

Presentation on

Indian Standards for Biodiesel and Ethanol

at

**‘Workshop on Technical Specifications and
Standards for Biofuels’**

on

02-03 December, 2010

Specifications for Biodiesel (B100)



- Indian standard for Biodiesel was adopted by the Bureau of Indian Standards in 2005.
- Standard has been prepared keeping in view and use application, production and feedstock availability.
- Assistance has been drawn from ASTM D 6751-02 and EN 14214 while preparing this standard.

Requirements

- The term 'Bio-diesel' refers to mono alkyl (methyl or ethyl) esters of vegetable oils like Rapeseed, Soya bean, Sunflower, *Jatropha Curcas*, *Karanja*, etc, and other fats.
- Bio-diesel shall not contain any residuum oil.
- Bio-diesel specified shall be monoalkyl esters of long chain fatty acids from vegetable oil and animal fats.
- Dyes or markers are allowed to be used for the purpose of identification.
- material shall also comply with the following requirements:

' Requirements for Bio-Diesel '



S.No	Characteristic	Requirement
(I)	(2)	(3)
i)	Density at 15°C, kg/m ³	860-900
ii)	Kinematic viscosity at 40°C, cSt	2.5-6.0
iii)	Flash point (PMCC) °C, Min	120
iv)	Sulphur, mg/kg, Max	50.0
v)	Carbon residue (Ramsbottom)', percent by mass, Max	0.05
vi)	Sulfated ash, percent by mass, Max	0.02
vii)	Water content, nlg/kg, Max	500

S.No	Characteristic	Requirement
xi)	Acid value, mg KOH/g, Max	0.50
xii)	Methanolz), percent by mass, Max	0.20
xiii)	Ethano13J, percent by mass, Max	0.20
xiv)	Ester content, percent by mass, Min	96.5
xv)	Free Glycerol, percent by mass, Max	0.02
xvi)	fold Glycerol, percent by mass, Max	0.25

S.No	Characteristic	Requirement
xix)	Calcium and Magnesium, mg/kg, <i>Max</i>	To report
xx)	Iodine value	To report
xxi)	Oxidation stability. at 110°C, h, Min	6

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- 1) Carbon residue shall be run on 100 percent sample.
 - 2) Applicable for fatty acid methyl ester,
 - 3) Applicable for fatty acid ethyl ester.
 - 4) European method is under development.



Specifications for Anhydrous Ethanol



- Anhydrous ethanol is essentially ethyl alcohol, which is denatured and is meant for use as fuel in automobile engines.



Requirements

- Anhydrous ethanol shall be a clear, colourless and homogeneous liquid, free from matter in suspension.
- The denaturant to be admixed with ethyl alcohol and the proportion in which it is to be used shall be as prescribed by law from time to time.
- Subject to the effect of the added denaturant, anhydrous ethanol shall comply with the requirements for general purposes prescribed for ethyl alcohol.

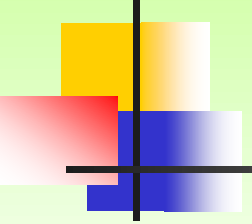
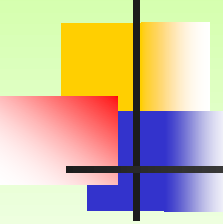
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- The material shall be neutral or acidic in reaction to phenolphthalein and when tested.
 - The material shall also comply with the requirements given in Table 1.

TABLE 1. Requirements of Alcohol of Anhydrous Ethanol



S.N o.	Characteristics	Requirements
i)	Relative density at 15.6/15.6` C, Max	0.7961
ii)	Ethanol content percent by volume at 15.6/15.6°C, Min (excluding denaturant)	99.50
iii)	Miscibility with water	Miscible
iv)	Alkalinity	Nil
V	Acidity (CH ₃ COOH) mg/l, Max	30
vi)	Residue on evaporation percent by mass, Max	0.005
vii)	Aldehyde content (as CH ₃ CHO) %/T. M	60

S.No.	Characteristics	Requirements
vii)	Aldehyde content (as CH ₂ CHO) ms/I, Max	60
viii)	Copper, mg/kg, Max	0.1
ix)	Conductivity, μS/m, Max	300
x)	Methyl alcohol, mg/litre, Max	300
xi)	Appearance	Clear and bright



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THANK YOU