

Fundacja PlasticsEurope Polska



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Our priorities

Plastics have become a ubiquitous material in our lives due to their versatility and numerous advantages, such as: light weight, impact resistance, good thermal and electrical insulation properties or ease of forming. Thanks to these properties, plastics are increasingly being used to replace the previously used materials. This is confirmed by statistical data: since 1950, the production and consumption of plastics worldwide have been increasing at an annual rate of 8 percent. There is one more aspect that acts in favor of using plastics in addition to convenience and usefulness: these materials considerably contribute to rational management of natural resources, and in consequence to their protection. Hypothetically, if plastics were to be replaced with other materials in all major applications and only where this is possible, the result would be a sudden increase in material consumption (a 250% increase in mass). increased energy consumption (by 46%) as well as a 50% increase in CO₂ emissions. Unfortunately, neither society nor representatives of the administration nor the legislative circles are aware of these facts. As a result, the image of this irreplaceable material is largely determined by negative feelings associated with an ineffective waste management systems and the littering problem. The role of the PlasticsEurope Polska Foundation is therefore to constantly



Dr Helena Huovinen President of the Board of PlasticsEurope Polska emphasize the need for proper management of post-consumer waste. This issue is tackled by a flagship initiative of the plastics industry calling to stop landfilling of plastics waste by 2025. Poland is still far from achieving this ambitious goal - according to the latest data, still nearly 60% of plastic waste is not recovered. We do, however, believe that our programs for the transfer of knowledge and best practices in the area of plastic waste management as well as education and communication activities coupled with the Polish authorities' determination to improve the waste management system will bring good results within the coming years and will make it possible to achieve the goal of "zero plastics to landfill".

According to the strategy of European plastics manufacturers, communication activities of the Foundation are targeted both at the general public and at the administration and the legislative circles. Our main message is included in the statement that plastics are irreplaceable materials which play a key role in satisfying the needs of the contemporary society, while the use of these materials brings benefits at each stage of the product's life. In our initiatives and information campaigns, we show the importance of plastics for achieving the goals of sustainable development through improving the standard of living and contributing into rational use of the natural resources - energy, food and water, and thanks to reductions in CO2 emissions - also through climate protection. Plastics must be safe for their users - this is a motto of plastics manufacturers, which confirms that product safety is very important for our industry. Therefore, the Foundation continues cooperation with state administration appealing for the use of the approach based on risk analysis, taking into account reliable research results and transparent procedures. This Annual Report 2014 of the PlasticsEurope Polska Foundation includes not only a summary of last year's operation of the organization, but also basic facts on the role and importance of plastics as well as data on the plastics industry in Poland.



From the European perspective

For 10 years PlasticsEurope has been active as the pan-European association of plastics manufacturers. PlasticsEurope Polska was on board almost right from the beginning. Founded in spring 2005 as part of the national chemical industry association, the Polish branch quickly developed, proved its expertise and gained reputation, and soon became one of the most active parts of the association within the region "Central Europe". PlasticsEurope Polska today is well-known as a leading expert on plastics and the plastics industry.

The trustful pan-European cooperation has developed more and more and nowadays proves its usefulness in a multitude of occasions, be it in the field of advocacy, in communications or in technical projects. With PlasticsEurope Polska, the pan-European network of PlasticsEurope working from six regional centres and active in five different regions, is sure to have a well-experienced and reliable partner on its side. We will continue this road in order to successfully position plastics as the material for the 21 st century.



Dr Rüdiger Baunemann Director of the PlasticsEurope Central Region

Irreplaceable material

Plastics are a driving force behind the development and pioneer innovation, whose task is to address the greatest social challenges



Material for the 21st century

Although plastics have already been used on an industrial scale for over a hundred years, in comparison with traditional materials, such as wood, stone, metal, glass or paper, this is a young and modern material. In recent decades, polymer materials have enabled innovation and development of many state-of-the-art technologies, new design solutions as well as obtaining better parameters and cost savings. Many experts regard plastics as "material for the 21st century", which means that plastics not only meet the requirements of today but will meet the requirements of the designers and consumers over the next several dozen years. A look at the current rapid development of applications for plastics leaves no doubt that this will happen. Today already polymers are increasingly used in engineering to manufacture new materials (composites), whose potential applications go beyond the well-known "traditional" areas.

