Ref: P/TGSB

The Gambia Standards Bureau

130 Kairaba Avenue
PO Box 2384, Serekunda
Tel: (+220) 449 45 12/13/14,
Email: thegambiasb@gmail.com

Ref: TGSB/PURA/Part I/10 **18 October 2018**

(1) DRWE
P/s take note for necessary actions
15/10/18
cc: All Prof Staff

The Director General
Public Utilities Regulatory Authority
94 Kairaba Avenue

COMPLIMENTARY COPIES OF FINALIZED PETROLEUM PRODUCTS STANDARDS

It is my pleasure to provide you the finalized petroleum products standards as approved for publication in the official Government Gazette by the Board of Directors, in accordance with Section 23 Sub-section 2 of The Gambia Standards Bureau Act 2010.

Therefore, within our collaborative framework and in your capacity as the regulatory body and an active member of the Technical Committee for Petroleum Products and Services, these standards are hereby made available to you for the use of your Institution. We would like to bring to your attention that these Standards are under copyright protection and the holder is the Bureau. The enclosed copies of the Standards are:

1. GAS OIL – Specification
2. MOGAS/GASOLINE/PMS – Specification
3. JET A1 – Specification
4. HEAVY FUEL OIL (HFO) - Specification

May I seize this opportunity to thank you for your contribution to the development of national standards.

We look forward to our continued cooperation and please feel free to contact us should you have any questions, enquiries and or requests for any activity within the domain of the National Quality Infrastructure.

Yours faithfully,

Papa Secka
Director General

RECEIVED
18- OCT 2018
PURA

GAMBIAN
STANDARD

GAMS 005:2016

GAS OIL - Specification

ICS No: 75.160.20

DATE OF PUBLICATION:

This Gambian Standard has been published under the authority of the Bureau on .....

THE GAMBIA STANDARDS BUREAU

The Gambia Standards Bureau is a statutory organization established by The Gambia Standards Bureau Act 2010 to standardize products, methods, systems and for connected matters.

TECHNICAL COMMITTEE RESPONSIBLE

The preparation of this Gambian Standard was entrusted upon the Technical Committee for Petroleum Products in which the following organizations were represented:

Ministry of Petroleum (Chair)
Gambia National Petroleum Corporation
Gampetroleum Company Ltd
ELTON Oil Company Ltd
TOTAL Oil Company Ltd
Galp Energia (Gambia) Ltd
Public Utilities Regulatory Authority
The Gambia Standards Bureau (Secretariat)

TABLE OF CONTENTS

FOREWORD

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The Petroleum Products Technical Committee was set up following concerns from stakeholders including Regulatory bodies and Oil Marketing Companies as well as consumers on the urgent need to have a national standard specification for petroleum products in use in Gambia.

This standard specification is for Gasoil. It specifies the requirements in terms of limits, testing, methods of sampling and labeling for this product.

This Standard can be obtained from The Gambia Standards Bureau.

GAS OIL - Specification

1. SCOPE

This Draft Gambian Standard specifies requirements and methods of sampling and testing for Gasoil.

2. NORMATIVE REFERENCES

The following publications contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below.

ASTM D 86	Test Method for Distillation of Petroleum Products.
ASTM D 93	Test Method for Flashpoint by Pensky-Martens Closed Cup Tester.
ASTM D 95	Test Method for Water in Petroleum Products and Bituminous Materials by Distillation.
ASTM D 130	Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test.
ASTM D 445	Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity).
ASTM D 473	Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method
ASTM D 482	Test Method for Ash from Petroleum Products.
ASTM D 189	Test Method for Conradson Carbon Residue of Petroleum Products.
ASTM D 974	Test Method for Acid and Base Number of Petroleum Products by Colour-indicator Titration.
ASTM D 976	Methods for Calculated Cetane Index of Distillate Fuels.
ASTM D 4052	Practice for Density, Relative Density (Specific Gravity), or API Gravity of Liquids by Digital Density Meter
ASTM D 1500	Test Method for ASTM Colour of Petroleum Products (ASTM Colour Scale).
ASTM D 2500	Test Method for Cloud Point of Petroleum Products.
ASTM D 4294	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry

NOTE: ASTM - Methods published by the ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959 USA.

