Annual Report 2018

Fundacja PlasticsEurope Polska

PlasticsEurope
Stowarzyszenie Producentów Tworzyw Sztucznych

Contents

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From the European perspective

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Director of PlasticsEurope Central Region

The plastics industry in Europe is facing great challenges. The public debate about the use and environmental impacts of plastics is intensifying. Politicians are discussing tighter recycling quotas, taxes on plastics and first bans on individual applications and user industries. In the packaging sector, alternatives to plastics are increasingly being sought, while the media are dominated by negative reporting with photos that stir emotions. In this setting, it is no wonder that the acceptance and image ratings of plastics as materials and the plastics industry are in free fall.

All the examples show: Never before has it been as important as today to take countermeasures through efficient and effective association work. Obviously, it is difficult to win with sound arguments against negative and emotional images, but we must not tire in our efforts – no matter whether it is to highlight the benefits of many plastics products or to present the industry's activities towards plastics as an integral part of the circular economy. For this purpose, it is essential to use the various networks and existing contacts that have been built up so successfully in recent years. Here, PlasticsEurope Polska is an asset for Poland, the Central Region and the pan-European association of PlasticsEurope. It is a strong partner and an important voice for Poland's interests and far beyond.

Our priorities

The public perception and reputation of plastics is rapidly decreasing. How often I need to remind even my closest friends that plastics have helped improve living standards, hygiene and nutrition around the world and how often I need to remind them about the many of the conveniences of modern life plastics have created.

However, we cannot ignore the root cause of this rapidly decreasing perception, as used plastics have become a global environmental challenge as it flows from land-based sources into oceans. While demand for plastics world-wide will continue to grow, we need to address those problems. The bans on plastics as proposed are not a solution. Let's bring innovative and competitive solutions. Our industry is well known for its innovative character and together – by joining forces – many new solutions are developed. I feel proud to be part of an exciting transition towards a more circular economy. While we have an obligation to find solutions for the problems of today and tomorrow, we need to continue to educate – starting in our own circle of friends. When I explain to my friends about the many industry initiatives taken to tackle marine litter (e.g. Operation Clean

Jaap Rabou
President of PlasticsEurope Polska

Sweep program), to become more circular or to make products more resource efficient, many of my friends change their perception about plastics.

Another day, I came across somebody who was explaining to me why he prefers a ‘paper-cup’ and not a ‘plastic-cup’. I needed to explain him that the ‘paper-cup’ had most likely a plastic coating. I also provided some facts about alternative materials and explained that replacing plastics in packaging and consumer products with alternative materials could raise environmental costs. I believe that finally the common-sense will prevail and consumers and governments base their decisions on facts and figures.

As we are all contributing to educate, all our efforts can be wiped out by one image of plastics floating in the ocean. In 2018 PlasticsEurope Polska contributed to provide the facts and figures to governments and other stakeholders. Through their educational programs PlasticsEurope Polska has also been reaching out to many young generations to promote sound knowledge on the value of plastics and plastics waste.

While global markets are becoming more uncertain, European plastic demand growth adjusted slightly downward, the Polish plastic demand and conversion shows still good growth figures. At the same time, there is still a lot of work to do if it comes to our ambition towards a circular economy. Particular in Poland the need to improve waste collection and sorting infrastructure requires strong attention. Still a vast majority of plastic waste ends up into landfill.

Circular economy creates new opportunities; this is a chance to unleash the power of many by working together on real solutions for real problems.

Plastics have become a part of everyday life, increasing our comfort, convenience, and safety – they can be found almost everywhere, from food packaging through garden, kitchen, and living room furniture, as well as electric and electronic equipment, to clothing and sports gear. Strong, lightweight, and easy to process and form, plastics are used in thousands of everyday products. Even though they have now become subject to mass criticism, the majority of critics admit that, after thoroughly considering the matter, they do not aim to completely ban the use of plastics. They are simply expressing their opposition to the big environmental pollution caused by plastic waste, because it is the excessive and unreasonable use of cheap disposable plastic products and lack of waste management which pose the real problem. Therefore, we should be blaming not plastics, but ourselves, the consumers of the plastic products which litter our environment.

Plastics are indispensable

Plastics are indispensable

Transportation

Light in weight and durable – these two features make plastics especially well-suited for use as construction materials in vehicles and airplanes, where they contribute to reducing weight and, consequently, decreasing fuel consumption. It may be assumed that each 100 kg reduction in car weight will cause a decrease in fuel consumption of 0.4-0.5 l/100 km[1], which, given the average useful life of a car amounts to 150,000 km, may result in savings up of to 750 l: in other words, it can decrease CO_2 emissions by 1.5 tons. This also applies to airplanes; therefore, it comes as no surprise that modern passenger airplane designs are based on plastic composites. In the Boeing 777, for example, plastics constitute over 50% of all materials used.

Another feature that encourages the designers of vehicles to use plastics is their versatility: using these materials in various components increases not only the comfort but, more importantly, the safety of the passengers. Safety belts, airbags, bumpers, foam fillings in cabins to clad the metallic structure, extra durable and lightweight fuel tanks – all these components improve the safety of travelers. Thanks to plastics, the inside of a modern car looks nothing like that of several decades ago. Dashboards are covered with smooth and soft material, while the seats are made of a unique combination of polyurethane foam and synthetic polymer fabrics. To ensure the proper use of resources, more and more car parts and other structural elements in vehicles are made of recycled plastics.

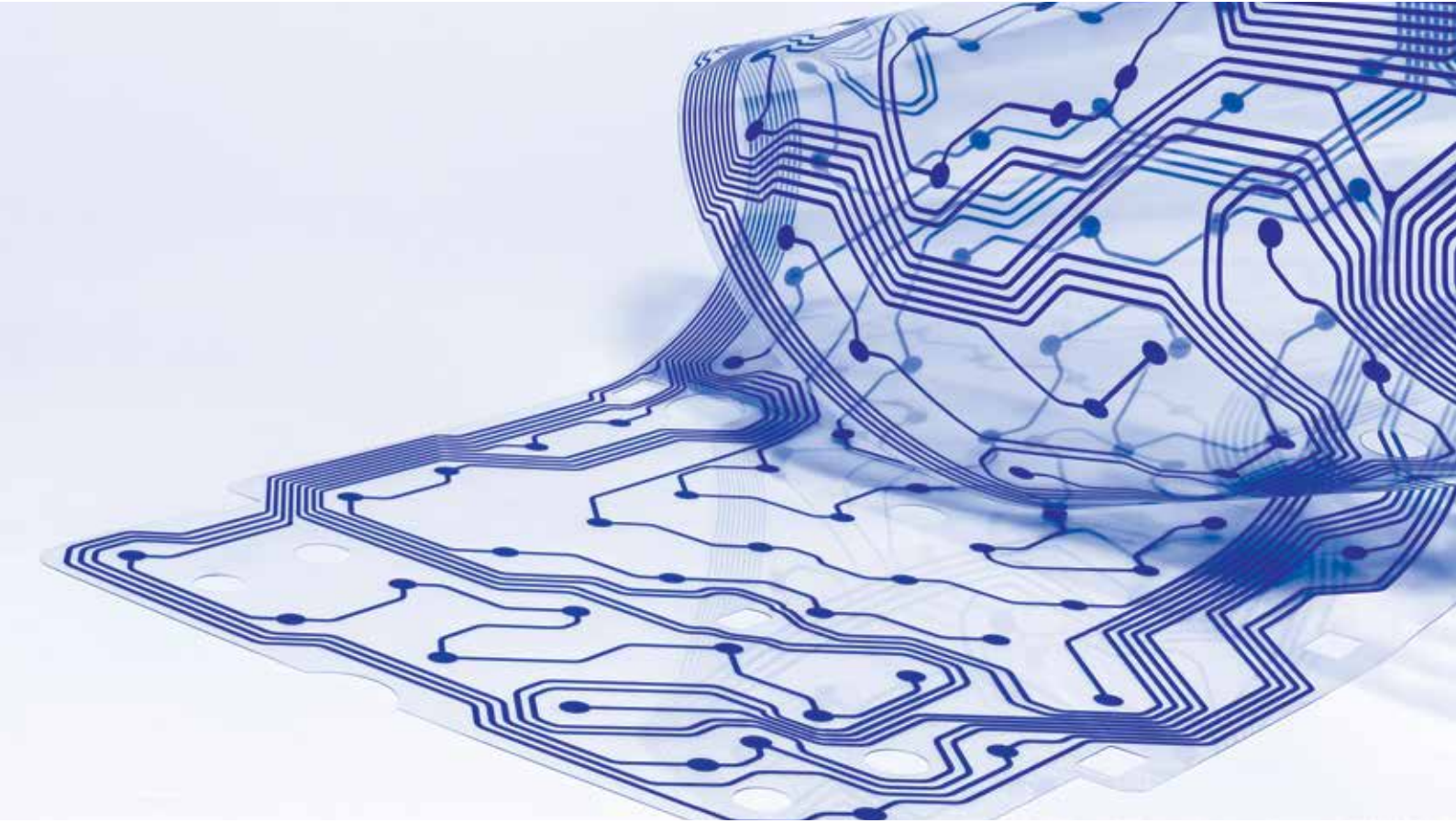
1 MIT 2008. On the Road in 2035: Reducing Transportation's Petroleum Consumption and GHG Emissions. Massachusetts Institute of Technology (2008)

