesel Fuel, Military F-54					
Characteristics			NPS Imposed Limit		Test Methods (1)
			<u>In</u>	<u>Out</u>	
No	Test	Units	F-54	F-54	
1	Additives		(2)	(2)	-
	Lubricity Improver		(3)	(3)	
2	Flash Point	°C	58 Min	56 Min	ASTM D93 ISO 2719
3	Sulphur content	mg/kg	Max 10		EN ISO 20846 EN ISO 20884 EN ISO 13032

**NOTES:** (1) Test methods are given for reference, but any equivalent national method may be used.

(2) In certain cases, the addition of additives into the fuel may be carried out in accordance with procedures agreed between the supplying nation and the pipeline authority.

(3) For lubricity improvers, only approved additives (as listed in AFLP-3390) may be used. AFLP-3390 gives a method capable of determining a known lubricity improver in fuel, based on the dilinoleic acid content of the additive.

<b>SECTION 4     FUELS, NAVY DISTILLATE (NATO CODES: F-75 AND F-76)</b>
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0401. The naval diesel fuels to be delivered by the NPS are those for which the military specifications are listed in STANAG 1135 with the minimum quality standards in AFLP-1385 under the NATO Codes F-75 and F-76. They must in all cases comply with the test limits shown in the Navy Product Data Sheet, "IN" column, with the exception of the characteristics shown in the "OUT" column, for which the values identified are deterioration limits acceptable to all nations receiving supplies from the NPS.

0402. The fuels 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 significant figures.

0403. Due to the geographical layout of the NPS, the introduction of F-75 and F-76 into the NPS and their storage within the NPS is restricted to the area approved by the pipeline offices.

NAVY PRODUCT DATA SHEET

NATO PRODUCT.....Fuels, Naval Distillate, F-75 and F-76					
Characteristics			NPS Imposed Limit		Test Methods
			<u>In</u>	<u>Out</u>	
No	Test	Units	F-75 and F-76	F-75 and F-76	
1	Additives		(1)	(1)	-
2	Colour		3.5 Max	4 Max	ASTM D1500
3	Distillation -90% point -final boiling point	°C °C	357 Max 385 Max	360 Max 388 Max	ISO 3405

(1) Approved additives, type and concentration shall be declared.

<b>SECTION 5     NATO FUELS POTENTIALLY DELIVERED BY THE NPS</b>
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**NATO FUELS POTENTIALLY DELIVERED BY THE NPS**

NPS PRODUCTS	NOPS	NEPS (1)	CEPS	NIPS	GRPS	TUPS	POPS	ICPS
F-34	X(2)	X	X(2)	X(2)	X(2)	X(2)	X(2)	X(2)
F-35 (3)	X(2)	X(2)	X(2)	X(2)		X(2)		
F-54		X(2)	X(2)		X(2)	X(2)	X(2)	
F-75		X						
F-76					X			

**NOTES:**

- (1) The NEPS is designed for only three fuels at a given time. Therefore, and apart from special agreements and transition periods, the NEPS will handle only one fuel from the following groups: turbine fuels, gasoline, diesel or naval fuels.
- (2) Fuels currently transported in the NPS.
- (3) F-35 is sometimes transported through the NPS and converted to F-34 through additization as it exits the pipeline.



**AFLP-7036(C)(SD 1)**

## Detail of Changes in AFLP-7036 Ed C Study Draft 1

<u>Page Number/Section</u>	<u>NATO Code No. or Requirement</u>	<u>Change/Addition</u>
2-2 / Air Product Data Sheet Table	Filtration Time	<u>Action:</u> Removed requirement and renumbered table Characteristics accordingly. <u>Reason:</u> Response to concern about method consistency and applicability to F-34 only.
2-2 / Air Product Data Sheet Table		<u>Action:</u> Replaced all min and max entries with <b>Min and Max</b> <u>Reason:</u> Consistency throughout document
2-3		<u>Action:</u> Note (6) – changed mg/litre to <b>mg/L</b> <u>Reason:</u> Consistency throughout document
3-2 / Air Product Data Sheet Table		<u>Action:</u> Replaced all min and max entries with <b>Min and Max</b> <u>Reason:</u> Consistency throughout document
4-2 / Air Product Data Sheet Table		<u>Action:</u> Replaced all min and max entries with <b>Min and Max</b> <u>Reason:</u> Consistency throughout document
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