The pace of our life is ever faster – our lifestyle is changing, and so is our environment. None of us can imagine functioning without contemporary technical developments. **However, we must be aware of the threats for the natural environment brought by civilization development**.
From the ecology point of view, waste management, raw material recovery and reuse as well as safe neutralization become the key issues.

Let's be aware!

In the times of widespread use of all kinds of portable electrical and electronic devices, it is essential to be aware how important the appropriate waste management is. The disposal of waste electrical equipment, waste batteries and accumulators nowadays becomes a problem which cannot be ignored. Most batteries and accumulators used for powering electrical and electronic equipment have quite short lives, and frequently we are not aware of the hazards resulting from improper handling of waste batteries.
Batteries and accumulators as well as the devices to which they supply power may not be disposed of into general dustbins together with the so-called municipal waste. A crossed dustbin symbol reminds about it, which has to be placed by the manufacturers of batteries and electrical devices.

Non-observance of this ban is punishable by a fine. But, what is more important, inappropriate handling of waste turns them into a real threat to our life and health, and on the other hand, the opportunity to recover and reuse valuable resources is lost.

Why are batteries hazardous waste?
Inside batteries, complex chemical processes take place, employing toxic elements. A particular threat to the environment and human health is posed by heavy metals (including lead, cadmium and mercury) contained in batteries, and acids or bases forming the electrolyte, which have caustic and corrosive properties.
On average, one tonne of waste batteries contains 3 kg of mercury, 0.5 kg of cadmium and several kilograms of nickel and lithium.
In the case of battery and accumulator components, a great number of destructive effects on live organisms have been found.
Lead causes, among others, brain damage, kidney and gastrointestinal tract diseases, neuropathy and hypertension.
Mercury can cause massive environmental contamination and poison live organisms.
In humans it causes nervous system damage, kidney damage, respiratory failure, bone deformities and other conditions.

Cadmium impairs body processes, causing, among others, kidney damage, liver damage, osteoporosis, anaemia and carcinogenic changes.
Nickel damages mucous membranes, causes changes in bone marrow and can contribute to the development of cancer cells.
Lithium causes pulmonary oedema, damages nervous, digestive and cardiovascular systems as well as human skin (due to caustic properties).

The destructive effect of waste batteries on the environment is enormous. It is estimated that one small coin battery, used for powering, e.g. a watch, can contaminate 1 m^3 of soil and poison 400 l of water.

The obligation of selective collection and processing of waste batteries

Proper collection of waste batteries enables not only to neutralize toxic heavy metals, but also recover some of the raw materials as well as save the energy required to extract the elements necessary, among others, to manufacture new batteries.

The processing and recycling of waste batteries and accumulators can be subdivided into three phases:

- collection of waste batteries and accumulators;
- sorting, e.g. into lead-acid, nickel-cadmium and other batteries and accumulators;
- processing of individual types into appropriate material fractions and recycling of separated metals in plants.

Waste battery circulation diagram

Schemat obiegu baterii	Battery circulation diagram
Odbiór baterii przez firmę operatorską	Pickup of batteries by an operator company
Sortownia	Sorting plant
Posegregowane baterie	Sorted batteries
Zakład recyklingu	Recycling plant
Odzyskane surowce	Recovered raw materials

According to the statistics of the Chief Inspector of Environmental Protection, in 2014 ca. 3,710 tonnes of waste portable batteries and accumulators were collected. The achieved collection level amounted to 33.06%, while binding provisions imposed the obligation of 35%. These data strongly indicate that there is still a lot to be done as regards the society's awareness and motivation concerning the environmental

protection.

We are all responsible for the correct handling of waste. The selection and collection of waste, including hazardous waste, is our shared problem, and its solving requires support and involvement of the whole society.

In order to minimize the harmful effect of batteries and accumulators on the environment, a few basic rules should be followed:

- Always follow the operating instructions of a device.
- Purchases should be well considered. Before purchasing, make sure if batteries are necessary and if they are of a correct type.
- Use accumulators as far as possible. Accumulators can be repeatedly recharged which limits their number. Only devices with parameters indicated by the manufacturer should be used for charging.
- Batteries and accumulators should be stored at room temperature in a dry place.
- Do not store cells together with metal objects. It can cause short circuiting of the cell poles, and as a result its discharging.
- Do not leave batteries in an unused device for a long period of time.
- Do not use cells of different types in a device, or of the same type but partially discharged.
- Do not recharge primary cells which are not intended for that – it can cause the cell to explode.
- Do not throw cells into fire.
- Waste batteries and accumulators should be separated from other waste.
- Waste batteries and accumulators should be regularly delivered to special containers which can be found, among others, in shops and schools.

Selected legal regulations concerning batteries and accumulators:

- ACT of 24 April 2009 on batteries and accumulators (Journal of Laws No. 79, item 666 as amended)
- ACT of 14 December 2012 on waste (Journal of Laws 2013, item 21 as amended)
- REGULATION of the Minister of Environment of 3 December 2009 on annual collection rates of waste portable batteries and portable accumulators (Journal of Laws 2009 No. 215, item 1671)
- DIRECTIVE 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries
  and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC
- DIRECTIVE 2013/56/EU of the European Parliament and of the Council of 20 November 2013 amending Directive 2006/66/EC of the European Parliament and of the Council on batteries and accumulators and waste batteries and accumulators as regards the placing on the market of portable batteries and accumulators containing cadmium intended for use in cordless power tools, and of button cells with low mercury content, and repealing Commission Decision 2009/603/EC.

Volkswagen Group Polska Sp. z o.o., as an entity placing on the market electrical and electronic equipment as well as batteries and accumulators, is registered in the Chief Inspectorate of Environmental Protection under number E0011202WBW.