3. DEFINITIONS

For the purpose of this Standard, the following definitions shall apply.

3.1 Additive

A compound added to Gasoil fuel to improve either the performance or the storage stability or both.

3.2 Clear

Absence of moisture and suspended matter.

4. REQUIREMENTS

4.1 General

4.1.1 The fuel shall be hydrocarbon oil derived from petroleum. This does not preclude the incorporation of small amounts of additives intended to improve some aspects of performance. The fuel shall be free from inorganic acid and from quantities of grit, fibrous material and other foreign matter likely to interfere with the operation of normal equipment.

4.1.2 When Gasoil is tested in accordance with the methods of test given in Table 1, it shall be in compliance with the specifications/requirements given in this Table.

4.2 Storage stability

When stored under conventional storage conditions for a period of 12 months after date of receipt, the fuel shall still comply with the requirements given in Table 1.

When the fuel is to be stored for longer periods, the stability over a period exceeding 12 months shall be as agreed upon between the supplier and purchaser.

5. PACKAGING AND MARKING

5.1 Packaging

The condition of the containers and road tank vehicles shall be such as not to be detrimental to the quality of the fuel during normal transportation and storage. The containers shall be sealed in an acceptable manner.

5.2 Marking

5.2.1 The following information shall appear in legible and indelible marking on each container and in the storage and consignment documents of each road tank vehicle.

(a) the type of fuel, i.e., "Gas Oil"
(b) the quantity in litres
(c) the batch/lot number (if applicable)

NOTE: Container includes bulk storage tanks and road tank vehicles.

TABLE 1: SPECIFICATIONS FOR GAS OIL

Test Parameter	Test Method	Unit	Specification/Limit
Colour	ASTM D 1500	scale	2.5 max
Density @ 15°C	ASTM D 4052	kg/l	0.820 – 0.870
Sulfur content	ASTM D 4294	% m/m	0.005 max
Viscosity (cst @ 37.8°C)	ASTM D 445	mm^2/s	1.6 – 4.5
Cloud Point	ASTM D 2500	°C	5 max
Pour Point	ASTM D 97	°C	report
Flash Point	ASTM D 93	°C	61 min
Water Content	ASTM D 95	% vol	0.05 max
Sediment by extraction	ASTM D 473	% m/m	0.01 max
Ash content	ASTM D 482	% m/m	0.01 max
Total Acid Number	ASTM D 974	mg KOH/g	1.0 max
Strong Acid Number	ASTM D 974	mg KOH/g	1.0 max
Carbon Residue (on 10% residue)	ASTM D 189	% m/m	0.15 max
Copper Corrosion (3hrs. @ 50°C)	ASTM D 130	class	1B max
Cetane Index	ASTM D 976	-	45 min
Distillation (recovery @ 357°C)	ASTM D 86	% v/v	90 min
Distillation (recovery @ 362°C)	ASTM D 86	% v/v	93.5 min

6. METHODS OF TEST

For all test parameters, use the applicable method listed in column 2 (Test Method) of Table 1.

7. SAMPLING

7.1 Sampling from storage tanks

For the purposes of this standard, all sampling shall be carried out in accordance with the relevant sections of applicable statutory requirements.

7.2 Sampling from fuel lines

7.2.1 Sampling cans. Sampling cans shall be of 1 litre capacity.

NOTE: Attention is drawn to the fact that sampling cans will need to comply with the statutory safety requirements for the classification, packaging and labeling of dangerous substances.