Applications for plastics will evolve also in other esteblished areas, which include not only packaging, building&construction, automotive, electrical and electronics and medicine, but also many other sectors offering goods that increase the standard of living as well as consumer safety. Packaging will protect products even better, windows and insulation in the construction industry will be more efficient, and thanks to innovative solutions using plastics, vehicles will be not only safer but also lighter, and therefore, more environmentally (and pocket) friendly. There will appear new areas where the use of plastics will bring new technological solutions. One of the examples can be flexible photovoltaic panels printed onto plastic film for the use in consumer electronics or renewable energy generation.

The popularity and rapid growth of the use of plastics in so many areas is a consequence of unique properties of these materials: they are versatile, multi-functional and inexpensive. You can produce plastics that are flexible or rigid, with varying degrees of fragility - from very fragile to very durable, with different mechanical strength and resistance to high and low temperatures. Ease of molding creates virtually unlimited design possibilities as regards both entire products and single details. Modern everyday products are becoming available to a larger and larger group of consumers. Can we imagine life today without smartphones or computers? The truth is that without modern polymer materials these popular products could not exist in the form in which they are used today,





Gwiazda Mistrzostw Świata w piłce nożnej - tworzywa sztuczne

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PlasticsEurope

or it would not be possible to design them at all. In addition, thanks to their light weight, plastics contribute to climate protection and to significant reductions in the use of natural resources including consumption of energy. This positive contribution of plastics to sustainable development means that the more plastics we use the greater are the benefits for the environment and the climate.

These obvious benefits which are hardly noticed on a daily basis, are overshadowed by the negative public perception of certain aspects of plastics waste management. In Poland, the waste management system is still not working well and nearly 60% of plastic waste is not recovered and goes to landfills. This waste often pollutes the environment or is used as combustible in household furnaces, which is both a harmful and illegal practice. Unfortunately, fairly common sight of littered streets, forests, parks or thick smoke rising from chimneys - a proof of burning waste in the furnaces - creates a very popular and simplified belief that those most to blame for polluting the environment are rather plastics but not those people who throw litter about. Another, equally wrong but commonly held belief indicates that the manufacturing of plastics from non-renewable resources (crude oil, natural gas) leads to a massive depletion of these valuable resources. The fact is that, although

plastics are actually made from crude oil, firstly only 4% of the globally extracted amount is used for this purpose and, secondly, economic and environmental benefits that arise in the phase of use of products made from plastics (see page 27) outweigh the costs associated with the production. And finally at the end of the life cycle of products from plastics and having exhausted the possibilities of recovery through recycling, you can always recover the energy value of oil stored in plastics. One of the main tasks of the PlasticsEurope Polska Foundation is to communicate this holistic approach to the use of resources and environmental protection, while maintaining the development of civilization and technological progress. European Union and the United States (TTIP) on the Polish chemical and plastics sector. In addition, the Foundation presented an official opinion of the industry on the necessary conditions for increasing competitiveness of the sector, prepared on the basis of the European plastics industry document "Manifesto on the competitiveness of the plastics industry in Europe". For many topics relevant to the sector, the Foundation cooperated with other organizations and associations, among others with the Polish Chamber of Chemical Industry, the Polish Chamber of Commerce, the Institute of Environmental Economics, the Polish Union of Plastics Converters, the Polish Association of Plant Protection or the Polish Commerce and Distribution Organization.

Speaking one voice

Representing the plastics production industry in Poland, the Foundation participates in a dialog with government administration concerning current issues that could affect the development or functioning of the sector. In 2014, it participated, among others, in working groups of the Ministry of Economy regarding the development of industrial policy, the development of smart specialization or the impact of a free trade agreement between the Within the framework of cooperation with the entire industry value chain, PlasticsEurope Polska takes part in specialist industrial and scientific conferences (Plastech, Plastinvent and others) and in other meetings that spread knowledge of plastics, e.g. seminars at universities for students and academic staff. It provides current data on the plastics industry and informs of sector-related issues, e.g. development trends, innovation or draft legislation on plastics. A new element in the Foundation's activity are workshops for the employees of member companies, which focus on discussing the role and importance of plastics in the contemporary world and presenting the current status of the sector and the challenges that it is facing.

In addition, the Foundation regularly conducts public relations activities, which comprise, among others, ongoing contacts with the media, including regularly issued press releases and constant updating of the website as well as publishing brochures and reports. In May, it traditionally organizes press meetings devoted to the most recent data on the plastics market and meetings with the media linked to educational campaigns (see page 23) or industry events.

