MONBAT®
GROUP

WHITE PAPER

All you need to know about the circular economy practices applied by Monbat AD

CONTENTS

Summary

This document – White Paper – summarizes in a clear and comprehensible way the policies and practices of Monbat AD related to the application of the circular economic principles to the operation of the Company. It gives an overview of all aspects of the activity by presenting in-depth information in order to meet the information needs of all groups of stakeholders. The document includes a great number of internal and external hyperlinks to ensure a compact and easy to read and review volume and format. There are infographics, diagrams and other visual materials attached to illustrate the most important information.

The role and specifics of this White Paper are not limited to providing well-structured and easily accessible information about the principles of Monbat's circular business model. Its purpose is to serve as a regularly updated document, i.e., to be updated with all novelties related to the activity and the impact of the company on the society, the economy of Bulgaria, the EU and the environment in general.

A major premise in Monbat's corporate policy is to uphold the hierarchy of sustainable development seeking to attain sustainable balance between social and environmental principles and aiming to ensure stable economic development. Similar to the majority of companies operating on a global scale, Monbat aspires to build efficient capacity and increase the human and corporate capital to achieve sustainability – thus, the sustainability specialists and expert teams (technologists, environmentalists, internal auditors, etc.) have already become part of the main structure of the company. A significant portion of the Group's profit is invested in the improvement of technologies aiming to reduce the pollution risk of recycling and battery production. Achieving a "close to 100%" recycling of waste lead-acid batteries is not merely a vision, but rather a strategy for the Group and its implementation involves synergistically all companies in the Group.

Business Profile of Monbat AD

The Monbat Group of companies produces starter and industrial lead-acid batteries[1] for transport vehicles, vessels, military equipment, telecommunication systems and installations for solar energy production. It is the biggest battery producer in the Balkans and the fourth biggest in Europe. The batteries produced by Monbat and its subsidiaries[2] are sold on more than 70 markets on 5 continents. The business of the Group follows afully vertically integrated[3] model, i.e., it includes the recycling of waste batteries, the production and the trade of new batteries.

Monbat is part of the pan-European sector for production of batteries that comprises 15 EU Member States and employs more than 20 thousand people. Data provided by the International Lead Association (ILA)[4] show that in the past 10 years these producers have invested more than EUR 2 billion in innovations so as to improve the characteristics and quality of the produced batteries and extend their lifecycle, thus reducing the volume of used batteries that account for hazardous waste. The sector is ambitious to reach by 2025 a net value of **EUR 250 billion per year**[5] at the market of competitive and sustainable energy solutions related to the production and use of batteries.

70+ markets

5 continents

Vertically integrated business model

Part of the pan-European sector of battery production

15 EU Member States

20 000+ employees in the sector

More than **2€ млрд.** billion investments in innovations *(for the past 10 years)*

1 See the full product range of the Group
2 See the corporate structure of the Group
3 More about the vertically integrated business model
4 More about the work of the International Lead Association (ILA)
5 This is the goal set by the European battery industry/ EBA

Furthermore, in the end of January 2021, the European Commission approved of additional EU aid[6] at the amount of **EUR 2,9 billion** for public investments in the battery production sector, targeted to support research and innovations across this strategic value chain. The project covers the entire ecosystem in the context of circular economy – from the supply of raw materials, through the production of battery cells and packages, to the recycling and production of secondary raw materials. The EU support is expected to channel in additional investments of **EUR 9 billion** from private investors, or the project will pool a total of **EUR 12 billion** for the development of the battery production sector.

The vertically integrated business model of the Monbat Group includes four major functions across the entire supply chain – from the extraction of the raw materials for recycling, through the logistic processes for supply to the recycling facilities, the recycling process itself (lead and lead alloys and polypropylene), to the production and sale of batteries on the market. The premise behind this type of organization of economic activities is based on the principles of circular economy[7]. It is consistent with one of the main principles of industrial development in the EU, more specifically – the provision of affordable and sufficient volumes of secondary raw materials by way of recycling for the needs of the producers. The production and the options to make changes in the application and recycling of lead-acid batteries is an example of the most comprehensive and successful implementation of circular principles.