Plastics are indispensable

Sport

Sports, whether played at a competitive or amateur level, is one area of life which has literally been taken over by plastics. Polymer materials are used for professional sports equipment that increases performance and enables records to be broken – from lightweight and extremely durable tennis rackets to breathable clothing and footwear with excellent adhesion and able to mitigate potential injuries – and sports protection equipment. For example, head protection helmets made of polycarbonate and lined with a thick layer of expanded polystyrene are now basic equipment for athletes, as well as knee, elbow, and shin protectors that prevent injuries in contact sports (football, baseball, American football, handball). Another example of the use of plastics in sport is football fields laid with artificial grass turf, which is easy to maintain, does not require watering, and, in addition, is recyclable.

Plastics are indispensable



Electronics

In modern consumer and professional electronic products, the light weight and diversity of these materials, combined with the possibility of using different processing techniques, has contributed to the widespread use of plastics. This is visible not only in the traditional application of plastics as a material for construction (housing) or where its excellent insulation properties are required (cables, instrumentation and electrical equipment, lighting). In completely new applications, polymer materials perform specific active functions, such as in the smartphone screens or smartwatches manufactured in the Polymer OLED technology, where they simultaneously generate images on the phone screen and constitute a convenient interface for the user (touch screen). In consumer electronics, the near future will witness polymer active elements being printed on flexible surfaces, which will open new possibilities for applications (e.g., sensors or batteries placed on the surface of the clothing or skin).

Plastics are indispensable

Construction and energy efficiency

Buildings in the European Union account for approx. 40% of total energy consumption and greenhouse gas emissions; therefore, improving their energy efficiency may, in the short term, result in highly significant energy savings throughout Europe, where energy generation still relies primarily on the combustion of fossil fuels (coal, crude oil, natural gas). Decreased energy demand translates into lower CO_2 emissions, which in turn contributes to meeting the ambitious goal of climate neutrality.

It is thanks to plastics that our houses are more and more energy efficient. Starting from such minor elements as window seals or plastic window shades through insulation systems for external walls and roofs, synthetic polymers have given us the means to preserve the energy needed to maintain comfortable temperatures in houses. The efficiency of insulation systems based on foamed polymers (EPS, XPS, PUR) has convinced even lukewarm supporters of plastics. Although their production requires energy, the benefits resulting from the energy savings provided by such insulation systems exceed energy expenditure 250-fold over the building's lifetime.

Products for the construction industry constitute an excellent field of application for recyclates. In this sector, the share of recycled materials is constantly increasing, for example in the production of films used as damp proof ceiling insulation or sewerage pipelines made of PVC.

Plastics are indispensable

Medicine

Over the past decades, health protection has made enormous progress, both in the treatment of once incurable diseases and, even more importantly, in their prevention. It is largely due to plastic products that an extremely high level of hygiene has been achieved. Disposable syringes and tubes for saline and other physiological fluids transfusion, sterile instruments, and other accessories used in operating rooms have helped prevent the complications and infections that used to be the bane of healthcare systems until just a few decades ago. An appropriate level of cleanliness and sterility in hospitals and medical centers is also provided by other products based on plastics, from clothing to dust-free flooring and wall linings that are easy to keep clean. Prosthetics using polymer materials are also developing rapidly. These range from lightweight tailor-made artificial limbs for individual patients through plastic components for vascular surgery (valves, stents) to a revolutionary 3D printing technology which, combined with the high availability of appropriate types of plastics, allows for the use of previously unavailable prosthesis techniques, for example in restoring parts of the skeleton (vertebrae or skull bones) lost as a result of illness or accident. Nowadays, plastics are indispensable for packaging and drug dosing, ensuring hygiene, but also the durability of individually packaged pills. Additionally, a drug may be enclosed in a special capsule, which enables suitable dosage selection. Such a solution minimizes the side effects which frequently occur when drugs must be administered in high doses in order to achieve therapeutic concentration. This is a definite advantage of modern over traditional treatment types, and offers an unequivocal benefit for patients.

Plastics and environment

Circular economy

2018 saw the continuation of the European Union legislative offensive related to the circular economy project. The Plastics Strategy published by the European Commission in January highlights certain aspects of the role of plastics within the circular economy, in particular the need for higher plastics circularity and a decrease in plastic waste littering.

The Strategy states that by 2030 all plastic packaging should be suitable for reuse or recycling, and that recycling should reach at least 55% of consumer plastic packaging waste introduced into the European market. The importance of plastic packaging design which allows for the highest rates of recycling was also emphasized. Separate collection was recognized as a key factor in obtaining an appropriate amount of raw material for recycling, and stress was also laid on the need to increase the demand for recycled plastics. In the context of plastic waste in the marine environment, the introduction of a directive on limiting the environmental impact of certain plastic products (the so-called Single-Use Plastics Directive) has been announced. The authors of the Strategy also emphasized the significance of proper functioning of the Extended Producer Responsibility (EPR) system and the need for the constant development of innovative solutions and new investments in more efficient waste management and the recovery of raw materials.

Published in May 2019, after a very fast legislative process, the Single-Use Plastics Directive bans the use of certain single-use plastic products (e.g., straws, plates, cutlery, certain products made of EPS) and imposes on Member States the need to introduce programs aimed at the reduction of certain other products (cups, food packaging).

Plastics and environment

During this entire process of intensified plastics-related legislative action, the Foundation, like the entire plastics industry value chain, has drawn attention to the drawbacks of the legislative process. It has noted, for example that the preparation of and voting on the projects was too rapid and that wide consultation with stakeholders was lacking, especially with regard to the Single-Use Plastics Directive, but also that there was no holistic approach to, or comprehensive impact assessment of a legal act, potentially risking the distortion of the EU single market.

PlasticsEurope Polska's advocacy activities focused on cooperation with the government and dialog with legislators. The most frequently discussed topics included the Plastics Strategy and the draft of Single-Use Plastics directive; microplastic waste in the marine environment; and the incorporation of the circular economy package into Polish law, including the amendment to the waste law. The PlasticsEurope Polska Foundation engaged in dialog not only with the government, but also with the waste

management industry and other branches of the industry, emphasizing the huge role of plastics in the economical use of resources, including the positive impact of plastic packaging on food waste reduction. As part of a broader dialog with society, representatives of the Foundation also presented (in press articles, and radio and television interviews) activities which the plastics industry has undertaken aimed at using more sustainable plastics, and introducing plastic waste management practices which allow the potential offered by these materials to be fully exploited by recycling or energy recovery.

The Foundation also widely circulated the assumptions of the "Plastics 2030 – PlasticsEurope's Voluntary Commitment to increasing circularity and resource efficiency" initiative that was published in January 2018 as a response by the plastics industry to the European Plastics Strategy. "Plastics 2030" is a set of voluntary commitments that are to constitute the industry's contribution to the implementation of the idea of the circular economy and economical resource management in Europe. The industry's ambition is to reach the level of 60% of reuse and recycling of plastic packaging by 2030 and 100% of reuse, recycling, and recovery of all plastic packaging waste by 2040. Three product platforms are provided to facilitate these goals: vinyl products (Vinyl Circular Solutions), PCEP polyolefin products (Polyolefin Circular Economy Platform), and SCS styrene products (Styrenics Circular Solutions). As part of Plastics 2030 an important declaration was made concerning the prevention of leakage of plastic pellets by means of the Operation Clean Sweep® program that will engage all participants in the plastics value chain, from producers of polymers through the entire transport and logistics network to plastics converters who produce the products that reach the market.

