

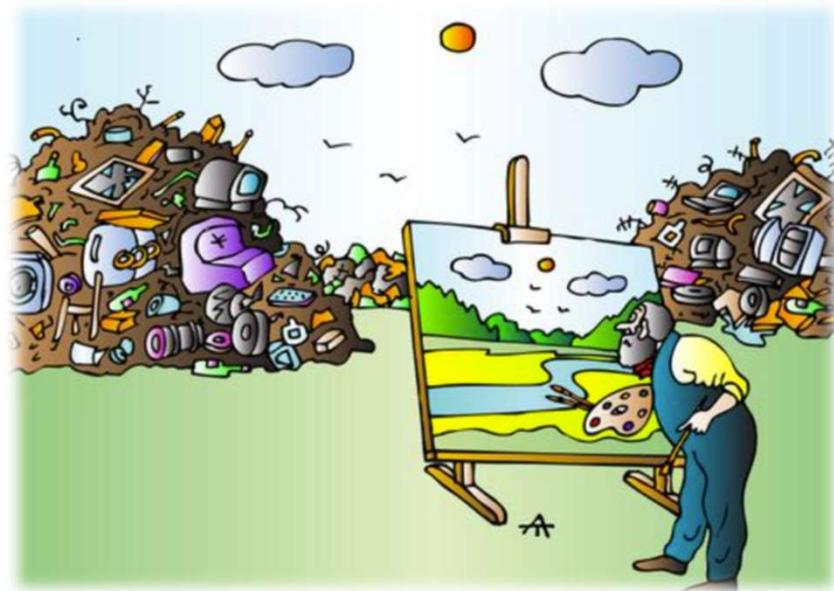


WPI

Unlocking the Full Potential of Waste-to-Energy by Investigating the Impact of Solvent Extractions on Hydrothermal Liquefaction

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Today's Trash is Tomorrow's Fuel

- Both the fuel and trash industries are outdated and environmentally inconsiderate
- The United States alone annually produces 300 million tons of waste

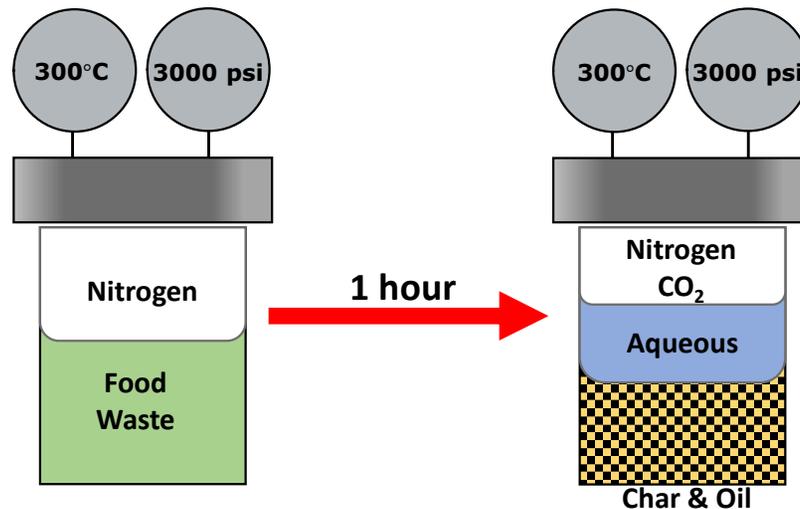
IMAGINE:

1. Producing a renewable and compatible biofuel
2. Reducing the ever-growing impact of humans on the environment



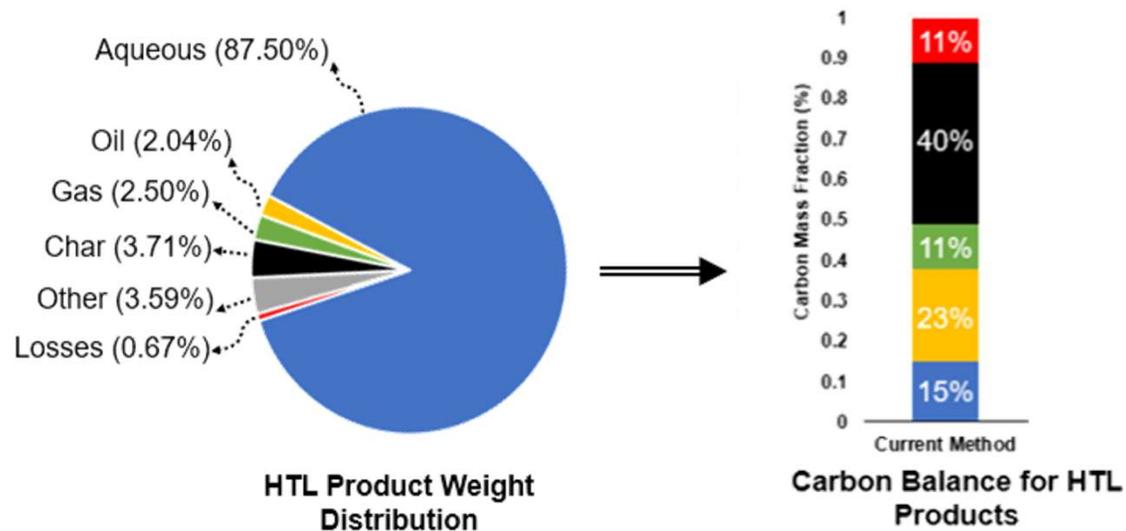
Producing the Fuels

- Hydrothermal Liquefaction (HTL) breaks down long carbohydrate macromolecules into four products: gas, aqueous, char and oil
- The fuel may not be the most critical component of this process



