

Re: Thermal Depolymerization

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Hello Ed & all;

Good move making this a separate thread and trimming the groups.

First, in the interest of full disclosure, I am not working for, related to, or shilling for the TDP industry (such as it is). I only brought it up because I've been fooling around in the alternative energy business for years...and found that mechanism by happenstance one day. Since then, I've been closely following it, because it appears to me to have promise.

Years ago I was as ignorant as so many posting here, convinced that solar power, hydrogen, wind, tides, and "good feelings" were the answer to all our needs and prayers. Then I grew up.

As I did the research, built lots of idiotic devices, and studied the results of those failures. I learned that you have to be incredibly dense or blinded by ideology to believe that you've discovered an energy cornucopia in the sun, winds, or tides (all of which are solar in origin). So my explorations ranged further afield...and I found out about TDP. There are two pilot plants already in service. But, the builders are being very closed mouth about their results. Trust me, if it's even only half as good as I've been told. There's going to be untold money to be made in controlling this industry...

I'm not an expert in or at TDP...but consider myself reasonably well informed about it. And no, I don't think it's the "final answer"...but it sure seems to be going well in that direction.

Ed Earl Ross wrote:

> *My first impression of a TDP unit is that it recycles all kinds of
> organic material, with around 85% of the material being converted
> into oil.*

>

> *That being true, 15% of the material is consumed, produces heat,
> and other waste (gases only?).*

The material consumed (the gas portion), is used for process heat.

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The output depends primarily on the input. Some things convert to different materials than others. But ALL make some fraction of gas, some of oil, and a mixture of solid residue.

For the plant that processes some 200 tons (if and when it gets to full operation) of turkey offal/day; it's expected to yield 10 tons of gas, 600 barrels of oil, 21,000 gallons of water, and 11 tons of minerals. The gas fraction is "natural" gas, that's clean burning and can be used directly. And they do use it to power their process heating needs.

Another fraction of the material comes out as an oil, that I'm told is the equivalent to #4 heating oil—but varies from process to process. Apparently it can be "cracked" into other lighter components by existing oil refinery techniques.

A large part of the output is water, and the water that comes out is pure and sterile. Nothing, not even a prion (BSE (mad cow disease)) can survive that treatment. It's dumped into the local water treatment system.

The final fractions vary. There is some elemental carbon, in the form of what's known industrially as carbon—black. Many thousands of tons this are used in the tire manufacturing industry, to mention only that one. It is sold commercially for such purposes.

The remaining components are mostly nitrates and such, and are sold to commercial fertilizer manufacturers. Metals and such are not affected by the process and are recovered and sold to commercial metal reprocessors.

Again, it kinda depends on what you put in. Throw in lots of crushed cars and computers, and you'll get mostly metals. Throw in a load of dead turkey parts, and you'll get more carbon and nitrates. Throw in a load of old road asphalt or used tires and such, and you'll get mostly oils.

A snippet I read said that if a 175—pound man were to fall into the feed end, he would come out the other end as 38 pounds of oil, 7 pounds of gas, and 7 pounds of minerals, as well as 123 pounds of sterilized water. And given the apparent surplus of lawyers and econutz we're saddled with, that might be a good purpose...(:-o)!

Basically you can put anything into it that's not radioactive. As "Veeger" robotically intoned, life on this planet (except for some critters and things around those deep—sea thermal vents) is a carbon based life form. Anything that's grown here can be used. All forms of garbage, offal, plants, animals, trash, anything built out of hydrocarbons can be processed.

- > *Statements below may be either true or not, depending on my current*
- > *understanding of TDP. I am confident someone will point out my*
- > *misunderstandings.*
- >
- > *If all oil flowing from a TDP is burned as fuel, then all the*
- > *original organic matter becomes heat and pollution.*

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Well, yes... Sort of. But it becomes a "closed cycle". In other words, you won't be adding to the CO2 level that the eco-weenies so fear. Cuz the same CO2 emitted by burning those materials, will be "fixed" by the next generation of plants & critters that will become the future fodder for the process.

If all it did was begin the process of weaning us off of adding the stored CO2 from long dead plants to the environment, this alone s/b reason enough for all the eco-weenies to actively support and promote this process. But trust me, they don't give a darn about that. Their real purpose has always been to socially engineer our lives and grab your SUV!

- > *If all oil flowing from a TDP is used to produce plastic, then*
- > *somewhat more than 15% of the original energy becomes heat and*
- > *pollution. The resulting plastic may be recycled in a TDP.*

Yep. As well as all of the plastics and things—EVERYTHING—already in our land fills. They could be excavated and processed into non-toxic and eminently more useful materials.

- > *If all the input material is petroleum based, there is no net*
- > *saving in pollution, compared to brining petroleum.*

Ummm, not entirely true. If you're talking about adding petroleum "refuse" from what was pumped, then yes. You'd be correct. But, on the second go-round of that process, it would be a net neutral result. OTOH; today we're at 100% into adding those hydrocarbons to the environment. It would seem to me that anything we do to lower that number has got to be a desirable outcome.

- > *All of the biological material fed into the TDP results in zero net*
- > *pollution.*

Correct.

- > *Is per person use of biological material enough to produce oil for*
- > *transportation?*

As of today? Especially given our vast tracts of available garbage, I'd say yes. But long term? Probably not. But it's too difficult to say with accuracy. Any such changes will of necessity be transitional events. I foresee a future where we begin to "ramp-up" to reusing our existing hydrocarbon materials. This will take decades.

At the same time we should begin to install and use simple, clean, automatic, modular new nuclear electric generation systems like the Toshiba 4S (and like devices). Clean, long term electricity will cut directly into the coal-fired energy production industry. Currently it accounts for some 50+% of our electric needs. The typical coal plant consumes something on the order of 100 tons of coal a minute (don't quote me on that...it's been many years since I calculated that). Second, minute, day...whatever. They burn LOTS of coal. We should be replacing them in an orderly and methodical way. Over the next 50 years, they can be phased out.

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Then, that very same coal can be TDP processed to yield a more usable form of hydrocarbons (in this case, oil & gas) for the transportation industry. As more, cleaner, cheaper nuclear electricity becomes available, the option to convert cars to H2, more trains to electric, and other less polluting means becomes less fancy and more fact.

None of this will happen overnight or by itself. But I dare say that if as much attention to solving the problem in this (and related NG's) were expended as is currently used to either affix blame or debate some minutia of data and what it portends, this problem would be much closer to being resolved.

> *What kind of oil is produced by TDP?*

#4 fuel oil. But I understand that this can be varied by variables in the process, and by the material input into the process. And no, I don't know exactly what or how.

The best oil that can be pumped out of the ground is known as, "Light, sweet crude". This is the best grade of, low sulphur, oil. More sulphur, known in the trade as "sour crude", requires more expensive processing and is less desirable. Since any component of the feed stock that is oil based is already sulphur-free, and other elemental sulphur components are trapped in the mineral blocks that remain from the process, the oil output is the highest quality of oil you can get. I'm told that it's of a grade that's half-fuel oil and half-gasoline. But, I'm not a petro-chemist, and have to take the word of others for that...

> *Humbly--Ed*

Good "wake up" post, Ed. Thanks!

Dusty

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RemoveCOAL&OILto reply