



Annual Report 2015

Fundacja PlasticsEurope Polska

PlasticsEurope
Stowarzyszenie Producentów Tworzyw Sztucznych



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From the European perspective

It may sound paradox, but the more globalized the plastics industry becomes, the more important regional, local and national activities are – not isolated ones and not executed one by one, but well-coordinated and in close cooperation of different partners. For me, networking and cooperation are indeed the words of our time. And within the association of the plastics manufacturers, these two words are almost appropriate to describe our daily work. Be it in advocacy, in communications or in technical projects, day by day we share best practices and knowledge, we meet, we talk to and we learn from each other, and we use what we have learnt to improve the knowledge about plastics within society.

Over more than a decade now, a real cooperation culture has developed within our pan-European association. We in the Central region can be proud of numerous examples of successful projects and joint cooperation. With PlasticsEurope Polska, we are sure to have a partner on our side that is not only reliable, renowned and experienced, but also always willing to share, to teach and to learn. I am convinced that plastics is the material for the 21 century and that together, we will be able to shape the future.



Dr Rüdiger Baunemann
Director of the PlasticsEurope Central Region

Introduction



Dr Helena Huovinen
President of the Board
of PlasticsEurope Polska

It is now for the seventh time that the Foundation PlasticsEurope Polska is presenting its Annual Report. 2015 was another year of strengthening Foundation's position as an expert on plastics and plastics industry in Poland. Registered in Polish Court in 2006, the Foundation is a Polish division of PlasticsEurope, a pan-European association of plastics manufacturers that gather a vast majority of plastics producers in Europe. At present, the Foundation integrates 19 member organizations, national and foreign manufacturers of plastics and leading distributors of plastics in Poland.

The fact of being associated with PlasticsEurope, induces alignment of the strategy of Foundation's activity in Poland to the guidelines and road-maps of the European plastics industry with all necessary local adjustments. PlasticsEurope Polska shares the common objective of the European plastics industry – to improve the image of plastics and plastics industry within society underlining the benefits such as contribution to safety and effectiveness as well as to public finance and welfare.

The activities in Poland are organized around flagship projects of PlasticsEurope:

- Improvement of waste management of plastics (programs *Zero Plastics to Landfill* and *Marine Litter Solutions*)
- *Plastics and Health* (building trust and confidence on the plastics industry and plastic products via the promotion of evidence based legislation on plastics and fostering the fact that plastics are safe for use)
- Communication on the benefits of plastics (education programs, media and public relations, stakeholders' engagement)

The Foundation contributes to development of plastics waste management schemes in Poland by active monitoring of legislative initiatives and by offering knowledge transfer on waste management based on broad expertise of PlasticsEurope experts. In 2015 a lively debate on *Circular Economy* legislative package flared up in Poland as well as in all EU countries. The Foundation is particularly active in this discussion expressing plastics industry's view during all the meetings, including those with administration. Foundation's experts intensively communicated on the value of plastics throughout all life cycle and the contribution to building modern solutions in many spheres of human life up to driving

lifestyle changes. In this regard the Foundation continued education programs targeted at young people of different age: from "Plastek" program addressed to the youngest pupils (7-10 years), through introduction of a new "Plastics – Modern Materials" handbook for secondary schools up to lectures given for students of universities.

We notice with pleasure that PlasticsEurope Polska Foundation is increasingly recognised as the expert on plastics and plastics industry in Poland and as such is often inquired on plastics related issues by important stakeholders from the administration and the industry. The Foundation continued to deliver regularly facts on plastics industry in Poland and worldwide by means of typical media tools (webpage, press communiques, articles) but also organised press conferences to announce results of the industry.

In conclusion: the year 2015 was another period in which the PlasticsEurope Polska Foundation has accomplished planned objectives and accordingly pursued the strategy towards the improvement of the image of plastics.

I invite you to read this Annual Report in which details of activities and achievements of the PlasticsEurope Polska Foundation in the year 2015 are presented.

Plastics – endless possibilities

For more than one hundred years plastics have been a driving force behind development. Medicine, electric and electronic industry, sport, energy production, the construction sector, transportation, packaging – in almost all areas of life plastics have enabled us to obtain better parameters, reduce costs, increase the safety of users, and also decrease consumption of energy and resources. It is no surprise that the plastics industry is one of the most dynamically developing sectors, offering jobs for highly qualified personnel.

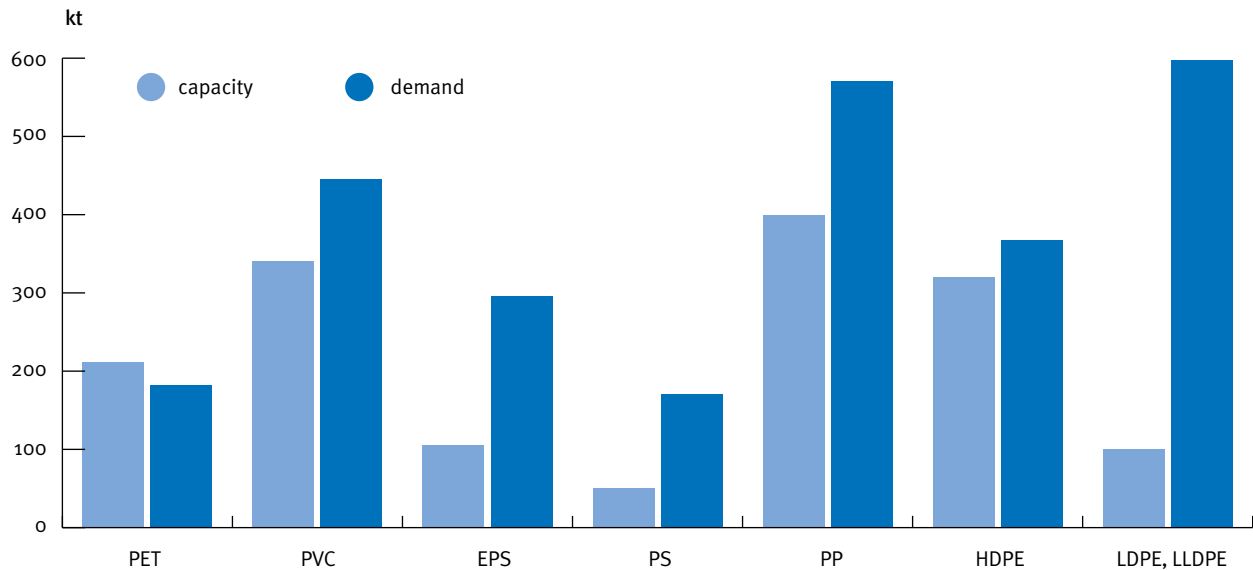
Plastics industry in Poland

In Poland, the plastics industry has been developing dynamically and growing systematically for over a dozen years. This sector is important for the Polish economy and groups more than 7600 companies which include manufacturers of plastics in primary forms, manufacturers of mixtures and composites (compounders) and plastics processing companies (manufacturers of marketable plastic products). The plastics industry employs over 140 thousand employees and its contribution to the Polish GDP is at a level similar to other major sectors of the economy, such as automotive industry or electronics industry.

The production of products made of plastics and rubber has been growing systematically – according to the Central Statistical Office the turnover of the whole sector increased by 6.1% in 2015. The situation of medium and large manufacturers of plastics products (i.e. employing more than 49 people) is much better – according to the Central Statistical Office production in this group of companies has achieved the value of PLN 45.2 billion, which means an annual 10% growth of production. Long-term analyses based on the example of the manufacture of products from plastics and rubber reveal that over the past 15 years (2000-2014) the production in this sector has tripled, despite a slowdown during the 2008-2009 crisis. The manufacture of plastics in primary forms, both in Poland and Europe, has remained at a stable level in recent years, with barely visible deviations.

The plastics in primary forms produced in Poland include: polyolefins – polyethylene and polypropylene (Basell Orlen Polyolefins in Płock), polyvinyl chloride (Anwil in Włocławek), polystyrene (Synthos in Oświęcim), polyethylene terephthalate PET (Indorama in Włocławek), polyamide 6 (Grupa Azoty in Tarnów, Solvay in Gorzów Wielkopolski), polyacetal (Grupa Azoty in Tarnów), polyurethane systems (PCC Rokita in Brzeg Dolny) and epoxy resins (Lerg in Pustków, Ciech Sarzyna in Sarzyna). All the leading global manufacturers of plastics delivering their products through their local representatives or distribution companies operate on the Polish market.