In 2014, during the biggest industry fair - PLASTPOL, in cooperation with member companies, the PlasticsEurope Polska Foundation prepared an exhibition "Ecologically about plastics" presenting on several charts the most important ecological aspects of the manufacturing and use of plastics. The exhibition was accompanied by a press meeting with the participation of ski jumper Kamil Stoch, during which he among others shared his positive experience from using plastics in contemporary sport. The issue of plastics in sport was also tackled in 2014 in a special publication prepared on the occasion of the Football World Cup in Brazil, which informed the readers why modern football cannot do without modern polymer materials. This brochure, along with the other publications and materials of PlasticsEurope Polska, is available at www.plasticseurope.pl.

Today - education, tomorrow - innovation

Plastics are present almost everywhere around us. Innovative by nature, they have successfully revolutionized our lives. The plastics industry is one of the most dynamically developing sectors, which offers jobs to highly qualified staff. However, Poland lacks specialists in the field of plastics and in an educational offer for students, especially the youngest ones, there are hardly any teachnig materials on plastics. On the other hand, lack of public awareness of the positive role of plastics for sustainable development means that common beliefs are often based on unreliable information and myths on plastics. That is why, since the beginning of its activity, the PlasticsEurope Polska Foundation has been focusing on educating about plastics. With the use of various tools and methods of reaching out with educational messages, it conducts numerous campaigns and initiatives for the general public as well as various programs and projects addressed directly to students.

Educational programs for schools

The "Plastek and his magic box" project (operating since 2011), targeted at primary school students, promotes knowledge of plastics and proper environmental behavior. As part of the program schools are provided with free educational packages consisting of an experimentation 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 2011-2014, the Foundation handed over a total of nearly 800 sets of educational packages and conducted 35 training courses all over Poland, reaching approx. 38 thousand students. The "Plastek" program generates an enormous amount of interest not only among teachers and methodology advisers, but also among children, who extensively participate in the Plastek's drawing competition, which is an integral part of the project.

In 2014, a book was prepared "Plastics - Modern Materials", which provides all the basic information relating to plastics: from chemical structure of plastics to their applications, processing and ecological aspects. Designed primarily as a teaching aid for secondary school



Implementation of the "Plastek and his magic box" program in years 2011-2012-2013-2014

- Płock, Tarnów, Włocławek, Oświęcim
- Warsaw, Cracow
- Poznań and Wielkopolskie province
- Suburban districts around Warsaw
- Chełm and Lubelskie province
- Wrocław, Środa Śląska, Łomża, Lublin, Poznań

teachers, it makes it possible to supplement the knowledge of plastics, also for other interested parties. The textbook will be available together with experimentation kits - examining the properties and identification of plastics.

Cooperation with educational centers

In 2014, the Foundation cooperated with an educational center Humanitarium Experimental Gardens that operates within the area of EIT+ Wrocław Research Center implementing the "Plastek and his magic box" program. In the Copernicus Science Center in Warsaw, within the framework of the annual "Chemistry Day" organized by BASF, the Foundation conducted chemical workshops for the visitors with the use of experiments from the "Plastek" program. In addition, the Foundation participated in the Copernicus Science Center project for teachers entitled "Copernican Revolution" that comprised 10 workshops under the slogan "Teacher Discoverer - Plastics". The four-hour workshops were devoted to modern applications of plastics and ecological aspects relating to their application. Teachers were offered an opportunity to conduct several experiments illustrating the properties of plastics. Foundation experts co-created scenarios for the workshops, trained animators from the Copernicus Science Center and co-conducted seminars for teachers. Since 2010, the Foundation has been providing substantive support to the www.eko-fani.pl educational portal, which publishes among others information on the role of plastics for sustainable development and environmental protection.

Joint educational projects

Within the framework of the FuturEnergia European project for youth, a conference attended by students and teachers was held in Białystok under the title "The Solar Impulse and Our Dreams" dedicated to saving energy and protecting the climate. An expert working for BayerMaterialScience presented to the youth the assumptions and achievements of the Solar Impulse project – a flight around the world by airplane powered only by solar energy and a representative of the Foundation delivered a lecture on the importance of polymer materials for the development of state-of-the-art technology, taking into account these materials' role for energy saving and climate protection.

Besides this, PlasticsEurope Polska actively supports CSR projects implemented by Polish member companies. Among others, within the framework of the BASF program conducted in Środa Śląska, local schools were provided with "Plastek and his magic box" educational packages and trainings were carried out for teachers to prepare them for work with the set including elements of ecological education in the field of plastics. In addition, an expert of the PlasticsEurope Polska moderated a final debate during an annual competition for upper secondary schools of the Płock region, organized by Basell Orlen Polyolefins within the framework of "Earth Days".





