

Conversion of Waste to Transportation Grade Fuels

By employing advanced process technologies, USFuelTech has the engineering acumen to build processing plants to convert social and industry waste materials into transportation grade fuels. And by converting flare gases and municipal solid wastes to usable vehicle and utility grade fuels, USFuelTech's processes eliminate environmentally harmful and expensive disposal problems without continued damage to planet Earth. Feedstocks

The following represent the types of feedstocks that can be used to convert waste to usable fuel:
Solids:

- Household Garbage
- High Sulphur Coal
- Sewer Plant Sludge
- Any Organic Solids
- Coal Fines
- Agricultural Waste
- Pig Waste
- Chicken Waste
- Plant Waste

Liquids & Gases:

- Organic Process Waste
- Coal Seam Methane
- Landfill Methane
- Oil Field Flare Gases
- Natural Gas

Product Capabilities

The following represent the types of fuels that can be made from the above referenced wastes:

- Diesel Fuel Substitute (DME)
- 0% Sulphur
- 0% Aromatics
- Ct 70 to 72

- Higher Olefin Enhanced Alcohols
- 140 Octane Is-Benzene
- 104 Octane Oxygenated Gasoline

Process and Product Options - Methane Feedstock

When employing any gaseous waste stream containing 40% or greater concentrations of methane, there are several process and product choices available. The first process alternative would be to use a steam reformer feeding the Fisher Troupes type reformer in order to produce diesel and paraffin based wax for secondary processing or use as an alternate process feedstock. The classical Fisher Troupes process tends to be capital and energy expensive. The second process choice would substitute a partial oxidation (POx) unit for the steam reformer. The POx unit is the preferred process which produces a hydrogen rich carbon-monoxide stream (syn-gas) that can be fed directly to a catalytic reformer. Through catalyst selection, it is possible to produce a range of transportation grade fuels and higher alcohols. Process and Product Options - Mixed Solids and Methane Feedstock

The POx gasifier has the unique advantage of being able to utilize any carbon based solid waste material as its feedstock (i.e waste-water, sludge, municipal solid waste, agricultural waste, and most process or construction wastes). The solid waste can be fed directly or it can be mixed with combustible waste gases as a combination feedstock for the POx unit. The POx unit Gasifier generates hydrogen rich carbon-monoxide synthetic-gas (syn-gas) from any combustible waste product without discharging harmful gases or toxic solid wastes to the environment. Thus, the POx gasifier and catalytic reformer produce an environmentally friendly (green-renewable) transportation grade fuel, plus substantial heat, and with little ash. If the ash is found to contain metals or other environmentally hazardous materials, it is further processed to a crystallized form that can be dispensed of in a landfill, or the ash may be made into additional products. The heat by-product of the process can be utilized to control the moisture content of the feedstock or it can be passed to other processes.