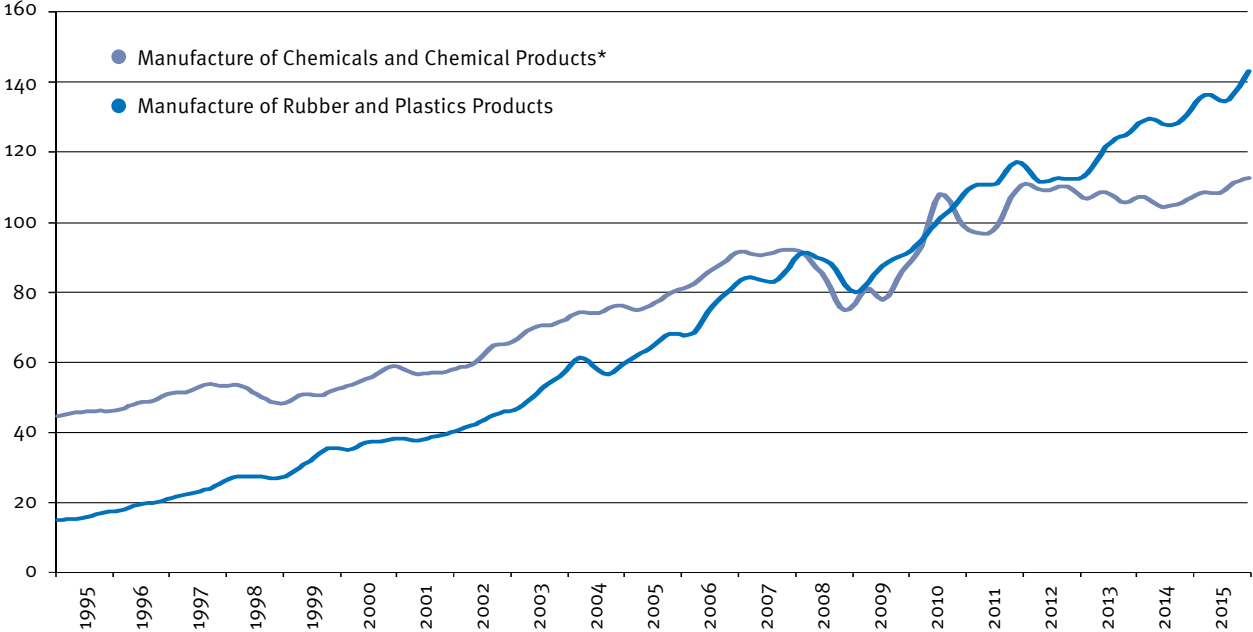
Plastics production capacity* versus demand for commodity plastics in Poland (2015)



* Capacity of plants located in Poland

Source: *PlasticsEurope Polska*

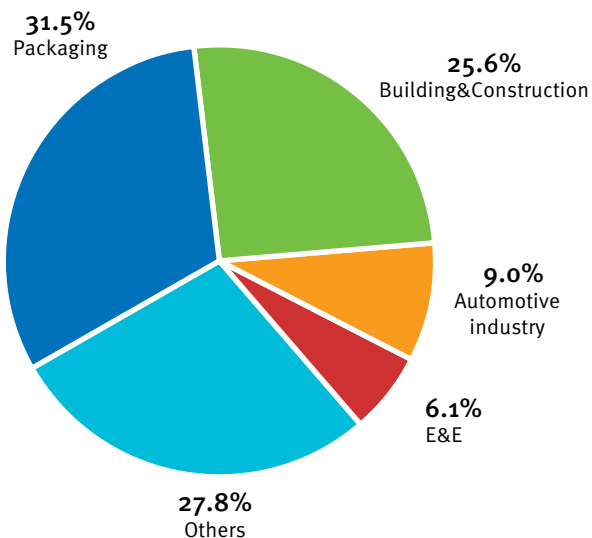
Indicators of industrial production in Poland (2010 = 100)



*plastics production included

Source: Eurostat / PlasticsEurope Market Research Group (PEMRG) / Consultic GmbH

Plastics applications in Poland (2015)



▶ **Total demand: 3.1 million tons**

*Source: PlasticsEurope Market Research Group (PEMRG)/
Consultic Marketing und Industrieberatung GmbH*

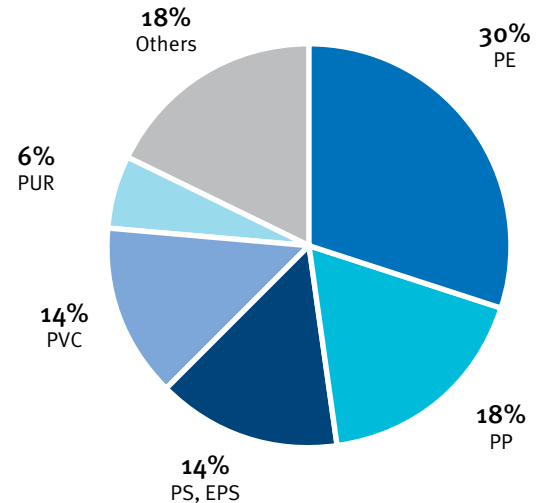
Plastics demand in Poland

The demand of the processing companies for raw material for production amounted in 2015 to 3.1 million tons, which means an increase by 3.3% in comparison with the previous year. This data reflects a tendency towards a quicker increase in the demand for plastics in Central and Eastern Europe as compared to the remaining part of the continent. The European average increase in the demand for plastics in 2015 is estimated at only 2.5% and the size of the demand at 49 million tons. Poland's demand represents ca. 6.3% of this amount, which ranks Poland sixth in Europe, below Germany, Italy, France, Spain and Great Britain.

Rapid growth of the Polish plastics industry observed during the last dozen years has resulted from the development of the entire industrial processing in Poland,

especially of related sectors, including in particular packaging, electrical and electronic equipment and automotive sectors. Poland quickly caught up on a slight decrease in industrial processing during the 2008-2009 crisis and continued rapid growth for several years. Growth of manufacturing in 2015, amounting to 5.8%, significantly exceeded the global average (2%). The greatest amounts of plastics in Poland are used in the packaging production industry (31.5%) and in the construction industry (25.6%). Interestingly for the last few years the share of the automotive and E&E sectors has been increasing. The consumption structure based on type of polymer indicates the largest shares of polyethylenes (LDPE, LLDPE, HDPE) – ca. 30%, polypropylene (18%) and polyvinyl chloride (14%), as well as polystyrenes – PS and EPS (14%).

Plastics demand in Poland by resin type (2015)



Source: PlasticsEurope Market Research Group (PEMRG)/
Consulting Marketing und Industrieberatung GmbH

Total turnover of the two main segments of the plastics sector (manufacture of plastics in primary forms and plastics processing) in Poland is estimated at ca. 17.2 billion euro. Plastics processing companies constitute the largest subgroup of the Polish plastics industry. The most important are manufacturers of rigid and flexible packaging, manufacturers of pipes and profiles (for application in construction industry) as well as manufacturers of cables. Even though micro- and small-sized enterprises prevail among the processing companies, this part of the plastics industry has been developing the fastest, particularly when it comes to products for the packaging industry, automotive industry and home appliances & consumer electronics industry.

The plastics industry in Poland also means manufacturers of equipment for processing of plastics, representatives of the supply chain (importers, distributors, wholesalers) and recyclers of plastics. The possibilities and potential of the sector is reflected by the demand for plastics per capita. It is now about 80 kg, whereas the European average exceeds 94 kg and in certain countries is even 200 kg per capita.



