

FUEL QUALITY STANDARDS



UTILITY REGULATION AND COMPETITION OFFICE
CAYMAN ISLANDS

Abstract:

The Fuel Quality Standards establish the minimum quality, testing, and compliance requirements for fuels imported, marketed, or distributed in the Cayman Islands. Made under sections 9A and 9B of the Dangerous Substances Act, the Standards support consistent fuel quality, consumer protection, environmental safeguards, and regulatory oversight by prescribing applicable specifications, recognised test methods, and compliance expectations for gasoline, diesel, biodiesel, ethanol, propane/autogas, and related fuel products.

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Approval and Revision Record

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Acknowledgement

Fuel Standards Committee

The Fuel Standards Committee established pursuant to section 9A (1) of the Dangerous Substances Law (2017 Revision) (“the Committee”) shall, for the purposes of this Standard, exercise the functions conferred upon it by the Law and perform such functions as are prescribed by or necessary for the administration of this Standard.

In accordance with section 9A (1) of the Law, the Committee comprise:

- The **Chief Fuels Inspector**, Chairperson;
- The **Director of the Department of Environmental Health**, or the Director’s duly authorised nominee;
- The **Director of Environment**, or the Director’s duly authorised nominee; and
- The **Director of the Water Authority**, or the Director’s duly authorised nominee.



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ARRANGEMENT OF STANDARDS

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In exercise of the powers conferred by sections 9A and 9B of the Dangerous Substances Act (2017 Revision), the Utility Regulation and Competition Office, in conjunction with the Fuel Standards Committee, makes the following Standards -

1. Citation

These Standards may be cited as the Fuel Quality Standards 2027.

2. Commencement

The Standards shall come into effect on 1 January 2027.

These Standards shall be published at least ninety (90) days prior to the date of commencement to provide Operators with a transitional period and notice of the requirements of the Standards as sufficient time to achieve compliance.

All Operators shall comply with these Standards from the Date of commencement.

3. Definitions

“**the Act**” means the Dangerous Substances Act (2017 Revision).

“**Antiknock Index (AKI)**” means the arithmetic average of the Research Octane Number and Motor Octane Number of a gasoline, calculated as $(RON + MON) \div 2$, and is also referred to as the octane rating or $(R+M)/2$ octane

“**ASTM (ASTM International)**” means ASTM International, an international standards organisation that develops and publishes voluntary consensus standards.

“**Automotive Fuel Rating**” means the rating applicable to an automotive fuel under 16 CFR Part 306, Automotive Fuel Ratings, Certification and Posting, as amended or replaced from time to time.

“**Aviation Gasoline (AvGas)**” means a type of gasoline suitable for use as a fuel in an aircraft spark-ignition internal combustion engine.

“**Aviation Turbine Fuel (AvJet)**” means a refined middle distillate suitable for use as a fuel in an aircraft gas turbine internal combustion engine;

“**Biodiesel**” means a fuel composed of monoalkyl esters of long-chain fatty acids derived from plant or animal matter and conforming to ASTM D6751, designated B100 or, where permitted by the applicable specification, B99

“**Biodiesel Blend**” means a fuel comprising a blend of biodiesel with hydrocarbon diesel fuel.

“**Board**” has the meaning assigned to that term in section 2 of the Dangerous Substances Act (2017 Revision).



“Cetane Number” means the numerical measure of diesel fuel ignition performance determined by comparison with reference fuels in a standardised test engine in accordance with ASTM D613 or an approved equivalent method.

“Chief Fuels Inspector” has the meaning assigned to that term in section 2 of the Dangerous Substances Act (2017 Revision).

“Compressed Natural Gas (CNG)” means natural gas which has been compressed and dispensed into fuel storage containers and is suitable for use as an engine fuel.

“DEH” means the Cayman Islands Department of Environmental Health.

“DOE” means the Cayman Islands Department of Environment.

“Denatured Fuel Ethanol” means an ethanol blend component for use in gasoline-ethanol blends and ethanol flex fuel. The ethanol is rendered unfit for beverage use by the addition of denaturants under formulas approved by the Fuel Standards Committee, by the latest version of ASTM D4806, “Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark Ignition Engine Fuel”, which describes the acceptable denaturants for denatured fuel ethanol to be blended into spark ignition engine fuels.

“Diesel Exhaust Fluid (DEF)” means an aqueous urea, $[(\text{NH}_2)_2\text{CO}]$, containing 32.5 Final % by mass of technically pure urea in high-purity water with quality characteristics defined by the latest version of ISO 22241, “Diesel engines – NOx reduction agent AUS 32.”

“Diesel Fuel” means a refined hydrocarbon suitable for use as a fuel in a compression-ignition diesel internal combustion engine that may contain a combination of biodiesel, renewable diesel, and fuel additives.

“Distillate” means any product obtained by condensing vapours produced by boiling petroleum or its products.

“Downgrade” means reclassification of a fuel product to a lower grade based on its actual tested characteristics.

“EN” means a European Standard published by the European Committee for Standardisation.

“Engine Fuel” means any liquid or gaseous matter used for the generation of power in an internal combustion engine.

“Engine Fuels Designed for Special Use” means Engine fuels designated by the Fuel Standards Committee as requiring registration. These fuels typically lack ASTM or other nationally recognised consensus standards governing their quality or usability. Common examples include racing fuels and fuels intended for agricultural or other off-road applications.



“EPA” means the United States Environmental Protection Agency.

“Ethanol or Ethyl Alcohol” means ethanol that is provided in gasoline-ethanol blends by blending denatured fuel ethanol.

“Ethanol Flex Fuel” means blends of ethanol and hydrocarbons restricted for use as fuel in ground vehicles equipped with flexible-fuel spark-ignition engines;

“Fuel” has the meaning assigned to that term in the Act

“Fuel Additive” means a material added to a fuel in small amounts to impart or enhance desirable properties or to suppress undesirable properties.