Bioplastics

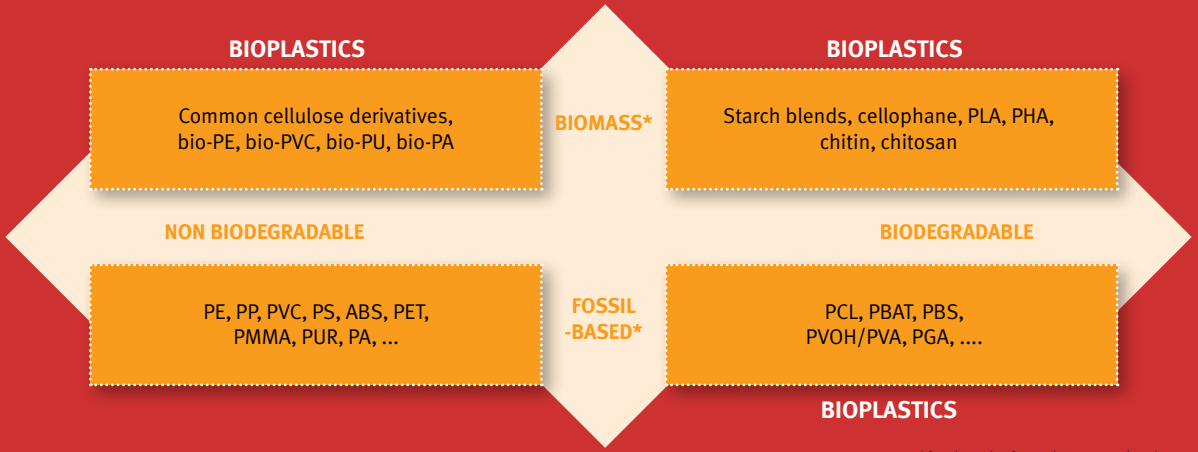
The Plastics Strategy also stresses that the change of paradigm from linear to circular economy will require both the introduction of innovative solutions and a search for new materials. Consumers and ecologists have high hopes for bioplastics; however, expert opinion on the subject is much more balanced. First of all, not many people are aware that bioplastics include two types of materials: bio-based, i.e., polymers obtained from renewable resources; and biodegradable, i.e., polymers that in appropriate conditions undergo decomposition under the influence of microorganisms. Both groups of bioplastics have environmental advantages: thanks to the use of renewable resources for production of bio-based plastics, fossil resources may be saved, while as biodegradable plastics decompose to simple substances they will be less of a burden on the environment.

It is worth noting that most currently available technologies for the production of plastics from renewable resources lead to the formation of materials that do not undergo biodegradation. For example, the so-called “biopolyethylene” obtained from ethylene derived from sugar cane processing has identical properties to the “classic” polyethylene obtained from crude oil or natural gas, and therefore, is not biodegradable.

Currently, bioplastics, whether bio-based or biodegradable, have a very small share in the plastics market (less than 1%). Although the growth rate of the bioplastics market is quite high, it is not possible for these materials to replace traditional plastics in the majority of applications, even in the long term, due, among other factors, to the low durability of biodegradable plastics. On the other hand, they may be an excellent material for products with a relatively short lifetime, where easy disposal in a waste phase is a desirable feature.

One example could be a biodegradable film used for mulching that, after harvesting, may be left on plough land, where it will undergo biodegradation, enriching the soil at the same time. Similar advantages may be observed in the case of garbage bags for composting (green waste, kitchen waste) made of biodegradable plastic foil: there is no need for them to be separated from organic waste, and together with this waste they may be routed directly into the waste stream for composting.

However, it should be emphasized that the use of biodegradable plastics in the generation of various products (e.g., single-use ones) will not solve the problem of littering. Biodegradable plastic waste left as garbage will not undergo biodegradation on its own. The decomposition process of biodegradable materials must be conducted in specialized composting plants under conditions of increased temperature and humidity.



*feedstocks for polymer production

Plastics and environment

Fight against marine litter

Plastic litter in the marine environment is a global phenomenon, with final solution still remaining a distant prospect despite numerous actions from all parties involved, including the industry. Causes, assessment of effects, and search for solutions have only been a matter of serious debate for about a decade. The need to reduce marine litter was expressed in EU legal provisions as one of the elements of the circular economy, for example in the form of a requirement to reduce marine litter by 30% by 2030 and in the SUP Directive (see page 20). Discussion on the matter is also being conducted at a global level within the UNEP, which brings together representatives of countries from all around the world (United Nations Environmental Assembly, UNEA). The declaration summarizing the last UNEA meeting (March 11-15, 2019) states that the United Nations will engage in seeking solutions to environmental damage caused by the use of plastic products, and that their irresponsible disposal in the environment is in contradiction to the principles of sustainable development.

Almost all (over 80%) plastic waste polluting marine environment comes from the land as a result of a lack of any effective waste management system and inappropriate behavior by people, namely littering. Plastics are lightweight materials whose waste is carried away by wind or floats on the water surface; therefore they are more visible in the environment than other types of waste. At the same time, the plastics industry has drawn attention to the fact that plastics have a high value as a recyclable material, and for this reason, they should not end up in the environment at all. As part of dealing with environmental pollution, we promote selective waste collection which constitutes the basis for an increase in recycling and the return of these resources to circulation.

The global plastics industry implements a voluntary Operation Clean Sweep® program aimed at preventing the loss of plastic pellets and their release into the environment. In Poland, the program is executed by two plastic-producing companies, Basell Orlen