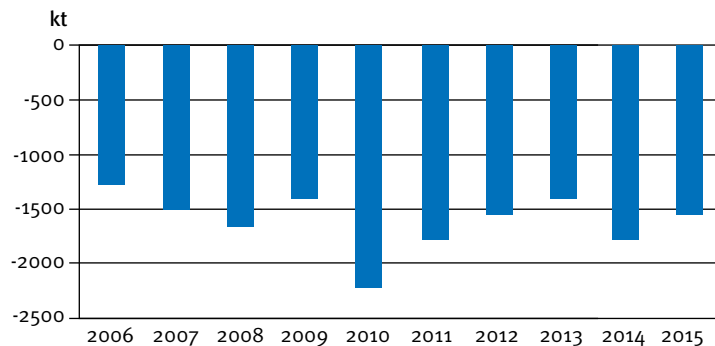
Export – import

Domestic manufacture of plastics does not satisfy the demand, therefore the international trade balance of the entire plastics sector is negative. Due to increasing demand for plastics and lack of investments in the new manufacturing capacities of polymers, this negative trend of the international trade balance has not improved in recent years.

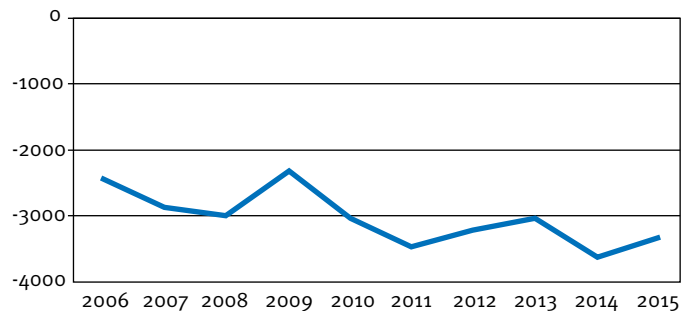
Poland imports from abroad mainly raw materials for processing (polymers), and the total deficit in the international trade of the sector currently exceeds 3.3 billion euro. For many years, Germany has been the main business partner of Poland in the UE trade of plastics.

As far as non-EU countries are concerned, our greatest export markets are Ukraine (plastics in primary forms) and Russia (products).

The Polish plastics industry 2006-2015 trade balance



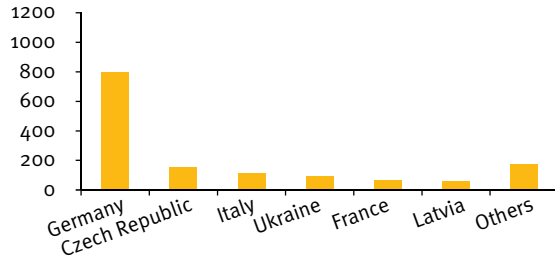
million euro



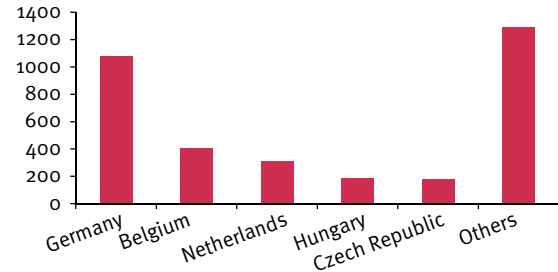
Source: Eurostat / PlasticsEurope Market Research Group (PEMRG)

Main foreign trade partners of Poland (2015)

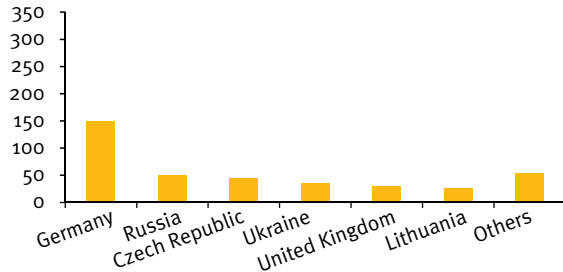
Primary plastics - export (kt)



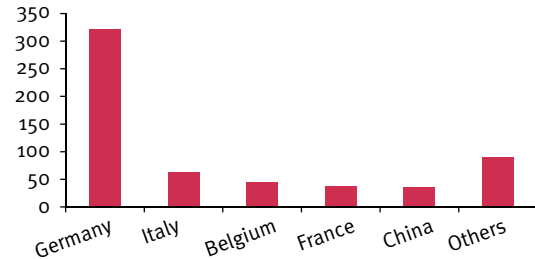
Primary plastics - import (kt)



Plastics products - export (kt)



Plastics products - import (kt)



Source: Eurostat / PlasticsEurope Market Research Group (PEMRG)

Plastics have been an integral part of our lifestyle to such an extent that the user often does not realize that nowadays it would be impossible to produce many modern products without them, not only those as sophisticated as computers or smartphones, but also the ones that are common, such as food packaging.

Multi-dimensional protection

Plastics provide for their users and consumers comprehensive protection due to their multi-functionality and unique characteristics. Modern polymer materials applied in medicine guarantee durability and sterility of medicines, instruments and medical equipment. Safe packaging protects food against spoiling and extends its freshness, and owing to plastic pipelines, clean and uncontaminated potable water is available. Products made of plastics (equipment, devices, clothing etc.) ensure safety at work, travel and when doing sports. In addition, a range of specialist plastic products give indispensable assistance in case of catastrophes and natural disasters. On the other hand, the issue of safety related with the occurrence of chemical substances in plastics, in particular in food contact materials, is touched upon in political discussions and in media more and more often.



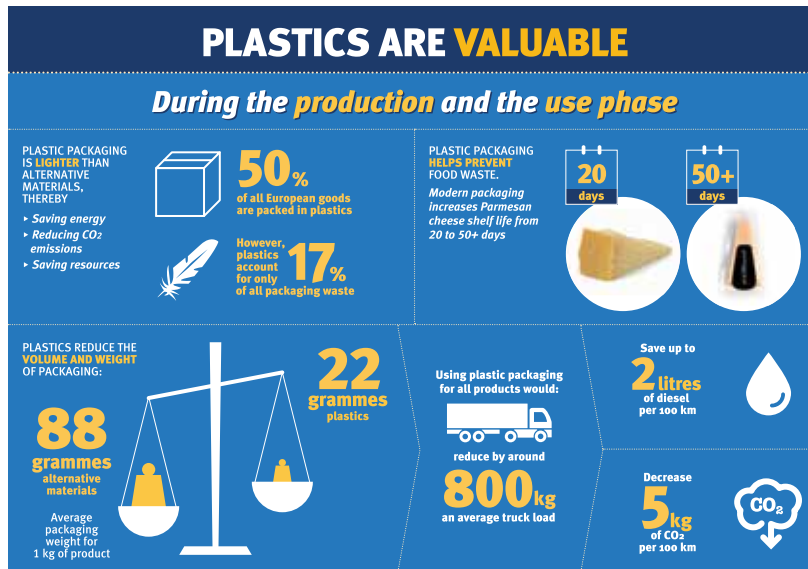
Kazimierz Borkowski
Managing Director of
PlasticsEurope Polska

The plastics industry participates in this debate, presenting reliable scientific arguments and using its expertise. In opinions presented to the public administration, in public speeches or at educational and scientific forums, we emphasize that the current European legal requirements as well as inspection procedures and quality standards at the stage of production and use of products, in particular for applications in medicine and in food contact materials, make it possible to positively claim that plastics and products made of plastics are safe both for consumers and the natural environment.

Plastics play an important role in the contemporary world, increasing safety and contributing to the growth in hygiene and improvement of living comfort, and at the same time they contribute to the protection of natural resources and the environment for the future generations.

Example 1 – Champions of packing

Half of the products in the EU is protected by packaging made of plastics. This packaging is often used mainly due to its unique characteristics: plastics as material are light and durable; additionally, they are diverse and versatile. All of these factors – together with hygiene, safety and comfort for consumers – makes plastic packaging so popular. That is why it is important to know additional benefits arising from using plastic packaging. The low weight of such packaging – compared to packaging made of other materials – translates



into lower consumption of energy and natural resources for the needs of transport of products, which entails lower costs. Owing to innovative technologies, consumption of raw materials for production of packaging has been significantly reduced – 15 years ago, the average plastics packaging weight was 30% higher than today. Consequently, environmental footprint has been significantly reduced, to which benefits from a significant reduction of food losses and wastage successfully contribute. Here, plastic packaging has no competition: it provides protection barrier against microbes, moisture and UV radiation, a protection against mechanical damage and extends food shelf-life.

PlasticsEurope leaflet “Unknown Life of Plastics”

Nowadays, effective use of resources is one of the main priorities of the economy. Plastics and the manner of the use of these materials in numerous applications in almost all fields of everyday life is the key to a resource-efficient and energy-saving economy. In other words – more for less...