Multi-dimensional protection

In the field of medicine as well as protection and safety, plastics enabled the discovery of many breakthrough inventions.



Multi-dimensional protection

The issue of consumer protection in the context of application of plastics may be understood in many ways. On the one hand, there is comprehensive protection which plastics provide to its users and consumers 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 are indispensable 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 the media more and more often. The PlasticsEurope Polska Foundation participates in this debate, presenting recognized scientific arguments with the use of extensive expert knowledge available at PlasticsEurope. In our opinions presented to the Polish authorities,

Tworzywa sztuczne chronią cenne zasoby wody



Nowoczesne rozwiązania z wykorzystaniem tworzyw sztucznych zapewniają łatwy dostęp do wody, skuteczne jej oczyszczanie i efektywne wykorzystanie.

Według Światowej Organizacji Zdrowia (WHO) ponad 1 miliard ludzi na całym świecie nie ma dostępu do czystej wody pitnej.

www.plasticseurope.org

Tworzywa Sztuczne

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) give grounds to claim that plastics and products made of plastics are safe both for consumers and the natural environment. The foundation also points out the fact that 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.

Packaging may serve as an example. In the EU plastics are used for packaging of more than 50% of products, though packaging made of plastic constitute only 17% of the weight of all packaging. Owing to innovative technologies, the use of natural resources decreased significantly (e.g. currently 70% less plastics are used for the production of plastic bags than in the 1980s). Plastic packaging is very light – compared to packaging made of other materials, which

translates into lower costs of transport and lower consumption of energy and natural resources. Moreover, owing to their properties, plastic packaging extend food freshness and ensure a protection barrier against germs, moisture and UV radiation, and what is more, they protect against mechanical damage. The use of plastic packaging significantly reduces food losses and wastage. This means not only ease for consumers but - what's equally important reduction in the carbon footprint for the consumer sector.

Reasonable use of resources – towards circular economy

> Only 4% of the global oil production is used for the production of plastics



Waste management in Poland after legal changes

Since the beginning of 2013 a new waste law, which transfers the liability for municipal waste management to municipalities, has been operating in Poland. As per the assumptions, it was aimed at leading to waste management rationalization and the increase in the amount of waste intended for recovery as well as significant reduction in waste storage. An additional objective was to decrease environmental contamination caused by illegal storage (unauthorized dumping areas) and inadmissible burning of waste e.g. in home stoves. Administrative submitting of all households and companies to the municipal waste management system was aimed at the achievement of the aforementioned objectives.

The first effects of the waste reform are both positive and negative. The positive ones include the increase in social awareness as regards the necessity of waste management. A common obligation to pay a fee for waste management and public discussion on the changes in the waste management means that a growing number of people are interested in the principles of waste management in their neighborhood. Negative aspects include the confusion on the market and, in effect, breaking the cooperation bonds e.g. between companies collecting and sorting waste and recyclers, as well as excessive pressure on the reduction in prices for waste management services, which involves the reduction in the quality of recycled materials. As a result of these unfavorable phenomena, plastics recyclers experienced a lower supply of good quality raw materials of domestic origin. It seems that these negative reactions of the market in the first period after the implementation of the new principles are being currently slowly corrected - e.g. the growth in offered prices at tenders for waste management is noticeable. A great problem of waste management is the lack of effective control on the part of administration authorities, both local and central ones. A dysfunctional waste management reporting system, resulting in the lack of reliable data, contributes to this problem.

Due to the imperfection of the reporting system and lack of cohesion of published data, the Foundation analyses any available statistical data, including publications of the Central Statistical Office and environmental reports sent by economic entities to Marshal Offices in all provinces, on a regular basis. These analyses, supplemented by direct contacts with municipalities and entrepreneurs from the waste and recycling sector, are used to estimate the actual level of plastics waste management in Poland, which currently – in the period of comprehensive implementation of the waste management system reform - is particularly important. The Foundation analyses show that plastic waste recovery in Poland is still at a low level and half of the generated plastics waste is landfillled. The results of the Foundation work are consulted with the European experts as part of an exchange of experiences within PlasticsEurope working groups, and with a specialized company – Consultic, which has been carrying out research, at the request of PlasticsEurope, concerning the recovery of plastics from post-consumer waste in all European countries. The collected data (recent data on page 34) are presented at industry meetings, within the framework of relations with state administration and published in the annual reports of the Foundation.