4 main functions

6 Official notification by the EC of 26.01.2021
7 More about the current objectives of circular economy in the EU

Implementing the principles of circular economy

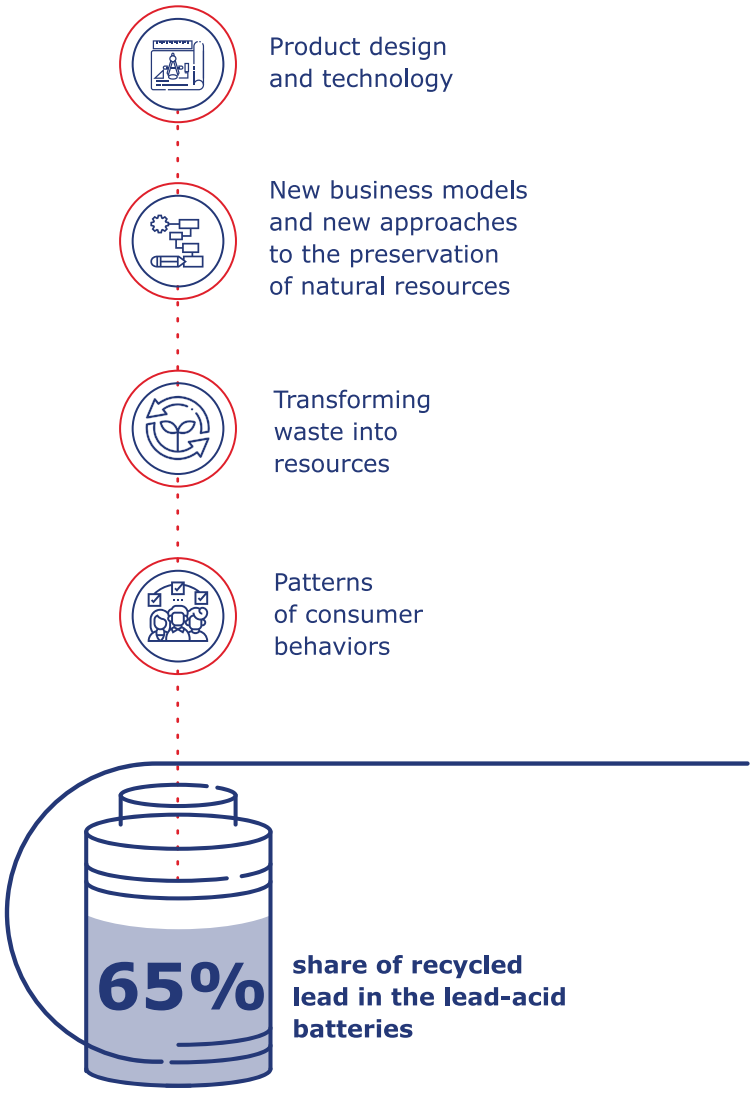
to the production, application and recycling of batteries – the example and experience of Monbat AD

Brief overview

The further development of circular economy as a leading economic principle for Monbat Group depends not only on the legislation and public support, but primarily on the mobilization of private capital and financing, resulting in the efficient reusing of resources. The integration and sustainable development across the entire value chain leads to an improved predictability and quality of processes in all Group companies. The new requirements for the origin of raw materials and other supplies and the responsibility for their use as early as their release on the market till the end of the product lifecycle require new methods of monitoring and control over all material suppliers and all users and customers, which are to be exercised expediently and in compliance with the good business practice.

The primary goal of Monbat circular model is a systematic change – the company aspires to implement it across the entire supply chain and the entire industry. From the product design and technology, through the new business models and new approaches to conservation of natural resources (extending battery life[8] by 30-35% over the past 20 years), the transformation of waste into resources (recycling[9] as much as possible of the raw materials applied in the batteries) to the models of consumer behavior gaining wider acceptance – the entire industrial context has been steering in a direction followed by Monbat over the past 21 years already.

An objective overview of the company's activities shows that for the past 7 years it has already significantly exceeded the current average share of recycled raw materials used in the EU (about 65%[10]) and typically covers the minimum share to be required in the EU as from 2030 for recycled lead in lead-acid batteries produced domestically, which is 95% (in the high-level-of-ambition scenario)[11]. Furthermore, the lead-acid batteries have a price-driven and environmental advantage over the lithium-ion batteries, as the latter belong to Class 9[12] of the Dangerous goods classification for transport and cannot be transported by air.



8 According to data of the Consortium of Battery Innovations (CBI)
9 See the current Certificate under ISO 18001 issued to Monbat Recycling EAD
10 Based on data of Eurostat for the period 2012-2018
11 See draft Regulation of the European Parliament and of the Council on batteries and waste batteries repealing Directive 2066/66/EC and amending Regulation (EU) 1020/2019, p. 11
12 See existing classification of dangerous goods, p. 106

Battery production is very resource-intensive and once batteries become obsolete in the end of their lifecycle, they turn into hazardous waste, thus recycling appears to be the safest and the most cost-effective option for their disposal. The organization of chains for collection and safe disposal of used lead-acid batteries (both starter and industrial) and the organization of continuous flow process for the extraction of raw materials are necessary fit for the process of production by way of recycling. Furthermore, in the case of industrial batteries and batteries for electric vehicles, the principles of circular economy review recycling as the least preferable option, focusing rather on reusing or repurposing of batteries[13]. What is more, during the R&D process of new battery models, the engineers at Monbat strive to design the batteries so that recycling at the end of their life cycle could be as easy as possible.

