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Our consulting service provides you with custom-built intelligence for a new era of energy. So we can answer your unique questions with equally unique solutions.

What we cover:
- Energy
- Economics & Country Risk
- Agribusiness
- Operational Risk & Regulatory Compliance
- ESG, Climate & Sustainability
- Financial Market Data & Services
- Technology & Telecom
- Maritime & Trade
- Automotive
- Chemical
Every industry, from agriculture to energy to retail, relies on chemicals at some stage in the production process. To stay ahead, you need a deeper understanding of market volatility, regulatory pressures, supply-chain disruption and shifting end user demand.

Our chemicals consultants have experience advising chemical producers, governments, financial institutions and technology providers operating at any point along the value chain, from commodity to specialty chemicals.

We can help you with:

- Techno-economic and feasibility studies
- Plastics Circularity
- Market studies for commodity chemicals
- Transaction support
- Specialty chemicals studies
- Process technology
# Special Report on Recycling

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### Regions and polymers covered

- North America
- Europe
- Indian Subcontinent
- Northeast Asia
- Southeast Asia
- HDPE
- LDPE
- LLDPE
- PP
- PET

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*S&P Global Commodity Insights*
Sustainability is key driver for companies along plastics value chain seeking to align their strategy closer to UN Sustainability Goals

This impacts refinery operations, chemical producers, plastics producers, compounders, fabricators, waste collection, sorting and many more, not least major brand owners.
Industry enjoyed continuous growth, driven by commodity polymers

Global commodity polymer consumption

2022 consumption by polymers

Source: S&P Commodity Insights

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The state of plastics use and its disposal

Only 10% of plastic waste is **recycled** globally.

Another **19% is incinerated**, **49% ends up in landfill**

**Polyolefins** accounted about **47%** of the total plastic waste generated globally in 2022, with **PE and PP** constituting **28% and 19%** respectively.

**Polyolefins**
- **Polyethylene (PE)**
- **Polypropylene (PP)**

Polyolefins constitute about **47%** of the total plastic waste generated globally in 2022.
The world is producing twice as much plastic waste as two decades ago, with the bulk of it ending up in landfill, incinerated or leaking into the environment, and only 9% successfully recycled, another 19% is incinerated, 50% ends up in landfill and 22% goes into uncontrolled dumpsites.

- Plastic consumption has quadrupled over the past 30 years, driven by growth in emerging markets.
- Global plastics production doubled from 2000 to 2019 to reach 460 million tonnes. Plastics account for 3.4% of global greenhouse gas emissions.

Globally, only 9% of plastic waste is recycled, 22% is mismanaged with some ending up in terrestrial or aquatic environments.
Moving from linear to circular

Incentives to recycle

Back up supply
Supplement virgin resin supply during possible shortages

Compliance
Satisfy any legislated recycle-content mandates

Market opportunity
Displace virgin resin in applications that do not require high-quality resin

Economic
Tax credit programs in different regions

Competitive advantage
Gain marketing/advertising benefits from use of recycled resin

Waste management
Offset higher alternative disposal cost
Plastics Recycling
Covers a range of technologies, at different stages of the value chain
Trending partnerships in chemical recycling, as a complementary solution to mechanical recycling when the latter proves to be inefficient in the case of difficult-to-recycle plastics or improperly sorted, multilayered, or heavily contaminated waste.

In the last five years, chemical recycling has increased, stimulated by an overall surge in demand for circular polymers and sustainability within industry, as well as consumer demands.

West Europe and North America are currently regions for this technology with suppliers such as Encina and Brightmark announcing capacities of over 100 kta, reaching the commercial scale.

S&P Global sees an important increase in the next 7 years in Asia, specially in China and Korea as plant announced capacities reach the 200 kta mark.

Growth expected in solvent based and depolymerization technologies with PP and PET as majorly processed polymers. Some of the key developers include PureCycle, Eastman and Loop Industries.

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### Estimated chemical recycling capacity by 2023

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### Estimated added capacity between 2024-2030

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### Incoming Technology share (2024-2030)

- **Depolymerization**
- **Other**
- **Pyrolysis**
- **Solvent**

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1 As announced by technology developers and partners. Could vary depending on put offs and cancellations. Capacity represents incoming waste.
Price development
Historical and forecast mechanical to virgin Polyethylene (PE) HDPE

• In general, prices for recycled resins in Europe tend to track the virgin material.

• Comparing the regions, Europe outpace the recycle demand over the total resin demand as there is a strong push and solid legislation toward the addition of more recycle content.

• In North America prices for recycled HDPE are expected to remain above virgin due to an upsurge in corporate sustainability requirements.

• The market value of recycle HDPE might suffer downward pressure from the excess supply of virgin HDPE. Global supply difficulties over the last year have significantly impacted import-export operations, growing freight costs and reducing the supply of PCR bales, which has driven up the cost of production.
Pressure has picked up on the plastics industry to mitigate the negative impact of plastic consumption on the environment.

**Legislation & bilateral agreements**

- Applications
- Plastic types
- Consumption / end of life
- Trade

**Tools**

- EPR
- Bans
- Plastic tax
- Deposit-refund scheme

- Legislation focused primarily on applications rather than type of plastics with aim to reduce either consumption into these applications or promote end of life and plastics circularity.
- Regulation centered around trade and plastics’ waste trade that can be beneficial but also counterproductive to promote recycling.
- Tools have been set in place to support legislation such as bans on certain applications, deposit schemes (that improve collection/sorting and mechanical recycling), and EPR and plastic tax schemes that drive financing.
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