Circular Economy

The development of an economy based on the linear principle of "take, use and throw away", of which the European economy may be considered an example, is at risk in the medium- and long-term perspective due to limited availability of natural resources in view of the growing demand. Following the idea of departing from this model of economy, the European Commission presented in July 2014 a package of draft legislation amendments called "Towards a circular





Let's stop the landfilling of plastics



Plastic waste is a resource

PLASTIC WASTE IS A VALUABLE RESOURCE. Really? Really!

You can do a lot with plastics once they have become "waste".

An estimated 9.6 million tomes of plastics are still going to landfills in Surgoe every year, an amount prepresenting about som million barrets of all worth around 8 billion 6. Instead, these plastics should be either recycled line nep roducts or of that is not sustainable – used to produce electricity, heating and cooling for up to so million industrial products. The start of the start of the start of the industrial products. The start of the start of the start of the values of the start of the start of the start of the start of the values of the start of the start of the start of the start of the values of the start values of the start of the values of the start of the s

Improved waste management is also crucial to reduce the risk of littering. When it comes to marine litter in particular, plastic manufactures give priority to actions that prevent plastis from ending up as litter in the aceans. You can find out more about the Global Action Plan on Marine Litter under www.marinelittersolutions.com. The amount of plastics that can be sustainably recycled has increased in the last decades due to improved identification and sorting technology. While future technologies will further increase this potential, recycling is not advays the most suitable option for all plastics. This is why energy recovery must remain a vable option.

What YOU can do

- Stop the landfilling of recyclable and other recoverable waste in order to stimulate recycling
 Set ambitious but realistic EU recycling targets based on the current level of the best performing
- larger EU Member States. 3. Ensure that energy recovery remains a viable
- option for those plastics which cannot be sustainably recycled.

economy: a zero waste program for Europe". The term ...circular economy" is related to concepts aimed at the maximum use of the value of resources with simultaneous guaranteeing of sustainable use thereof, allowing the future generations to durably use the natural environment and its resources. The most significant draft amendments include the implementation of new, very ambitious levels as regards recycling and the change of methodology of calculating these levels. They would be set on the basis of data on waste and instead of the previously applied measurement at "input" to the recycling plant, the measurement at "output" is proposed. The European industrial organizations, including PlasticsEurope, are positive about the idea of reforming waste-related legislation, simultaneously indicating the necessity of implementing justified and achievable recovery and recycling objectives as well as the implementation of a realistic schedule of the achievement of the objectives and consistent implementation of already existing legislation. Many member states also indicated unrealistically high, new recycling levels, too short time for the package implementation and the necessity of performing a comprehensive feasibility study and analysis of effects of the package implementation, with the consideration of the specific nature of each state and waste management status.

For recycling and energy recovery

The discussion on the European Commission's "Circular Economy" draft legislation package fits into the dialog carried out by the Foundation with the stakeholders for a few years, on comprehensive use of the value of plastic waste and the European initiative of the plastic industry "Zero Plastics to Landfill". The Foundation participated in assessment of the package, both at national and European level and the position and comments of the sector were presented to the Ministry of Economy and the Ministry of the Environment.

Other important issues raised in the dialog with governmental administration include, among others, the ban on using light plastic shopping bags, new regulations on multi-material packaging and hazardous substance packaging as well as the possibility of considering alternative fuels as renewable energy sources. Special attention was paid to the necessity of introduction of a ban on landfilling of not only recycled waste but all recoverable waste, including energy recovery. The Foundation appealed, along with other stakeholders, to administration to maintain the ban on the landfilling of waste with calorific value exceeding 6 MJ/kg, which shall come into force as of January 1st, 2016. While participating in consultations for the preparation of the National Plan of Waste Generation Prevention, the Foundation emphasized, among others, the necessity of considering the principle of effective use of resources as a priority and accepting common application of LCA as the tool for assessment of environmental impact. Understated costs of collection and management of waste in tenders announced in 2013 for the management of municipal waste in municipalities were indicated in the dialog with the Ministry of the Environment. In the Foundation's opinion, too low rates do not contribute to effective waste management.

In 2014, the RecyPlast Workshop project, aimed at the integration of the plastic waste recycling sector and the exchange of current information on recycling in Poland, came to its close. As a result of the workshops, a declaration of organizing the sector of plastics recyclers in the form of an employers' organization was made.

