



NewEarth™ E-Oil

is Bio Crude Oil



100% Biomass Liquid Flex Fuel Alternative to Petroleum

www.newearth1.net

NewEarth E-Oil

NewEarth E-Oil is a 100% biomass (using cellulosic based biomass, not from food crops) liquid flex fuel alternative to petroleum oil. It is made with the highest degree of sustainability. E-Oil can be used without any refinement for electric power generation at facilities that currently use petroleum oil. However when refined, E-Oil can be made into several forms of liquid transportation fuel, like green diesel (for trains, trucks, cars, sea vessels, etc.) green jet fuel (commercial and military grade), and green gasoline (for all types of passenger vehicles). E-Oil is CO2 neutral, virtually sulfur-free (SO2 is basically undetectable), has significantly lower NOx than fossil fuels like diesel, and no mercury. E-Oil is an excellent environmentally friendly alternative to petroleum fuels and can be used today in our existing worldwide power infrastructure and global transportation system.



The Most Frequently Asked Question About E-Oil:

1. How is E-Oil made?

E-Oil is made via NewEarth's unique proprietary ECO Pyro-Torrefaction (EPT) technology.

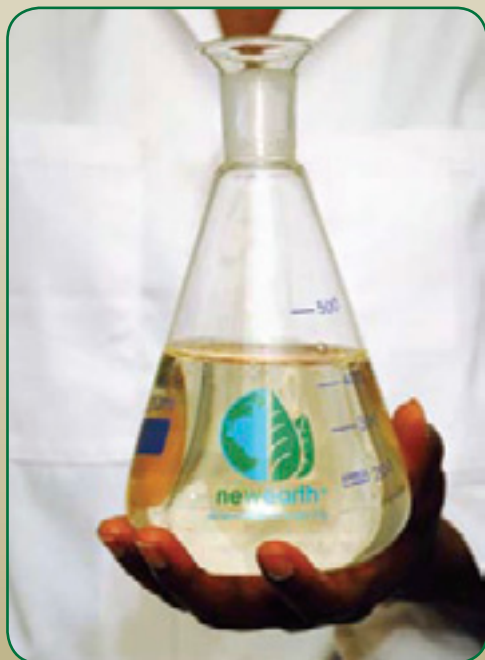
Through this naturally occurring process of thermal decomposition the structure of the biomass material is rearranged into 3 separate states, of solid, liquid, and gas. The liquid portion of the biomass is collected and the water is separated from the oil to get E-Oil. Although the ancient Egyptians were the first to discover thermal decomposition, NewEarth is discovering new and improved ways to use this wonderful concept to answer the clean energy and environmental challenges of our world today.

2. From what source does E-Oil come from?

NewEarth begins making E-Oil by cultivating sustainably grown energy crops like Nile Reed and woody biomass. This is very important for two primary reasons. 1) In order for NewEarth to offer low prices for E-Oil to its customers, NewEarth must control the supply of its own feedstock. NewEarth also uses organic forms of waste, but does not rely on this because the supply of organic forms of waste fluctuates. By maintaining and cultivating certifiably grown energy crops NewEarth can guarantee an abundant, inexpensive, sustainably grown long-term supply of CO2 neutral E-Oil for its customers. 2) NewEarth cultivates its own sustainably grown energy crops as a way to help reduce the present level of CO2 in our atmosphere, and capture, manage, and store CO2 as a helpful service to our planet.

3. What are the differences between NewEarth E-Oil and other bio-oils?

NewEarth's E-Oil has several superior characteristics over other bio oils. Of them the most important are the lower oxygen and water levels of E-Oil, a higher pH level, little to no char in E-Oil, and a higher calorific value. NewEarth's E-Oil is a very clean bio crude oil compared to other bio oils. Other bio-oils have high amounts of water and oxygen in them, making them more difficult to use. However, due to the several superior fuel characteristics of NewEarth's E-Oil this cellulosic bio crude oil can be easily used today in the existing global transportation, electric power, heat and manufacturing infrastructures.



Comparison of E-Oil to Other Bio Oils from Pyrolysis:

E-Oil	Other Pyrolysis Oil
Little or no char in oil.	High levels of char in oil.
Non corrosive.	Very corrosive and acidic.
pH of 4.2 and greater.	Low pH of 2 – 2.5.
Remains liquid for 10 years+.	Becomes thick to solid very quickly.
Stable and will not separate.	Unstable and will separate.
Lower Viscosity.	Higher viscosity.
No special storage requirements.	Needs special storage requirements.
Negligible to no water in oil.	As much as 20% water content in oil.
Higher calorific value.	Lower calorific value.
Good combustibility.	Some combustion challenges.
Lower cost of production.	Higher cost of production.
Easier to deoxygenate.	Harder to deoxygenate.