“Fuel Oil” means refined oil, middle distillates, heavy distillates, or residues of refining, or blends of these, suitable for use as a fuel for heating or power generation.

“Fuel Standards Committee (FSC)” means the Fuel Standards Committee established under section 9A of the Act,

“Gallon” means an imperial gallon, equivalent to 4.54609 litres or 1.20 US Gallons.

“Gasoline (Petrol)” means a volatile mixture of liquid hydrocarbons containing small amounts of additives suitable for use as a fuel in a spark-ignition internal combustion engine.

“Gasoline-Oxygenate Blend” means a fuel consisting primarily of gasoline blended with a substantial amount (more than 1 % by volume) of oxygenate, not to exceed the total oxygen content limits prescribed in these Standards.

“Importer” has the meaning assigned to that term in section 2 of the Act

“Internal Combustion Engine” means an engine used to convert chemical energy bound in the fuel via spark-ignition or compression ignition combustion into mechanical work to power a vehicle or other device.

“International Organisation for Standardisation (ISO)” means the independent international organisation composed of national standards bodies that develops and publishes international standards.

“Lead Substitute Additive Importer” means an importer who imports, blends or adds a lead-substitute additive to gasoline intended for supply or sale in the Islands.

“Lead Substitute” means a fuel additive approved under these Standards for use in gasoline in small amounts, to reduce or prevent exhaust valve recession (or seat wear) in automotive spark-ignition internal combustion engines designed to operate on leaded fuel.



“Lead Substitute Engine Fuel” means, for labelling purposes, a gasoline or gasoline-oxygenate blend that contains a “lead substitute”.

“Liquefied Natural Gas (LNG)” means natural gas cooled to a liquid state for storage or transportation, ordinarily at approximately -162°C , and is suitable for use as an engine fuel.

“Liquefied Petroleum Gas (LPG)” means a mixture of normally gaseous hydrocarbons, predominantly propane, butane, or both, liquefied by compression or cooling, or both, to facilitate storage, transport, and handling.

“Low Temperature Operability” means a condition that allows fuel to flow throughout its fuel delivery system at low temperatures and permits uninterrupted diesel engine operation through the continuous flow. Fuels with adequate low-temperature operability characteristics could avoid wax precipitation and clogging in fuel filters.

“Lubricity” means a qualitative term describing the ability of a fluid to affect friction between, and wear to, surfaces in relative motion under load.

“Motor Octane Number” means the numerical rating of the knock resistance of a spark-ignition engine fuel determined in accordance with ASTM D2700, Standard Test Method for Motor Octane Number of Spark-Ignition Engine Fuel, or an approved equivalent method.

“MTBE” means methyl tert-butyl ether, an oxygenate having the molecular formula $\text{C}_5\text{H}_{12}\text{O}$

“Natural Gas” means a mixture of naturally occurring hydrocarbons, primarily methane, that exist in a gaseous phase in underground reservoirs and remain as a gas at atmospheric pressure.

“Office” means the Utility Regulation and Competition Office established under section 4 of the Utility Regulation and Competition Act (as revised);

“Operator” has the meaning assigned to that term in section 2 of the Act

“Oxygenate” means an oxygen-containing, ashless, organic compound, such as an alcohol or ether, which can be used as a fuel or fuel supplement.

“Racing Gasoline” means a high-performance fuel specifically formulated for competitive motorsports and high-output engines. It typically features a higher octane rating, enhanced purity, and specialised additives. Unlike standard automotive gasoline, it does not conform to ASTM D4814 specifications for highway use.

“Recertification” means a reissue of a certification of analysis (COA) for a fuel following retesting by a certified fuel testing lab.



“Requalification” means the process of testing and restoring non-compliant fuel to meet applicable standards under controlled conditions.

“Research Octane Number (RON)” means the numerical rating of the knock resistance of a spark-ignition engine fuel determined in accordance with ASTM D2699

“SAE (SAE International)” means the international technical association that develops standards and technical information for the mobility engineering sector.

“Terminal” means a facility at which bulk fuel is received, stored, and dispatched for distribution to wholesale or retail locations.

“Thermal Stability” means the ability of a fuel to resist the thermal stress which is experienced by the fuel when exposed to high temperatures in a fuel delivery system. Such stress can lead to the formation of insoluble gums or organic particulates. Insolubles (e.g., gums or organic particulates) can clog fuel filters and contribute to injector deposits.

“Unleaded” means, when used in conjunction with “engine fuel” or “gasoline”, any gasoline or gasoline-oxygenate blend to which no lead or phosphorus compounds have been intentionally added.

“Water Authority Cayman” means the Water Authority established under section 3 of the Water Authority Act (2022 Revision); and

“Wholesale Purchaser” means any person who is not an ultimate consumer of gasoline, ethanol-blend fuel, diesel fuel, biodiesel, biodiesel blends, kerosene, aviation turbine fuels, natural gas, compressed natural gas, or liquefied petroleum gas and who purchases or obtains the product from a supplier.



