The ORGANIC DIVISION

* Organic chemistry is a subdiscipline of chemistry that studies the structure, properties, and reactions of organic compounds (which contain carbon in covalent bonding), the study of the structure, properties, composition, reactions, and preparation of carbon-containing compounds.

* This division of Innovative Recycling Research is defined as focusing on the carbon atom and Man’s propensity to need this element in “his” life. Fulfillment of this need through recycling past carbon structures is the goal of the Organic Division.

The recycling sources of this division are starting with tires and railroad ties:

* A tire is a ring-shaped compound that surrounds a wheel’s rim to transfer a vehicle’s load from the axel through the wheel to the ground and to provide traction on the surface travelled over.
* Chemically, inside the tire, the rubber having undergone the vulcanization process wherein it is infused with (the element) sulfur, makes recycling tires in general almost an impossible item to recycle.

The main problem is that the carbon-sulfur linkage is not easily broken without the input of costly reagents and heat. Thus, more than half of scrap rubber is simply burned for fuel.

Industrialized Nation Solutions:

* In 2017, of the tires that were scrapped: 43 % were burnt as tire derived fuel, 25 % were used to make ground rubber, 8 % were used in civil engineering projects, 17 % were disposed of in landfills, etc.…
* The civil engineering uses include and are not limited to: construction materials called earth ships, artificial reefs, tire derived aggregate, rubber modified asphalt, rubber modified concrete, and shoe soles. However, all these uses seem like a quick fix.
* These civil engineered aspects of scrap tire use led to controversy. The extraneous use of scrap tires is leaching metals and industrial chemicals into the environment. Zinc levels that are high enough to be toxic to aquatic life and plant life. Tires are a major source of micro plastic pollution.
* Issues: Globally, the rates are: 1,500,000,000 waste tires in 2018 and approximately the same number in 2019. These tires cannot sit in tire dumps globally. Tire dumps cause concerns for mosquitoes breeding in the standing water and a potential increase in diseases spread by the mosquitoes to the local citizenry. Tire fires once started, burn and smolder for years, releasing black smoke and air pollution that contaminates the population downwind for hundreds of miles/kilometers. Some tires liquify (a little known phenomena), thus releasing hydrocarbons and other chemicals into the soils and eventually into the groundwater.

Innovative Recycling Research takes on this challenge and boldly states that: “its new process will recycle tires and railroad ties.” Tires are a non-biodegradable substance made by science and they can be changed by science.

The process developed by Innovative Recycling Research in the beginning stages is like most tire reprocesses. First, the separation of the steel belts from the rubber shell. This is where the similarities end and the new machines of Innovative Recycling Research take over and technologically alter the previously non-alterable. The end results will be giving a new carbon source to Mankind.