

# Biodiesel (B20 & B100) Emissions as compared to Petro-Diesel

	Petroleum Diesel	B20 Biodiesel	B100 Biodiesel	Bio-Kerosene
Particulates		-12%	-47%	?
Carbon Monoxide		-12%	-48%	?
Carbon Dioxide (DOE)			-78%	
Hydrogen Sulfide (H <sub>2</sub> S)*		-20%	-100%	?
Sulphur Dioxide (SO <sub>2</sub> )*		-20%	-100%	?
Nitrogen Oxide (NO <sub>2</sub> )**		+2 to -2%	+10 to -15%	?
Overall Ozone Potential		-10%	-50%	
Atmosph. Carbon Bal.		No Effect	No Effect	No Effect
Unburned Hydrocarbons		-12-50%	-80-90%	?
Cloud Point ***	-25° to 20°C	3° - 10° over PD	25° - 32°C	Similar to PK

Abbreviations: P = Petroleum D= Diesel K= Kerosene

\* B20 extrapolated from B100

\*\* Engine timing/tuning can reverse an increase to a decrease with biodiesel and remedial catalytic techniques are available for biodiesel that cannot be used with conventional diesel fuel

\*\*\* Can vary tremendously depending upon cold weather additives used.

## Gaseous, Particulate & GHG (CO<sub>2</sub>) Emissions of Various Fuels

Fuel	Greenhouse Gases	Particulates	Nitrous Oxides	Volatile Organic Compounds	Carbon Monoxide
Gasoline	+35	-70	-55	+170	+415
CNG	+20	-80	-45	-30	+190
LPG	+20	-80	-60	0	+210
Ethanol 85%	0	-75	-55	+130	+210
Diesel	0	0	0	0	0
Biodiesel 20%	-15	-20	0	-10	-15
Hybrid	-30	-20	-20	-20	-20
Electric	-45	-80	-95	-100	-100
Biodiesel 100%	-70	-55	+5	-55	-45

### GHG Emissions / Mile for a Passenger Car