4. Application

4.1 The relevant markets in which fuels are imported and marketed to which the Standards apply are:

- (a) The entire fuel sector, including the various segments and relevant markets within the sector for which the applicable fuels outlined in Section 6 are sold or marketed. The Standards apply uniformly to all three Islands of the Cayman Islands.
- (b) The Standards shall apply to the following fuels, which are defined under Section 6 and marketed in the relevant markets set out under Section 9. Additionally, the grades of applicable fuel will be defined by the minimum Anti-Knock Index (AKI) for each specific grade, as outlined below:

Table 1: Minimum Anti-Knock Index (AKI)		
	Fuel	Grade
I.	Gasoline – Regular Grade	AKI 87
II.	Gasoline – Mid Grade	AKI 89
III.	Gasoline – Super Grade	AKI 91
IV	Diesel	Monograde Ultra Low Sulphur (including Biodiesel Blends up to 20%)
V	Liquefied Petroleum Gas	Propane HD 5
VI	Racing Gasoline	

5. Exempted Fuels

- 5.1** All other fuels not defined under Section 4 and not listed under Section 6 shall remain exempted. The quality of exempted fuel shall be subject to the import permit regime or as determined from time to time by the FSC.
- 5.2** Aviation Turbine Jet Fuel (AvJet) and Aviation Gasoline (AvGas) shall continue to comply with applicable fuel quality obligations, including those prescribed under International Air Transport Association (IATA) standards, Joint Inspection Group (JIG) 1 and 2 Standards, and Article 162 of the Air Navigation (Overseas Territories) Order 2013 (as amended).

6. Standards and Specifications for Fuels

- 6.1** The standards and specifications in this Section shall conform with the latest versions of the ASTM standards and testing methods or such other standards and testing methods as included in this Section, or with such equivalent standards and testing methods, as approved by the Chief Fuels Inspector or in consultation with the Fuel Standards Committee.



- 6.2** The test methods in this Section shall be used to determine the compliance of the fuel with the standards and specifications.
- 6.3** The testing methods listed are the methods that will be used by inspectors and other persons authorised to conduct tests on fuel under the Act to determine whether the fuel complies with the relevant fuel standard. The acceptance of the results shall be the responsibility of the Chief Fuels Inspector.
- 6.4 Gasoline**
- (a) In relation to any parameter in the following table, gasoline must comply with the specification for that parameter.
- (b) Compliance with the specification for a parameter is determined by using the testing method for that parameter listed in the table.
- (c) Specifications set out in the table apply to all grades of gasoline unless otherwise stated.
- (d) Any ethanol component of gasoline must comply with the fuel standard for ethanol in subsection 6.5.
- (e) Compounds containing phosphorus must not be added to gasoline.

Table 2: Gasoline Specifications

Item	Parameter	Specification	Testing Method (latest version will apply)
1	Total Aromatics Hydrocarbons	^A	ASTM 1319
2	Benzene	5.2% v/v maximum	ASTM D3606
3	Copper corrosion—3 h at 50°C	Class 1	ASTM D130
4	Density @15°C	710 – 780 Kg/m ³	ASTM D4052
5	Diisopropyl ether (DIPE, CAS no. 108-20-3)	1% v/v maximum	ASTM D4815
6	Distillation—final boiling point	225°C maximum	ASTM D86
7	Driveability Index @69 kPa	591°C maximum	ASTM D4814
8	Ethanol	10% v/v maximum	ASTM D4815
9	Ethyl tertiary butyl ether (ETBE, CAS no. 637-92-3)	1% v/v maximum	ASTM D4815
10	Existent gum—washed	5 mg/100 mL maximum	ASTM D381
11	Induction period - oxidation stability @100°C	240 minutes minimum	ASTM D525



12	Lead	<2.5mg/L	ASTM D3237
13	Manganese	Not Detectable ^B	ASTM D3831
14	Methyl tertiary butyl ether (MTBE, CAS no. 1634-04-4)	1% v/v maximum	ASTM D4815
15	Motor octane number (MON)	AKI 87 - 82 MON min AKI 89 - 83 MON min AKI 91 – 86 MON min AKI 93 – 88 MON min	ASTM D2700
16	Olefins	^A	ASTM D1319
17	Oxygen	Gasoline without ethanol: 2.7% m/m maximum Gasoline with ethanol: 3.9% m/m maximum	ASTM D4815
18	Phosphorous	1.3 mg/L maximum	ASTM D3231
19	Research octane number (RON)	AKI 87 – 92 RON min AKI 89 – 95 RON min AKI 91 – 95 RON min AKI 93 – 98 RON min	ASTM D2699
20	Sulphur	Between commencement and 30 June 2027: 91 RON grade: 80 mg/kg maximum 95 RON grade: 50 mg/kg maximum On and from 1 July 2027: All grades: 10 mg/kg maximum	ASTM D5453
21	Tertiary butyl alcohol (TBA, CAS no. 75-65-0)	0.5% v/v maximum	ASTM D4815
22	Vapour Pressure for Petroleum Products	35 -100 Kpa (D5191) (5 – 15psi) & 7 – 130Kpa (D323) (1 – 19psi)	ASTM D323 & D5191

A – Lab test and report the results

B – Not detectable is defined as <0.25mg/L

6.5 Ethanol



- (a) In relation to any parameter in the following table, ethanol in gasoline must comply with the specification for that parameter.
- (b) Compliance with the specification for a parameter is determined by using the testing method for that parameter listed in the table.
- (c) The denaturant component of ethanol must be gasoline.

Table 3: Ethanol Specifications

Item	Parameter	Specification	Testing Method (latest version will apply)
1	Acidity—as acetic acid	200 mg/kg maximum	ASTM D7795
2	Appearance	Clear and bright and visibly free of suspended or precipitated contaminants	ASTM D4806
3	Copper	0.1 mg/kg maximum	EN 15837 (as modified in CEN/TS 15293)
4	Denaturant	1–1.5% v/v denaturant	ASTM D5501
5	Ethanol	93% of mass minimum	ASTM D5501
6	Inorganic chloride	10 mg/kg maximum	ASTM D7328
7	Methanol	0.5% v/v maximum	ASTM D5501
8	pHe	6.5–9.0	ASTM D6423
9	Solvent-washed gum	5.0 mg/100 mL maximum	ASTM D381
10	Sulphate	4.0 mg/kg maximum	ASTM D7328
11	Sulphur	20mg/kg maximum	ASTM D5453
12	Water	1.0% m/m maximum	ASTM E1064

6.6 Diesel Fuel

- (a) In relation to any parameter in the following table, diesel must comply with the specification for that parameter.
- (b) Compliance with the specification for a parameter is determined by using the testing method for that parameter listed in the table.
- (c) Specifications set out in the table apply to all types of diesel unless otherwise stated.