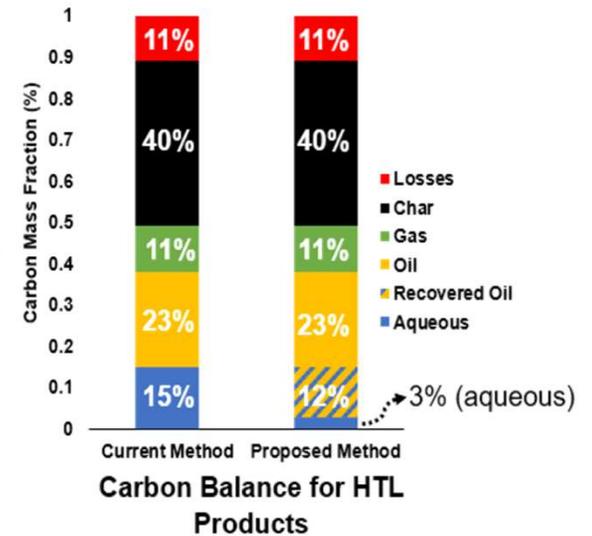
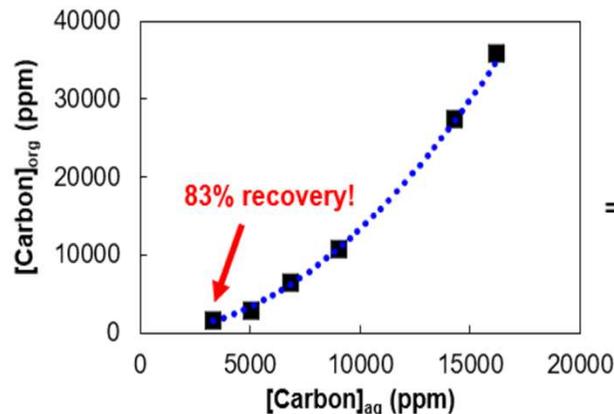
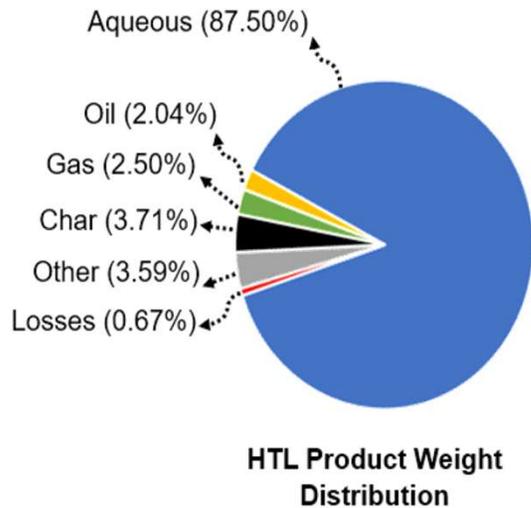
HTL Product Breakdown

- The aqueous phase is the majority product, it can not be ignored
- ~15% of the aqueous product is usable organic material
 - Ignoring this would be inefficient and keep the operating costs high



Implementing Solvent Extraction

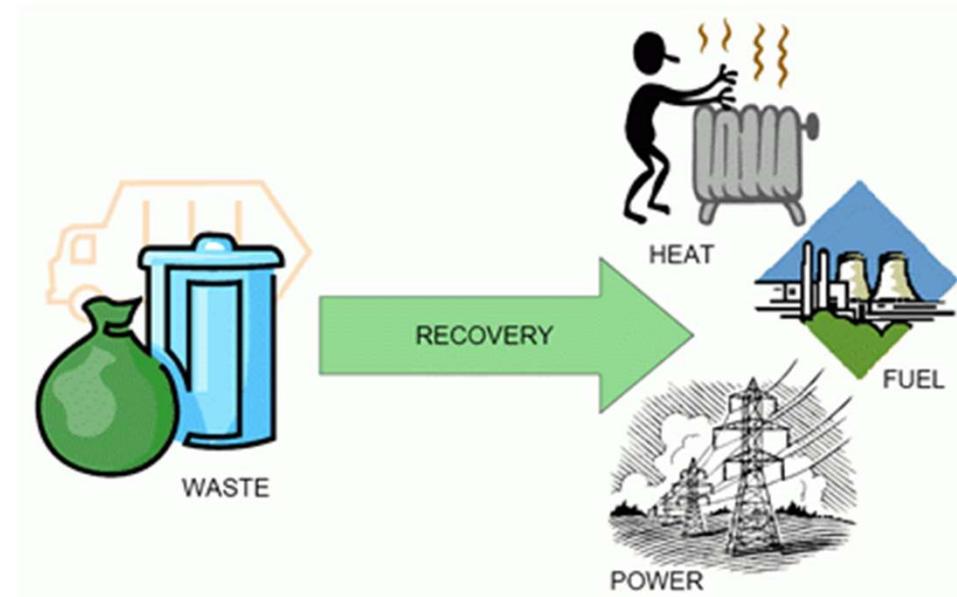
- Early results have found ~83% of organic carbon
- Upgrading this recovered carbon can boost oil throughput from 23% to 35%



Envisioning a Greener Future

Using solvents for post-HTL extractions is just the beginning of our vision:

1. HTL is being widely studied, but these extractions will be critical
2. Adding solvent extraction will improve yields and cut costs!
3. Support of these projects could propel a sustainable solution to waste and energy crises



Thank You!

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