Example 2: Energy saving, climate protection

Contrary to common belief, a larger consumption of plastics in the economy translates into greater energy saving and lower greenhouse gas emissions. In many cases the replacement of plastic products with products made of other materials would cause a significant increase in the consumption of fossil resources and an increase in greenhouse gas emissions¹: weight of the products would increase almost fourfold, throughout the entire life cycle of the products the consumption of energy would increase by more than 50%, and greenhouse gas emissions by more than 60%. Therefore, credible information about the facts as regards the positive role of plastics in energy saving and climate protection is extremely important. This matters in particular in the context of the European climate policy – it is important that policy makers become aware of the significance and the contribution of the plastics industry in counteracting the effects of climate warming.

The significant role of plastics in the achievement of goals of sustainable development can be seen from the example of the building and construction sector. In Europe, 40% of energy consumption and greenhouse gas emission is used by maintenance of buildings (mostly heating and cooling). Therefore, the renovation of old buildings, leading to the reduction in energy consumption and the construction of energy-efficient new buildings constitute one of the best ways to save resources and to counteract climate change. Owing to their unique properties such as: durability, low weight, good insulation properties, resistance to corrosion and water, ease of molding and economic efficiency, it is plastics that are intended for wide applications in the modern, sustainable construction industry.

The PlasticsEurope Polska Foundation actively participates in the dialog between the administrative authorities and non-governmental organizations regarding environmental protection and climate. Last year, during the meetings of working groups of the Ministry of the Economy and the Ministry of Environment the new regulations concerning, among others, the ETS mechanism and CO₂ certificates

¹ Denkstatt Report: „The impact of plastics on life cycle energy consumption and greenhouse gas emissions in Europe”, 2010

were discussed. In turn, the new frameworks of the EU climate policy for 2020-2030 and their importance for the energy policy of Poland as well as the future and development of the Polish industry, including chemical industry, were the subject of joint actions taken by the Foundation, the Polish Chamber of Commerce and the Polish Chamber of Chemical Industry.

For several years PlasticsEurope has been supporting the *Renovate Europe* initiative, which calls the European countries to prepare an ambitious strategy in the scope of building renovation, so that by 2020, the share of renovations completed throughout the EU will have increased from 1% to 3%.

On the Polish side, the Institute of Environmental Economics launched the *Efficient Poland Initiative* promoting the thermal modernization of existing buildings and energy-saving construction projects. This objective was pursued, among others, as part of the project “*Deep Thermal Modernization*”, in which the Foundation participated. Due to the efforts of the Foundation the *Efficient Poland Initiative* in December 2015 became the Polish Partner of the *Renovate Europe* campaign.

Plastics save energy and resources

Plastics save energy in buildings



40% of all CO₂ emissions in Europe come from buildings



340 million tons could be saved if 50% of buildings were insulated to the highest standards using plastics insulation

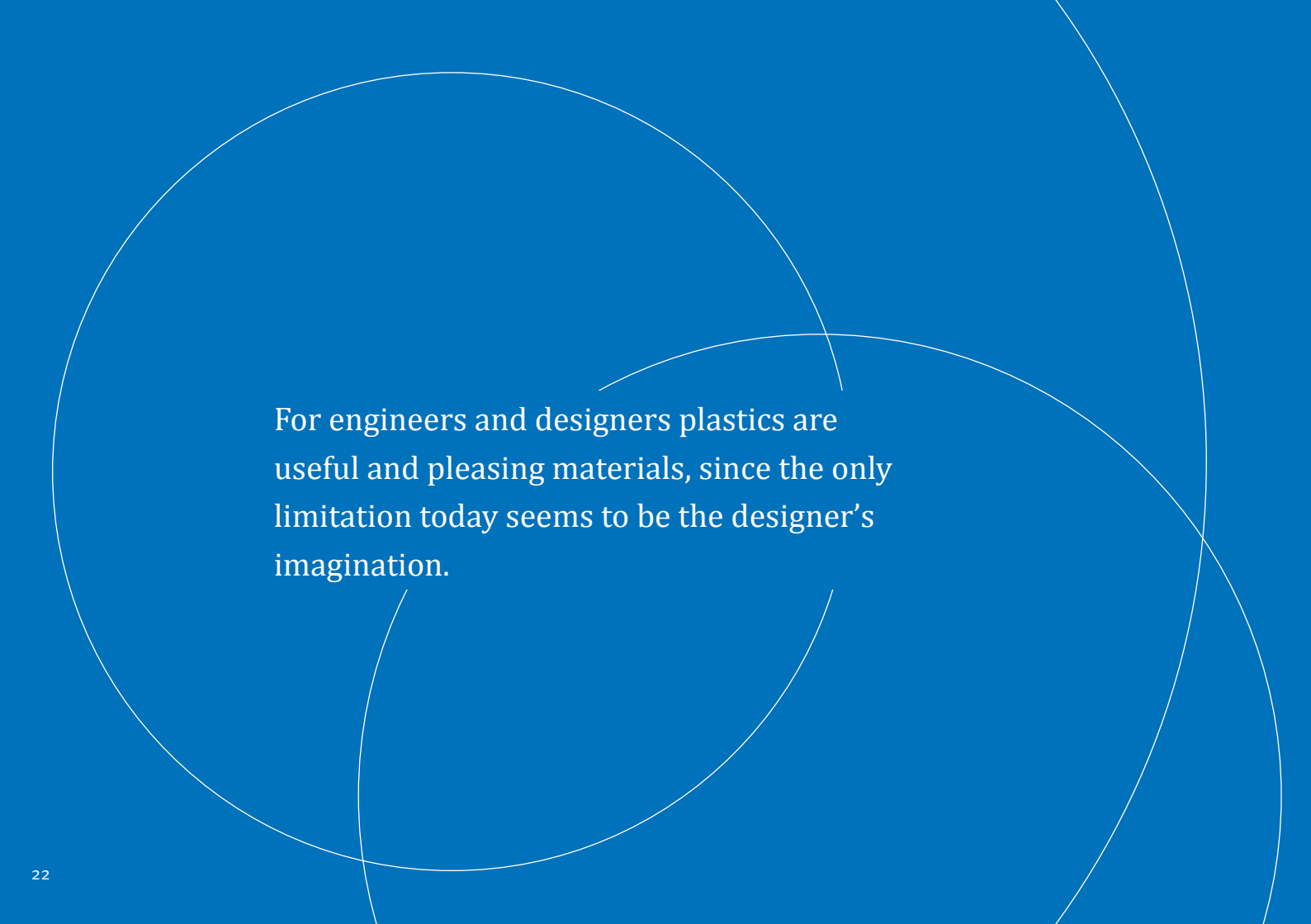
Plastics save energy in transport



95 g/km is the maximum amount of CO₂ cars in Europe are allowed to emit in 2020



40-50% this is how much plastic parts in cars are lighter than those made of alternative materials



For engineers and designers plastics are useful and pleasing materials, since the only limitation today seems to be the designer's imagination.

Plastics and innovation

Looking for a material that meets the most sophisticated requirements in terms of mechanical properties, thermal resistance, optical and electrical properties, or even the ease of tooling, engineers will most likely choose plastics or plastics-based composites. The complete range of polymers is available, which on one hand significantly differ in their physical and chemical properties and on the other hand are sufficiently compatible with each other and with other materials (fillings, additives dyes, etc.) that it is possible to create a virtually infinite number of construction materials. They can be used in seemingly disparate areas as advanced medicine where biocompatible polymers are used or state-of-the art aviation technologies using ultra tough and light polymer composites. Thus, plastics may be considered as drivers of innovation in practically all areas of everyday life from food packaging (e.g. intelligent packaging), through medicine, sport, professional and consumer electronics, to transport industry (cars, aircrafts).

Also our country should follow the global trends in innovation because it is a necessary condition of maintaining a high growth rate. Unfortunately, the EU statistics show that in terms of investment in research and development, Poland is still at the end of the list, and a rapid increase in these investments is required. It applies in particular to the plastics sector which in many leading economies is a progress driver. In Europe, the plastics industry is one of the five most innovative industry sectors – it generated 4% of all the patent applications in 2003-2012. Analyses conducted by the European Chemical Industry Council (CEFIC) show that long-term effectiveness of R&D investments calculated as the impact on the increase in competitiveness is the highest for the plastics and products manufacturing sector.