The Foundation also monitored, on a regular basis, the development of the sector of waste energy recovery, taking part in expert meetings organized for this sector. In Poland, by the end of 2016, 6 large waste-to-energy plants for municipal waste treatment will be built, which will significantly impact the reduction of the amount of





landfill-stored waste. Moreover, during numerous speeches, industry meetings and conferences organized by the ABRYS company and supported by the Foundation, expert knowledge on the value of plastic waste and best practices connected with the recovery thereof through recycling and energy recovery was shared. The Foundation also joined, as a subject matter partner, a Polish-wide information and educational campaign "Mission - emission" on low emission (burning waste at home). Educational and information materials on the harmfulness of waste combustion, including plastic waste, in house stoves, small boiler rooms and at open fire as well as on the necessity of proper management of plastic waste through recycling and industrial energy recovery for the purposes of the campaign were elaborated and distributed. The campaign was accompanied by a training conference for municipalities and two press conferences.

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Source: "Dymski kontra demony" cartoon

The "Marine Litter Solutions" Project

Freedom of choice means also your choice for the environment and your responsibility for the environment in which you live



From the kayak on recycling and plastic recovery

Littering of the seas is a serious environmental challenge and the fight against littering constitutes one of the priorities of the European plastic sector and its global partners. Announcing in 2011 the "Global Declaration for solutions on marine litter", the Global Action Plan regarding waste in marine environment was initiated and within the framework of this plan plastic industry organizations from all over the world now make an effort for better understanding of the scale of water environment contamination by plastic waste as well as its real impact on the ecosystem. These organizations conduct and/or co-finance scientific research and implement information and educational projects aimed at raising awareness of citizens on the necessity of correct waste handling. The Global Action Plan is currently supported by 60 plastics sector organizations and associations in 34 countries and since 2013 the Global Declaration has been included into the United Nations Environment Programme's Global Partnership on Marine Litter. More information on these issues is presented at websites: www.marinelittersolutions.eu and www.marinelittersolutions.com.

Within the framework of the "Marine Litter" European project, since 2011 the PlasticsEurope Polska Foundation has been conducting in Poland an educational project "Recycling Rally – let's recover plastics" together with the environmentalist and traveler Dominik Dobrowolski. The Recycling Rally 2014 edition was of special nature: it crossed the border of Poland for the first time and reached Berlin. The excursion was ranked as the event of the Year of Celebration of the 25th anniversary of the independence of Poland and the educational message of the campaign: "non-littering of the environment and the promotion of proper waste management" was supported with the patronage of the President of the Republic of Poland. The major objective of the campaign consists in information meetings at the successive stages of the journey with media and local communities and the topic of the meetings is common care for the cleanliness of rivers and shores. The route of more than 1000 km led through the rivers: Vistula, Brda, Noteć, Warta, Oder, Havel and the Betzsee lake and the meetings were held, among others, in Warsaw, Włocławek, Toruń, Bydgoszcz, Gorzów Wielkopolski and Kostrzyn nad Odra. Owing to cooperation with the German branch of PlasticsEurope, the ceremonial closing of the Recycling Rally 2014 action took place during the international European championships in kayak sprint at the Betzsee lake located at the suburbs of Brandenburg (70 km westwards from Berlin) which Dominik Dobrowolski reached through the Havel river two weeks after the start in Warsaw. Presenting the Recycling Rally project to the international public gathered at the competition, Dominik emphasized how important non littering in water environment on both sides of the border is, because "litter does not know borders and moving freely along rivers, it will finally reach the sea". At a specially created website www.recykling-rejs.pl and Facebook fanpage, pictures and reports on previous excursions may be found.





Energy saving, climate protection

Considering the entire life cycle, plastic is one of the most energy-efficient materials



Irreplaceable in climate protection

Care for the future of the Earth, in view of modern challenges such as climate change or energy shortages, is the driving force of the research for solutions which will contribute to the increase in energy saving and even more efficient use of natural resources, simultaneously protecting these resources, climate and the entire natural environment.

Plastics and the manner of the use of these materials in numerous applications in almost all fields of everyday life play an important role in the achievement of these objectives. Contrary to common belief, larger consumption of plastics translates into greater energy saving and lower greenhouse gas emissions. Specific research indicates that for very many cases the replacement of plastic products with products made of other materials would cause significant increase in the consumption of fossil resources and the increase in greenhouse gas emissions.