Monbat is part of the integrated supply chain in lead-acid batteries segment in the EU, which is economically sustainable and produces recycled lead at the amount of **EUR 2 billion** per year. The technological development of all types of batteries and their sustainable production is among the strategic imperatives ahead of the EU and Bulgaria, in particular. This is conditioned by the rapid development of electric vehicles and their increasingly wide-spread penetration into the market, as well as their acceptance by users. Nevertheless, the main part of the motor fleet globally comprises of internal combustion engine vehicles, using two main types of starter batteries, both produced by Monbat and Start[14] – enhanced flooded batteries (EFB) and absorbent glass mat batteries (AGM).

The latter are used primary in the cars equipped with start-stop systems, regenerative braking systems and in motorbikes (due to vibration resistance). Also, despite the main application of lithium-ion batteries as traction system, all electric vehicles use 12-volt more powerful (AUX) batteries necessary for the normal and well-balanced functioning of the systems, not related to the traction system. It can be noted that the application of all types of lead-acid batteries in all types of motor transport vehicles remains unchanged, resp., the demand for these continues to grow as steady as the number of transport vehicles on a global scale. This further requires well-organized and efficient operating systems to pull them off use at the end of their lifecycle, following the example of **Monbat's vertical integrated model**.

On a European and global scale, the advance of electric cars and sometimes poorer demand for conventional starter batteries is compensated by the wider application of lead-acid industrial (stationery) batteries[15] in the industry, in the households, etc. The need for "stored" electricity produced from RES has increased the demand for efficient and sustainable batteries and entire systems of interconnected solutions based on various types of batteries, currently with a priority mainly on lead-acid batteries. The wave of the Fourth Industrial Revolution (Industry 4.0[16]) further prompts a wider use of such systems, due to their cost-effectiveness and good electricity generation capacities. The same holds true for securing of the 5G internet technology advance (with an average of 3 times higher energy consumption than 4G networks) with a reliable powersource, independent of the networks, which will require new equipment and additional energy supply infrastructure.

Based on World Economic Forum data, the global batteries production should increase 19 times to implement

13 See the main conclusions on reusing and repurposing of batteries
14 See here
15 See more on the range of industrial (stationary) batteries
16 See brief description

effectively the transition to a low-carbon economy[17]. Moreover, the development of the start-stop technology in ICE vehicles further contributes to the reduction of harmful emissions and the improvement of air quality. Estimates suggest that the global capacity demand for fixed and mobile applications will triple[18] – **from 4,67 terawatt-hours needed in 2017 to 15 terawatt-hours in 2030**.

The production of batteries is a process with high investment costs – for research and development, economically justified production, saturation of markets with products at a price affordable for all consumers and last but not least – their sustainable and safe storage and recycling at the end of their "life". Recycling of batteries is a collective term for tenths or even thousandths of technological processes, resulting in an economically justifiable process, in which the scrap obtains the qualities of viable raw materials to be used in production.

The advantage of Monbat circular model is related to its practical and financially efficient integration. The capacity to produce independently most of the materials and items needed for the end product are consistent with **the principles of ensuring 100% autonomy for raw material supplies from third parties (non-EU)**.

17 See here
18 See materials on the subject by ILA

Lead and lead alloys

Lead and lead alloys are among the main raw materials used at Monbat in the production process – they account for between 51 and 91% of the battery mass (the average share in the current product range of Monbat is 57%). It should be noted that lead is one of the best-fitted metals for recycling (with low losses and invariant quantities[19]), resp. it is extremely apt for creating circular economic cycles. The main raw material in the batteries produced by Monbat (between 90 and 100%) is **lead from secondary production**.

As early as 2000, Monbat launched and commissioned the first installation for the recycling of lead-acid batteries in Montana. The advantage of this activity comes not only from ensuring a sustainable and reliable source of the main raw material used in the production, but also from the fact that the obsolete lead-acid batteries can be utilized almost fully (between 96 and 98% of the battery mass). Thanks to this process no lead and lead alloys from discarded batteries leak into the environment and/or unscrupulous methods for lead extraction – e.g., separating the lead cells from the box and allowing electrolyte discharge into the sewerage system or directly into the environment. The economic and environmental effect of the investment has been immediate and tangible – in the period 2001-2003 the company produced new batteries using approximately 54% of recycled lead. Nowadays, 21 years later, the circular economic approach has become the main approach adopted by the Monbat Group, hence in normal supply of lead scrap the company is able to maintain the production process with own available lead (with 99,99 and 99,985% purity) and lead alloys (antimony and calcium) for a period from 15 to 30 days. The advantage of this type of raw ma-

19 See here

2000
recycling line for lead-acid batteries

2001-2003
The company launched the recycling line for lead-acid batteries in Montana