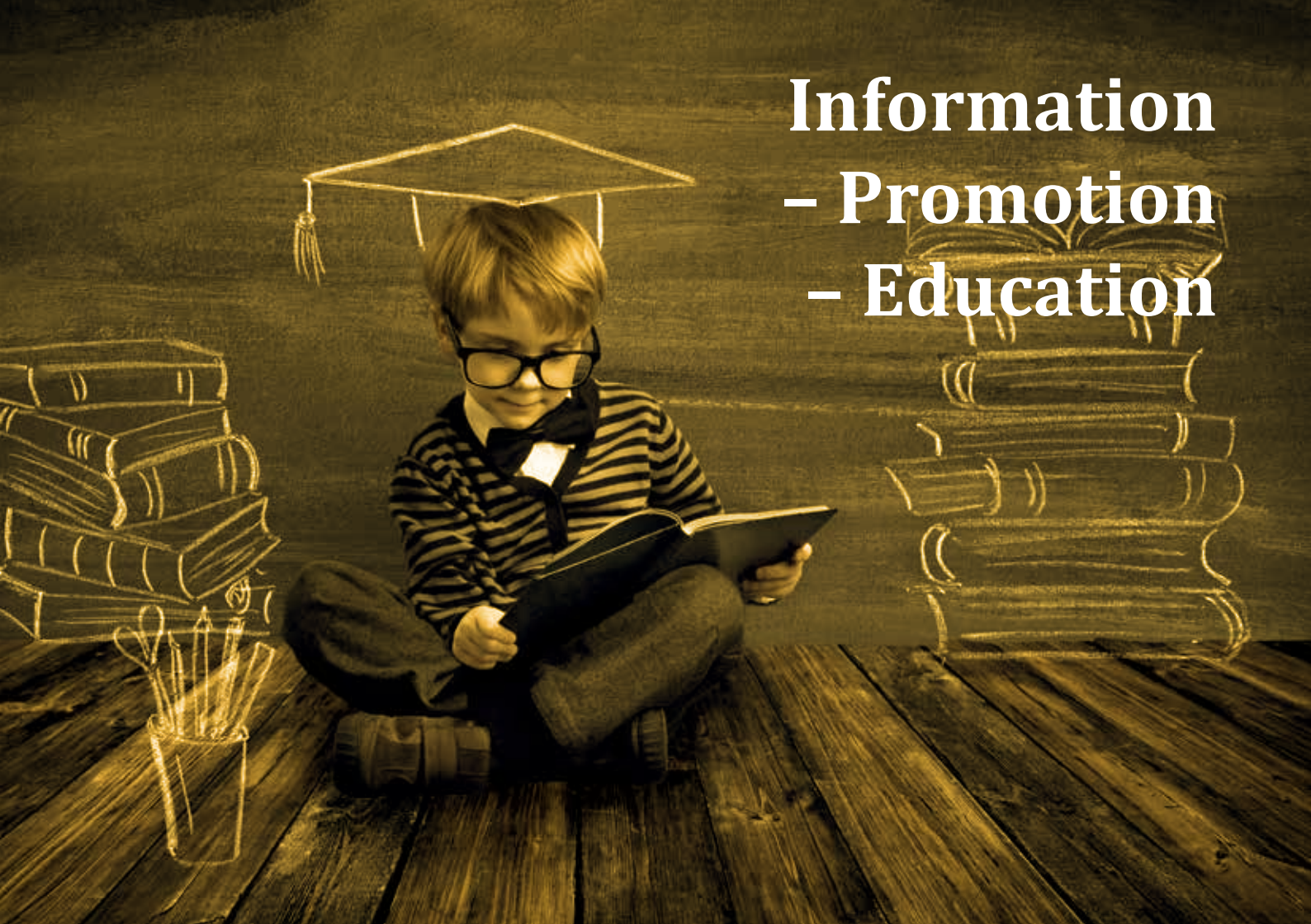
Plastics and environment

Polyolefins and Synthos. PlasticsEurope Polska published the Polish language version of the supplementary materials detailing the implementation of the program (with guidelines and supporting documents to monitor the program's execution by the company), and conducts a series of training courses for companies and their clients. Each year, PlasticsEurope, which supervises the execution of the OCS program in Europe, publishes a report on the subject matter, available at www.opcleansweep.eu. Supplementary documents and a declaration to join the program can be downloaded from the website as well.

As part of the "Global Plastics Alliance", plastics industry organizations all over the world have been involved in a number of programs aimed at reliably assessing the scale of plastic waste within marine litter and its actual impact on the ecosystem, as well as the promotion of appropriate environment-focused behavior. Every year, a report is published that summarizes the actions within this initiative (www.marinelittersolutions.com), which currently involves 75 organizations from 40 countries.

The "Recykling Rejs – odzyskuj tworzywa sztuczne" [Recycling Rally – let's recover plastics] action, organized by PlasticsEurope Polska and the traveler and environmental activist Dominik Dobrowolski, has an important place among the 355 informational and educational projects implemented within the Global Plastics Alliance with the aim of raising residents' awareness of the need for proper waste management. In 2018, the eighth edition of the action took a completely different form: instead of a trip lasting several days, a series of short canoeing trips in various parts of Poland was organized, engaging local communities in cleaning up the banks of rivers and lakes. During these several-day-long events, including those on Nysa Łużycka, around Śniardwy Lake, on Parsęta in Kołobrzeg, and in Gołdap, the organizers carried out not only cleaning programs but also educational ones, holding meetings in schools and educational centers where children and young people, as well as other interested residents, had the opportunity to learn about the assumptions of the Recykling Rejs [Recycling Rally] project and the most important issues related to the prevention of marine litter.

Plastics are nowadays at the center of public attention; however, objective and reliable information about them is rarely to be found, whether in media coverage or school textbooks. What prevails is a negative message built upon emotions and false information. Nonetheless, plastics, as multifunctional materials with virtually unlimited possible applications, play a significant role in achieving the objectives of sustainable development, energy saving, climate and environment protection, safety and health protection, as well as the progress of civilization. Therefore, the communications activities carried out by PlasticsEurope Polska have always been at pains to popularize a sound knowledge of plastics, not only by publishing articles and reports, issuing press releases or giving interviews, but by other means as well. Such activities involve not only regular educational activity covering programs for primary and secondary schools, but also ongoing cooperation with universities and member companies, organizing and supporting information actions and campaigns, and participating in local and international educational projects.


Information
– Promotion
– Education

Dialog and cooperation

For many years, the PlasticsEurope Foundation has been an active advocate of the plastics industry, participating in working meetings organized by the government administration and state institutions, and responding, in its numerous official positions, to current events, proposals for legal solutions, and notifications of bills put forward by the governments of other EU states. In 2018, dialog with the government oscillated around the three main issues: management of plastic waste, in the light of the implementation of the new waste law in Poland and the Circular Economy Package; the draft Single-Use Plastics directive; and microplastic waste in the marine environment.

The Foundation maintains permanent cooperation with industry associations and other organizations, including the packaging, trade, and waste management industries. Last year, meetings and joint actions were devoted, inter alia, to issues relating to the new role of plastics as presented in the Plastics Strategy and the Circular Economy Package being implemented, as well as promoting energy savings in the construction sector, for example by using plastic insulation.

PlasticsEurope Polska is a co-organizer of and/or participant in specialist industry and scientific conferences. The conference for the plastics industry under the heading “Prospects – Innovations – Challenges”, organized by the PlasticsEurope Polska Foundation together with the Polish Union of Plastics Converters, has become a longstanding tradition. Since 2016, such meetings have been held in Kielce on the day preceding Plastpol, the Fair of Plastics and Rubber Processing. The subjects of last year’s conference focused on the circular economy concept and the Plastics Strategy. Producers, distributors, plastics converters, representatives of related industries and the state administration, and the science and industry media gathered at the conference had an opportunity to discuss the impact on the industry of the strategies being implemented by the European Commission, innovative industrial activity, and challenges related to the new legislation concerning plastics and chemical substances.

Information – Promotion – Education

The Foundation representatives have also shared their expertise during other plastics industry conferences (Plastech, Plastinvent) and meetings organized by member companies. PlasticsEurope Polska also has ongoing cooperation in place with technical universities, inviting their representatives to participate in conferences and projects organized by the Foundation and giving lectures for students and staff.

Information and promotion

In May, on the occasion of the Plastpol Fair, press meetings are organized together with Targi Kielce [Kielce Trade Fairs] to discuss the latest data on the Polish and European plastics industry. In 2018, the main subject of the conference was the challenges to the Polish and European plastics industry in the light of the Plastics Strategy published by the European Commission.
The Foundation also promotes European events related to the plastics industry: for many years it has invited journalists to the Information Day in Frankfurt, an annual information meeting for the press concerning the production and use of plastics in Europe and the world, and invited representatives of government administrations and media to regular industry conferences on the major problems of the European and global plastics industry, organized by the PlasticsEurope head office. In 2018, it was the PolyTalk conference in Malta whose main subject was plastic waste in the marine environment.
The initiatives and actions of PlasticsEurope Polska, such as Recykling Rejs [Recycling Rally] or the “Plastik nie do pieca – piec nie do plastiku” [Plastics not to be burnt in stoves] campaign are also opportunities to meet the media. The eighth edition of the “Recykling Rejs – odzyskuj tworzywa sztuczne” action (page 29) organized in 2018 along new lines attracted much interest from local communities and the media.

2018 edition of the information campaign “Plastik nie do pieca – piec nie do plastiku”, attracting public attention to the issue of low carbon and the harmfulness of plastic waste incineration in households, did not only come to Kraków and Upper Silesia, as in previous years, but also to Łódź and Warsaw. LCD screens in all forms of municipal transportation showed animated promotions illustrating the campaign message, while press materials were sent out to local and national media communicating how plastic waste should be correctly managed (through recycling and energy recovery) and the negative health effects of plastic waste incineration in household furnaces. The animation may be downloaded from www.plasticseurope.org.

The brochures and reports published by PlasticsEurope Polska every year containing current market data and key issues concerning the importance of plastics in the Polish and European economies are an important element in the communications activity. They primarily include the report on the Foundation’s operations (in Polish and English) and the annual “Plastics – the Facts” report by PlasticsEurope, which in 2018 was complemented for the first time with figures on waste management in Poland. PlasticsEurope Polska publications are distributed at various meetings and conferences, and available in electronic format from www.plasticseurope.org. The final element of media relations is the provision of press releases, publication of articles and statements in the industry and daily press, and participation in radio and television programs bringing up issues around the role and importance of plastics in the contemporary world, and the proper management of plastics waste.