7.2.2 Preparation of cans. A stock of cans shall be kept solely for the purpose of taking fuel samples. Before use, all cans shall be checked to ensure they are sound and free from leaks. A fuel-resistant sealing washer in good condition shall be in position in the cap.

7.2.3 Procedure. From the discharge point, 1 litre of the fuel to be tested shall be carefully drawn into a 1 litre can using a clean dry funnel. The screw cap shall be fully tightened and the can checked to ensure that there are no leaks.

NOTE: If more than 1 litre are needed, the operation should be repeated immediately and before the pump has been used for any other purpose.

7.2.4 Labeling and transport. Full and legible information relating to the source of the sample shall be attached to the can in such a manner that it will not easily become detached subsequently.

NOTE 1
If required, the sample may be sealed and labeled to maintain its legal integrity.

NOTE 2
If the sample has to be sent to the laboratory by public transport, it will be necessary to comply with the general regulations covering transportation of flammable materials, where appropriate, and with the requirements of the transport authority concerned. Information on the appropriate procedures and type of packaging required should be obtained from the relevant transport authority involved.

GAMBIAN
STANDARD

GAMS 007:2016

MOGAS/GASOLINE/PMS - Specification

ICS No: 75.160.20

DATE OF PUBLICATION:

This Gambian Standard has been published under the authority of the Bureau on .....

THE GAMBIA STANDARDS BUREAU

The Gambia Standards Bureau is a statutory organization established by The Gambia Standards Bureau Act 2010 to standardize products, methods, systems and for connected matters.

TECHNICAL COMMITTEE RESPONSIBLE

The preparation of this Gambian Standard was entrusted upon the Technical Committee for Petroleum Products in which the following organizations were represented:

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The Gambia Standards Bureau (Secretariat)

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The Petroleum Products Technical Committee was set up following concerns from stakeholders including Regulatory bodies and Oil Marketing Companies as well as consumers on the urgent need to have a national standard specification for petroleum products in use in Gambia.

This standard specification is for MOGAS, otherwise known as Gasoline or PMS. It specifies the requirements in terms of limits, testing, methods of sampling and labeling for this product.

This Standard can be obtained from The Gambia Standards Bureau.

MOGAS (GASOLINE/PMS) - Specification

1. SCOPE

This Draft Gambian Standard specifies requirements and methods of sampling and testing for MOGAS.

2. NORMATIVE REFERENCES

The following publications contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below.

ASTM D 86	Test Method for Distillation of Petroleum Products.
ASTM D 93	Test Method for Flashpoint by Pensky-Martens Closed Cup Tester.
ASTM D 95	Test Method for Water in Petroleum Products and Bituminous Materials by Distillation.
ASTM D 130	Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test.
ASTM D 445	Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity).
ASTM D 473	Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method
ASTM D 482	Test Method for Ash from Petroleum Products.
ASTM D 189	Test Method for Conradson Carbon Residue of Petroleum Products.
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ASTM D 4052	Practice for Density, Relative Density (Specific Gravity), or API Gravity of Liquids by Digital Density Meter
ASTM D 1500	Test Method for ASTM Colour of Petroleum Products (ASTM Colour Scale).
ASTM D 2500	Test Method for Cloud Point of Petroleum Products.
ASTM D 4294	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry

NOTE: ASTM - Methods published by the ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959 USA.

3. DEFINITIONS

For the purpose of this Standard, the following definitions shall apply.

3.1 Additive

A compound added to MOGAS fuel to improve either the performance or the storage stability or both.

3.2 Clear

Absence of moisture and suspended matter.

4. REQUIREMENTS

4.1 General

4.1.1 The fuel shall be hydrocarbon oil derived from petroleum. This does not preclude the incorporation of small amounts of additives intended to improve some aspects of performance. The fuel shall be free from inorganic acid and from quantities of grit, fibrous material and other foreign matter likely to interfere with the operation of normal equipment.