(d) Any biodiesel component of diesel must meet the requirements of the fuel quality standard for biodiesel set out in the Standards for Biodiesel.

Table 4: Diesel Fuel Specifications

Item	Parameter	Specification	Testing Method (latest version will apply)
1	Ash	0.01% m/m maximum	ASTM D482
2	Biodiesel	7.0% v/v maximum	ASTM D7371
3	Carbon residue—10% distillation residue	0.1% m/m maximum	ASTM D4530
4	Cetane number	45 minimum	ASTM D613
5	Cetane index	45 minimum	ASTM D976
6	Conductivity at ambient temperature	Diesel held by a terminal or refinery for sale or distribution: 50 pS/m minimum at ambient temperature	ASTM D2624
7	Copper corrosion—3 h at 50°C	Class 1	ASTM D130
8	Density at 15°C	820–850 kg/m ³	ASTM D1298
9	Derived cetane number	Diesel containing biodiesel: 51 minimum	ASTM D6890
10	Distillation—T90	282°C - 360°C	ASTM D86
11	Flash point	60°C minimum	ASTM D93
12	Kinematic viscosity	2.0–4.5 mm ² /s at 40°C	ASTM D445
13	Lubricity	460 µm maximum	ASTM D6079
14	Oxidation stability	2.5 mg/100 mL maximum	ASTM D2274
15	Total Aromatics Hydrocarbons	^A	ASTM D1319
16	Sulphur	15 mg/kg maximum	ASTM D5453
17	Water and sediment	0.05% v/v maximum	ASTM D2709
18	Water	Diesel containing biodiesel: 200 mg/kg maximum	ASTM D6304

A – Lab test and report the results



6.7 Biodiesel

(a) In relation to any parameter in the following table, biodiesel must comply with the specification for that parameter.

(b) Compliance with the specification for a parameter is determined by using the testing method for that parameter listed in the table.

Table 5: Biodiesel Specifications

Item	Parameter	Specification	Testing Method (latest version will apply)
1	Acid value	0.50 mg KOH/g maximum	ASTM D664
2	Carbon residue—10% distillation residue	0.30% m/m maximum	ASTM D4530
3	Cold soak filterability	360 seconds maximum	ASTM D7501
4	Copper corrosion—3 h at 50°C	Class 1 maximum	ASTM D130
5	Density at 15°C	860–900 kg/m ³	ASTM D1298
6	Derived cetane number	51.0 minimum	ASTM D6890
7	Distillation—T90	360°C maximum	ASTM D1160
8	Ester content	96.5% m/m minimum	EN 14103
9	Flash point	120.0°C minimum	ASTM D93
10	Filter blocking tendency	2.0 maximum	ASTM D2068
11	Glycerides—monoglycerides	0.7% m/m maximum	ASTM D6584
12	Glycerides—diglycerides	0.2% m/m maximum	ASTM D6584
13	Glycerides—triglycerides	0.2% m/m maximum	ASTM D6584
14	Glycerol—free	0.02% m/m maximum	ASTM D6584
15	Glycerol—total	0.25% m/m maximum	ASTM D6584
16	Kinematic viscosity at 40°C	3.5–5.0 mm ² /s	ASTM D445



17	Metals—Group I—Na, K	5 mg/kg maximum	EN 14538
18	Metals—Group II—Ca, Mg	5 mg/kg maximum	EN 14538
19	Methanol	0.20% m/m maximum	EN 14110
20	Oxidation stability at 110°C	8.0 hours minimum	EN 14112
21	Phosphorus	4.0 mg/kg maximum	EN 14107
22	Sulphated ash	0.020% m/m maximum	ASTM D874
23	Sulphur	10 mg/kg maximum	ASTM D5453
24	Total contamination	24 mg/kg maximum	EN 12662
25	Water	500 mg/kg maximum	ASTM D6304

6.8 Propane/Autogas

(a) In relation to any parameter in the following table, propane must comply with the ASTM D1835 standard for that parameter.

(b) Compliance with the specification for a parameter is determined by using the testing method for that parameter listed in the table.

Table 6: Propane/Autogas Specifications

Item	Parameter	Specification	Testing Method (latest version will apply)
1	Copper, corrosion, strip max	No. 1	ASTM D1838 ^M
3	Hydrogen sulphide	Pass	ASTM D2420
4	Ethyl Mercaptan	Detectable by smell	Human smell detection
5	Butane and heavier ^F ,	2.5% by volume, max	ASTM D2163
6	Residue on evaporation of 100mL,	0.05mL max	ASTM D2158 ^K
7	Sulphur	123mg/Kg ^N max	ASTM D6667



8	Vapour pressure at 37.8 °C	1435kPa ^B max.	ASTM D1267 ^D or D2598 or D6897
9	Density at 15°C or relative density at 15.6°C/15.6°C	^L	ASTM D1657 or D2598
10	Moisture Content	Pass	ASTM D2713

B – Note that the total pressure of a batch of LPG can be higher than the vapour pressure determined by Practice D2598 if there are any inert gases (such as nitrogen or carbon dioxide) present in the LPG. Test Method D2598 is a calculation method of the vapour pressure of all hydrocarbons identified in a batch of LPG by Test Method D2163, but this gas chromatographic method does not detect the presence of inert gases, if present, in a batch of LPG.

D – In case of dispute about the vapour pressure of a product, the value actually determined by Test Method D1267 shall prevail over the value calculated by Practice D2598 or measured by Test Method D6897.