2009 **Establishment of the subsidiary company Monbat Recycling EAD with maximum annual capacity for recycling of lead-acid batteries of 38 400 t**

2010 **Launch of a recycling plant in Serbia with maximum annual capacity 38 400 t**

2011 **Launch of a recycling plant in Romania with maximum annual capacity 38 400 t**

2017 **Acquisition of Piombifera Italiana S.p.A. – the third-biggest Italian company for recycling of batteries with recycling capacity of 70 thousand t per year**

The total maximum capacity of the recycling installations operating in the 4 countries is

185 200 t
of waste batteries.

terials supply and independence from external supplies is that it meets the future EU requirements in advance[20] as for the required share of recycled raw materials in finished products and the autonomy from external supplies of primary raw materials.

Also, in the past 21 years the company has been constantly expanding and upgrading this segment of activities. The main portion of the lead used in the production of lead-acid batteries is purchased by the subsidiary company Monbat Recycling EAD (established in 2009) with a maximum annual recycling capacity of 38 400 t of waste lead-acid batteries, and the other recycling entities in the Monbat Group operating abroad (see below).

Recycling plants have been successively acquired in Serbia[21] (in 2010, with annual maximum capacity 38 400 t) and Romania[22] (in 2011 – annual maximum capacity of 38 400 t of lead and lead alloys). The decisive step towards full vertical integration was taken in 2017 with the acquisition of Piombifera Italiana S.p.A.[23] – the third-biggest Italian company for recycling of batteries with recycling capacity of 70 thousand t per year. The total maximum capacity of the recycling installations operating in the 4 countries is 185 200 t of waste batteries. It should be noted that the capacities indicated above are related to the potential recycling capacities, while in practice they are used in compliance with the applicable integrated permits under the regulations of Industrial Pollution Prevention and Control (IPPC)[24].

The integration across the value chain stages and the capacity expansion[25] is a recurring strategic line followed by the market players. The main reason for this is that the big companies aim at closing the cycle in the most effective way possible and therefore produce both batteries and the main raw materials needed for them.

This vertically integrated model has an impact not only on the cost-effectiveness, but also on the other components of sustainable development:

☐ Saves extraction and processing of new raw materials.

☐ Prevents the discharge of lead and electrolyte in the environment.

☐ Guarantees a transparent and easily traceable process from a financial point of view[26] at any stage of the recycling process.

☐ Allows the regulation and control over the recycling process across the entire supply chain and prevents the "scattering" of responsibility for the compliance to environmental standards. [27]

☐ Creates employment in regions with unstable or low economic activity for groups of the population who are in need of stable employment with additional social benefits.

The demand for lead-acid batteries, resp. of raw materials for their production, has been on the rise. The increase is due to two major factors – the increase in the number of motor transport vehicles in countries in a phase of economic growth, as well as the use of renewable energy sources (the batteries are necessary to "store" the produced energy, see hereinabove). The

20 See draft Regulation of the European Parliament and of the Council on batteries and waste batteries repealing Directive 2066/66/EC and amending Regulation (EU) 1020/2019, p. 11
21 See here
22 Ibidem.
23 See here
24 See here
25 See here
26 See here
27 See here

batteries contain a significant volume and weight of lead components –solid lead or lead oxide in a powder form. Hence, the main common priority for the operators of recycling facilities, the producers and institutions in the EU, is to provide sufficient and reliable sources of secondary lead.[28] The Monbat Group does not make an exception as its standard and sustainable practice is to continuously increase the quantities of secondary lead and to optimize the processes for its recycling. The entire recycling process across the supply chain is strictly administratively regulated[29] – the import and export of lead scrap for recycling is carried out solely based on issued notifications by the competent administrative authorities (the Ministry of Environment and Water in Bulgaria) and its transport from the source to the destination point is controlled and recorded in the respective registers. An independent audit[30] of the processes at the Monbat Group companies in 2020 has ascertained that all necessary requirements are met and duly documented.

Additionally, lead-antinomy and lead-calcium alloys are produced in the process of lead recycling thus saving additional extraction of underground minerals and further energy load for their processing. Monbat Recycling has been also working on a separate project for recycling of tin from the used lead-acid batteries.

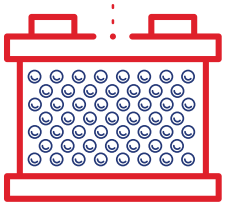
28 See more on the initiative of ILA on the provision of reliable supplies of lead and lead compounds
29 See p. 1-2
30 See the conclusions in the report of Wolf Theiss

Polypropylene

Polypropylene is the main material used in the production of the lead-acid battery boxes and other additional elements in them. Its unique qualities and adaptability to various manufacturing techniques make it an indispensable material for a vast range of industrial and consumer products. One of its main characteristics is that it can be used also as a plastic material, as well as a fiber (e.g., badge bands are made from polypropylene).