4.1.2 When MOGAS is tested in accordance with the methods of test given in Table 1, it shall be in compliance with the specifications/requirements given in this Table.

4.2 Storage stability

When stored under conventional storage conditions for a period of 12 months after date of receipt, the fuel shall still comply with the requirements given in Table 1.

When the fuel is to be stored for longer periods, the stability over a period exceeding 12 months shall be as agreed upon between the supplier and purchaser.

5. PACKAGING AND MARKING

5.1 Packaging

The condition of the containers and road tank vehicles shall be such as not to be detrimental to the quality of the fuel during normal transportation and storage. The containers shall be sealed in an acceptable manner.

5.2 Marking

5.2.1 The following information shall appear in legible and indelible marking on each container and in the storage and consignment documents of each road tank vehicle.

(a) the type of fuel, i.e., "MOGAS/GASOLINE/PMS"
(b) the quantity in litres
(c) the batch/lot number (if applicable)

NOTE: Container includes bulk storage tanks and road tank vehicles.

TABLE 1: SPECIFICATIONS FOR MOGAS/GASOLINE/PMS

Test Parameter	Test Method	Unit	Specification/Limit
Colour	Visual	-	Colourless
Density @ 15°C	ASTM D 1298	kg/l	0.720 – 0.790
Sulfur content	ASTM D 4294	% m/m	0.15 max
Reid Vapour Pressure	ASTM D 323 D 5191	g/cm^2	650 max
Lead content	ASTM D 3341	g/l	0.013 max
Existent Gum	ASTM D 381	mg/100ml	5 max
Induction Period	ASTM D 525	minutes	240 min
Octane Number, Research	ASTM D 2699	-	91 min
Corrosion, Copper Strip	ASTM D 130	class	1B max
Distillation (10% vol. recovered)	ASTM D 86	°C	75 max
Distillation (Final Boiling Point)	ASTM D 86	°C	215 max
Distillation (Residue)	ASTM D 86	% vol	2 max

6. METHODS OF TEST

For all test parameters, use the applicable method listed in column 2 (Test Method) of Table 1.

7. SAMPLING

7.1 Sampling from storage tanks

For the purposes of this standard, all sampling shall be carried out in accordance with the relevant sections of applicable statutory requirements.

7.2 Sampling from fuel lines

7.2.1 Sampling cans. Sampling cans shall be of 1 litre capacity.

NOTE: Attention is drawn to the fact that sampling cans will need to comply with the statutory safety requirements for the classification, packaging and labeling of dangerous substances.

7.2.2 Preparation of cans. A stock of cans shall be kept solely for the purpose of taking fuel samples. Before use, all cans shall be checked to ensure they are sound and free from leaks. A fuel-resistant sealing washer in good condition shall be in position in the cap.

7.2.3 Procedure. From the discharge point, 1 litre of the fuel to be tested shall be carefully drawn into a 1 litre can using a clean dry funnel. The screw cap shall be fully tightened and the can checked to ensure that there are no leaks.

NOTE: If more than 1 litre are needed, the operation should be repeated immediately and before the pump has been used for any other purpose.

7.2.4 Labeling and transport. Full and legible information relating to the source of the sample shall be attached to the can in such a manner that it will not easily become detached subsequently.

NOTE 1
If required, the sample may be sealed and labeled to maintain its legal integrity.

NOTE 2
If the sample has to be sent to the laboratory by public transport, it will be necessary to comply with the general regulations covering transportation of flammable materials, where appropriate, and with the requirements of the transport authority concerned. Information on the appropriate procedures and type of packaging required should be obtained from the relevant transport authority involved.

GAMBIAN
STANDARD

GAMS 006:2016

JET A1 - Specification

ICS No: 75.160.20

DATE OF PUBLICATION:

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THE GAMBIA STANDARDS BUREAU

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TABLE OF CONTENTS

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The Petroleum Products Technical Committee was set up following concerns from stakeholders including Regulatory bodies and Oil Marketing Companies as well as consumers on the urgent need to have a national standard specification for petroleum products in use in Gambia.