F – Butane and heavier includes all hydrocarbons (including olefins) with 4 or more carbon atoms

K – In the case of dispute, Test Method D2158 shall be the referee test method.

L – Although not a specific requirement, the density or relative density may be needed for other purposes and should be reported

M – This method may not accurately determine the presence of reactive material (for example, H₂S, S²⁻) in liquefied petroleum gas if the product contains corrosion inhibitors or other chemicals which diminish the reaction with the copper strip.

N – The total sulphur limits in these specifications do include sulphur compounds used for stenching purposes.

6.9 Gasoline and Gasoline-Oxygenate Blends

(a) Gasoline and Gasoline-Oxygenate Blends (as defined in this document) shall meet the latest version of ASTM D4814, “Standard Specification for Automotive Spark- Ignition Engine Fuel” except for the permissible offsets for ethanol blends as provided in Section 4 (2).

(b) Gasoline-Ethanol Blends.

- (i) The maximum concentration of oxygenates contained in gasoline-oxygenate blends shall not exceed those permitted by the FSC in accordance with EPA rules under Section 211 of the US Clean Air Act and applicable waivers, as adopted by FSC.
- (ii) Gasoline-Ethanol Blends. – When gasoline is blended with denatured fuel ethanol, the denatured fuel ethanol shall meet the latest version of ASTM D4806, “Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel,” and the blend shall meet the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” with the following permissible exceptions.
- (iii) The maximum vapour pressure shall not exceed the limits in the latest version of ASTM D4814, “Standard Specification for Automotive Spark-Ignition Engine Fuel,” by more than 1.0 psi for blends as allowed by the FSC.



- (iv) Minimum Antiknock Index (AKI). – The AKI shall not be less than the AKI posted on the product dispenser or as certified on the invoice, bill of lading, shipping paper, or other documentation.
- (v) Minimum Motor Octane Number. – The minimum motor octane number shall not be less than 82 for gasoline with an AKI of 87 or greater.
- (vi) Lead Substitute Gasoline. – Where lead substitutes are approved by the FSC, Gasoline and gasoline-oxygenate blends sold as “lead substitute” gasoline shall contain a lead substitute which protects against exhaust valve seat recession equivalent to at least 0.026 g lead per litre (0.118 g lead per Gallon).

NOTE: The Ethanol Blended Gasoline – E85 Fuel Quality Standard was established and published in April 2024.

- 6.10** Documentation of Exhaust Valve Seat Protection. – Upon the request of the FSC, the lead substitute additive importer shall provide documentation to the FSC that demonstrates that the treatment level recommended by the additive manufacturer protects against exhaust valve seat recession equivalent to or better than 0.026g lead per litre (0.118g lead per Gallon). The FSC may review the documentation and approve the lead substitute additive before such an additive is blended into gasoline.
- 6.11** Blending. – Lead substitute and unleaded gasoline-oxygenate blends shall be blended according to the EPA “substantially similar” rule, or an EPA waiver adopted by the FSC. The term “substantially similar” is used in the Clean Air Act (USA) to distinguish which fuels and fuel additives are prohibited by the EPA.
- 6.12** Diesel Fuel. – Shall meet the following requirements, based on the biodiesel concentration of the fuel:
 - (a) Diesel fuel that contains less than or equal to 5 % by volume biodiesel shall meet the latest version of ASTM D975, “Standard Specifications for Diesel Fuels”, and shall be sold as diesel fuel.
 - (b) Diesel fuel that contains greater than or equal to 6 % by volume biodiesel and that contains less than or equal to 20 % by volume shall meet the latest version of ASTM D7467, “Standard Specifications for Diesel Fuel Oil, Biodiesel Blend (B6 to B20)”.
 - (c) Only fuel additives registered with the Fuel Standards Committee may be used as an additive for diesel fuel, and the final product shall meet the latest version of ASTM D975 and/or ASTM D7467. Additives must be listed on the import permit application form with their safety data sheets attached.
- 6.13** Premium Diesel Fuel. – All diesel fuels identified on retail dispensers as premium, super, supreme, or premier must conform to the following minimum requirements:



- (a) Cetane Number. – A minimum cetane number of 45 as determined by the latest version of ASTM D613, “Standard Test Method for Cetane Number of Diesel Fuel Oil.”

NOTE: ASTM D613, “Standard Test Method for Cetane Number of Diesel Fuel Oil” is the referee method; however, the following methods can be used to determine cetane number: the latest version of ASTM D6890, “Standard Test Method for Determination of Ignition Delay and Derived Cetane Number” (DCN) of Diesel Fuel Oils by Combustion in a Constant Volume Chamber”; and ASTM D7668, “Standard Test Method for Determination of Derived Cetane Number (DCN) of Diesel Fuel Oils—Ignition Delay and Combustion Delay Using a Constant Volume Combustion Chamber Method.”

- (b) Low Temperature Operability. – A cold flow performance measurement which meets the latest version of ASTM D975, “Standard Specification for Diesel Fuel,” tenth percentile minimum ambient air temperature charts and maps by the latest version of either ASTM D2500, “Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels” or ASTM D4539, “Standard Test Method for Filterability of Diesel Fuels by Low Temperature Flow Test, (LTFT).” The latest version of ASTM D6371, “Standard Test Method for Cold Filter Plugging Point of Diesel and Heating Fuels”, may be used when the test results are a maximum of 6 °C below the Cloud Point. - Low temperature operability is only applicable from October 1 to March 31 of each year.
- (c) Lubricity. – A maximum wear scar diameter of 460 micrometres (µm) as determined by the latest version of ASTM D6079, “Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR).”

NOTE: The latest version of ASTM D6079, “Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR)” is the referee method; however, the latest version of ASTM D7688, “Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR) by Visual Observation” can be used

- (d) Corrosion. – A minimum rating of B+ as determined by the latest version of National Association of Corrosion Engineers (NACE) TM0172, “Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines.”