The risks of the material for the environment are related mainly to its slow degradability pace in nature – between 20 and 30 years. Quite often substances and compounds are included in the material as additives, which upon breakdown leads to pollution of water and soils. The major risk related to polypropylene battery boxes is the content of lead paste and sulfuric acid deposited on the material.

Monbat recycles 100% of the polypropylene (brand 7523) obtained from the utilization of used batteries in its own installations. The end product - polypropylene granulate – is used in the production of new batteries, whereas over the past 10 years the share of recycled polypropylene varies between 96 and 100%. The average annual **amount of recycled and reused polypropylene for the Monbat Group is about 2400 t**.



PP

Monbat recycles 100% of the polypropylene (brand 7523) obtained from the utilization of used batteries

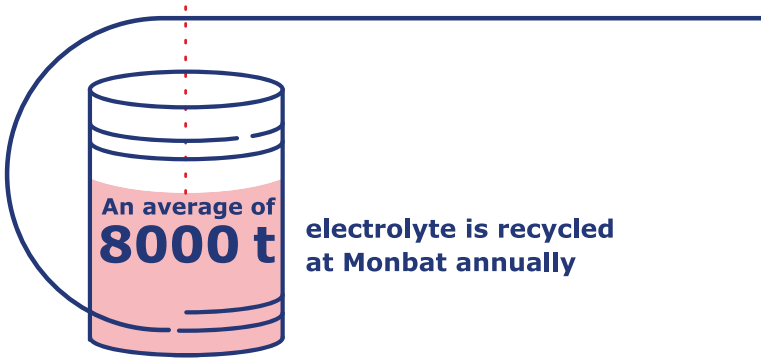
Electrolyte

Electrolyte is the liquid contained in the lead-acid batteries so they can operate as designed. It is a solution of sulfuric acid and water, which contains charged sulfate and hydrogen ions. It should be noted that the electrolyte in new batteries hardly contains any lead, lead compounds and sulfuric acid. The electrolyte contained in any obsolete and ready for utilization lead-acid batteries is a dangerous and toxic product, and its leakage into the environment may cause serious pollution and can be harmful to human health – the liquid contains a dangerous concentration of sulfuric acid and lead (in a waste battery) and its careful utilization is essential for the ultimate battery recycling. Two main approaches may be applied to the electrolyte:

- **Neutralization and converting it to a non-hazardous liquid that may be discharged into the industrial sewerage system;**

- **Processing of sodium sulfate (in powder form) to be used in the production processes for detergents, glass or textile.**

At Monbat's production facilities the electrolyte is processed into sodium sulfite, which is obtained also in the recycling of lead paste. On average per year, Monbat **recycles about 8000 t of electrolyte, for which there is constant demand and long-term purchase and sale agreements with detergent producers** (laundry and dishwashing detergents), glass and paper producers in Bulgaria and abroad.



electrolyte is recycled at Monbat annually

Water and Water Resources

Water is both one of the most valuable natural resources and one of the most important "production consumables" in the operation of the Monbat Group companies. The application of modern technologies to the treatment and recycling of water resources, the strict control and introduction of innovations in this recycling production segment are just as important in upholding the circular economic principles.

To secure optimal conditions for the recycling and production process, the following types of water resources are used on the production sites in Montana and Dobrich:

• Industrial water –supplied by the pumping station built for own account in Montana, Izvorska Bara (Parta) canal, by virtue of a Water Use Permit issued by Basin Directorate of Water Management – Danube Region for an amount of 390 thousand cubic meters (m^3). The main use of the industrial water is for:

☐ **Cleaning production halls**

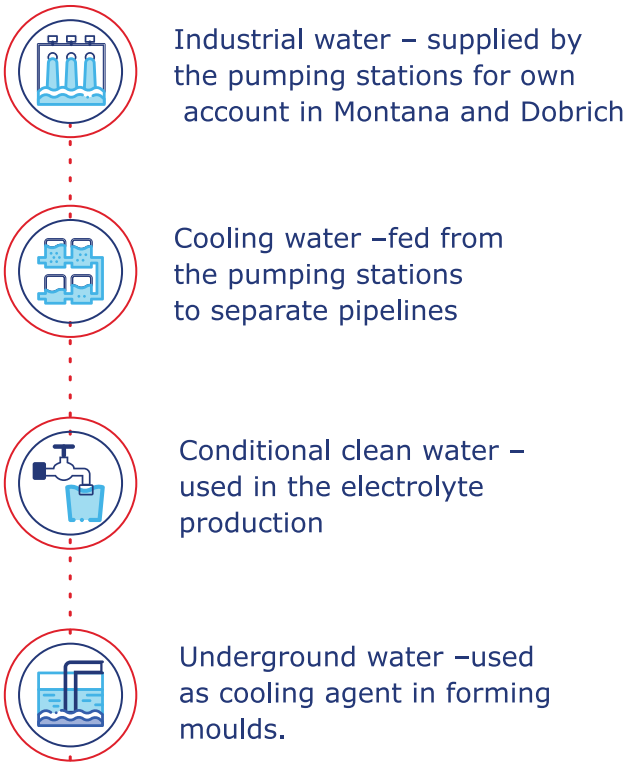
☐ **Sprinkling and washing thoroughfares and working sites on the territory of the production facilities in Montana and Dobrich**