The challenges faced by the European plastics industry are related not only to the high costs of energy and stable access to raw materials at competitive prices but also to the planned changes of the European law. The European Union has started discussion concerning more efficient use of resources (the *Circular Economy* package) which already in a few years might have a significant impact on the shape of our sector.

Dialog and cooperation

The activities of the PlasticsEurope Polska Foundation focused on the plastics sector (value chain) and on other stakeholders are largely based on cooperation with various partners, e.g. the Polish Chamber of Chemical Industry, the Polish Chamber of Commerce, the Polish Federation of Food Industry, the Polish Association of Plant Protection, the Polish Union of Paint and Varnish Manufacturers, or the Polish Union of Plastics Converters.

At the initiative of the PlasticsEurope Polska Foundation a platform for the exchange of information between all the industry organizations operating in the plastics industry, e.g. the Polish Economic Chamber of Electrotechnics, the Polish Association of Plastic Pipes and Fittings Producers, the Polish Association of Expanded Polystyrene Manufacturers, the Polish Union of Producers and Processors of Polyurethane Insulation PUR and PIR (SIPUR), and the Polish Union of Plastics Converters was established. As part of regular cooperation, these organizations present a common position to protect the interests of the sector.

The Foundation also plays the important role of local organizer and coordinator of activities carried out by foreign offices of PlasticsEurope. In March 2015, Warsaw hosted the representatives of the PlasticsEurope Central Region Advisory Board responsible for the strategy and directions of development of PlasticsEurope in Europe. In addition, in May 2015 in Warsaw, important meetings of the PlasticsEurope took place: Steering Board and the General Assembly. The Foundation also prepared and organized the participation of representatives of the Polish administration, press and science in the Identiplast 2015 International Conference on plastic waste management, organized by the PlasticsEurope in Rome.

Education – Information – Promotion

Knowledge of the positive role of plastics in the sustainable growth is not common and information about the importance of plastics, e.g. in energy saving and climate protection, or health care and safety are rarely publicized.

Since its inception, the PlasticsEurope Polska Foundation has striven to popularize knowledge about plastics, provide reliable information about the benefits for the environment and the users resulting from the use of these materials and opportunities for development of plastic waste. It uses various tools and methods to send its educational message, it conducts numerous campaigns to reach the general public, and also works with the media and prepares publications on plastics. It responds to simplified or untrue information published in the media or other information channels causing various myths concerning plastics to enter public awareness.

Negative messages based on false information about plastics also affect the image of the entire sector. At the same time, to be able to rapidly develop that sector requires the continuous supply of highly qualified personnel. Shortages in this respect are observed not only in Poland but also in most EU countries. On one hand, there is high unemployment among young people and, on the other hand, businesses report problems with finding suitably qualified employees². Lack of highly qualified blue-collar workers, technicians or specialists constitutes one of the obstacles hindering faster economic growth, and yet effective vocational education is one of the most important elements of the modern economy, necessary to be able to successfully compete in the global economy.

In this context, the PlasticsEurope Polska Foundation has been conducting educational activities at all levels of education for 10 years. Plastics education includes programs for primary schools and secondary schools as well as projects aimed directly at students, including cooperation with technical universities, educational centers and Foundation members in joint educational projects.

² According to the Manpower 2015 research 41% businesses declared problems with finding suitably qualified personnel (8% increase as compared to 2014), including 47% reporting problems with the shortage of technical skills

Educational programs for schools

Conducted since year 2011, the proprietary “Plastek and his magic box” program targeted at primary school students, promotes knowledge of plastics and encourages pro-environmental behavior. Through experiments the students learn properties of modern materials, of which objects of everyday use are made, and also thanks to specially designed exercises they train the observational and analytical thinking skills. As part of this program schools are provided with free educational packages consisting of an experiment kit, a set of textbooks for students along with auxiliary materials for teachers. The packages are distributed during free training workshops for teachers of early childhood education and natural science. In 2011-2015, more than 1040 educational packages were handed over and 45 training courses were conducted in various cities all over Poland, which were attended by 1035 teachers. The foundation twice applied for co-financing to the Voivodeship Fund for Environmental Protection and Water Management (in Warsaw in 2013 and in Lublin in 2015). The obtained funds allowed for the purchase of additional educational packages, which enabled the inclusion of another 80 primary schools in small towns in the Mazowieckie and Lublin Voivodeships in the program. The “Plastek” program is very popular not only among teachers and methodology advisers, but mostly among children, as evidenced by the popularity of the Plastek’s drawing competition – so far nearly 2600 children participated in the previous 12 edition of the competition.

In 2015, the Foundation started a new educational project addressed to secondary schools. As part of the project the interested schools receive a gratuitous set of “Plastics – Modern Materials” textbooks, a set of samples of plastics allowing the testing of properties and identification of plastics as well as a brochure with the description of the basic types of plastics.

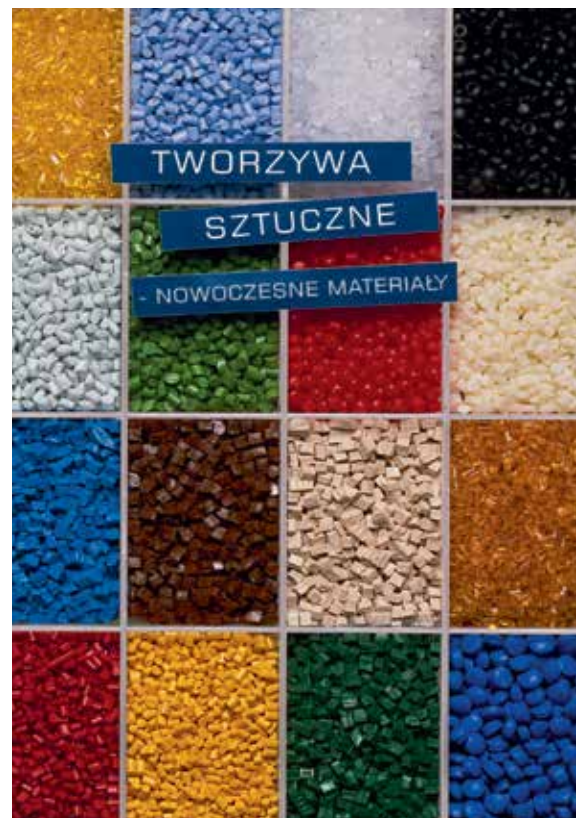


"Plastek" art contest – Selection of works 2015



The textbook describes a range of issues related to polymer chemistry, processing of plastics, and environmental aspects of the use of plastics. Additionally, it contains information about professions related to plastics, opportunities to find work in the sector as well as general information about the plastics industry in Poland.

The textbook is distributed by the Foundation as part of various activities addressed to secondary schools. During the first stage of the project, the textbook was provided to schools and other entities participating in educational projects organized by the Foundation members as well as teachers participating in the “Teacher Discoverer: Plastics” project of the Copernicus Science Centre (see the next page). The next stage of the program is conducted at secondary schools preparing students for chemistry related professions. The textbook along with the experimentation kit is also distributed among teachers participating in the webinars and training courses regularly organized by the Foundation, constituting an introduction to plastics and discussing exercises and experiments described in the textbook.



Joint educational projects

The Foundation actively supports educational and CSR projects implemented by the member companies of PlasticsEurope Polska as well as cooperating with the educational centers, technical universities and other entities involved in the educational activities and promoting knowledge of plastics. Last year the Foundation continued the collaboration on the project of the Copernicus Science Centre (CNK) for teachers launched in 2014, offered under the “Copernican Revolution” slogan. The Foundation’s representatives co-hosted “Teacher Discoverer: Plastics” workshops on polymeric materials, having also discussed ecological aspects of this issue. The Foundation actively participated in the projects conducted by BASF in cooperation with CNK. The Chemistry Days, organized by BASF (a partner of the CNK chemical laboratory) on an annual basis constitute a unique opportunity to show the unusual properties of plastics and to stimulate interest in the chemical experiments among children. The Foundation’s representatives conducted chemical workshops for the visitors using experiments from the “Plastek” program, and the positive response of the workshop participants are best described by the words of one of the children: “Chemistry is superb!”. The Foundation also supported the competition for secondary schools “Future Heroes” organized by BASF.