NOTE: The latest version of the National Association of Corrosion Engineers NACE TM0172 “Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines” is the referee method. The latest version of ASTM D7548, “Standard Test Method for Determination of Accelerated Iron Corrosion in Petroleum Products”, can be used.

- (e) Filter Blocking Tendency (FBT). – A maximum of 2.2 by the latest version of ASTM D2068, “Standard Test Method for Determining Filter Blocking Tendency”, following procedure B.



(f) Injector Deposit Control. – Maximum power loss in keep-clean mode of 2 % by the latest version of Coordinating European Council, CEC F-98-08, “Direct Injection, Common Rail Diesel Engine Nozzle Coking Test.”

(g) Thermal Stability. – The latest version of ASTM D6468, “Standard Test Method for High Temperature Stability of Middle Distillate Fuels” (180 min, 150 °C).

6.14 Use of Other Diesel Terminology. – For any terms other than premium, super, supreme, or premier included in the diesel fuel product or grade name and/or advertisements and claims displayed on dispensers, pump toppers, pole signs and bollard signs which imply improved performance, the product must have a clearly-defined fuel property with a substantiated functional benefit. - Such properties must be measurable using industry-accepted test methodologies developed by recognised standards organisations, such as ASTM, SAE, and the Coordinating European Council (CEC), for verification of the claimed performance improvements.

6.15 Liquefied Petroleum (LP) Gases. – Shall meet the latest version ASTM D1835, “Standard Specification for Liquefied Petroleum (LP) Gases.”

NOTE: Also reference Gas Processors Association 2140, Liquefied Petroleum Gas Specification and Test Methods.

6.16 Racing Gasoline. – Shall meet the following requirements:

(a) The minimum Antiknock Index (AKI) shall not be less than the AKI posted on the product dispenser or as certified on the invoice, bill of lading, shipping paper, or other documentation.

(b) The product specification limits shall be those as declared by the manufacturer's product specifications. At the Chief Fuels Inspector's request, each importer of racing gasoline shall provide a copy of the manufacturer's product specifications.

6.17 Biodiesel Blendstock – Biodiesel intended for blending with diesel fuel shall meet the latest version of ASTM D6751, “Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels.” Any blend stock less than 99% by volume (no more than 1% by volume diesel oil) shall not be used as a commercial blend stock for biodiesel blends without the Chief Fuels Inspector's permission.

6.18 Diesel Exhaust Fluid (DEF). – Shall meet the latest version of the ISO 22241, “Diesel engines – NOx reduction agent AUS 32.”

7. Reproducibility Limits

7.1 AKI Limits. – When determining the antiknock index (AKI) acceptance or rejection of a gasoline sample, the latest version of ASTM D3244, “Standard Practice for Utilisation of Test Data to Determine Conformance with Specifications,” shall be used to determine the acceptance or rejection of the sample.



- 7.2 Reproducibility. – The reproducibility limits of the standard test method shall be acknowledged for enforcement purposes, except as indicated for Premium Diesel Fuel and AKI.
- 7.3 Dispute Resolution. – In the event of a dispute over a reported test value, the guidelines presented in the latest version of ASTM D3244, “Standard Practice for Utilisation of Test Data to Determine Conformance with Specifications,” shall be used to determine the acceptance or rejection of the sample.
- 7.4 Enforcement Action. – The Chief Fuels Inspector may initiate enforcement action if the agreed acceptable limits (AL) as determined by the process outlined in ASTM D3244 have not been met.

8. Condemnation and Requalification of Fuel

- 8.1 Where a fuel is deemed not to have met the minimum specifications standard of the relevant grade of fuel under clause 6, clause 7.3 shall apply.
- 8.2 Stop-Sale Order at Retail. – A stop-sale order may be issued to retail establishment dealers for fuels failing to meet specifications or when a condition exists that causes product degradation. Upon the discovery of fuels failing to meet specifications, meter readings and physical inventory shall be taken, recorded and reported in the request for disposition. A release from a stop-sale order will be awarded only after final disposition has been agreed upon by the Chief Fuels Inspector. Confirmation of disposition shall be submitted in writing on form(s) provided by the Chief Fuels Inspector and contain an explanation for the fuel’s failure to meet specifications.
- 8.3 Stop-Sale Order at Terminal or Bulk Plant Facility. – A stop-sale order may be issued when products imported or held in storage or maintained at terminals or bulk plant facilities fail to meet specifications or when a condition exists that may cause product degradation. The terminal or bulk storage plant shall immediately notify all customers who received those product(s) and make any arrangements necessary to replace or adjust to specifications those product(s). A release from a stop-sale order will be awarded only after final disposition has been agreed upon by the Chief Fuels Inspector. Confirmation of the disposition of products shall be made available in writing to the Chief Fuels Inspector.
- 8.4 Where an applicable fuel is determined not to meet the standards as set out in Section 6, the Operator shall set out in writing the process and method to requalify and recertify or dispose of the fuel or downgrade to a lower grade.
- 8.5 In consideration of an application by an Operator to be granted permission to requalify or to downgrade the fuel which is deemed not to have met the minimum Fuel Standards, the Chief Fuels Inspector, in consultation with FSC, shall set out in writing the minimum information it requires to grant its approval.
- 8.6 Where a fuel cannot be requalified after two attempts under this provision, the fuel shall be rejected and downgraded for disposal, sale or alternative use where practical, or re-export. Downgraded or rejected fuel shall be used or disposed of under the strict control of the Operator as per a plan approved by the Chief Fuels



Inspector. The Operator shall produce a manifest of its use or disposal to the Chief Fuels Inspector within seven (7) days after its use.

- 8.7 Where fuels are downgraded or disposed of, the Office may report such information to the Department of Environmental Health.

