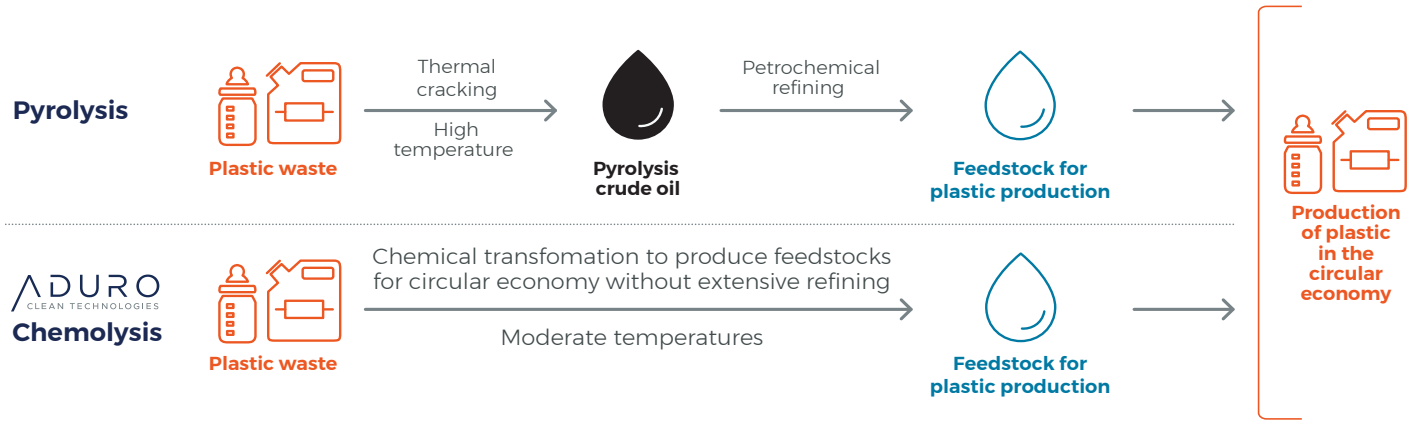
Plastics upcycling with
Hydrochemolytic™ Technology

ADURO
CLEAN TECHNOLOGIES

Maximizing recovery in **chemical recycling**

The **Between** Chemistry.

Chemical recycling presents a promising solution to address the plastic waste challenge our world is facing today. Plastic waste comes in various shapes and sizes; the majority of which is complicated material, costly and difficult to recycle. Factors such as energy consumption, cost of emission, yield, and feedstock losses play a critical role. While traditional thermolytic technologies, like pyrolysis, have made strides in chemical recycling, Aduro Clean Technologies introduces Hydrochemolytic™ Technology, offering better results with reduced environmental impact.



Various chemical recycling technologies are being developed. Pyrolysis, a thermolytic approach, breaks plastics down to oil at high temperatures. It requires input of fairly pure polyethylene and polypropylene, its energy consumption is high, and the required post-treatment is costly. The Aduro Hydrochemolytic Technology (HCT) also produces an oil, but does so at milder conditions (lower energy consumption), is more forgiving towards impurities in the feedstock (it separates those into an easy-to-separate side stream), and requires less post-treatment.

Features of Hydrochemolytic Technology

Environmental impact

Unlike pyrolysis, the milder conditions of HCT mean lower CO_2 output and minimal loss of carbon input. This reduces green-house gas emissions and environmental strain.

Efficiency

HCT converts plastics under milder conditions in yields over 95% in test runs on pure polypropylene feed — only 5% feedstock is lost to char and fuel gases.

Versatility

HCT can handle plastics contaminated with diverse components including PET and multi-layer materials, maximizing plastic resource recovery from difficult-to-recycle mixed waste.

The ideal balance **between** economic and environmental benefits

Superior yield
Higher return on investment with plastics resource capture >90%

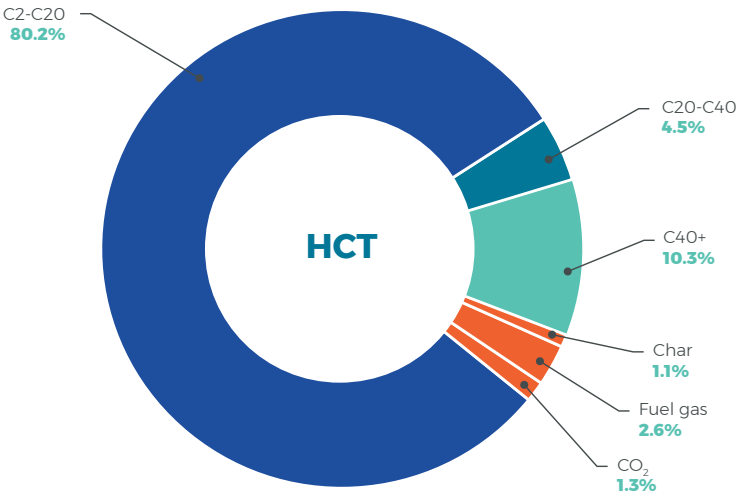
Minimal post processing
Yields valuable hydrocarbons with very low unsaturation

Tolerance for contaminants
Lower costs for pre-processing of plastic feedstocks

Lower emissions
As little as 5% feedstock loss to methane and CO_2

Energy efficiency
Lower temperatures than conventional pyrolysis

Supports circularity
High quality feedstocks for the circular economy



Pyrolysis applies high temperatures. This results in the conversion of valuable plastic feedstock into char and low-value fuel gas.

Due to the high efficiency of HCT, Aduro recovers 95% of plastic waste feedstocks (in this test run) for the circular economy while minimizing greenhouse gas emissions and losses to gas and char.

This means higher productivity of invested capital and higher sustainability compared to pyrolysis-based technologies.

95% valuable hydrocarbons for new plastic products

Path to the future

Process development Aduro is actively working to scale up HCT for commercial application, with configuration of a next-generation process anticipated by the end of 2024. The company's continuous process unit is operational, paving the way for widespread adoption of this game-changing technology.

Versatile implementation One strength of the Aduro technology approach is its versatility, which provides economic and operational flexibility to meet specific needs of customers and minimizes implementation risks and costs while maximizing speed and efficiency, effectively accelerating the path to revenue.

Sustainability through innovation Hydrochemolytic Technology from Aduro Clean Technologies represents a significant innovation in chemical recycling, offering unparalleled efficiency, environmental sustainability, and economic benefits. With this, Aduro is positioned to revolutionize the plastic recycling industry and contribute to a more circular and sustainable future.

Aduro Clean Technologies is the between that connects the benefits of modern life with an environmentally sustainable future.