As a part of the cooperation during the annual competition for schools in the Płock region organized by Basell OrlenPolyolefins, representatives of PlasticsEurope Polska conducted interactive training for students (on the use of plastics as innovative materials in various applications) and delivered a lecture dedicated to 150 years of the history of plastics during the final debate that concluded the competition. The foundation also supported the CSR program of the Azoty Group entitled “Plastics Days” by conducting a series of interactive lectures on the role of plastics in the modern world for secondary school students in Tarnów. The extensive educational activities of the Foundation are complemented by the cooperation with technical universities, e.g. the Warsaw University of Technology and the Poznań University of Technology, including lectures and seminars, and also providing substantive support to the www.eko-fani.pl educational portal which publishes information and educational games concerning plastics and conducting ecological contests related to the waste plastics management.



EKSPERYMENTUJEMY

Tworzywo ropopochodne

Polistyren



Information and promotion

Popularization of knowledge about plastics and their role in the sustainable growth and about plastic waste management are the purpose of the Foundation's public relations activities. They include, among others, ongoing contacts with the media, regular press releases, constant updating of the website as well as publishing of numerous articles and statements in industry publications and general press, and the participation in the radio and TV broadcasts. Covered topics include the use of plastics in everyday life, rational plastic waste management, or issues related to the plastics industry's activities. Every year the Foundation organizes press meetings during which the most recent data on the Polish and European plastics industry is presented. In 2015, there were 2 meetings: in May in Warsaw – related to the publication of the latest market data, and in Kielce during the Plastpol trade fair, where jointly with the trade fair organizer (Targi Kielce SA) a press conference focusing on the innovations of the plastics industry in Poland was organized. Opportunity to meet with the media also included initiatives and activities of PlasticsEurope Polska such as e.g. "Recycling Rally" (p. 45) and periodic meetings and international conferences – in 2015 these included the Information Day for the plastics press in Frankfurt and IdentiPlast in Rome (both events took place in April).

Additionally, the Foundation representatives presented the current situation in the plastics sector and commented on the *Circular Economy* legislative proposal during various industry conferences, including Plastech (April 2015), the "Competitiveness of the European Plastics Industry" (May 2015), the Plastics Days (June 2015), the Innovation Forum (June 2015), Plastinvent (October 2015). An important element of communication activities are leaflets, brochures and reports published by PlasticsEurope Polska on an annual basis (also available in electronic form on the website www.plasticseurope.pl), with the current market data of the plastics sector. The published materials refer to key issues concerning the importance of plastics for the economy, taking into account the priority issues such as climate protection and energy saving, reasonable management of natural resources, environmental protection and safety of the users, marine litter or the competitiveness of the plastics industry on a global scale.

Plastics and the environment

Currently, the majority of plastics are produced from non-renewable natural resources (crude oil, natural gas), but only 4-5% of worldwide crude oil production is used for this purpose.

Most crude oil – over 80% – is intended for direct burning: to produce energy (heating, electricity) and for fuel for transport equipment. While this 4-5% of oil used for the production of plastics is, in fact, valorization of crude oil at a higher level: plastics produced from oil and products made from them (packaging, cars, construction insulation etc.) contribute to the environmental benefits throughout their entire life cycle (see page 18 and 20), e.g. to the reduction of energy consumption or amount of waste. The products from plastics, which after the end of their useful life become waste, can be returned to the economy via mechanical or chemical recycling. In addition, if recycling is unprofitable and constitutes a too large environmental burden, there is another option – recovery of energy contained in plastic waste. Or, in other words, we are dealing with the process of crude oil “leasing” for the production of plastics products which after fulfilling their useful functions and ensuring specific benefits during the life cycle can, at the final stage, return to the basic function of crude oil – energy source.

Since the beginning, the PlasticsEurope Polska Foundation has promoted knowledge about plastics – their value and positive role – both in the use phase as well as in the waste phase. The slogan “Plastics – too valuable to waste” promotes withdrawing plastics from the landfilling, indicating, that this secondary raw material can and should be recovered, not landfilled.

The preferred recovery option is mechanical recycling which allows for returning raw materials for production of new products to the economy. However, this method is not always technically feasible and beneficial for the environment. Using Life Cycle Assessment (LCA), it is possible to determine the environmental costs of recycling and to indicate a certain optimum level – called eco-efficient (sustainable) recycling. This is the level above which recycling operations will bring more harm than benefits to the environment. With the currently available technologies of collection, sorting and recycling and taking into consideration the condition of waste management, it can be assumed that the average level of eco-efficient (sustainable) recycling for the EU countries is ca. 45-50%³. The remaining 50-55% of plastic waste should be subjected to energy recovery in specialized industrial units (waste incinerators, cement kilns etc.).

³ Report: Criteria for eco-efficient (sustainable) plastic recycling and waste management, denkstatt GmbH (2014)

Circular Economy

A necessary condition for the effective and environmentally compliant plastic waste management requires consideration of recycling and energy recovery as two complementary options. Such a conclusion is the basis for the view of the plastics industry towards a major draft legislation of the European Commission, i.e. the *Circular Economy* package. The *Circular Economy* model assumes that the economy is based on cyclic processes in which resources are used as long as possible by multiple use and repair stages as well as through recycling of materials. Plastics fit into this model well: both at use phase (as material used in many sectors) and at the end-of-life phase. Correct assessment of an impact of plastics on the environment must take into account all phases of the life cycle of products: from the production of plastics raw materials and plastics products, through the use phase of plastics products to the end-of-life phase. For the majority of products made of plastics, the highest ecological benefits are achieved in the use phase, i.e. when the product fulfills its basic function. For example, EPS insulation generates huge energy savings throughout the entire period of its durability, i.e. several decades. Modern packaging made of plastics significantly extend freshness and shelf-life of foodstuffs and effectively contribute to the reduction of food losses. Whereas plastic waste, as a valuable raw material, can be again returned to the economy – for example regranulates made of used plastics products in recycling processes, successfully may be used to manufacture new products.

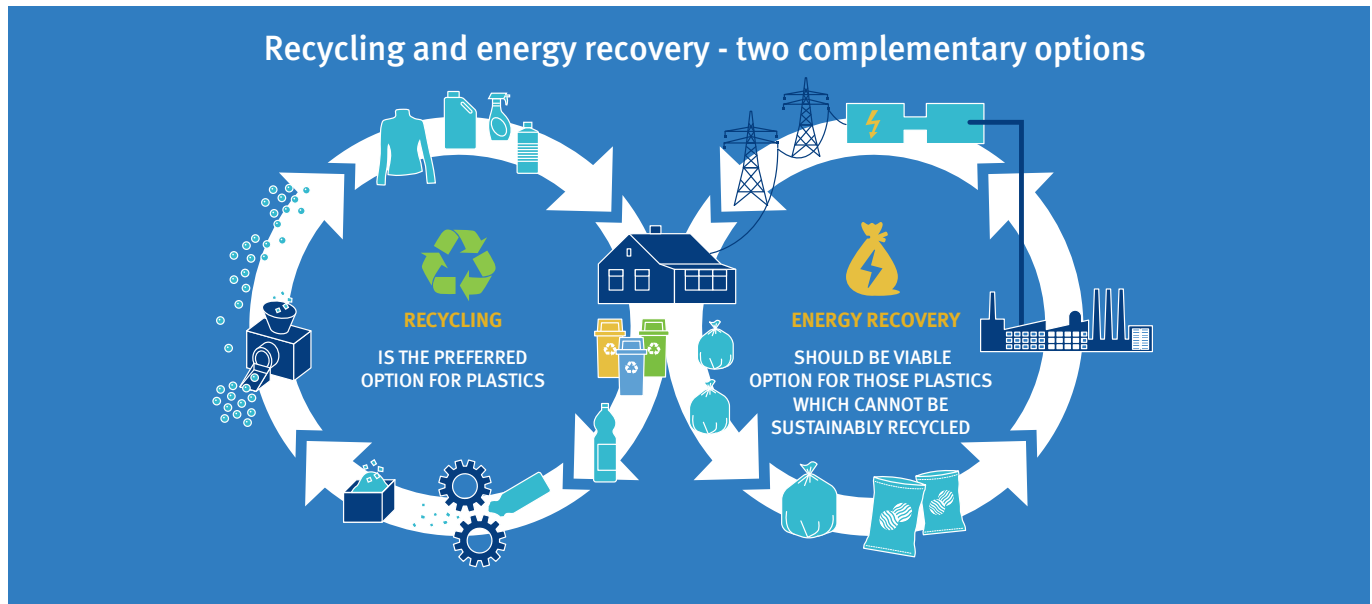
In 2015, the PlasticsEurope Polska Foundation participated in extensive consultations on the *Circular Economy* package presented by the European Commission. Due to the fact that proposals of this package put emphasis on the radical increasing of waste recycling levels, including for plastic waste, the Foundation presented arguments for an approach considering environmental and economic aspects. In such a holistic approach the effectiveness of waste management methods and, in particular, the analysis of costs and economic and environmental benefits of recycling (eco-efficient/sustainable recycling) need to be taken into account. The Foundation representatives participated in debates and conferences dedicated to discussions about the proposals of the European Commission,

