

BIODIESEL and METHYL ESTERS

In the backdrop of increased concerns of finding suitable alternate renewable sources of Energy, Biodiesel is emerging as the No. 1 option for countries across the globe. Besides contributing to the environment, it secures a region's energy needs and provides the freedom to rural areas to access

decentralized power, particularly in India. As a Green Fuel it also enables the Transport and Industrial sectors to grow on Clean Development Mechanism. Production and consumption of Biodiesel derived from oil-bearing trees improves green cover, raises the water table, prevents soil erosion, prevents Global Warming and most of all is renewable and hence stands out as the most preferred alternate fuel for sustainable growth.



India is a fast growing economy facing the challenge of meeting a rapidly increasing demand for energy and ranks sixth in the world in terms of energy demand. Its economy is projected to grow 8-10 percent over the next two decades and there will be a substantial increase in demand for oil to manage transportation and to meet other energy needs. Major Green fuels for the transport sectors are becoming popular in many countries around the world and the fastest growing is that of BIODIESEL.

Biodiesel has numerous applications. Amongst many uses, it is used in industries, as an alternative green fuel for Petroleum based products, in generators, as heating fuel. Biodiesel is a common name for Methyl Esters and TIRUPATI markets its Biodiesel under the brand name BIOWIN alongwith a wide range of other Methyl Esters.



TIRUPATI's range of Methyl Esters include:

- Methyl Ester of Groundnut Oil
- Methyl Ester of Palm Kernel
- Methyl Ester of Ricebran Oil
- Methyl Ester of Sunflower Oil
- Methyl Ester of Coconut Oil
- Methyl Ester of Castor Oil
- Methyl Ester of Palm Oil
- Methyl Ester of Soyabean Oil



Specifications of Methyl Esters of Vegetable Oils

PARAMETERS	UNIT	COCONUT	GROUNDNUT	SUNFLOWER	RICEBRAN	PALM	CASTOR	PALM KERNEL	SOYABEAN
Ester Content	%	96.5 Min	96.5 Min	96.5 Min	96.5 Min	96.5 Min	96.5 Min	96.5 Min	96.5 Min
Acid Value	mg KOH/gm	0.5 max.	0.5 max.	0.5 max.	0.5 max.	0.5 max.	0.5 max.	0.5 max.	0.5 max.
Iodine Value (Wij's)	-	9 - 11	85 - 95	120 - 144	92 - 100	46 - 55	82 - 88	12 - 18	120 - 141
Flash Point	°C	134 - 140	134 - 140	134 - 140	134 - 140	134 - 140	134 - 140	134 - 140	134 - 140
Hydroxyl Value	-	-	-	-	-	-	160 - 170	-	-
Viscosity	g/sec. @ 25° C	4.5 - 5.5	4.5 - 6.0	4 - 5.5	4.5 - 5.5	4.5 - 5.5	3.5 - 4.5	4.5 - 5.5	4.5 - 5.5
Moisture	-	0.2 max	0.2 max	0.2 max	0.2 max	0.2 max	0.2 max	0.2 max	0.2 max
Density	g/sec. @ 25° C	0.88 - 0.89	0.87 - 0.88	0.88 - 0.89	0.88 - 0.89	0.87 - 0.89	0.92 - 0.94	0.87 - 0.89	0.88 - 0.89
Cetane Number	-	≥51	≥51	≥51	≥51	≥51	≥51	≥51	≥51
Sulphur Content	%	0.035 max	0.035 max	0.035 max	0.035 max	0.035 max	0.035 max	0.035 max	0.035 max
FATTY ACID COMPOSITION									
Caprylic	%	8 - 15	-	-	-	-	-	2.0 - 5.0	-
Capric	%	6 - 9	-	-	-	-	-	2 - 5	-
Lauric	%	38 - 42	-	-	-	-	-	40 - 45	-
Myristic	%	15 - 17	0.03 - 0.06	0.05 - 0.10	0.04 - 0.09	0.2 - 0.5	-	10 - 15	0.03 - 0.06
Palmitic	%	8 - 10	13 - 15	4 - 7	27 - 29	40 - 44	-	10 - 12	9 - 11
Stearic	%	2 - 5	2 - 5	2 - 5	2 - 4	2 - 5	1 - 2	1 - 3	2 - 5
Oleic	%	5 - 10	55 - 60	23 - 27	35 - 38	42 - 44	3 - 4	22 - 25	23 - 27
Ricinoleic	%	-	-	-	-	-	89 - 91	-	-
Linoleic	%	1 - 3	23 - 27	62 - 67	30 - 32	10 - 13	3 - 4	2 - 5	53 - 57
Linolenic	%	0.03	-	0.01 - 0.05	-	-	1 - 2	-	7 - 12
Arachidic	%	-	<0.01	0.2 - 0.04	0.01 - 0.03	0.01 - 0.03	-	0.03 - 0.08	0.1 - 0.3
Behenic	%	-	>0.01	-	0.03 - 0.07	0.02 - 0.05	-	-	0.01 - 0.05
USES		In Surfactants, Resin, as Biodiesel	In Surfactants and Emulsifiers, as Biodiesel	In Resin manufacturing, as Biodiesel	In Lubricants, Resin, surfactants, as Biodiesel	In Emulsifiers, Surfactants, as Biodiesel	In Lubricants, Surfactants, Anti-oxidants, as Biodiesel	In Surfactants, as Biodiesel	In Resin manufacturing, as Biodiesel