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1. **SCOPE**

This specification defines the requirements pertaining to renewable hydrocarbon diesel fuel. The fuel will be used by various State and government agencies’ offices throughout the State of California and shall be suitable for use in diesel engines operating in industrial and heavy mobile vehicle service.

1. **APPLICABLE LAWS and INDUSTRY STANDARDS**

The following standards, laws, regulations, and codes in effect on the date of the Invitation for Bid (IFB) form a part of this specification to the extent specified herein. Any applicable laws, regulations, codes, industry standards, or manufacturing standards, though not specifically cited, shall apply.

* 1. **Laws, Regulations, and Codes**
		1. California Code of Regulations (CCR), Title 3, Division 6, Chapter 2, Subchapter 1, Article 1, Sections 6145-6168 – Pesticide Registration General Provisions
		2. CCR, Title 4, Division 9, Chapter 6, Article 5, Section 4149 – Non-Ester Renewable Diesel Blends
		3. CCR, Title 13, Division 3, Chapter 5, Article 2 – Standards for Diesel Fuel
		4. CCR, Title 13, Division 3, Chapter 5, Article 2, Section 2281 – Sulfur Content of Diesel Fuel and Section 2282 – Aromatic Hydrocarbon and Biodiesel Contents of Diesel Fuel
		5. CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Sub‑article 7, Sections 95480 through 95490 – Low Carbon Fuel Standard (LCFS)
		6. 40 Code of Federal Regulations (CFR), Part 79 – Registration of Fuels and Fuel Additives
	2. **Industry Standards**
		1. American Society for Testing and Materials (ASTM) D975 Standard Specification for Diesel Fuel Oils
		2. ASTM D2500 Standard Test Method for Cloud Point of Petroleum Products and Liquid Fuels
		3. ASTM D4057 Standard Practice for Manual Sampling of Petroleum and Petroleum Products
		4. ASTM 4176 Standard Test Method for Free Water and Particulate Contamination in Distillate Fuels (Visual Inspection Procedures)
		5. ASTM D6751 Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels
		6. ASTM D7371 Standard Test Method for Determination of Biodiesel (Fatty Acid Methyl Esters) Content in Diesel Fuel Oil Using Mid Infrared Spectroscopy (FTIR-ATR-PLS Method)
		7. ASTM D7773 Determination of Volatile Inorganic Acids
		8. CAN/CGSB-3.0 NO. 142.0-2014 Methods of testing petroleum and associated products Cold soak filter blocking tendency of biodiesel (B100)
		9. EN 15751 Automotive fuels - Fatty acid methyl ester (FAME) fuel and blends with diesel fuel - Determination of oxidation stability by accelerated oxidation method
		10. National Biodiesel Board, BQ-9000
1. **DEFINITIONS**

“Renewable hydrocarbon diesel” means a diesel fuel that is produced from nonpetroleum renewable resources but is not a mono-alkyl ester, and which is registered as motor fuel or fuel additive under 40 CFR Part 79.

“Biodiesel” means fuel comprised of mono-alkyl esters of long chain fatty acids derived from nonpetroleum resources, and which is not a mono-alkyl ester, and which is registered as motor fuel or fuel additive under 40 CFR Part 79.

“Biodiesel blend” means a fuel comprised of a blend of biodiesel fuel with renewable diesel fuel, suitable for use as a fuel in a compression-ignition internal combustion diesel engine.

1. **TECHNICAL REQUIREMENTS**
	1. **General Requirements**
		1. Red dyes (if utilized) mixed into fuel for identification must meet current requirements of the U.S Environmental Protection Agency or Internal Revenue Services, as applicable.
	2. **Renewable Diesel Requirements**
		1. The renewable diesel fuel portion of the blend shall conform to 4 CCR §4149.
		2. Renewable diesel shall be isomerized to improve cold flow properties. In addition to isomerization, other industry standard methods are permitted to meet the requirements of Section 4.3.2.
	3. **Blended Renewable Diesel Requirements**
		1. Blended Renewable Diesel shall meet the requirements of 13 CCR, Article 2 Standards for Diesel Fuel
		2. Blended Renewable Diesel fuel shall meet the requirements of ASTM D975 No. 2-D S15. In addition, blended renewable diesel fuel shall meet the properties as shown Table 1.

Table 1: Blended Renewable Diesel Test Requirements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Property** | **Test Standard** | **Unit** | **Limits** | **Value** |
| Cloud Point | ASTM D2500/D7773 | °C (°F) | Winter BlendMaximumSummer Blend Maximum | -9 (15.8) -4 (24.8) |
| Fatty Acid Methyl Ester (Biodiesel | ASTM D7371 | %volume | maximum | 5 |
| Cold Soak Filter Blocking Tendency | CAN-CGSB 3.0 No. 142.0-201 |  | maximum | 1.2 |
| Oxidative Stability | EN15751 | hours | maximum | 6 |
| Appearance | ASTM D4176 |  |  | Clear and Bright |

1 Modification is to use neat sample instead of diluted sample

* + 1. The blended renewable diesel fuel shall meet the requirements of the 13 CCR §2281 (sulfur content), and §2282 (aromatic hydrocarbon). Alternative diesel formulation must be certified by CARB. Evidence of such fact shall be available to the Department of General Services, Procurement Division, in the form of a letter certifying such compliance, and signed by a responsible official of the company to supply this fuel to the State.
		2. The blended renewable diesel fuel shall meet the 17 CCR §95480-95490 LCFS.