This standard specification is for the aviation turbine fuel classified as JET A1. It specifies the requirements in terms of limits, testing, methods of sampling and labeling for this product.

However, this specification does not define the quality assurance testing and procedures necessary to ensure that fuel in the distribution system continues to comply with this specification after batch certification. Such procedures are not within the scope of this standard and are thus defined in relevant industry Guides such as ICAO 9977, EI/JIG Standard 1530, JIG 1, JIG 2, API 1543, API 1595, and ATA-103.

This Standard can be obtained from The Gambia Standards Bureau.

JET A1 - Specification

1. SCOPE

This Draft Gambian Standard specifies requirements and methods of sampling and testing for JET A1.

2. NORMATIVE REFERENCES

The following publications contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below.

ASTM D 86	Test Method for Distillation of Petroleum Products.
ASTM D 93	Test Method for Flashpoint by Pensky-Martens Closed Cup Tester.
ASTM D 130	Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test.
ASTM D 445	Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity).
ASTM D 2624	Standard Test Method for Aviation and Distillate Fuels
ASTM D 3242	Standards Test Method for Acidity in Aviation Turbine Fuel.
ASTM D 156	Standard Test Method for Saybolt Colour of Petroleum Products (Saybolt Chronometer Method).
ASTM D 2386	Standard Test Method for Freezing Point of Aviation Fuels.
ASTM D 1322	Standard Test Method for Smoke Point of Kerosene and Aviation Turbine Fuel.
ASTM D 4052	Practice for Density, Relative Density (Specific Gravity), or API Gravity of Liquids by Digital Density Meter
ASTM D 381	Standard Test Method for Gum Content in Fuels by Jet Evaporation.
ASTM D 4294	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry

NOTE: ASTM - Methods published by the ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959 USA.

3. DEFINITIONS

For the purpose of this Standard, the following definitions shall apply.

3.1 Additive

A compound added to JET A1 fuel to improve either the performance or the storage stability or both.

3.2 Clear

Absence of moisture and suspended matter.

4. REQUIREMENTS

4.1 General

4.1.1 The fuel shall be hydrocarbon oil derived from petroleum. This does not preclude the incorporation of small amounts of additives intended to improve some aspects of performance. The fuel shall be free from inorganic acid and from quantities of grit, fibrous material and other foreign matter likely to interfere with the operation of normal equipment.

4.1.2 When JET A1 is tested in accordance with the methods of test given in Table 1, it shall be in compliance with the specifications/requirements given in this Table.

4.2 Storage stability

When stored under conventional storage conditions for a period of 12 months after date of receipt, the fuel shall still comply with the requirements given in Table 1

When the fuel is to be stored for longer periods, the stability over a period exceeding 12 months shall be as agreed upon between the supplier and purchaser.

5. PACKAGING AND MARKING

5.1 Packaging

The condition of the containers and road tank vehicles shall be such as not to be detrimental to the quality of the fuel during normal transportation and storage. The containers shall be sealed in an acceptable manner.

5.2 Marking

5.2.1 The following information shall appear in legible and indelible marking on each container and in the storage and consignment documents of each road tank vehicle.

(a) the type of fuel, i.e., "JET A1"
(b) the quantity in litres
(c) the batch/lot number (if applicable)

NOTE: Container includes bulk storage tanks and road tank vehicles.

