



Air Resources Board
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State of California

Edmund G. Brown Jr.



State Water Resources Control Board
Felicia Marcus
Chair

July 31, 2013

Certified Unified Program Agencies (CUPAs)
Underground Storage Tank (UST) Operators
Petroleum Fuel Marketers, Refiners, and Blenders
Renewable Diesel Producers/Importers
Other Interested Stakeholders

Renewable Diesel Should Be Treated the Same as Conventional Diesel

This is a joint statement by the Air Resources Board (CARB) and the State Water Resources Control Board intended to clarify questions that have been raised regarding the status of renewable diesel. As discussed below, renewable diesel should be treated the same as conventional CARB diesel for all purposes, including storage in underground storage tanks (USTs).

For purposes of this statement, conventional CARB diesel is petroleum-based diesel that meets specified aromatics, sulfur content, and lubricity standards, as well as ASTM International standard specification, ASTM D975-12a. Similarly, renewable diesel also meets ASTM D975-12a, but it is made from non-petroleum sources. Specifically, renewable diesel meets the definition of “hydrocarbon oil” and the physical and chemical properties specified in ASTM D975-12a. For comparison, Attachment 1 shows the ASTM D975-12a specifications and typical properties for conventional CARB diesel and samples of renewable diesels recently tested by various researchers. As shown, both the tested conventional CARB diesel and renewable diesel samples fall well within the ASTM D975-12a specifications.

Despite renewable diesel being comparable to conventional CARB diesel, there have been questions regarding the ability of marketers and others to store renewable diesel in USTs. Further, questions have been raised about the compatibility of renewable diesel with leak detection systems used in USTs currently storing conventional CARB diesel. We consider renewable diesel to be a “drop in” fuel that can be blended with conventional CARB diesel in any amount and used with existing infrastructure and diesel engines. Accordingly, renewable diesel that meets the requirements for conventional CARB diesel and ASTM D975-12a should be treated no differently than conventional CARB diesel that is legal for sale in California.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

Various Stakeholders

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Our staffs would be happy to discuss any questions you may have with regard to renewable diesel or this letter. Please contact Mr. Floyd Vergara, Chief, Alternative Fuels Branch, at (916) 327-5986 or fvergara@arb.ca.gov for air-related questions, and Ms. Shahla Farahnak, Assistant Deputy Director, Groundwater Quality Branch, at (916) 341-5737 or sfarahnak@waterboards.ca.gov for water-related questions.

Sincerely,

Sincerely,


Richard W. Corey
Executive Officer
California Air Resources Board


Tom Howard
Executive Director
State Water Resources Control Board

Attachment

cc: Ms. Shahla Farahnak,
Assistant Deputy Director,
Groundwater Branch, State Water Resources Control Board

Mr. Floyd Vergara, Chief
Alternative Fuels Branch, Air Resources Board

Attachment 1
Table of Sample Renewable Diesel Properties

Property	Test Method	D975-12a ¹	Sample Fuel Properties							
			ARB Study ²		CRC Study ³					
			Conv. CARB Diesel	Renewable Diesel	RD1	RD2	RD3	RD4	RD5	RD6
Flash Point, °C	D93	38 min	148	146	68.25	59.5	72	76	46	89.25
Water and Sediment, % vol	D2709	0.05 max	---	---	--	--	--	--	--	--
	D1796	0.5 max	< 0.02	< 0.02	0.0022	0.0034	0.0031	0.0007	0.0016	0.0034
Distillation Temperature, °C90 %, % vol recovered	D86	282 - 338	322	286	294	291	301	315	297	292
Kinematic Viscosity, mm ² /S at 40°C	D445	1.3 - 24.0	2.7	2.5	2.605	2.525	2.096	3.613	1.878	2.841
Ash, % mass, max	D482	0.10 max	< 0.001	< 0.001	--	--	--	--	--	--
Sulfur, ppm (µg/g)	D5453	15 max	4.7	0.3	1	1	0.8	0.6	0.7	19.2
% mass	D2622	0.05 max	---	---	--	--	--	--	--	--
% mass	D129	2.00 max	---	---	--	--	--	--	--	--
Copper strip corrosion rating (3 h at a minimum control temperature of 50 °C)	D130	No. 3 max	1b	1a	--	--	--	--	--	--
Cetane number	D613	30 min	55.8	72.3	74.5	72.1	54.8	74.7	47.6	74.7
<i>One of the following properties must be met:</i>										
(1) Cetane index	D976-80	40 min	56.8	76.9	--	--	--	--	--	--
(2) Aromaticity, % vol	D1319	35 max	---	---	--	--	--	--	--	--
Operability Requirements										
Cloud point, °C, max	D2500	Report	-6.6	-27.1	-3.6	-14.4	-20.3	-12.7	<-54	-4.2
or										
LTFT/CFPP, °C, max	D4539 / D6371	Report	---	---	-8	-16	-27	-15	--	-9
Ramsbottom carbon residue on 10% distillation residue, % mass	D524	0.35 max	0.03	0.02	--	--	--	--	--	--
Lubricity, HFRR @ 60°C, micron, max	D6079 / D7688	520 max	---	---	576	591	370	538	603	--
Conductivity, pS/m or Conductivity Units (C.U.), min	D2624 / D4308	25 min	55	135	--	--	--	--	--	--
Total Aromatic Content	D5186-96	N/A	18.7	0.4	0.3	0.5	20.35	0.6	2.6	0.7
PAH	D5186-96	N/A	1.5	0.1	0.08	0.1	3.5	<0.1	<0.31	<0.1
Nitrogen Content, ppmw	D4629-96	N/A	1.3	1.3	0.01	0.01	7.1	0.1	0.2	0.5
Derived Cetane #	IQT*	N/A	---	74.7	77.75	73.3	52.15	89.15	44.1	79.05
Gravity, API	D287-82	N/A	39.3	51.3	50.5	50.3	39.4	48.5	38.2	49.7
IBP	D86	N/A	337	326	325	311.8	357.4	332.9	316.3	394.1
10%, °F	D86	N/A	408	426	437.7	415.4	391.5	518.9	367.8	478.5
50%, °F	D86	N/A	519	521	533.4	527.6	477.2	572.3	434.2	535.9
EP, °F	D86	N/A	659	568	585.2	573.4	602.8	646.7	619.1	578.6
Pour Point, °C	D-97	N/A	-12	-47	-6	-21	-36	-18	-69	-9

¹ASTM International D975-12a, Standard Specification for Diesel Fuel Oils

²[Biodiesel Characterization and NOx Mitigation Study](#) - Durbin et al., 2011

³[CRC Report No. AVFL-19-2](#), 2013