

Alternative Diesel Fuel Options

By

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Three primary ways

1. Heating-SVO/WVO
2. Fatty Acid Methyl/Ethyl Ester Production
3. Dilution

Dilution as a Fuel

- Blending to reduce viscosity
- Applicable in lower latitudes
- Bulk Modulus of oil % negligible

Primary fuel Stock

- Base component – SVO/ WVO
- Sourced from New vegetable oil or Waste vegetable oil
- Constituent oils will have varying gel points
- Higher gel point oils should be used only when exterior temperature permits

Main diluents

- Primary Diluents at a ratio of >10%
- Used to lower viscosity of Constituent oils
- Kerosene
- Diesel fuel #2
- Turpentine

Combustibility increasers

- Secondary Diluents
- Gasoline
- Acetone (also used as an injector cleaner)
- Alcohols

Additives

- **Stabilizer** — to prevent separation of fuel
- **Injector cleaner**- to remove build-up at injectors
- **Surfactants**- to create stable emulsions

Formation of micro emulsion

- These components are combined
- they create a low viscosity fuel
- that can be successfully combusted within the diesel engine

References

- **M.C. Somasekhara Reddy**, "Hybrid (sic) Fuel of the Future", *Advances in Energy Research AER-2006* Department of Chemistry(sic), G.P.R. Engineering College, Kurnool – 518 002