HDPE & PP MARKET IN EUROPE

REPORT SNAPSHOT

STATE OF PLAY

PRODUCTION, COLLECTION & RECYCLING DATA 2023

While the industry has made notable progress in recent years, the recycling capacity for HDPE and PP rigids has stagnated between 2022 and 2023. Key challenges in the market continue to hinder further expansion. Unlocking circularity for these plastics largely depends on higher collection rates, supported by better design-for-recycling practices, the adoption of advanced sorting technologies, the implementation of effective collection and sorting systems, and effective legislative support, including measures targeting unregulated imports of plastic materials.

NO SIGNIFICANT GROWTH REGISTERED IN THE COLLECTION VOLUMES OF RIGID HDPE AND PP

In 2023, 13.3 million tonnes of HDPE and PP rigids were placed on the European market. The waste generation dynamics for rigid polyolefin rigid applications differ significantly between the packaging and non-packaging sectors. Packaging, constituting approximately 75% of the total waste for both polymers, is characterized by its short-lived nature. It enters the waste stream within the same year of production, creating an immediate and substantial volume of waste that requires annual management.

Although separate collection of rigids has been implemented in almost all EU27+3 countries, the reach of these systems to the wider population is still rather limited, demonstrated by the low collection volumes. However, ensuring sufficient collection volumes is the imperative first step for achieving the EU recycled content targets.

OVERCOMING SORTING BARRIERS IS CRUCIAL TO BOOST EFFICIENCY FOR RECYCLING OF HDPE AND PP RIGIDS

In 2023, approximately 2.7 million tonnes of rigid HDPE and PP were sorted as input for recyclers, representing 42% of the collected waste of these plastics. The gap between collection and the volume sent for recycling is due to several factors, including design for recycling incompatibilities, exports, and sorting challenges.

Contamination from other plastics, food residues and the varied shapes and sizes of HDPE and PP rigids pose challenges for sorting systems, limiting overall efficiency.

Of the total material sent for recycling, packaging accounted for 90%, with household waste making up the largest share (56%). Commercial and industrial packaging contributed 28-29%, while other packaging sources comprised the remaining 5-6%.

TO UNLOCK ITS FULL POTENTIAL, THE EUROPEAN RECYCLING MARKET FOR BOTH HDPE AND PP RIGIDS MUST BE FURTHER STRUCTURED AND MATURED

European recycling capacity for both HDPE and PP rigids was at 3.5 million tonnes in 2023 with an estimated 300 recycling facilities. This capacity consists primarily of numerous small plants averaging 14,000 tonnes per year, alongside a smaller number of large-scale facilities exceeding 40,000 tonnes per year. Three-quarters of existing plants recycle both HDPE and PP rigid waste within the same facility. Growth has been stronger in highly populated markets, with Spain, Germany and Italy accounting for half of the total installed rigid HDPE recycling capacity. A similar trend is observed for PP, where Germany, Benelux and Spain make up almost 50% of the total rigid PP recycling capacity.

Although recycling capacity has doubled since 2018, growth stagnated between 2022 and 2023 due to weaker demand amid a global polyolefin oversupply, along with high inflation, rising energy costs, and competition from lower-cost imports of both virgin and recycled polymers.

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HOW TO SECURE A CIRCULAR FUTURE FOR HDPE AND PP RIGIDS?

A SUBSTANTIAL RISE IN COLLECTION RATES AND INCREASING UPTAKE OF RECYCLABILITY PRINCIPLES WILL BE IMPERATIVE

The primary challenge in improving the circularity of HDPE and PP remains low collection volumes and material losses at the start of the value chain. Between 2018 and 2023, the collection rate saw no major increase, limiting the availability of recyclate. Additionally, the absence of a fully developed and implemented design-for-recycling framework, deposit-return systems (DRS), and the implementation of new efficient sorting technologies has further constrained the growth of rHDPE and rPP rigids. Expanding the adoption of design-for-recycling guidelines will not only enhance recyclability but also improve recyclate quality, enabling closed-loop recycling at a large scale, including for food-grade applications. Recyclability certifications will be central to achieving this.

SIGNIFICANT INCREASES IN RECYCLING CAPACITIES OF RIGID POLYOLEFINS WILL BE NEEDED TO MEET THE PPWR TARGETS

The Packaging and Packaging Waste Regulation (PPWR), which came into effect in February 2025, sets ambitious recycled content targets for plastic packaging, including HDPE and PP rigids. Meeting these targets, however, will require an additional 2 million tonnes of recycling capacity for rigid HDPE and PP by 2030 and a further 5.7 million tonnes by 2040. Besides boosting the capacities, equally important is ensuring the improving quality of recycled materials to meet the growing demand in high-specification applications across various industries. The market analysis points to the need for a multi-faceted approach involving technological innovation, infrastructure investment, and potentially, regulatory frameworks to ensure that the supply of high-quality recycled materials can keep pace with ambitious sustainability targets.

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