9. Classification and Labelling for Sale

- 9.1 Documentation. – When products subject to these Standards are sold, an invoice, delivery note, or other documentation must accompany each delivery other than a retail sale. At a minimum, this document must identify the quantity, the name of the product, the particular grade of the product, the applicable automotive fuel rating, and oxygenate type and content (if applicable), the name and address of the seller and buyer, and the date and time of the sale. Documentation must be retained at the retail establishment for a minimum period of one year.
- 9.2 Retail Dispenser Labelling. –All retail dispensing devices shall conspicuously identify the product type, the specific grade, and the applicable automotive fuel rating.
- 9.3 Grade Name. – The sale of any product under any grade name that indicates to the purchaser that it is of a certain automotive fuel rating or ASTM grade shall not be permitted unless the automotive fuel rating or grade indicated in the grade name is consistent with the value and meets the requirements of Section 6.
- 9.4 Nozzle Requirements for Automotive Gasoline, Gasoline-Oxygenate Blends, and Diesel Fuel Dispensers. – Each retail dispensing device from which fuel products are sold shall be equipped with a nozzle spout having a diameter that conforms with the specification set out below:
- (a) Diesel – 15/16 inches
 - (b) Gasoline – 13/16 inches (all grades, including blends).
- 9.5 Automotive Gasoline and Automotive Gasoline-Oxygenate Blends (Including Racing Gasoline).
- 9.6 Posting of Antiknock Index Required. – Automotive gasoline and automotive gasoline-oxygenate blends shall post the minimum antiknock index in accordance with applicable regulations.
- 9.7 Use of Lead Substitute Must be Disclosed. – Each dispensing device from which gasoline or gasoline-oxygenate blends containing a lead substitute is dispensed shall display the following legend: “Contains Lead Substitute.” The lettering of this legend shall not be less than 12.7 mm ($\frac{1}{2}$ in) in height, and the colour of the lettering shall be in definite contrast to the background colour to which it is applied.
- 9.8 Prohibition of Terms. – It is prohibited to use specific terms to describe a grade of gasoline or gasoline-oxygenate blend unless it meets the minimum antiknock index requirement shown in Table 1. Minimum Antiknock Index Requirements.

**Table 7. Minimum Antiknock Index Requirements**

Term	ASTM D4814
Premium, Supreme, High Test	91
Midgrade, Plus	89
Regular, Unleaded (alone)	87
Blendstock	82

- 9.9** Method of Retail Sale – Disclosure of Oxygenate Type. All automotive gasoline, gasoline-oxygenate blends, racing gasoline, or biodiesel containing more than ten (10) and five (5) volume percent of oxygenate for gasoline and diesel, respectively, must disclose the predominant oxygenate.
- 9.10** Documentation for Dispenser Labelling Purposes. – For automotive gasoline, automotive gasoline-oxygenate blends or racing gasoline, the retailer shall be provided, at the time of delivery of the fuel, product transfer documents such as an invoice, bill of lading, shipping paper, or other documentation:
- (a) Information that complies with the documentation requirement set out by the Chief Fuels Inspector when the fuel contains ethanol.
 - (b) For fuels that do not contain ethanol, information that complies with the documentation requirement set out by the Chief Fuels Inspector, which shall clearly state the predominant oxygenate or combination of oxygenates present in concentrations sufficient to yield an oxygenate content of at least 1.0 % by volume in the fuel. Where mixtures of only ethers are present, the fuel supplier may identify either the predominant oxygenate in the fuel (i.e., the oxygenate contributing the largest mass percent oxygen) or use the phrase “contains MTBE or other ethers.”
 - (c) Gasoline containing more than 0.3 % by volume methanol shall be identified as “with” or “containing” methanol.
 - (d) EPA Labelling Requirements. – Retailers and wholesale purchasers of gasoline shall comply with the EPA pump labelling requirements for gasoline containing greater than 10 volume percent (v%) up to 15 volume percent (v%) ethanol (E15) under 40 CFR 80.1501.
- 9.11 Diesel Fuel.**
- (a) Labelling of Grade Required. – Diesel Fuel other than No 2-D shall be identified by grade.
 - (b) Automotive Fuel Rating. – Diesel fuel containing 6 % to 20 % by volume biodiesel shall be labelled with its automotive fuel rating specifying that the maximum blend is no greater than 20% biodiesel. The FSC shall publish



standards from time to time specifying the requirements for the labelling of biodiesel blends.

- (c) Delivery Documentation for Premium Diesel. – Before or at the time of delivery of premium diesel fuel, the retailer or the wholesale purchaser shall be provided on an invoice, bill of lading, shipping paper, or other documentation a declaration of all performance properties that qualify the fuel as premium diesel fuel as required in subsection 6 (10) Premium Diesel Fuel.

9.12 Liquefied Petroleum Gas (LPG).

- (a) Liquefied petroleum gases shall be identified as Special-Duty Propane (HD5).
- (b) The relevant labelling requirements as specified in NFPA 58 apply.

9.13 Biodiesel and Biodiesel Blends.

- (a) Biodiesel Blendstock shall be identified by the term “biodiesel” with the designation “B100” or “B99.”
- (b) Labelling of Retail Dispensers.
 - (i) Labelling of Grade Required. – Biodiesel shall be identified by the grade B20 Diesel
 - (ii) Automotive Fuel Rating. – Biodiesel and biodiesel blends shall be labelled with their automotive fuel rating on or near the nozzle from which the grade of fuel is dispensed.
 - (iii) Biodiesel Blends. – When biodiesel blends greater than 5 % by volume are offered for sale, each side of the dispenser where fuel can be delivered shall have a label conspicuously placed that states “Consult Vehicle Manufacturer Fuel Recommendations.”
 - (iv) The lettering of this legend shall not be less than 6 mm (1/4 in) in height by 0.8 mm (1/32 in) stroke; block style letters and the colour shall be in definite contrast to the background colour to which it is applied.
 - (v) Documentation for Dispenser Labelling Purposes. – The retailer shall be provided, at the time of delivery of the fuel, with a declaration of the volume percent biodiesel on an invoice, bill of lading, shipping paper, or another document. This documentation is for dispenser labelling purposes only; it is the responsibility of any potential blender to determine the amount of biodiesel added to the diesel fuel before blending.
 - (vi) Exemption – Biodiesel blends that contain less than or equal to 5% biodiesel by volume are exempted from the requirements of subsection (9.12b, iii) above when it is sold as “diesel fuel”.

