

Property	Test Method		On-Highway		Off-Highway
	ASTM	ISO	No. 1	No. 2	
API Gravity, at 60° F Minimum Maximum	D 287	—	40 44	34 38	33 43
Specific Gravity, g/ml @ 60° F Minimum Maximum	D 1298	3675	0.806 0.825	0.835 0.855	0.810 0.860
Flash Point, °C Minimum	D 93	2719	38	52	Note 1
Viscosity, Kinematic cSt @ 40° Minimum Maximum	D 445	3104	1.3 2.4	1.9 4.1	1.3 4.5
Sulfur, wt.% (ppm) Maximum	D 2622	EN 24260	0.05 (500)	0.05 (500)	0.4 (4000)
Cloud Point	D 2500	—	—	Note 2	—
Filter Plugging Point	D 4359	309	—	Note 3	—
Cetane No., Minimum	D 613	5165	43	43	43
Cetane Index, Minimum	D 4737	4264	40	40	40
Distillation % Vol. Recovery, °F (°C) –IBP, Typical 10 %, Typical 50%, Typical 90%, Maximum 95%, Maximum Recovered Volume, % Minimum	D 86	3405	350 (177) 385 (196) 425 (218) 500 (260) 550 (288) 98	375 (191) 430 (221) 510 (266) 625 (329) 671 (355) 98	320 (160) - 392 (200) 437 (225) - 527 (275) 626 (330) 680 (360) 98
Water, % Maximum (Note 4)	D 2709		0.02	0.02	0.02
Sediment > 1µm, mg/L Maximum	D 2276 or D 5452		10	10	10
Total Contamination, mg/kg Maximum		EN 12662	24	24	24
Ash, % mass Maximum	D 482	6245	0.01	0.01	0.01
Carbon Residue, on 10%, % mass	D 524	10370	0.15	0.35	0.3
Copper Corrosion, Maximum	D 130	2160	No. 3a	No. 3a	No. 3a
Accelerated Storage Stability mg/L, Maximum	D 2274		15	15	15
DuPont Pad Test, Reflectance at 150° C, Minimum (High Temperature Stability)	D 6468		70	70	70
Heat Content, Net, BTU/gal	D 4868		125,000 – 127,300	128,500 – 130,900	126,600 – 131,500
Lubricity Wear Scar, µm, Maximum	D 6079		520	520	520

**Table 5-1 Diesel Fuel Specifications**

### Notes to Table 5-1

1. The flash point temperature is a safety-related property which must be established according to applicable local requirements.
2. The cloud point should be 10° F (-12° C) below the lowest ambient temperature to prevent clogging of fuel filters by wax crystals.
3. The filter plugging point temperature should be equal to or below the lowest expected fuel temperature.
4. No free water visible.

#### **NOTE:**

When prolonged idling periods or cold weather conditions below 32 °F(0 °C) are encountered, the use of 1-D fuel is recommended. Note, however, that transit coach engines are emission certified on either No. 1 or No. 2 fuel. To maintain emission compliance, only the correct certified fuel should be used.

### **5.1.1 FUEL LUBRICITY**

It is recommended that all fuels used in DDC engines meet the minimum lubricity requirements **listed in Table 5-1**, “Diesel Fuel Specifications.” Fuels not meeting the lubricity requirements may be additized to meet them.

### **5.1.2 PREMIUM DIESEL FUEL**

Premium diesel fuels are not covered by any existing industry specification. It is recommended that the customer obtain additional information from the fuel marketer and compare properties to those **listed in Table 5-1** before using.

### **5.1.3 HEAVY FUELS NOT RECOMMENDED**

Heavy fuels intended for use in slow speed diesel engines and as burner fuel are not recommended for use in any Detroit Diesel engine. Marine fuels specified by ASTM D2609 are examples of such fuels. These fuels are known to cause combustion deposits and will likely reduce engine durability.

### **5.1.4 BIODIESEL FUELS**

Biodiesel fuels are alkyl esters of long chain fatty acids derived from renewable resources. Detroit Diesel Corporation highly recommends biodiesel fuels made from soybean or rapeseed oil through the proper transesterification reaction process. Other feedstock source of biodiesel fuels such as animal fat and used cooking oils are not recommended by DDC. Biodiesel fuels meeting ASTM D 6751 specification, prior to blending can be mixed up to 5% maximum by volume in petroleum diesel fuel. The resulting mixture must meet the fuel properties **listed in Table 5-1** and ASTM D 975 specification. Failures attributed to the use of biodiesel fuel will not be covered by Detroit Diesel product warranty. Also, any engine performance problem related to the use of biodiesel fuel would not be recognized nor considered DDC's responsibility