Therefore, extensive informing 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 the awareness of the importance and the contribution of the plastics industry in counteracting the effects of climate warming accompanies the decision-making process important for this sector.

The significant role of plastics in the achievement of goals for sustainable development can be seen in the example of 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 among others to the reduction in energy consumption and the construction of energy-efficient new buildings constitute some of the most important elements of saving resources and counteracting 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 of authorities with non-governmental organizations concerning environmental protection and climate. Last year, during the meetings



Ine low calloop economy is at the core of the UV's climate and energy agenda and sectors that rely on fossil materials such as the plastics industry are sometimes seen as an obstacle to those ambitions. Is this an accurate analysis? One should have a closer look at reality. Contrary to what one may think, plastics contribute to the rise of the low carbon economy. Thanks to their energy efficiency potential, plastics help save more energy than it takes to produce and recover them. For instance, with plastic pokaging, up to g times more C. demissions are saved during its use phase compared to those resulting from their production and recover.



Did you know? 96% of crude oil and gas goes directly into energy production for heating. transport and electricity

production for heating, transport and electricity. Only 4% is used for the production of plastics. of working groups of the Ministry of Economy and the Ministry of Environment, the methodology of environmental footprint estimation and new regulations concerning ETS mechanism and CO₂ certificate market, among others, were discussed.

In cooperation with other associations and organizations operating in Poland, the Foundation participated in working meetings concerning 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 the chemical industry (in cooperation with the Polish Chamber of Commerce and the Polish Chamber of Chemical Industry) as well as in the meetings related to the "Deep Thermal Modernization" project (in cooperation with the Institute of Environmental Economics).

What YOU can do

- Consider all life cycle stages of a product (production, use and waste) in order to understand its true impact on the environmer
- Accelerate renovation of buildings in Europe by increasing the overall annual renovation rate from 1% today to 3% by 2020.
- Promote lightweight materials when drafting new rules on CO₂ emissions from passenger cars.

Facts and figures

For over 60 years the global plastics industry has been constantly developing. From 1950 to 2014, the average annual growth was 8.6%





Source: PlasticsEurope Market Research Group

Manufacture and consumption of plastics

The Polish plastics industry has been steadily developing for several years. One of the reasons for this situation is the development of related industries, especially the packaging, the electrical & electronic equipment and the automotive industry. The demand for plastics in 2014 increased by more than 4.1% compared to the previous year and exceeded 3 million tons. This represents about 6.3% of the consumption of plastics in Europe and ranks Poland sixth in Europe, right below Germany, Italy, France, Spain and Great Britain.

The greatest amounts of plastics are used for packaging production (ca. 33%) and in the building&construction sector (ca. 27%), whereas 8.5% of plastics were processed for the purposes of the automotive industry (fig.). The total demand by type of polymer indicates the largest shares of polyethylene (LDPE, LLDPE, HDPE) - ca. 30%, polypropylene (18%) and polyvinyl chloride (14%), as well as polystyrene - PS and EPS collectively (14%). The manufacture of plastics in Poland includes: polyolefins (Basell Orlen Polyolefins), polyvinyl chloride (Anwil), polystyrene (Synthos), polyethylene terephthalate PET (Indorama), polyamide 6 (Grupa Azoty, Solvay), POM (Grupa Azoty), polyurethane systems (BASF, PCC Rokita), polyesters and epoxy resins (Lerg, ZCh Organika Sarzyna). All the leading global manufacturers of plastics operate in Poland through their local companies.

The structure of the plastics industry

The plastics industry in Poland consists of manufacturers of plastics in primary forms, manufacturers of mixtures and composites (compounders) and plastics processing companies (manufacturers of marketable plastic products). These companies employ 140 thousand employees (fig.) in total, contributing with a 10% share to the employment in the entire industry in Europe. The total sales of these two segments (manufacture of plastics in primary forms and processing) in Poland are estimated at ca. 15.6 billion €. The plastics industry in Poland also includes manufacturers of equipment for processing of plastics, representatives of the supply chain (importers, distributors, wholesalers) and recyclers of plastics.

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 the building&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 the group of products for the packaging industry, automotive industry and home appliances & consumer electronics industry. Long-term analyses based on the example of the manufacture of products from plastics and rubber reveal that over the



The structure of the plastics industry in Poland (2014)

Source: PlasticsEurope Market Research Group



Plastics - export / import (kt)



Plastics products - export / import (kt)

past 15 years (2000-2014) the production has tripled, despite a slowdown during the 2008-2009 crisis.