TABLE 1: SPECIFICATIONS FOR JET A1

Test Parameter	Test Method	Unit	Specification/Limit
Appearance	Visual	-	Clear and bright
Density @ 15°C	ASTM D 4052	kg/l	0.775 – 0.840
Flash Point	ASTM D 93	°C	38.0 min
Electrical conductivity @ 25°C	ASTM D 2624	pS/m	50 min – 600 max
Total acidity	ASTM D 3242	mg KOH/g	0.015 max
Distillation	ASTM D 86		
- Initial Boiling Point		°C	Report
- 10% vol. recovered			205.0 max
- 50% vol. recovered			Report
- 90% vol. recovered			Report
- Final Boiling Point			300.0 max
- Residue		% vol.	1.0 max
- Loss		% vol.	1.0 max
Colour Saybolt	ASTM D 156	scale	Report
Sulfur total	ASTM D 4294	% m/m	0.03 max
Doctor test	IP 30	rating	Neg.
Freezing point	ASTM D 2386	°C	-47 max
Kinematic viscosity @ -20.0°C	ASTM D 445	cst (mm^2/s)	8,000 max
Smoke point	ASTM D 1322	mm	25.0 min
Corrosion, Copper Strip	ASTM D 130	class	1 max
Existent gum	ASTM D 381	mg/100ml	7 max

6. METHODS OF TEST

For all test parameters, use the applicable method listed in column 2 (Test Method) of Table 1.

7. SAMPLING

7.1 Sampling from storage tanks

For the purposes of this standard, all sampling shall be carried out in accordance with the relevant sections of applicable statutory requirements.

7.2 Sampling from fuel lines

7.2.1 Sampling cans. Sampling cans shall be of 1 litre capacity.

NOTE: Attention is drawn to the fact that sampling cans will need to comply with the statutory safety requirements for the classification, packaging and labeling of dangerous substances.

7.2.2 Preparation of cans. A stock of cans shall be kept solely for the purpose of taking fuel samples. Before use, all cans shall be checked to ensure they are sound and free from leaks. A fuel-resistant sealing washer in good condition shall be in position in the cap.

7.2.3 Procedure. From the discharge point, 1 litre of the fuel to be tested shall be carefully drawn into a 1 litre can using a clean dry funnel. The screw cap shall be fully tightened and the can checked to ensure that there are no leaks.

NOTE: If more than 1 litre are needed, the operation should be repeated immediately and before the pump has been used for any other purpose.

7.2.4Labeling and transport. Full and legible information relating to the source of the sample shall be attached to the can in such a manner that it will not easily become detached subsequently.

NOTE 1
If required, the sample may be sealed and labeled to maintain its legal integrity.

NOTE 2
If the sample has to be sent to the laboratory by public transport, it will be necessary to comply with the general regulations covering transportation of flammable materials, where appropriate, and with the requirements of the transport authority concerned. Information on the appropriate procedures and type of packaging required should be obtained from the relevant transport authority involved.

GAMBIAN
STANDARD

GAMS 008:2016

HEAVY FUEL OIL (HFO) - Specification

ICS No: 75.160.20

DATE OF PUBLICATION:

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The Petroleum Products Technical Committee was set up following concerns from stakeholders including Regulatory bodies and Oil Marketing Companies as well as consumers on the urgent need to have a national standard specification for petroleum products in use in Gambia.

This standard specification is for HFO. It specifies the requirements in terms of limits, testing, methods of sampling and labeling for this product.

This Standard can be obtained from The Gambia Standards Bureau.

HFO - Specification

1. SCOPE

This Draft Gambian Standard specifies requirements and methods of sampling and testing for HFO.

2. NORMATIVE REFERENCES

The following publications contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below.

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ASTM D 1322	Standard Test Method for Smoke Point of Kerosene and Aviation Turbine Fuel.
ASTM D 4052	Practice for Density, Relative Density (Specific Gravity), or API Gravity of Liquids by Digital Density Meter
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ASTM D 4294	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry

NOTE: ASTM - Methods published by the ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959 USA.

3. DEFINITIONS

For the purpose of this Standard, the following definitions shall apply.

3.1 Additive

A compound added to HFO fuel to improve either the performance or the storage stability or both.

3.2 Clear

Absence of moisture and suspended matter.