Joint educational projects

The PlasticsEurope Polska Foundation also cooperates with external partners, getting involved in the implementation of educational projects and nationwide information campaigns which promote pro-environmental behaviors (non-littering, sorting waste) and the importance of recycling and energy recovery from plastic waste for the protection of natural resources and the environment. In 2018, the Foundation supported the jubilee 25th edition of the "Clean Up the World – Poland" campaign organized by the "Nasza Ziemia" [Our Earth] Foundation, and the celebration of the World Environment Day organized in Poland by the UNEP/GRID Center as part of the Zielona Wstążka #DlaPlanety [Green Ribbon #ForthePlanet] project. Also, as in previous years, workshops for children "Opakowanie – nie śmieć! Od selektywnej zbiórki poprzez recykling do nowych wyrobów" [Packaging – do not litter! From selective collections through recycling to new products] were held at schools, public libraries, and environmental education centers all over Poland, combined with a themed poster exhibition, lectures, and competitions on environmental subjects. The Foundation was also a partner in the "Recykling Górom" [Recycling for the Mountains] educational campaign promoting non-littering on mountain trails. PlasticsEurope Polska regularly supports educational events and projects organized by member companies. In 2018, a film contest for schools of the Płock region on the use of plastics as innovative materials in various applications was organized by Basell Orlen Polyolefins.

Educational programs for schools

“Plastek i jego zaczarowane pudełko” [Plastek and his magic box] is the PlasticsEurope’s European program for elementary schools, introducing plastics-related subjects to younger learners through experiments they can carry out themselves. In Poland, the Foundation has been running this program since 2011, organizing free-of-charge workshops for early school education and science teachers in cooperation with methodology consultants and teacher training centers as well as member companies. Participating schools receive an educational package free of charge consisting of an experimental kit and a set of books for learners, as well as teacher aids. The project is accompanied by an art competition for learners (twice a year). In 2018, over 200 early school education teachers participated in workshops held in Koszalin, Słupsk, Chojnice, Bielsko-Biala, and Przemyśl. In total, between 2011 and 2018, the Foundation provided schools from all over Poland with over 1,650 educational packages, conducted 63 training courses with the participation of 1,710 teachers, and carried out 18 editions of the Plastek arts competition, with awards made to almost 1,000 learners.

Last year, the Foundation set up the new website www.eksperymentyplastka.pl devoted to the “Plastek and his magic box” program and other educational

activities. The website is mainly addressed to teachers and offers a description of the “Plastek” program, dates of workshops for teachers, and results of the arts competitions. In turn, the “Tworzywa sztuczne – nowoczesne materiały” [Plastics – modern materials] educational project develops knowledge of polymer materials among older students, complementing chemistry curricula. Participating schools receive free-of-charge experimental sets to test the characteristics of plastics (samples of various polymers with an information brochure) and a set of books entitled “Plastics – modern materials” containing primary information on polymer chemistry, processing and use of plastics, and their role in environmental protection and sustainability, as well as on the plastics industry in Poland. In 2018, the educational sets were also distributed during the Educational Fair in Koszalin, teacher workshops organized by the Foundation, and other educational projects such as EYDC (see page 39). Interactive webinars for teachers, organized twice each school year, are an integral part of the project. Participants become acquainted with plastics-related issues, and receive a set of books and a set of plastics samples together with an informational brochure free of charge. In 2018, a total 1,120 copies of the book, including experimental sets, were provided.

European initiatives of PlasticsEurope: the EYDC Project

The third edition of the prestigious European Youth Debating Competition, organized by the PlasticsEurope association and the European Petrochemical Association, EPCA, included a series of learners' debates in nine countries: Belgium and the Netherlands, Bulgaria, Croatia, France, Spain, Germany, Poland, Italy, and the United Kingdom. The objective of the competition is to engage young people in debate on the most important challenges facing the contemporary world by allowing them to publicly voice independent opinions and defend their arguments, and encouraging them to study natural sciences, technology, engineering and mathematics (STEM).

In June 2018, as part of the project and in cooperation with the Young Leaders organization, which was coordinating debates in the individual countries, the Foundation organized a debate in the Faculty of Chemistry of Warsaw University of Technology on "Living, learning, working and moving in Smart Cities of the future: with or without plastics and petrochemicals?".

It was attended by 75 learners from 12 secondary schools from all over Poland.

The young speakers were evaluated by a jury representing technical universities, industry, non-governmental organizations, and the media. The winning trio in the Polish debate participated in the final debate, held in Vienna in October 2018 during the 52nd EPCA Annual Meeting, where finalists from nine European countries discussed issues related to the contribution of petrochemicals and plastics to social sustainability in the digital era.