as well they published articles in specialized and nationwide press. The Foundation also issued to the public administration authorities official opinions on the plastic waste management in Poland in view of strategic targets of the *Circular Economy* package.

The Foundation was also a co-organizer of the conference “Circular Economy: Opportunities and Threats for Poland and Europe” arranged by EurActiv.pl in cooperation with the Information Office of the European Parliament in Poland under the honorary patronage of the Delegation of the European Commission in Poland, the Ministry of Economy and the Ministry of Environment. The discussion in which representatives of the European Commission, the European Parliament and the Polish public administration and business communities took part mainly focused on the circular economy concept in the context of its feasibility in terms of the Polish and European economy. On one hand, it was stressed that new quality provided by circular economy, aimed at maintaining the value of materials and energy used in the products for as long as possible with simultaneous minimization of waste, is a great opportunity



for the economy. On the other hand, it was acknowledged that the position of the European economy in the global economic system should be taken into account. Lack of such references could result in harming the competitiveness of Europe, among which could be the risk of transferring the production from the EU to less regulated markets. Consequently, the EU would not only lose benefits from the production but also the control over the conditions of manufacturing the products, and consumers would be flooded with non-durable products which, de facto, would contribute to further increase in the amount of waste.



Cooperation with the waste management sector

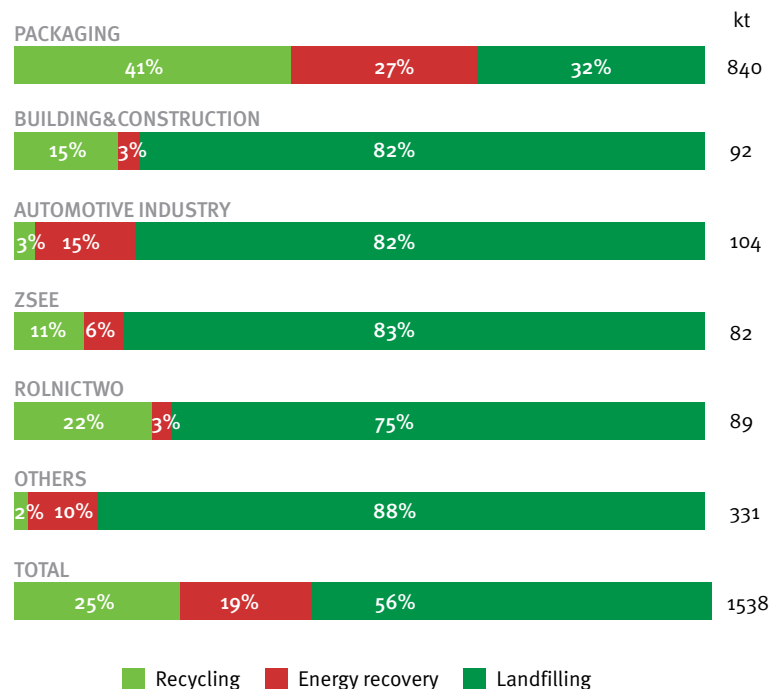
Knowledge transfer and sharing experience gained by the industry in other countries is part Foundation's activity to promote best solutions in plastic waste management. These actions require integration with the waste sector and current participation in the debate on solving problems related to waste management. For this purpose, the Foundation takes part in all major conferences and debates organized by both the waste sector and other entities, including the Ministry of Environment, economic chambers, think-tanks.

Continuing the attempts to activate the plastics recyclers, the Foundation supports and actively cooperates with the Polish Recycling Association, established as a result of the actions of the Foundation in the previous years, which mainly associates plastic waste recyclers. The participation in the waste management sector conferences organized by Abrys, Ekorum and the Polish Chamber of Ecology was an opportunity to present the opinion of PlasticsEurope on reasonable plastic waste management and to promote recycling and energy recovery from waste, as the equivalent methods for recovering the value from these resources. Plastic waste unsuitable for recycling is a very good source of energy (electricity and thermal energy) in industrial processes. In Poland, this manner of plastic waste management is still at a significantly lower level than in other EU countries. As part of the European initiative of the plastic industry *Zero plastics to landfill*, the Foundation called for the necessity of harmonization and successive increase of fees for the landfilling of plastic waste and actively supported the introduction into Poland of a ban on the landfilling of waste with calorific value above 6 MJ/kg. This ban, finally introduced from January 1, 2016, has been undermined by the bad practice of storing of this high-calorific fraction for the purpose of possible use for production of alternative fuels (so-called pre-RDF). In our opinion, unfortunately, such a solution will not contribute to a rapid withdrawal from the landfilling of these valuable resources.

Plastic waste in figures

As part of the evaluation of the effects of introducing in Poland the amended Waste Law, the Foundation analyzed the data on plastic waste in 2012-2014 included in the reports of marshal offices and reports of the Central Statistical Office. These data are partial and often inconsistent, which does not allow us to draw general conclusions. For example, the Central Statistical Office provides only the amount of selectively collected plastic waste and the amount of packaging waste produced and recycled. According to the Central Statistical Office, 314,000 tons of plastic waste were selectively collected and the level of recycling of plastics packaging waste amounted to 29% (256,000 tons) in 2014. These values significantly deviate from the data provided by Consultic, a recognized company, according to

Post-consumer plastics waste recovery by waste streams (2014)

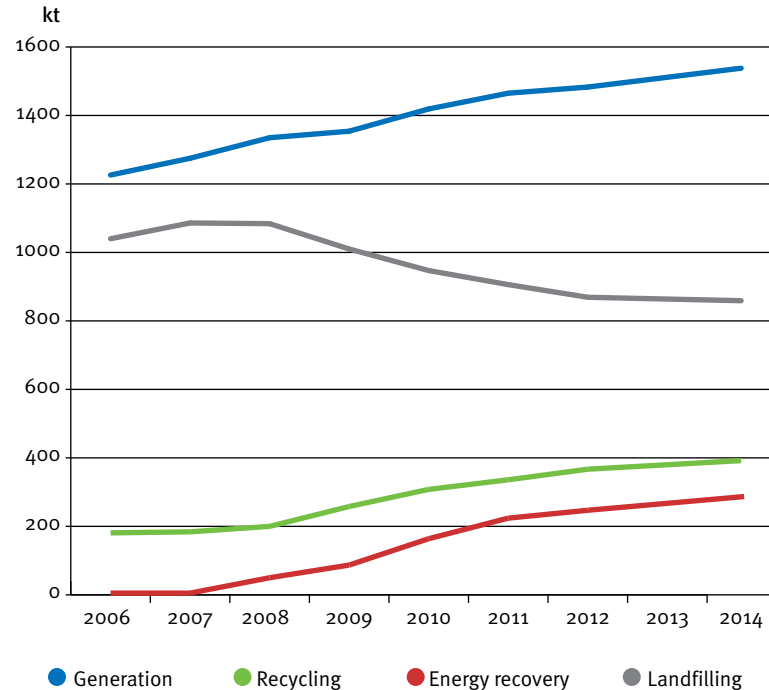


Source: Consultic

which 343 thousand tons of plastics packaging waste were recycled in 2014, i.e. 40% more than the amount given by the Central Statistical Office. National data clearly indicates that the amount of high-calorific waste, landfilled in the management plants for reasons of collecting raw materials for production of fuel from waste, is increasing.

