Background
The problem with plastics waste is actually a problem of solid waste in general. Society’s willingness to dispose of garbage responsibly has not kept up with the ability to produce it. It is for this reason that public and private companies are seeking ways to reduce plastics production (which represents about 12 percent of global waste).

As consumers will continue to lean toward companies that offer sustainable products and call for a decrease of petroleum based plastics, thermolysis methods are being investigated for recycling mixed plastics waste.

Initially, the focus of these technologies was the production of various fuels, typically diesel. More recently, the focus has shifted to production of naphtha, as it can be used to create new plastics, thus creating a circular process, and one that can count toward recycling goals and requirements.

Objective
The purpose of this report is to provide a strategic analysis of thermolysis technologies and how viable they are for olefins production from mixed plastics waste.

This detailed study examines the thermolysis (i.e., pyrolysis and gasification) of mixed plastics waste by:

- An analysis of the waste stream, including the mixed plastics waste value chain
- An analysis of the thermolysis plant location, including the issues and challenges/factors affecting location
- Profiling thermolysis technologies currently being used and considered for recycling of mixed plastics waste, including a ranking of these technologies
- Economics of thermolysis technologies and olefins production

This report incorporates expertise Nexant has gained over many years of examining polymer technology developments as well as the knowledge gained during recent recycling studies. Thus, the information used to develop this report is derived from in-house sources as well as information provided by technology developers, conversations with experts in the area, and publicly available resources.

What is Included in the Report?

- High level profiles of pyrolysis and gasification technology developers
- A ranking of the profiled companies on criteria such as:
  - Capital investment
  - Status of the technology
  - Feedstock flexibility
  - Product usefulness
  - Patent protection
- Economics for pyrolysis and gasification products and olefins from products in 1H 2020 for USGC, Western Europe, China, Japan, and Southeast Asia locations
- Cost competitiveness and profitability for olefins production based on various oil price scenarios for USGC, Western Europe, and China
- Strategic and business considerations (e.g., SWOT, certifications, Porter’s 5 Forces, potential price premium, thermolysis feedstock sources)

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