4. REQUIREMENTS

4.1 General

4.1.1 The fuel shall be hydrocarbon oil derived from petroleum. This does not preclude the incorporation of small amounts of additives intended to improve some aspects of performance. The fuel shall be free from inorganic acid and from quantities of grit, fibrous material and other foreign matter likely to interfere with the operation of normal equipment.

4.1.2 When HFO is tested in accordance with the methods of test given in Table 1, it shall be in compliance with the specifications/requirements given in this Table.

4.2 Storage stability

When stored under conventional storage conditions for a period of 12 months after date of receipt, the fuel shall still comply with the requirements given in Table 1.

When the fuel is to be stored for longer periods, the stability over a period exceeding 12 months shall be as agreed upon between the supplier and purchaser.

5. PACKAGING AND MARKING

5.1 Packaging

The condition of the containers and road tank vehicles shall be such as not to be detrimental to the quality of the fuel during normal transportation and storage. The containers shall be sealed in an acceptable manner.

5.2 Marking

5.2.1 The following information shall appear in legible and indelible marking on each container and in the storage and consignment documents of each road tank vehicle.

(a) the type of fuel, i.e., "HFO"
(b) the quantity in litres
(c) the batch/lot number (if applicable)

NOTE: Container includes bulk storage tanks and road tank vehicles.

TABLE 1: SPECIFICATIONS FOR HFO

Test Parameter	Test Method	Unit	Specification/Limit
Density @ 15°C	ASTM D 4052	kg/l	0.970 – 0.980
Flash Point	ASTM D 93	°C	61 min
Sulfur	ASTM D 4294	% m/m	2.0 max
Water content	ASTM D95	% m/m	0.2 max
Ash	ASTM D 482	% m/m	0.05 max
Sediment by extraction	ASTM D 473	% m/m	0.05 max
Viscosity @ 50.0°C	ASTM D 445	cst (mm^2/s)	390 max
Vanadium	IP 501/IP 470	mg/kg	180 max
Sodium	IP 501/IP 470	mg/kg	55 max
Aluminium	IP 501/IP 470	mg/kg	30 max
Corrosion, Copper Strip	ASTM D 130	class	1 max
Existent gum	ASTM D 381	mg/100ml	7 max
Carbon residue, Conradson	ASTM D 189	% m/m	15.0 max

6. METHODS OF TEST

For all test parameters, use the applicable method listed in column 2 (Test Method) of Table 1.

7. SAMPLING

7.1 Sampling from storage tanks

For the purposes of this standard, all sampling shall be carried out in accordance with the relevant sections of applicable statutory requirements.

7.2 Sampling from fuel lines

7.2.1 Sampling cans. Sampling cans shall be of 1 litre capacity.

NOTE: Attention is drawn to the fact that sampling cans will need to comply with the statutory safety requirements for the classification, packaging and labeling of dangerous substances.

7.2.2 Preparation of cans. A stock of cans shall be kept solely for the purpose of taking fuel samples. Before use, all cans shall be checked to ensure they are sound and free from leaks. A fuel-resistant sealing washer in good condition shall be in position in the cap.

7.2.3 Procedure. From the discharge point, 1 litre of the fuel to be tested shall be carefully drawn into a 1 litre can using a clean dry funnel. The screw cap shall be fully tightened and the can checked to ensure that there are no leaks.

NOTE: If more than 1 litre are needed, the operation should be repeated immediately and before the pump has been used for any other purpose.

7.2.4 Labeling and transport. Full and legible information relating to the source of the sample shall be attached to the can in such a manner that it will not easily become detached subsequently.

NOTE 1
If required, the sample may be sealed and labeled to maintain its legal integrity.

NOTE 2
If the sample has to be sent to the laboratory by public transport, it will be necessary to comply with the general regulations covering transportation of flammable materials, where appropriate, and with the requirements of the transport authority concerned. Information on the appropriate procedures and type of packaging required should be obtained from the relevant transport authority involved.