☐ **Standard operation of the local wastewater treatment plants (LWWTP)**

• Cooling water – supplied by pumping stations along separate pipelines to the moulding shops of both production sites (in Montana and Dobrich).

• Conditional clean water – used in the production of electrolyte. To this end, Monbat AD and Start AD have contracts with water supply and sewerage operators in Montana and Dobrich under which they are to supply conditional clean water and there are no limited annual quantities.

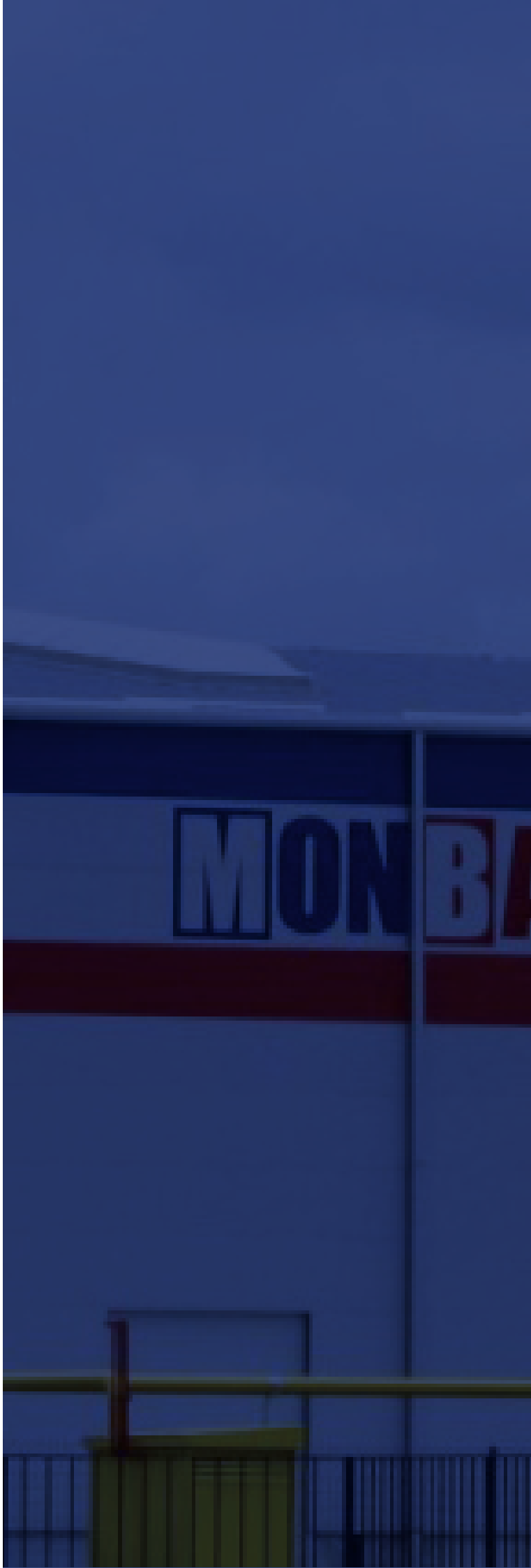
• Underground water – used as cooling agent in the forming moulds during the charging of batteries. At both production sites, in order to reduce the quantities of used water, the underground water is closed in the so-called "re-cycle" where it passes through the cooling system and is then directed towards the forming moulds. The water gets filtered through sand and fine filtering and is directed back to a reservoir on the plant site. Treated wastewater is used again for cleaning and sprinkling of the production premises and sites outdoors, as well as for irrigation of green areas.



There is a tube well built on Monbat's production site ("Tube well Monbat") for which a permit has been issued by Basin Directorate of Water Management – Danube Region with authorized annual volume of 189 216 m^3.

At the production site of Start AD, Dobrich, the water is extracted from own water source – a tube well (Tube Well Start-Dobrich) for which a permit has been issued as well by the Basin Directorate of Water Management – Danube Region with authorized annual volume of 78 840 m^3.

The reduction of water resources utilized for recycling is a major goal in the innovation projects of Monbat Recycling EAD. To this end, the latest technological solutions are mobilized and effectively implemented as to save water for the processes and/or reduce the volumes, which are difficult to treat for harmful fractions.