Information – Promotion – Education


Foerster
Mockbil
Piec


Michalska
Bogacki

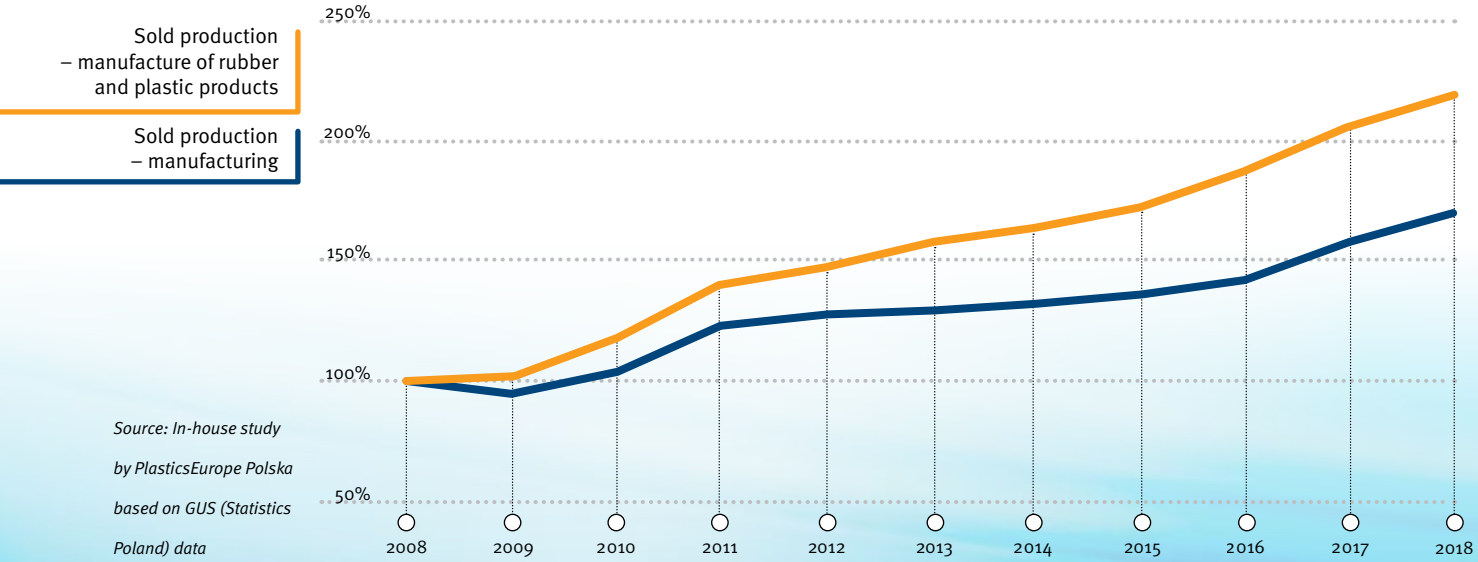

Tworzywa Sztuczne

Plastics – Facts and figures

Plastics – Facts and figures

Plastics industry in Poland

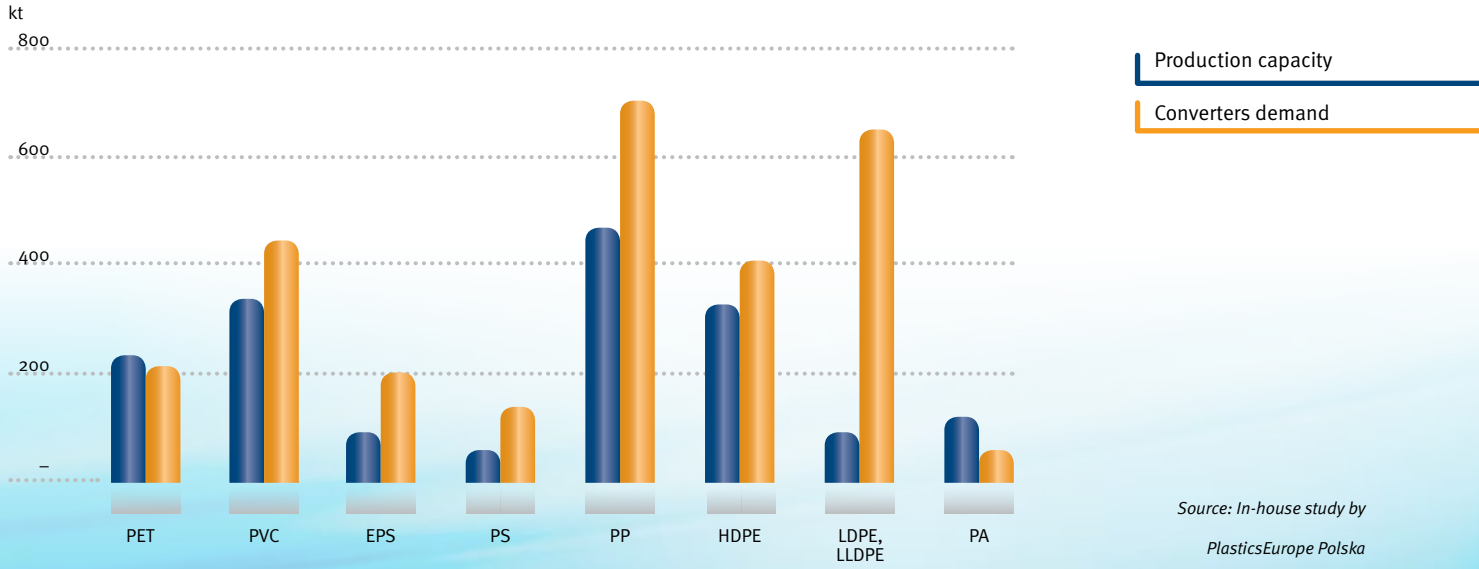
The plastics industry in Poland is one of the top sectors in terms of its importance to economic growth, alongside the food industry, automotive industry, electrical and electronic equipment industries, and metal industry. The industry consists of plastics manufacturers (including producers of additives and compounders), plastics converters (producers of semi-finished and finished products), manufacturers of equipment and accessories for processing, and recyclers.



Source: In-house study by PlasticsEurope Polska based on GUS (Statistics Poland) data

Plastics – Facts and figures

Major commodity polymers – polyolefins (HDPE, LDPE, PP), polyvinyl chloride (PVC), polystyrene (PS, EPS), and polyethylene terephthalate (PET) are manufactured in Poland. Domestically produced construction polymers are represented by: polyamide (PA6), polyoxymethylene (POM), polyesters, epoxy and phenol resins, and polyurethane systems. All the leading global manufacturers of plastics whose products are delivered by their local representatives or distributors also operate in the Polish market.



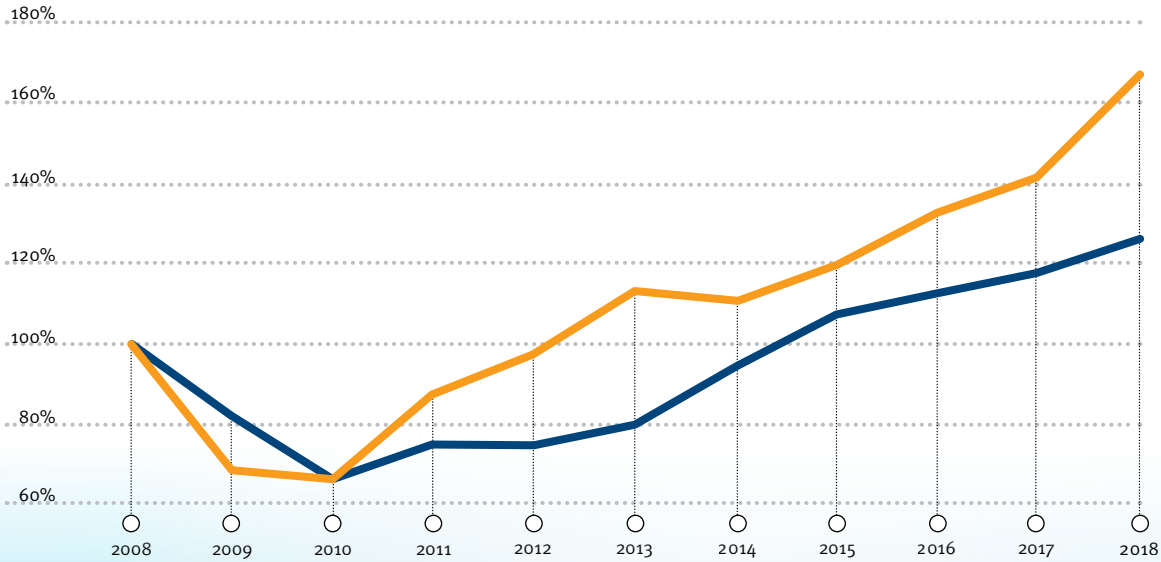
Source: In-house study by PlasticsEurope Polska

Plastics – Facts and figures

Recently, the largest producer of plastics in Poland, Basell Orlen Polyolefins, increased its polypropylene production capacity by 20%, while Grupa Azoty doubled its PA6 polyamide production capacity to 170 thousand tons (in total, the plants in Poland and Germany). Work is also in progress on a big propylene and polypropylene production project (PDH technology – propane dehydrogenation). According to assumptions, a propylene and polypropylene plant with a capacity of 430 thousand tons is to be built by the end of 2022 at PDH S.A. in the town of Police, at a cost of over PLN 6 million (a special purpose vehicle of Grupa Azoty). The Lotos group proposed partial financing of this project. Grupa Synthos, in turn, announced investment plans to increase XPS production capacity by 220 thousand m^3.

The plastics industry in Poland is investing more willingly than other industries in new production. Investments in industry producing rubber and plastics products in 2018 amounted to nearly PLN 4.9 billion and were 18% higher than those in 2017.

Since 2008, investments in the entire industrial processing have increased by 26%, whereas the increase in the industry producing rubber and plastics products has been as much as 68%. At the same time, according to analyses made by PlasticsEurope Polska, the highest concentration of capital among companies processing plastics in Poland has occurred in the plastic packaging production sector and among companies making products for the construction and automotive industries. Data from GUS (Statistics Poland) concerning the sector producing rubber and plastic products shows that the annual production growth in that sector in 2018 was approx. 6%.

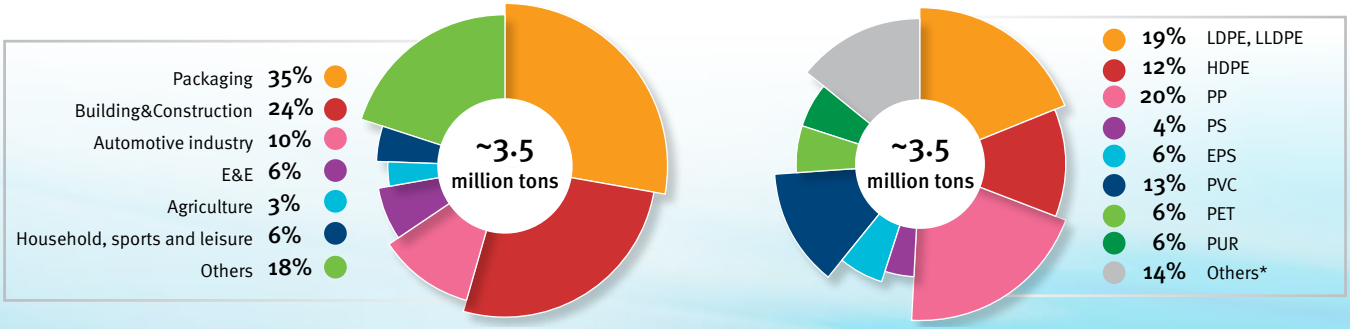


Source: In-house study by PlasticsEurope Polska based on GUS (Statistics Poland) data

Plastics – Facts and figures

Demand for plastics

In terms of plastics converters demand, Poland is placed sixth in Europe, behind Germany, Italy, France, Spain, and the United Kingdom. In 2018[1], the demand for plastics in Europe amounted to 51.4 million tons (only slightly more than in 2017), whereas the dynamics of plastics consumption in Poland was at a much higher level. In 2018, the Polish plastics processing industry used approx. 3.5 million polymer plastics of various types, which means an increase by approx. 3.5% compared to 2017. Broken down into application segments, the largest amounts of plastics are used by the packaging production sector (35%), construction sector (24%), automotive industry (10%), and electric and electronic equipment industry (6%). The structure of plastics demand in Poland based on applications remains different from the European structure. The share of the packaging sector in Europe is almost twice that of construction (40% vs 20%) whereas in Poland the difference is much smaller (35% vs 24%). Broken down into demand by polymer type, the highest shares are those of polyethylenes (LDPE, LLDPE, HDPE), at approx. 31%, polypropylene (20%), polyvinyl chloride (13%), and polystyrene – PS and EPS – (10%).