The manufacture of plastics in primary forms, both in Poland and Europe in general, has remained at a stable level for a couple of years, with barely visible deviations. An adequate indicator of possibilities and the industry's potential in Poland is the demand for plastics per capita. It is now about 80 kg, whereas the European average exceeds 95 kg and in certain countries reaches 200 kg per capita.

Export - import

Because of its insufficient plastics manufacturing capacity Poland has to import large quantities of plastics. An excess of imports over exports in 2014 was about 1.6 million tons. Poland also imports plastic products, and the total deficit in international trade has been steadily increasing; now, it exceeds 3.6 billion €. For many years, Germany has been the main business partner of Poland in intra-Community trade of plastics in primary forms and of plastic products. As far as non-European countries are concerned, our greatest export markets are Russia (plastics in primary forms) and Ukraine (products) (fig.).

Innovative materials and industry

Recently, production capacity of plastics processing companies has been steadily increasing and the processing techniques being implemented are often the leading ones in the entire world. In order to maintain this dynamic growth, Poland has to focus on an innovation-based economy much more. Statistics related to R&D expenditures show that Poland is at the very bottom of the ranking. It is necessary to rapidly increase the amount of resources for R&D, especially in the plastics industry. According to sector analyses, among all the chemical industry sectors it is the manufacture of plastics and plastic products that benefits the most from long-term R&D investments, which make the entire industry more competitive. Comparing expenditures on such activities, the plastics industry does not rank very high among other industries in Poland, although the Central Statistical Office of Poland claims that all the capital expenditures in the plastics and rubber processing industry are on quite a high level of ca. 4% of the sales in the industry (fig.), and the direct international investments in the last few years achieved a level of ca. 300 million € annually. In Europe, the plastics industry is one of the five most innovative industry sectors - it generated 4% of all the patent applications from 2003-2012. Innovative plastics have revolutionized the contemporary lifestyle and have provided solutions that a couple of years ago would have been unimaginable. New materials and techniques mean not only increased quality and safety of life but they also positively impact the sustainable development, saving energy and increasing the efficient use of natural resources.



Capital expenditures in the plastics industry in Poland.

Source: Central Statistical Office of Poland, own study of PlasticsEurope Polska



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

Management of plastic waste

In 2014, Poland generated ca. 1.54 million tons of plastic waste: 25% of this amount was recycled, 19% was used in energy recovery and the remaining 56% has been landfilled. Comparing these data with the last available ones (i.e. for 2012), it is clear that little has changed, particularly when it comes to landfilling of plastics. Therefore, landfill sites remain the main place where the majority of plastic waste is transferred. No positive effects of the Polish new waste management policy implemented since 2013 have been recorded yet. The guite inefficient selective municipal waste collection system is the main reason for shortages of materials for recycling. Moreover, irregularities in the implementation of the new laws have resulted in a decrease, instead of an increase, in the availability of recycled waste in some of the regions. PlasticsEurope Polska estimates that recyclers recover 390 thousand tons of plastic waste annually. The largest group of plastic waste is packaging (fig.) where recovery level is almost at 68%. Recycling of other streams of plastics waste: construction, vehicle & end-of-life vehicle and electrical & electronic equipment is much less efficient with respective recovery levels of 18%. 18% and 17%. In 2014 the recovery of agricultural waste (mainly through recycling) remained on a level similar to that of 2012 and it was 25%.

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About PlasticsEurope Polska

PlasticsEurope Polska, is a foundation which represents manufacturers of plastics in Poland associates 20 member organizations (2014) - 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., Bayer Sp. z o.o., Borealis Polska Sp. z o.o., Brenntag Polska Sp. z o.o., Dow Polska Sp. z o.o., Grupa Azoty S.A., Huntsman Poland Sp. z o.o., Krakchemia S.A., SABIC Polska Sp. z o.o., Solvay Chemia Sp. z o.o., StyroChem Finland Oy S.A. Przedstawicielstwo w Polsce, Styrolution Poland Sp. z o.o., Styron Europe GmbH Sp. z o.o.*, Ticona Sp. z o.o. Oddział w Polsce, Total Petrochemicals&Refining SA/NV S.A. Oddział w Polsce, Versalis International SA Oddział w Polsce, Z.Ch. "Organika-Sarzyna" S.A.

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

* in February 2015, the company changed its name to Trinseo Europe GmbH Przedstawicielstwo w Polsce

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