Industrial end-waste at Monbat

A relatively small portion of the mass and the volume of waste batteries is not subject to recycling – this is how the industrial end-waste is formed. There is no economically justified use for the waste so it is being handed over to companies licensed by the Ministry of Environment and Water (MoEW) and controlled by the Regional Inspectorate for Environment and Water (RIEW). The industrial end-waste includes:

Polyethylene separator - permeable membranes holding the positive and negative battery grids. These are placed and each grid is "packed" in a separator (hence their name). The main function of the separators is to separate the two electrodes and prevent short circuit, allowing at the same time other chemical processes to run through so the battery could function. The separators are critical technological components in the lead-acid batteries, because their malfunction harms the battery irreversibly. In fact, the most common mechanical reason for the battery "demise" is the leak of any of the separators.

The separators are made from a polymeric material (most often, in modern batteries this is specially treated polyethylene) so they acquire chemical and electrochemical stability in their functional environment – electrolyte and electrode materials. The structure and properties of separators have a major impact on the performance of the battery – power, lifecycle, safety, etc.

As far as the recycling of waste batteries is concerned, the polyethylene separator currently is not subject to economically justifiable recycling, therefore handed over to specialized companies for storage, as it is classified as a hazardous waste due to the residual lead content, lead compounds and electrolyte sulfuric acid. The mass of the separator after the waste batteries crashing is very low as compared to that of the other elements – after draining off the electrolyte, the separator dries up quickly and its mass would not exceed 2-3,5% of the total battery mass. Nevertheless, significant quantities of recycled batteries also create significant volumes of polyethylene separator which are to be duly stored in compliance with the requirements and recommendations of the regulatory authorities.

Waste batteries recycling companies seek technological solutions for dealing with the "end" status of this type of industrial waste in two major directions:

- **Physical and chemical treatment of the polyethylene separator up to the state of a non-hazardous waste, which may be safely stored and/or incinerated.**

- **Chemical treatment of the polyethylene separator, aiming the extraction of the silica compounds to be used in the production of new separators.**

The Monbat Group companies explore both areas, where the physical and chemical treatment project is managed by Monbat Recycling, while the innovative technology for extraction of silica compounds is developed by Italian subsidiary STC Srl. The latter is expected to be launched as a pilot project for commercial use.

The quantities of polyethylene separator generated annually from the recycling of waste lead-acid batteries at the production sites of Monbat Group in Bulgaria range between 300 and 350 metric tons (MT).

Slag from lead recycling. The slag is an end product in the primary and secondary lead industry generated from the smelting of lead and lead compounds. The build-up of large slag volumes from medium and large-scale lead recycling poses environmental risks that need to be addressed by coordinated effort of the institutions, producers of secondary lead and by the specialized licensed companies in charge of slag storage and/or treatment. Under certain conditions, additional valuable secondary raw materials may be extracted in further lead slag processing, i.e. silica, calcium, iron and zinc. After such processing the slag may be safely utilized in the composition of building materials, e.g., road pavements and in concrete mixtures, yet this type of processing (with geopolymers and glass ceramics) requires significant energy resources and has limited application.

Annually, Monbat's recycling production generates various quantities of lead slag in the first and second production cycle, hence in 2019 it reached 1596 MT[31]. Contracts have been signed for all volumes with licensed storage and/or treatment operators.

31 See RIEW-Montana. Annual State of the Environment Reports by operators – EEA (government.bg)

Transparency of applied principles and practices

In its capacity of a large-scale, public listed industrial company Monbat AD discloses information about all significant events, decisions and processes related to the application of the circular economic processes. The non-financial information disclosure helps the transition management toward a fully sustainable business model, which integrates the long-term profitability. The disclosure of additional information such as **internal information under Art. 17, § 1 in connection with Art. 7 of Regulation No. 596/2014 of the European Parliament and of the Council further contributes to the transparency and confidence of investors and other stakeholders**.

The Monbat Group publishes annually a Consolidated Non-Financial Statement[32], which includes important data related to sustainability (material, social and environmental factors) to ensure true, objective and comprehensive risk assessment and further promote trust by all stakeholders. The major premise of Monbat's corporate philosophy[33] is that sustainable development must be fully integrated into the structure of the company and its corporate values – ambition to excel expectations, flexibility, high quality and integrity. Monbat strives to ensure sustainable development, aiming at the three major target areas – business, company team and environment. The disclosure of non-financial information contributes to the assessment, monitoring and management of both performance results and impact on society.