1 Estimates based on Eurostat production indices, final data will be published in October in "Plastics the facts" report

Source: Eurostat / PlasticsEurope Market Research Group (PEMRG) / Conversio Market&Strategy GmbH

**ABS/SAN, PMMA, PA, PCS, other thermoplastics, thermosets and others*

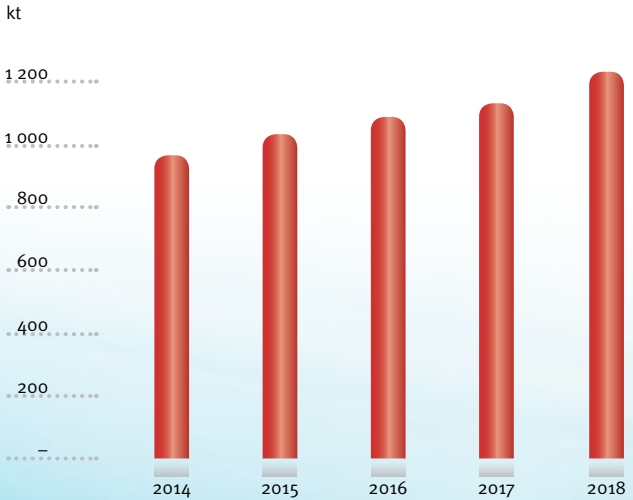
Packaging

Rigid packaging ensures the protection of fragile products, whereas flexible packaging is highly effective: a package weighing several grams made of specialized plastic film can effectively protect and extend the shelf life of packaged meat or dairy products by a dozen or so days. This is of great importance not only for food safety, but also for the environment; thanks to that packaging, food waste whose production has a tremendous impact on the environment is significantly reduced. And let us not forget customer convenience: a transparent package enables us to see the contents, and innovative technologies, such as peel-off, make it easy to open and close. The discussion taking place at the moment around finding packaging materials other than plastics must take into account the total environmental impact of each material. The available scientific data confirms explicitly that packaging made of plastics is currently the best choice for the environment; if plastic packing materials were to be hypothetically replaced by alternative ones, it would result in a significant increase in environmental impact. Greenhouse gas emissions would be 2.7 times greater, while energy consumption in the total product life cycle would be 2.2 times greater. Therefore, a more appropriate question today is not what to replace plastics in packaging with, but how plastic packaging can be made to ensure its repeated reuse wherever possible and maximum recyclability at end-of-life stage.

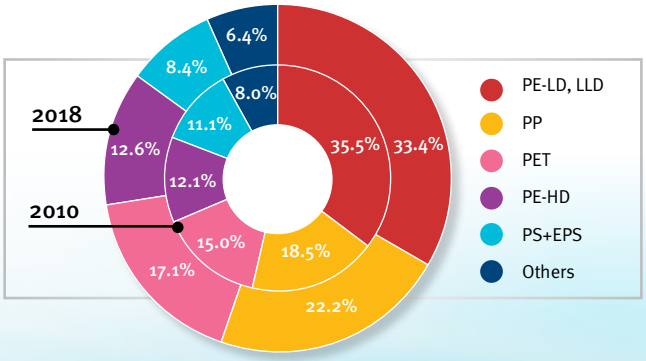
Plastics – Facts and figures

The demand for plastics in packaging, the largest segment of application, has been growing systematically. Over the last eight years it increased by almost 60%, from 744 kt in 2010 to 1,208 kt in 2018.
The same period witnessed an increase in the use of polyolefins in packaging production.

Plastics demand for packaging in Poland



Plastics demand for packaging – by polymer type

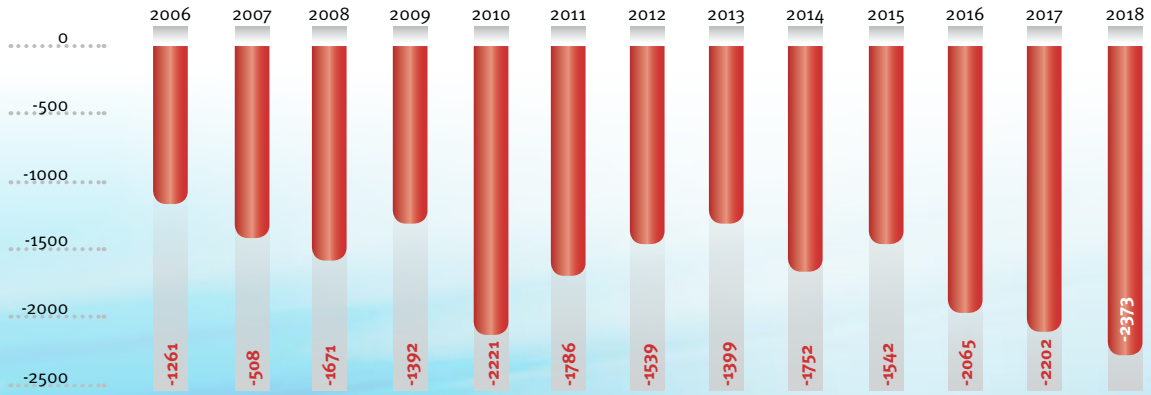


Source: PlasticsEurope Market Research Group (PEMRG) / Conversio Market&Strategy GmbH

Export – import

Because of the high converters' demand for plastics in Poland, and insufficient production capacities of domestic polymer producers, a lot of raw materials has to be imported. The negative balance of foreign trade increases year in year out, standing at 2,373 kt tons in 2018. For many years, Germany has been the main business partner of Poland in intra-Community trade, as regards both exports and imports of plastics in primary forms and products. For non-EU countries, our biggest export markets for several years have been Ukraine, with respect to plastics in primary forms, and Russia, with respect to products. The main import partners outside the EU, are South Korea (plastics in primary forms), and China (plastics products).

The Polish plastics industry trade balance

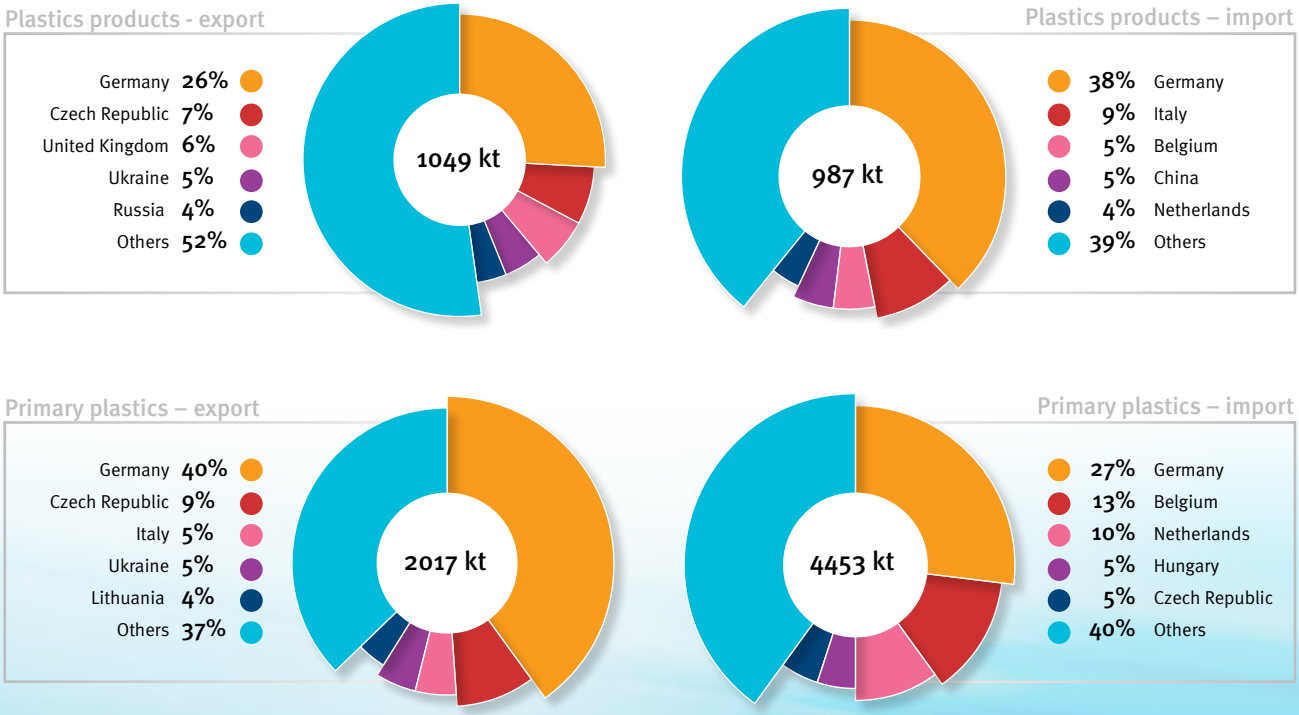


Including primary plastics and plastics products (kt)

