

Table 1 Requirement for Automotive Diesel Fuel
(Clauses 3.1.4 and 3.2)

Sl No.	Characteristic	Requirement		Method of Test, Ref to [P :] of IS 1448/ASTM/IP/ISO Annex
		Bharat Stage IV	Bharat Stage VI	
(1)	(2)	(3)	(4)	(5)
i)	Appearance	Clear, bright and free from sediments, suspended matter and undissolved water at normal ambient fuel temperature	clear, bright and free from sediments, suspended matter and undissolved water at normal ambient fuel temperature	Visual
ii)	Acidity, inorganic, mg of KOH/g	Nil	Nil	ISO 6618/ASTM D9749/ IP 139
iii)	Acidity, total, mg of KOH/g, <i>Max</i>	0.20	0.20	[P : 2] 9)/ASTM D664/ ASTM D974 / IP 139
iv)	Ash, percent by mass, <i>Max</i>	0.01	0.01	[P : 4] 9)/ASTM D 482/IP 4
v)	Carbon residue (Ramsbottom or micro) on 10 percent residue ¹⁾ , percent by mass, <i>Max</i>	0.30	0.30	[P : 8] 9) /ISO 10370/ASTM D 524/IP 14/ASTM D 4530
vi)	Cetane number, <i>Min</i>	51 ²⁾	51 ²⁾	[P : 9] 9)/ASTM D 613
vii)	Cetane index, <i>Min</i>	46 ²⁾	46 ²⁾	ISO 42649)/ASTM D4737/ IP 380
viii)	Pour point ³⁾ , <i>Max</i> :			[P : 10] 9)/ASTM D 5949/
	a) Winter	3°C	3°C	ASTM D 5950/ ASTM D
	b) Summer	15°C	15°C	5985/ASTM D97/ASTM D7346/IP 15
ix)	Copper strip corrosion for 3 h at 50°C	Not worse than No. 1	Not worse than No. 1	[P : 15] 9)/ASTM D 130/IP 154
x)	Distillation, 95 percent v/v, recovery, °C, <i>Max</i>	360	360	[P : 18] 9)/ISO 3405/ASTM D 86/ASTM D 7345/IP 123
xi)	Flash point, Abel ⁴⁾ , °C, <i>Min</i>	35	35	[P : 20] 9)/ISO 3679/ IP170/ IP523/ EN13736
xii)	Kinematic viscosity, cSt, at 40°C	2.0 to 4.5	2.0 to 4.5	[P : 25] 9)/ISO 3104/ASTM D 445/ASTM D 7042/IP 71
xiii)	Total contamination, mg/kg, <i>Max</i>	24	24	EN 126629)/IP 440
xiv)	Density at 15°C, kg/m ³	815–845 ⁵⁾	810–845 ⁵⁾	[P : 16] 9) / [P : 32] / ISO 12185/ ASTM D 4052/ ASTM D 1298/IP 160
xv)	Total sulphur, mg/kg, <i>Max</i>	50	10	ISO 13032 9)/ ISO 20884/ISO 208469)/ASTM D 5453/ASTM D 2622/ASTM D 7220/[P : 34] For Bharat Stage IV grade only
xvi)	Water content, mg/kg, <i>Max</i>	200	200	[P : 153] 9)/ASTM D 4294
xvii)	Cold Filter Plugging Point (CFPP) ³⁾ , <i>Max</i> :			ISO 12937/ASTM D 6304
	a) Winter	6°C	6°C	[P : 110] 9)/ASTM D 6371/ IP 309
	b) Summer	18°C	18°C	
xviii)	a) Oxidation stability ⁶⁾ , g/m ³ , <i>Max</i>	25	25	[P : 154] 9)/ASTM D 2274/ IP 388
	b) Oxidation stability by Rancidity meter ⁷⁾ , hours, <i>Min</i>	20	20	EN 15751
xix)	Polycyclic Aromatic Hydrocarbon (PAH), percent by mass, <i>Max</i>	8	8	EN 129169)/IP 391 /ASTM D 6591
xx)	Lubricity corrected wear scar diameter (wsd 1.4) at 60°C, microns, <i>Max</i>	460	460	P 149/ ISO 12156-1/Cor 1
xxi)	FAME content ⁸⁾ , % v/v, <i>Max</i>	7.0	7.0	Annex A9)/ASTM D7371/ EN14078

NOTES

1 This limit is applicable prior to addition of ignition improvers, if used. In case a value exceeding the limit is obtained on finished fuels in the market, ASTM D 4046/ISO 13759 shall be used to establish the presence of nitrate containing compound. In such case the present limit for carbon residue cannot be applied. However, the use of ignition improver does not exempt the manufacturer from meeting this requirement prior to the addition of additives.

2 Cetane number and Cetane index relaxation and time frame, if any, for fuel processed from Assam Crude, may be guided by the notifications issued by Government of India, from time to time.

Table 1 — (Concluded)

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- 3** Winter shall be the period from November to February (both months inclusive) and rest of the months of the year shall be called as summer.
 - 4** Whenever Abel flash point exceeds 66°C by IS 1448 [P : 20]/ISO 3679/IP170/IP523, PMCC flash point by IS 1448 [P : 21]⁹⁾ is to be used.
 - 5** Density range relaxation and time frame, if any, for fuel processed from Assam Crude, may be guided by the notifications issued by Government of India, from time to time.
 - 6** This test shall be carried out only at the refinery or manufacturer's end.
 - 7** This test is applicable for diesel fuel having FAME content of above 2 percent v/v.
 - 8** Bio-diesel shall conform to IS 15607.
 - 9** In case of dispute, this test shall be the referee test method.
 - 10** No external addition of chlorine based materials and metallic additives are allowed.
 - 11** All test methods referred to in this standard include a precision statement. The interpretation of results based on test method/precision shall be used whenever applicable. In case of dispute the procedure described in ISO 4259 shall be used.
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the appropriate batch certificate of quality. This requirement is not satisfied by averaging on-line analysis results.

6.4 The minimum requirements for information to be shown on the fuel's batch test certificate of quality at point of manufacture are as under:

- a) Specification name, issue and any amendment number;

- b) Name and address of testing laboratory;
- c) Batch number or unique identifier;
- d) Properties tested including specification limit, test method and result of test;
- e) Identification of the signatory certifying the report; and
- f) Date of certification.