

Plastics Recycling

20 December 2019

Abstract

This IHS Markit report focuses on the global plastics recycling market, especially that of thermoplastic resins (mainly postconsumer). This report does not cover thermoset resins. The major plastics that are recycled today continue to be PE, PET, PP, PVC, PS, and EPS. Polyethylene, or PE, is subdivided into HDPE, LDPE, and LLDPE. Plastics recycling can be divided into four categories:

- **Primary recycling:** The original definition of primary recycling is mechanically recycling material into a product with similar properties as the original product. This definition is used in Europe. The US Environmental Protection Agency's (EPA) current definition of primary recycling is recovery of postindustrial scrap recovered from the manufacturing plant. In most cases, primary recycling is carried out by the manufacturer itself from postindustrial waste. Since postindustrial scrap materials are usually uncontaminated, recycling is a simple process involving re-extrusion of the material.
- **Secondary recycling:** The original definition of secondary recycling is mechanically recycling material into end-use products of less quality, also referred to as downgrading or downcycling. This definition is used in Europe. The US EPA's definition of secondary recycling is the use of postconsumer material to make end-use products. This process is also called mechanical recycling.
- **Tertiary recycling:** The recycled plastic is chemically processed into its petrochemical components such as monomers or oligomers. This process is also called chemical or feedstock recycling. Tertiary recycling is considered as complementary to mechanical recycling. In the last five years, this process has become of more interest.
- **Quaternary recycling:** Here, energy is recovered from the recycled plastic by processes such as incineration.

A recycling process could also be considered closed-loop recycling or open-loop recycling. Closed-loop recycling indicates a product can be recycled back into itself. Examples of closed-loop recycling include primary recycling, chemical recycling to produce the monomer that is then used to produce the polymer product, and bottle-to-bottle recycling (BtoB). Open-loop recycling indicates that the recovered end product is recycled into other types of end-use products. An example of open-loop recycling is recovering postconsumer PET bottles and converting it to polyester fibers.

In 2018, roughly 16% of global postconsumer plastics collected/sorted were recycled. The majority, or 66%, of global plastics were sent to landfills/environment/leakage. This continues to remain a dire global problem. The remaining global percentage was mostly incinerated for energy recovery.

The New Plastics Economy Global Commitment, led by the Ellen MacArthur Foundation and in a collaboration with UN Environment, was officially announced on 29 October 2018. As of June 2019, The Global Commitment has been signed by over 400 signatories, including companies representing 20% of all plastic packaging produced globally, as well as governments, nongovernmental organizations, universities, industry associations, investors, and other organizations. The Global Commitments 2025 targets for packaging includes the following:

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- Eliminate problematic or unnecessary packaging
- Transition from single-use toward reusable packaging
- 100% of plastic packaging to be reusable, recyclable, or compostable
- Set an ambitious 2025 recycled content target across all plastic packaging used

And, finally, the implications of the China import ban/restriction on plastics scrap/waste imports have caused tremendous turmoil in the plastics recycling industry. From 2016 to 2019, it is estimated that Chinese imports of plastics scrap/waste declined at an average annual rate of -62%. Now, and especially in the near future, the recycling industry will have to find new options and end users for the ever continuous stream of plastics recyclable materials. These consequences have started and will continue to stimulate recycling activities from country to country, and the need to think in a more circular economy.

For more detailed information, see the table of contents, shown below.

IHS Markit's Chemical Economics Handbook – *Plastics Recycling* is the comprehensive and trusted guide for anyone seeking information on this industry. This latest report details global and regional information, including



Global summary;
regional coverage



Producers with
annual capacities
and plant sites



Production figures
and trends



Consumption and
forecasts by end use
application



Manufacturing
processes and
environmental issues



Trade – imports
and exports

Key Benefits

IHS Markit's Chemical Economics Handbook – *Plastics Recycling* has been compiled using primary interviews with key suppliers, organizations and leading representatives from the industry in combination with IHS Markit's unparalleled access to upstream and downstream market intelligence, expert insights into industry dynamics, trade and economics.