Note: The State is the end user and will not assume the role as a “regulated party”.

* + 1. The Winter blend shall be available for purchase from the Contractor during the winter months which typically start the month of October and last through the month of March each contract year (may vary depending on location).
		2. The Summer blend shall be available for purchase from the Contractor during the summer months which typically start the month of April and last through the month of September each contract year (may vary depending on location).
	1. **Biodiesel Requirements**
		1. Biodiesel portion of Biodiesel Blend stock (B100) shall be Grade 2-B S15 and shall meet the requirements of the latest edition of ASTM D6751.
		2. Biodiesel and biodiesel blend stock shall comply with California Air Resources Board (CARB) Biodiesel Use Guidance Document, dated 2018 or latest.
	2. **Storage Life**

Fuel shall not deteriorate at a rate faster than industry average in ordinary storage and shall not for excessive gum, resin, or deposits.

1. **ENVIRONMENTALLY PREFERABLE PURCHASING REQUIREMENTS**
	1. **General Requirements**

All renewable diesels shall meet the Environmentally Preferable Purchasing (EPP) requirements outlined in this section. Ecolabels and/or third-party environmental certifications shall be valid at the time of bid and maintain validity throughout the lifetime of the contract. Certifications not listed in this EPP requirements section are unacceptable for demonstrating compliance.

* 1. **Biocides Requirements**

All biocides used in renewable diesel shall be registered with the California Department of Pesticides Regulation per 3 CCR §6145-6168.

* 1. **Biodiesel Blend Requirements**

Blended renewable hydrocarbon diesel fuel shall contain up to 5% biodiesel.

* 1. **Carbon Intensity Requirements**

All renewable diesel shall have a maximum carbon intensity (C.I.) of 40 gCO2e/MJ.

Note: C.I. shall be determined by 17 CCR §95486 LCFS.

* 1. **Producer Certification Requirements**

The producer of B100 biodiesel shall meet one (1) of the following:

* + 1. The B100 biodiesel producer shall be certified to BQ-9000 through the National Biodiesel Board (NBB).
		2. The renewable diesel containing B100 biodiesel at a minimum shall have an internal quality control system with the following elements:
			- * **Document Control:** The producer of biodiesel or renewable diesel shall maintain a document control system. Only approved processing and operating procedures are used in production. All document changes must be approved by the quality control manager (or similar authority) before they are released to production.
				* **Lot Traceability:** All lots shall be traceable to its source and feed stock.
				* **Sampling:** Production lot shall be sampled per ASTM D4057. A portion of the sample shall be kept for a minimum of 60 days.
				* **Testing:** All production lot shall be tested to ensure that product meets or exceeds the bid specifications.
				* **Storage:** If the producer’s fuel storage tank has no activity for 30 days, a sample shall be taken to test for water, sediment, and oxidation stability ensuring that the fuel still meets bid specifications.
				* **Test Laboratory:** An on-site or third-party test laboratory shall be used for testing purposes. The test laboratory shall adhere to good laboratory practice (e.g., use of regularly calibrated equipment, record keeping, and qualified staff for testing etc.). The test laboratory shall execute a documented program to verify their test results by sending out duplicate test samples to an independent laboratory. Such verifications shall be performed at a minimum of every four months.
				* **Certificate of Analysis (COA):** A COA shall be generated for each production lot. The COA shall provide test results for properties specified in the IFB and the product specification. Lot number(s) and test date(s) shall be identified on COA.
				* **Non-Conforming Product:** Producer of biodiesel or renewable diesel shall have procedures for the disposal of non-conforming lots. The producer shall perform root cause analysis on non-conforming product and apply corrective actions through careful monitoring.

1. **QUALITY ASSURANCE PROVISIONS**
	1. **Samples**

The State, at its discretion, may take the samples of the fuel at the time of delivery prior to transferring of fuel to the storage tank. Samples may be tested for quality of fuel as per applicable test standards as specified in this specification. The State reserves the right to reject non-compliant fuel. If the test analysis of sampled fuel shows that the fuel does not comply with this specification, the supplier shall be responsible for all costs related to test analysis, removal, and disposal of non-compliant fuel from State sites. It is expressly understood that existing fuel in departments (agency) tank that is contaminated by fuel does not comply of this specification shall also be replaced.

* 1. **Test Data**

Upon request from the State, the supplier shall provide test data showing compliance to the requirements of this specification.

* 1. **Transport**

The supplier shall ensure that all trucks, railcars, and vessels used to transport fuel are completely drained and inspected prior to loading if the previous load contained other petroleum products that would contaminate the renewable diesel fuel.

* 1. **Visual Inspection**

The finished blended renewable diesel fuel shall be visibly free of un-dissolved water, sediment, and suspended matter.