CHEMICAL RECYCLING EXPLAINED

Chemical recycling is a general term used to describe innovative technologies where post-consumer plastic waste is converted into valuable chemicals, to be used as feedstock by the *chemical industry.

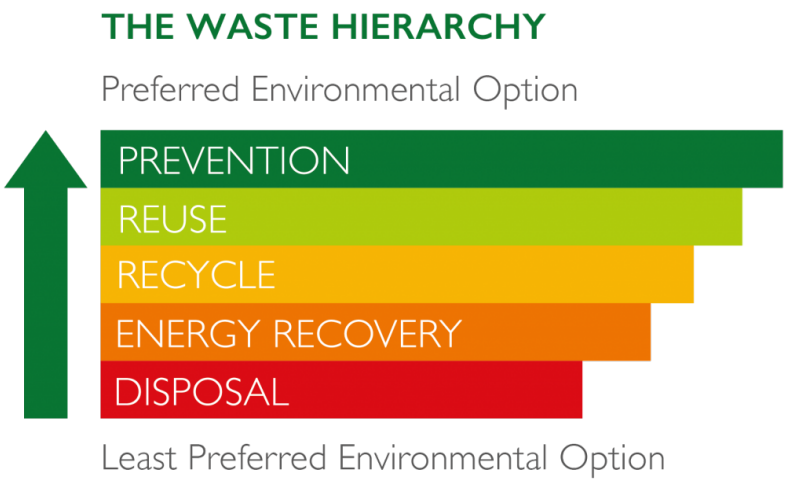
These technologies include pyrolysis, gasification, chemical depolymerisation, catalytic cracking & reforming and hydrogenation.

With chemical recycling, plastic waste is converted into feedstock, i.e. monomers, oligomers and higher hydrocarbons that can be used to produce virgin-like polymers to create new plastic articles which means the plastic waste is broken down to oil that can replace normal crude oil.

Moreover, being fairly new processes, chemical recycling needs to be conceptualised in the legislation, so that its output material is clearly defined and distinguished from energy recovery.

Chemical recycling should never be confused with incineration where the waste material is destroyed for energy recovery i.e. it is not recycling or material recovery. Through pyrolysis methods, the oil and gas is recovered from the waste feed stock.

Chemical recycling should be seen as a complementary solution to mechanical recycling where for example plastic waste is recycled directly into new plastic products. In many cases this is not possible due to lack of, or difficulty of sorting, multi layered or heavily contaminated waste or mixed materials. A quick look through your household plastic recycling guidelines will confirm this. Ideally, increased collection of high-quality waste and design for recycling should remain the two priorities in order to increase the recycling rates for plastics. The preferred order is:



A vast share of collected plastic waste end up in incineration due to lack of viable and economical recycling solutions. This is a wasted opportunity to recover valuable raw material.

Cassandra Oil has developed a new and highly efficient fast Pyrolysis technique that is now ready to take on the rubber and plastic waste markets. In as little as a few seconds the plastic waste is transformed into oil, and gas (propane & butane), through the CASO (Cassandra Oil) reactor technology.

There are usually two concerning issues with Pyrolysis methods:

1. The cost of energy needed to run the process
2. The uneven quality of the end products.

Cassandra Oil has cracked both problems with their patented friction reactor.

The recovered products (oil) from the waste are REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) and ECHA (European Chemicals Agency) registered which also means they can be sold in unlimited quantities to refineries, for further upgrading. To read and understand more about REACH and ECHA click here.

The CASO reactor has several advantages compared to conventional Pyrolysis methods. Due to the patented friction reactor the waste process is both rapid and cost effective while producing oil that can substitute crude oil and of which is of high interest in the petrochemical industry. A few additional benefits are listed below.

*The chemical industry = companies that produce industrial chemicals. Central to the modern world economy, it converts raw materials (oil, natural gas, air, water, metals, and minerals) into more than 70,000 different products. The plastics industry contains some overlap, as most chemical companies produce plastic as well as other chemicals.