This report can help you:

- Identify trends and driving forces influencing chemical markets
- Forecast and plan for future demand
- Understand the impact of competing materials
- Identify and evaluate potential customers and competitors
- Evaluate producers
- Track changing prices and trade movements
- Analyze the impact of feedstocks, regulations, and other factors on chemical profitability

Contents

Executive summary	7
Summary	9
Introduction	12
Recycling defined	14
Environmental and health	16
Plastics in landfill	16
Plastics from rivers to oceans	16
Plastics pollution in the air	16
Glossary	17
United States	21
Background	21
– Municipal solid waste (MSW)	21
– Plastics in perspective	25
– Evolution of plastics recycling	27
– Legislation	28
Current status	30
Technology	30
– Sorting/granulation	31
– Separation (physical)	33
– Chemical recycling	35
– Thermolysis	36
– Chemical depolymerization	36
Collection infrastructure	37
Thermoplastic resin profile	38
– Producing companies	38
– Production	40
– Major sources of thermoplastic recyclables	43
– The recycling of plastics	50
– PET	51
– Producers (reclaimers)	51
– Salient statistics	53
– PET recycling rates	54
– Consumption	55
– Trade	58
– Polyethylenes (HDPE, LDPE, and LLDPE)	59
– HDPE	59
– Producers (reclaimers)	59
– Consumption	64
– LDPE/LLDPE	67
– Producers (reclaimers)	67

– Consumption	68
– Trade	69
– Polypropylene	70
– Producers (reclaimers)	70
– Production (reclaimed)	72
– Consumption	72
– Polystyrene	73
– Producers (reclaimers)	73
– Production (reclaimed)	75
– Salient statistics	75
– Trade	77
– PVC	78
– Producers (reclaimers)	78
– Consumption	79
– Trade	81
Price	81
Canada	84
Thermoplastic resin profile	84
– Producing companies	84
– Producers (reclaimers)	84
– Municipal solid waste	85
PET	88
HDPE	90
LDPE/LLDPE	92
Polypropylene	92
Polystyrene	93
PVC	96
Mexico	98
Thermoplastic resin profile	98
PET and other plastics	98
Polyethylenes (HDPE, LDPE, and LLDPE)	101
– HDPE	103
– LDPE/LLDPE	104
Polypropylene	106
Polystyrene and EPS	106
PVC	109
Other	110
Central and South America	112
Thermoplastic resin profile	112
– Producing companies	112
– Municipal solid waste (MSW) in Brazil	113
– Plastics recycling	113
– Trade	117

Europe	120
Recycling terminology	121
Alternative recycling methods	122
– Mechanical recycling	122
– Feedstock recycling	123
– Energy recovery	124
Major producers of recycled resins	124
Sources of postconsumer waste and processing of recycled plastics resins	129
– PET	131
– Polyolefins	133
– Polyvinyl chloride	133
Price	134
Other Europe	138
Middle East and Africa	140
Bahrain	140
Israel	140
Saudi Arabia	141
Turkey	141
United Arab Emirates	142
Africa	143
China	145
Legislative summary and current activity	145
Plastics recycling	147
Salient statistics	148
Consumption	149
Price	151
Trade	152
India	153
Legislative summary and current activity	153
Trade	155
Japan	157
Legislative summary	157
– The Fundamental Law for Establishing a Sound Material-Cycle Society (SMS)	157
– Law for the Promotion of Effective Utilization of Resources	158
– Designated resource-saving industries	158
– Designated resource-recycling industries	159
– Specified reuse-promoted products	159
– Specified labeled products	160
– Specified resource-recycled products	160
– Specified by-products	160
Recycling structure	161
Disposition of plastic waste	162
Recent business activities in plastics recycling	164

– PET	164
– Polyolefins	165
– Expanded polystyrene	165
– PVC	166
Sources of postconsumer waste and consumption of recycled resins	166
– PET	166
– Polyolefins	168
– Expanded polystyrene	168
– Polyvinyl chloride	170
Feedstock recycling	170
– Reducing agent for blast furnaces	171
– Feedstock recycle in coke ovens	171
– Liquefaction and gasification	172
– Depolymerization of PET	172
Thermal recycling	173
Fuel for power generation	173
Trade	174
Price	175
South Korea	176
Legislative summary and current activity	176
Plastics recycling	178
Trade	178
Taiwan	180
Legislative summary and current activity	180
– Regulated recyclable waste	180
– Recycling of waste containers	180
Plastics recycling	181
– Waste PET containers	181
– Waste PVC containers	181
– Waste PP/PE containers	182
– Waste PS containers (nonfoam)	182
– Waste PS containers (foam)	182
Trade	182
Other Asia	184
Trade	184
– Imports	184
– Exports	186
Australia	188
Producers (plastic recycling companies)	188
Recycling	188
Additional resources	192
Revisions	194

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