4. Can E-Oil be used as a liquid transportation fuel alternative to fossil fuels?

YES, in its regular oxygenated state it can be used in ships. E-Oil can help ships comply with the various Marpol regulations, which set the guidelines for maritime vessels to use a lower sulfur transportation fuel. Also E-Oil de-oxygenated can be refined into any form of liquid transportation fuel.

5. Are there any fossil fuels in E-Oil?

NO. E-Oil is made from 100% cellulosic biomass. Also per our customer's request E-Oil can be made from various forms of organic waste material.

6. What is the calorific value of E-Oil?

De-oxygenated E-Oil is about 19,865 BTUs per lbs. Oxygenated E-Oil is about 10,600 BTUs per lbs.

7. Is E-Oil environmentally friendly?

E-Oil is very environmentally friendly. Several studies show that if E-Oil is spilled in water it will dissolve without causing serious harm to any aquatic life.

8. What types of feedstock is used to make E-Oil? Are any food crops used to make E-Oil?

NO, NewEarth primarily uses short rotation energy crops like Nile Reed, bamboo, willow, etc. However any form of biomass can be used. Whenever agricultural waste like bagasse, cotton stalk, coconut hull, wood waste, etc. are available NewEarth will use various forms of organic waste material, to make E-Oil if our customers request this be used as a feedstock. This also performs a very valuable service in the effort to reduce various forms of pollution from our planet. NewEarth will not use food crops or compete with food crops in any way. NewEarth will only use degraded land to cultivate short rotation energy crops, it will not use good cropland that can be used for planting food. Also, energy crops can use undrinkable water; they do not need water of drinking quality. Through NewEarth's energy crop projects NewEarth restores the degraded land back to health, and creates massive carbon sinks for CO2 reduction.

9. What is the elemental analysis for E-Oil? These are the typical properties of E-Oil when wood is used as a feedstock.

Properties of Deoxygenated and Oxygenated E-Oil		
Elemental Analysis (wt%, anhydrous basis)	Deoxygenated	Oxygenated
Carbon	86%	69.20%
Hydrogen	12%	8.10%
Nitrogen	1%	0.70%
Sulfur	≈0%	> 0.1%
Oxygen	1%	21.90%
Gross Calorific Value	19,865 BTU/lb	10,600 BTU/lb
Moister Content	< 0.2%	10.00%
Density @ 25°C	N/A	1.25 g/ml
Kinematic Viscosity @ 50°C	N/A	100 cSt
Pour Point	N/A	< 5°C
Flash Point	N/A	> 59°C
pH	Neutral	4.2
Methanol Insolubles	≈0%	0.30%

10. What determines the calorific values of E-Oil?

The energy content of E-Oil is determined primarily by the type of feedstock used, the moisture content of the feedstock, and the conditions under which the feedstock is processed. For this reason, in some cases the calorific value of E-Oil could be very high, even higher than petroleum based fuels when a high energy content and low to no moisture feedstock is used.

11. What other uses for E-Oil?

E-Oil is very versatile. In addition to its use as a flex fuel alternative for fossil oil at electric power generation stations, and as a CO2 negative/neutral liquid transportation fuel, E-Oil can be used as a replacement or flex fuel alternative to expensive natural gas. E-Oil can be used as a renewable heating oil alternative. E-Oil can be used directly with out refinement in boilers and kilns for process heat in the oil, gas, wood and metallurgy industries. E-Oil is a great green alternative to diesel, and other light and heavy fuel oils. Refined, E-Oil is also an excellent kerosene substitute.

12. Can E-Oil be blended with petroleum?

Yes, if E-Oil is oxygenated the correct blending technologies must be used. De-oxygenated and refined E-Oil can be blended in any ratio.

13. What is the price of E-Oil per barrel?

E-Oil is price competitive with petroleum, and can be compared with low sulfur marine crude oil. However for customers that purchase E-Oil in large quantities, the total price of E-Oil is actually cheaper than the total price of petroleum. For more information on E-Oil prices please contact a NewEarth representative.

14. Can I earn carbon credits by using E-Oil instead of fossil fuels like petroleum?

YES.

15. What is the viscosity range of E-Oil?

Unrefined E-Oil has the viscosity range of about 100 cSt at 50°C. Once E-Oil is deoxygenated and converted to a premium fuel (green jet fuel, green gasoline, green diesel, etc) it is similar to the viscosity of other petroleum based fossil fuels.

16. What is the production capability of NewEarth?

NewEarth can produce and supply any annual amount of E-Oil to its customers, with the proper amount of lead-time. Since NewEarth grows its own sustainable supply of feedstocks and produces E-Oil via its EPT technology, NewEarth can create a dedicated E-Oil fuel supplies specifically designed for your company's needs to help reduced and or eliminate your company's GHG emissions.

Special Offer from NewEarth

NewEarth would like to offer your company 100 barrels of E-Oil at a one time test price for your company to conduct its own tests, and experience the full potential of what E-Oil has to offer as a renewable fuel alternative to petroleum. Reduce your carbon footprint today with NewEarth's E-Oil.