9.14 Diesel Exhaust Fluid (DEF) shall be properly labelled.

- (a) Retail Dispenser Labelling. – A label shall be clearly and conspicuously placed on the front panel of the DEF dispenser stating, “for operation of selective catalytic reduction (SCR) converters in motor vehicles with diesel engines.”



- (b) Documentation for Retailers of Bulk Product. – A DEF supplier shall provide, at the time of delivery of the bulk shipment of DEF, identification of the fluid's origin, including the name of the fluid manufacturer, the brand name, trade name, or trademark, and a statement identifying the fluid as DEF conforming to specifications given in the latest version of ISO 22241, "Diesel engines – NOx reduction agent AUS 32." This information shall be provided by the supplier on an invoice, bill of lading, shipping paper, or another document.
- (c) Labelling Packaged Product. – Any DEF retail package shall bear a label that includes the name of the fluid manufacturer, the brand name, trade name, or trademark, a statement identifying the fluid as DEF conforming to specifications given in the latest version of ISO 22241, "Diesel engines – NOx reduction agent AUS 32." And the statement, "It is recommended to store DEF between – 5 °C and 30 °C (23 °F to 86 °F)."

10. Retail Storage Tanks and Dispenser Filters

- 10.1** No water phase greater than 6 mm (¼ in) as determined by an appropriate detection paste or other acceptable means is allowed to accumulate in any tank utilised in the storage of gasoline-alcohol blend, biodiesel, biodiesel blends and ethanol flex fuel.
- 10.2** Water shall not exceed 25 mm (1 in) in depth when measured with water-indicating paste or other acceptable means in any tank utilised in the storage of diesel, gasoline, gasoline-ether blends, and kerosene sold at retail.
- 10.3** Dispenser Filters.
 - (a) Engine Fuel Dispensers.
 - (i) All gasoline, gasoline-alcohol blends, and dispensers shall have a 10-micron or smaller nominal pore-sized filter.
 - (ii) All biodiesel, biodiesel blends, and diesel dispensers shall have a 30-micron or smaller nominal pore-sized filter.
- 10.4** Product Storage Identification.
 - (a) The fill connection for any fuel product storage tank or vessel supplying engine-fuel devices shall be permanently, plainly, and visibly marked as to the product contained.
 - (b) When the fill connection device is marked by means of a colour code, the colour code shall be conspicuously displayed at the place of business, and the colour codes as specified and agreed by the Office and Fuels Suppliers using the approved Colour-Symbol System to Identify Equipment and Transfer Points for Petroleum Fuels and Related Products at Dispensing and Storage Facilities and Distribution Terminals shall be used.
- 10.5** Volume of Product Information.



- (a) Each retail location shall maintain on file a calibration chart or other means of determining the volume of each regulated product in each storage tank and the total capacity of such storage tank(s). When requested by the Chief Fuels Inspector, this information shall be supplied immediately.

11. Product Registration

- 11.1 All engine fuels designed for special use that do not meet ASTM specifications or standards addressed in Section 6 Standard Specifications shall be registered with the Chief Fuels Inspector by submitting an import permit application form in accordance with Regulations 30 and 31 of the Dangerous Substances Regulations. The application shall be submitted to the Chief Fuels Inspector sixty (60) days before the applicant wishes to engage in sales. The application form shall be accompanied by the following information:
 - (a) Product brand name and product description; and
 - (b) A product specification sheet shall be attached.

12. General Matters Connected to Standards

- 12.1 General matters related to the Standards shall be submitted to the Fuel Standards Committee in writing. The Committee shall meet to consider the submission and determine whether it requires further review and action and shall respond to such matters in writing.
- 12.2 The Fuel Standards Committee shall review these Standards at least every three years. Recommendations for amendment may be made by the Office, stakeholders, or the public, and shall be reviewed in accordance with the Act.
- 12.3 The Chief Fuels Inspector, in consultation with the FSC, may grant temporary exemptions or variances to these Standards in cases of fuel supply disruption, force majeure, or public interest emergencies, provided the exemption is published and time limited.
- 12.4 Operators, if directed by the Chief Fuels Inspector, shall develop consumer education materials to improve understanding of labelling, oxygenate content, and fuel performance implications, and may require that such information be displayed at the regulated premises during business hours.
- 12.5 These Standards shall be reviewed periodically with consideration of national energy, climate, and emissions policies, and may be updated accordingly.
- 12.6 The Office may develop an online portal for submission and publication of registered fuels, certified labs, and enforcement notices.

13. Administrative Fines

- 13.1 Where the Office is satisfied that there are reasonable grounds for believing that an importer or Operator may have failed to comply with or contravened one or more of the Standards, the Office may impose an administrative fine under the Dangerous Substances Regulations as revised where applicable.



14. Meeting of Fuel Standards Committee

- 14.1** The FSC shall meet at least twice annually to consider matters relating to these Standards.

15. Appeals

- 15.1** In accordance with section 6(b) of the Act, a person aggrieved by a decision of the Chief Fuels Inspector or the FSC may appeal the decision to the Board.

Made by the Fuel Standards Committee, 11th day of August, 2026.