The Foundation also analyses other sources of data, such as reports of recovery organizations, which, however more reliable, refer only to packaging waste collected within Extended Producer Responsibility and organized by entities introducing the products in packaging to the market. In cooperation with Polski System Recyklingu Organizacja Odzysku Opakowań S.A., the Foundation updated the data on the levels of recovery of all packaging waste (including plastic packaging) in 2011-2014.

Plastics waste management in Poland in 2006-2014



Source: Consultic

Marine Litter Solutions

The PlasticsEurope Polska Foundation has implemented in Poland projects aimed at preserving aquatic environment from littering for several years, by putting into effect the recommendations of the “Global Declaration for solutions on marine litter” signed by the international plastics industry organizations in 2011. The Foundation’s projects in this respect focus on the promotion of proper human behavior that prevent marine environment contamination (non-littering) as well as on knowledge transfer of the best practices in plastics waste management. As part of these actions, the annual event “Recycling Rally – let’s recover plastics” took place in 2015 for the fifth time, during which the Foundation’s partner Dominik Dobrowolski – a traveler and environmentalist, this time canoed in a dozen stages the route along the Polish coast from Szczecin to Gdynia.

The expedition was accompanied by meetings with media and local communities. The participants of the meetings exchanged information on how to protect the marine environment from littering and how to manage waste properly in order to exploit it and protect the resources. The event could have been tracked online at www.recyklng-rejs.pl. The press, radio, and TV spoke highly of the event.

Other action of the Foundation in the scope of protection of the marine environment from littering consists in active participation in the working group preparing the Polish opinion on the Marine Litter Regional Action Plan – the project of the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area of Helcom. As part of these meetings, the Foundation’s activity in the scope of educating and informing about preventing littering of the marine environment was presented.

Ponad dwie trzecie powierzchni Ziemi pokrywa woda

Strumienie, rzeki, jeziora i morza to cenny skarb – jednak zbyt długo były traktowane jako najłatwiejsza i najtańsza możliwość pozbywania się odpadów cywilizacyjnych. Śmieci w morzu nie są zatem zjawiskiem nowym. Mimo to problem ten nie stracił na aktualności. Organizując tegoroczny **Recykling Rejs Baltyk 2015** chcemy wszystkich wezwać do podjęcia konkretnych działań.

Najlepiej, gdybyśmy nie wyrzucali do środowiska żadnych odpadów, niezależnie od tego, z jakiego materiału zostały wyprodukowane. Nieważne, czy to będzie butelka po wodzie, torebka po kanapce, opakowanie po lodach czy niedopalek papierosa – odpady, które wypoczywają pozostawiają niedbale na piasku po całym dniu plażowania, bardzo szybko mogą przedostać się do morza i wówczas stają się poważnym problemem. Ryby zaplątane w resztki folii, ptaki morskie polykające małe fragmenty plastikowych butelek – słyszeli o tym chyba wszyscy. To nie koniec problemów: ogromna większość tworzyw sztucznych nie rozkłada się w środowisku. Takie odpady zalegają w morzach i oceanach przez dziesiątki lat.

Wiele rzeczy, których używamy na co dzień, jest produkowanych z plastiku. Między innymi używany przez nas sprzęt sportowy (kadłuby łodzi, liny, wiosła, osłony, żagle), a także odzież i wiele innych wyrobów, które uprzyjemniają nam wypoczynek nad wodą. Oczywiście trudno byłoby z nich zrezygnować. Dlatego tak ważne jest, abyśmy odpowiedzialnie korzystali z takich produktów i prawidłowo utylizowali odpady, które po nich pozostają. Jeśli to tylko możliwe, nie wolno dopuszczać, aby jakiegokolwiek plastikowe odpady dostawały się do strumieni, rzek, jezior i mórz. Każdy może przyczynić się do tego, aby morza były znowu czyste – ochrona wód zaczyna się od każdego z nas.

Baltyk 2015

RECYKLING REJS
odzyskuj tworzywa sztuczne

I TY MOŻESZ POMÓC CHRONIĆ WODY PRZED ZAŚMIECIENIEM

KILKA PODSTAWOWYCH ZASAD

- Odpady wyrzucamy do odpowiedniego pojemnika. Jeśli go nie ma, nasze śmieci zabieramy ze sobą z powrotem.
- Segregujemy odpady – w domu, na pokładzie, w podróży czy na przystani. Tylko w ten sposób umożliwiamy ich ponowne wykorzystanie i właściwe zagospodarowanie.
- Kupujemy rzeczy trwałe: lepiej kupić jedną dobrą rzecz niż dwie „prawie” dobre. Dzięki temu oszczędzamy zasoby.
- Kupujemy uzupełnie nowe rzeczy tylko wtedy, gdy to naprawdę konieczne.
- Przestrzegamy zasad prawidłowej zbiórki odpadów: zużyte rzeczy, które nadają się do ponownego użycia lub recyklingu, oddajmy do specjalnych punktów zbiórki.
- Idąc do sklepu zabieramy własną torbę na zakupy.
- Pomagamy w społecznych akcjach sprzątnięcia strumieni, rzek czy plaż, organizowanych przez lokalne gminy, miasta i kluby. Sukces takich akcji zależy również od naszego zaangażowania – własny przykład to najlepszy sposób uświadomienia innych.
- Uważamy, aby nie wyrzucać nic za burtę. Obojętnie co, gdzie i kiedy: nie wolno wyrzucać śmieci do wody.
- Podczas uprawiania sportów wodnych przestrzegamy przepisów i zasad ochrony środowiska. Zakazane jest m.in. pozostawianie po sobie odpadów i używanie materiałów szkodliwych dla środowiska.
- Poprzez własne zachowanie dajmy przykład innym.

Baltyk 2015

RECYKLING REJS
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Brochure distributed during “Recycling Rally – Baltic Sea 2015”



Completion of the Recycling Rally, Gdynia July 2015

About PlasticsEurope Polska

PlasticsEurope Polska – a foundation representing manufacturers of plastics in Poland – associates 19 member organizations (2015) – 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 (till 2015 Ticona Sp. z o.o.),
CIECH Sarzyna S.A., Covestro MS Global AG – Oddział w Polsce (till 2015 Bayer Sp. z o.o.),
Dow Polska Sp. z o.o., Evonik Resource Efficiency GmbH Sp. z o.o. Oddział w Polsce,
Grupa Azoty S.A., Krakchemia S.A., SABIC Poland Sp. z o.o., Solvay Polska Sp. z o.o.,
Ineos Styrolution Poland Sp. z o.o. (till 2016 Styrolution Poland Sp. z o.o.),
Total Petrochemicals&Refining SA/NV (Spółka Akcyjna) Oddział w Polsce,
Trinseo Europe GmbH Przedstawicielstwo w Polsce (till 2015 Styron Europe GmbH Sp. z o.o.),
Versalis International SA Oddział w Polsce

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

FOUNDATION COUNCIL

CHAIRMAN: Piotr Kwiecień (SABIC Poland Sp. z o.o.)

VICE CHAIRMAN: Jerzy Marek Urbańczyk (Albis Polska Sp. z o.o.)

MANAGEMENT BOARD

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VICE PRESIDENT: Małgorzata Malec (Grupa Azoty S.A.)

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BOARD MEMBER: Sławomir Galas (BASF Polska Sp. z o.o.)

BOARD MEMBER: Jerzy Pawlicki (Borealis Polska Sp. z o.o.)

EMPLOYEES OF THE FOUNDATION

MANAGING DIRECTOR: Kazimierz Borkowski

COMMUNICATIONS MANAGER: Anna Kozera-Szałkowska

MANAGER CONSUMER PROTECTION AND ENVIRONMENTAL AFFAIRS: Grzegorz P. Rękawek

EDUCATIONAL PROGRAMS, OFFICE ASSISTANT: Edyta Wielgus-Barry

Fundacja PlasticsEurope Polska

ul. Trębacka 4 pok. 109

00-074 Warszawa

T/F: +48 (22) 630 99 01/10

email: info.pl@plasticseurope.org

www.plasticseurope.org

