

Editorial on Petrochemicals

Sirisha Gawaji*

Department of Food Science and Nutrition, Andhra University, Andhra Pradesh, India

EDITORIAL

Petrochemicals are chemicals derived from petroleum (crude oil) or natural gas. They are an essential part of the chemical industry as they play a major role in economy and growth. With the rise in energy demand, petrochemical production has also increased. Petrochemicals are used in manufacturing different products that people use on daily basis, such as, plastics, medicines, cosmetics, furniture, appliances, electronics, solar power panels, and wind turbines.

Synthesis of Petrochemicals:

Petrochemicals are synthesised by the process where petroleum hydrocarbons from either petroleum or other fossil fuels like gas and coal, as well as biomass, are converted into chemical products. Naphtha which is a mixture of flammable liquid hydrocarbons is also important in the production of petrochemical products. After being separated in distillation process, separated hydrocarbons can be fed to a manufacturing facility known as a cracker, which breaks chemical bonds in hydrocarbon materials and allows them to convert into more useful chemicals for production. Another major petrochemical is Ethylene. It is used to create polyethylene which is one of the most important plastics in manufacturing.

Classification:

Based on chemical composition or chemical structure, petrochemicals are divided into three groups as follows:

1. Olefins: Examples-ethylene, propylene, and butadiene.

- Ethylene: Used in paper, consumer electronics, detergents, footwear, and adhesives
- Propylene: Used in paints, furniture, textiles, pharmaceuticals, and food packaging.

- Butadiene: Used in the industrial production of synthetic rubber.

2. Aromatics: Examples of aromatics includes benzene, toluene, and xylenes.

- Benzene: Creates pharmaceuticals, furniture, electronics, and food packaging
- Toluene: Creates inks and sports equipment
- Xylenes: Used in the industrial production of both plastics and synthetic fibers.

A combination of benzene and toluene are used in making isocyanates MDI and TDI both of which are required in making polyurethanes.

3. Synthetic gas: This is a mixture of carbon monoxide and hydrogen both of which are by chemical processes used in making ammonia and methanol. While ammonia is used in making fertilizer (urea), however methanol is used as a solvent and chemical intermediate.

In spite of its benefits and vital role in day to day life, petrochemicals are also known to have several negative impacts on health and environment as well. According to the Environmental Literacy Council, the burning of fossil fuels and petrochemicals has significant negative impact on the environment. When burned, petrochemicals release ash, nitrogen, sulphur and carbon into the atmosphere, contributing to smog and pollution.

There is another environmental concern about petrochemical manufacturing of plastics. But it doesn't lead to a significant release of greenhouse gases which can cause climate change. For example, the plastic which is being manufactured captures the carbon in an inert form (the plastic) and doesn't release it into the atmosphere.

Correspondence to: Sirisha Gawaji, Department of Food Science and Nutrition, Andhra University, Andhra Pradesh, India. E-mail: sirisha.gawaji@gmail.com

Received: February 04, 2021; **Accepted:** February 12, 2021; **Published:** February 21, 2021

Citation: Sirisha.G (2021) Editorial on Petrochemicals. Mod Chem Appl. 9:e286. doi:10.35248/2329-6798.20.9.e286.

Copyright: © 2021 Sirisha.G. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.