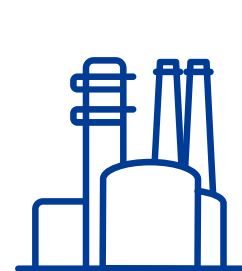


Renewable carbon cycle

When using renewable raw materials, the final product's carbon footprint can be significantly reduced, as these raw materials have previously taken CO₂ from the atmosphere, during biomass growth.

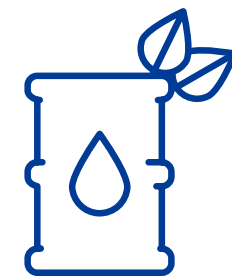


Raw materials



Refinery

Raw materials are being refined and converted into molecules suitable as fuels or intermediates for further processing.



Feedstock for further processing

Refined hydrocarbons

Fossil crude oil

Oil refinery

Feedstock from fossil oil

Waste and residue oils & vegetable oils

NEXBTL refining technology

Feedstock from renewable materials

Plastic waste

Chemical recycling

Feedstock from recycled materials

Plastic waste is being pre-treated and liquefied (e.g. into pyrolysis oil). Impurities are removed, and the upgraded liquefied waste plastic (LWP) is being processed in conventional refineries.

NESTE RE

Drop-in solution available at scale. Can be used in existing facilities on its own or in a blend with fossil feedstock.

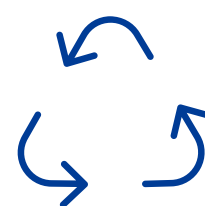


Disposal & waste incineration

Waste sorting drives reduction in plastic pollution and increased recycling rates. While some plastic waste can be mechanically recycled, some hard-to-recycle waste requires chemical recycling to enable production of high-quality products.

Mechanical recycling

Plastic waste collection & sorting



Consumer



Increasing demand for alternatives to enable sustainable choices in everyday life

Retailer



Brand owner / Product



Converting

Production of polymer products, e.g. different types of packaging



Formulation

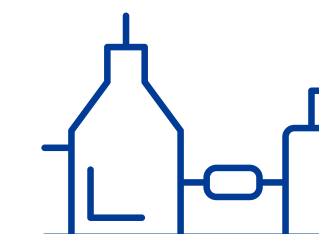
Compounding

Optional step: blending of polymers with other additives in a molten state to achieve specific characteristics and properties



Enabling the transformation towards circular polymers and chemicals

Steam cracking



Long hydrocarbon chains are being thermally cracked down into smaller fragments of different lengths, using steam as a diluent.

The output of steam crackers also includes base chemicals that serve as chemical intermediates, for example benzene.

Base chemicals

Smaller chemical units (so-called monomers) are chemically combined, creating larger molecules: polymers.



Processing of base chemicals to achieve specific characteristics; output includes, for example, surfactants for detergents.