Source: Eurostat / calculations by PlasticsEurope Polska

Plastics – Facts and figures

Polish plastics industry 2018 – main foreign trade partners



Source: Eurostat / In-house calculations by PlasticsEurope Polska

Plastic waste management in Poland

One of the primary assumptions of a circular economy is effective waste management, mainly by returning as much as possible to the economy circulation. Manufacturing any material – glass, paper, or plastics – and then converting it to finished products entails the consumption of natural resources and energy. Therefore, one should aim to keep materials and products in circulation for as long as possible. On the one hand, we should extend longevity and increase reuse of products. On the other hand in the waste phase the answer is recovery of materials by recycling or, if the latter is impossible, recovery of energy. Such an approach is essential in order to move gradually from the European linear economy model to a circular economy model.

In Poland, as in other countries, the volume of generated plastic waste is constantly increasing due to the continuous increase in the consumption of polymer materials in various areas of the economy. According to the latest data available, prepared by the German expert firm Conversio, over 1.7 million tons of plastic waste was collected (approx. 44 kg per capita on an annual basis) in Poland in 2016, of which 27% was put to recycling, energy was recovered from 29% (in co-incineration or incineration processes), and the remaining 44% went to landfill. As of January 1, 2016, plastic waste or other waste with calorific values of more than 6 MJ/kg cannot go into landfill in Poland. However, the waste industry made no preparations for these restrictions and necessary infrastructure to effectively manage collected plastic waste was not built in time.

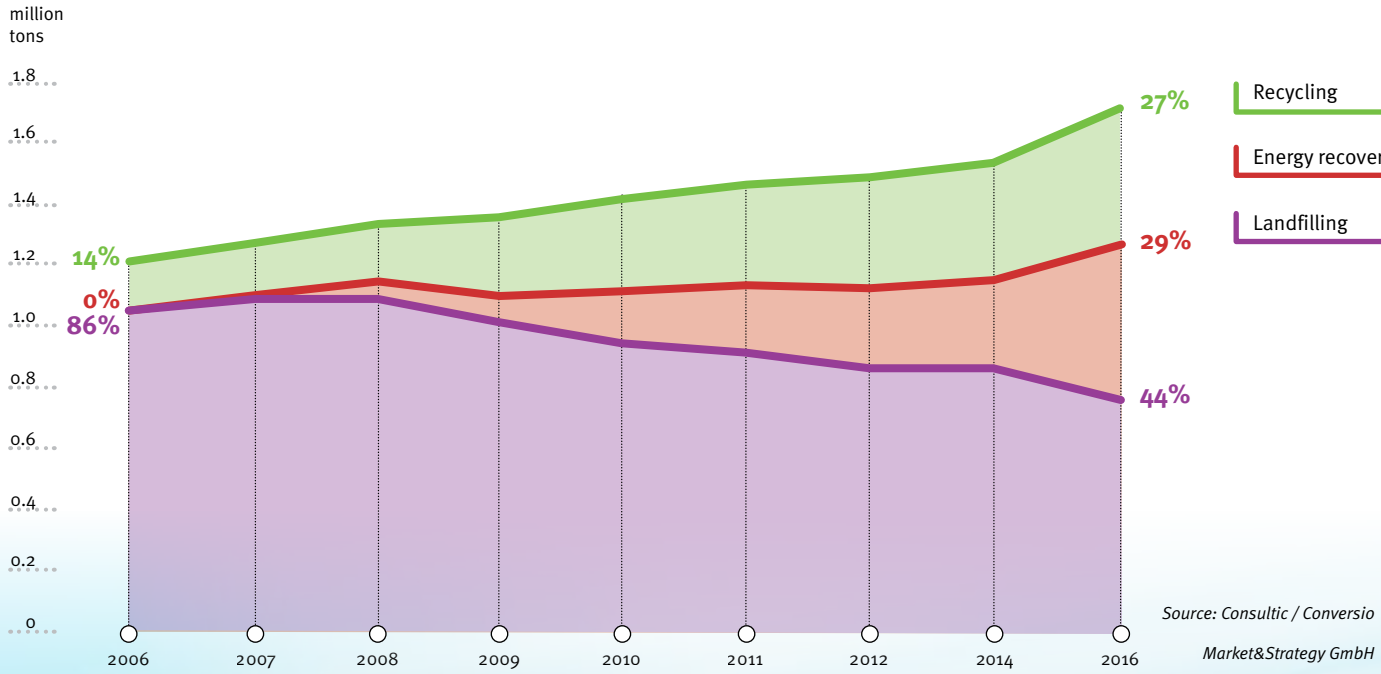
It is obvious that recycling should be the first option in waste recovery. The plastics recycling sector is rather underdeveloped in Poland. According to the Foundation's analyses, based on available Polish data (Marshal Office reports, market data, etc.), the plastics recycling industry mainly consists of small and medium-sized enterprises which declared recycling of over 460 thousand tons of plastics in 2017, of which 90% came from approx. 100 companies. It should be added that these quantities include both plastic waste obtained from domestic municipal waste, including that collected from individual consumers, waste from retail chains (wholesale and transport packaging) and production waste, and imported waste to be recycled, which comes from other countries. Due to recently

introduced restrictions in the global waste market, which have slowed the exports of waste for recycling from EU countries, Polish recyclers have easier access to good quality waste plastics from EU countries, which is in strong competition with waste from domestic sources.

Plastic waste that cannot be recycled should be sent to energy recovery processes. Energy from high-calorific waste may be recovered in special industrial units, for example municipal incineration plants, or in co-incineration processes of specially prepared fuels made of such waste (RDF). Both methods of energy recovery are used in Poland and enable energy to be recovered from approx. 500 thousand tons of plastics. Over 700 thousand tons of plastic waste remains beyond recovery and, because of the formal ban on landfill, is in practice stored at waste processing plants, most often as an ingredient of pre-processed waste fractions (under-size fraction, RDF, pre-RDF, etc.).

In our opinion, it is necessary to fully implement a uniform, and uniformly applicable, waste collection system and introduce a tight system of municipal waste transport and processing control. The country-wide Waste Database (BDO) which is to start full operation at the beginning of 2020 will be of help in this regard. These steps, combined with the reform of the Extended Producer Responsibility (EPR) system prepared by the relevant branches of industry and trade, should bring Poland closer to meeting the challenging objectives of municipal waste recovery and recycling introduced in 2018 with the Circular Economy Package.

Plastics – Facts and figures



Source: Consultic / Conversio Market&Strategy GmbH

About PlasticsEurope Polska

PlasticsEurope Polska – a foundation representing manufacturers of plastics in Poland – associates 20 member organizations (2018) – national manufacturers of plastics, foreign corporations operating in Poland through local companies, as well as other companies of similar business profile operating in Poland:

ALBIS Polska Sp. z o.o.
ARKEMA Sp. z o.o.
Basell Orlen Polyolefins Sp. z o.o.
BASF Polska Sp. z o.o.
Borealis Polska Sp. z o.o.
Brenntag Polska Sp. z o.o.
Celanese Engineered Materials
CIECH Sarzyna S.A.
Covestro MS Global AG – Oddział w Polsce
Dow Polska Sp. z o.o.
Evonik Resource Efficiency GmbH Sp. z o.o. Oddział w Polsce
Ineos Styrolution Poland Sp. z o.o.
Krakchemia S.A.
SABIC Poland Sp. z o.o.
Solvay Engineering Plastics Poland Sp. z o.o.
Synthos S.A.
Total Petrochemicals&Refining SA/NV (Spółka Akcyjna) Oddział w Polsce
Trinseo Europe GmbH Przedstawicielstwo w Polsce
Versalis International SA Oddział w Polsce
VYNOVA International nv

The authorities of the Foundation are the Management Board and the Foundation Council, consisting of representatives of the associated companies.

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