Additionally, in the event of emergency situations, the company seeks independent risk assessment and options to reduce and/or eliminate the risks. The risks of possible adverse effects are assessed and solutions are sought to deal with them as soon as possible. In the case with the prosecutor investigation in May 2020, industrial end-waste (polyethylene separator) had been found to be unscrupulously stored by third-party companies contracted. In June 2020, the Board of Directors of Monbat AD appointed the international legal firm Wolf Theiss and assigned an independent audit[34] to ascertain the compliance of Monbat AD and its subsidiary Monbat Recycling EAD to the environmental protection requirements from a corporate point of view, regarding lead-acid battery recycling. The audit has found out that both companies have been maintaining a good level of organizational, documentary and operational measures in line with the complex permit and the requirements of the applicable legislation in the field of environmental protection and waste management.

32 See here
33 See here
34 See here

Legal framework and dialogue with the institutions

The business activities of all companies in the Monbat Group are subject to strict applicable regulation, requiring continuous and strict internal control, compliance with the legal framework of the Republic of Bulgaria and the EU and constant proactive dialogue with the institutions that apply the relevant laws and bylaws. More specifically, these are:

At national level:

- ☐ **Environmental Protection Act;**
- ☐ **Waste Management Act;**
- ☐ **Ordinance on batteries and accumulators and waste batteries and accumulators (promulge. SG No. 2/2013), etc.**

At EU level:

- ☐ **Directive 2008/1/EU concerning integrated pollution prevention and control;**
- ☐ **Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators (amended by Directive 2013/56/EU);**
- ☐ **Framework Directive 2008/98/EC on waste, amended by Directive 2018/851/EU;**
- ☐ **Regulation (EU) No. 1013/2006 on shipments of waste;**
- ☐ **Directive 2004/35/EU on environmental liability with regard to prevention and remedying of environmental damage**
- ☐ **Basel Convention on the control of transboundary movements of hazardous wastes and their disposal.**

Monbat holds and maintains the relevant permits for production and recycling of lead-acid batteries, whereas the most important is the complex permit No. 2-H3/2019. The company also applies a customized scheme of extended producer responsibility in compliance with the Waste Management Act.

In line with these legal requirements, Monbat has been providing regularly and/or upon request by the competent administrative authority detailed information about its activities and procedures and has been seeking partnership proactively.

Ways to solve the case of 2020-2021.

In the context of its constructive social responsibility, Monbat AD takes heed of the circumstances caused by third parties. The company is taking an active approach to eliminate the consequences by virtue of Art. 7, para. 2 of the Waste Management Act (WMA)[35]. The main principle in solving the issue is to take the approach of constructive responsibility in close partnership with MoEW, RIEW and the other responsible regional administrations in the regions where there are unscrupulously stored quantities of the industrial end-waste – polyethylene separator.

A "Program for reverse treatment of polyethylene separator" was presented to the attention of MoEW on 14.09.2020 whereas the company and its subsidiaries Monbat Recycling EAD, S.C. MONBAT RECYCLING S.R.L. – Romania and MONBAT PLC d.o.o. – Serbia explicitly stated their willingness to accept for storage and disposal on their own behalf and for their own account the industrial end-waste (polyethylene separator) – a total of 3590 metric tons (MT). After the clarification of

35 See here

all details, on 02.03.2021 Monbat AD and MoEW signed a Memorandum on the implementation of Art. 7, para. 2 of WMA under which the company undertakes to eliminate the consequences of the unscrupulous management of polyethylene separator handed over by third-party contractors licensed by MoEW and obliged to ensure reliable storage and/or recovery of industrial end-waste. The main elements of the program to be implemented so as to ensure the solution of the case include the following steps and activities:

☐ Investment in an installation for disposal (washing and separation) of polyethylene separator waste. After the procedure the two waste subproducts (polyethylene and ABS/acrylonitrile butadiene styrene) will be categorized outside the norms for hazardous waste and can be then stored as conventional waste, or will be incinerated risk-free in the incinerators at concrete production plants or by licensed incinerators. The project has been approved by the Board of Directors of Monbat AD and has been included in the investment program of the company and the finances for its realization have been secured.

☐ The capacity of the disposal installation will be used as a priority for the treatment of the quantities accepted by virtue of the signed Memorandum by mid-2022.

☐ Monbat will use its full agreed quota for recovery of polyethylene separators for 2021 in Germany under a long-term agreement signed with Ecobat/Muldenhütten Recycling und Umwelttechnik GmbH[36]. The commitment is to secure for own account the treatment of 300 MT within a two-month period of the issue date of the notification for waste transport.

☐ The full free storage capacity of 400 MT (as of March 2020) will be used at the site in Montana and up to 400 MT of polyethylene separator will be transported and temporarily stored for own account in compliance with Art. 7, para. 2 of WMA, pursuant to the recommendation of RIEW-Montana. Based on the recommendation specifically, the capacity will be used for temporary storage by 31.05.2020. The program was launched on 16.03.2021[37] with the withdrawal of 369 MT of polyethylene separator of unknown origin and generator from the Lakata area on the territory of the town of Cherven Bryag. The process was successfully completed on 01.04.2021[38] and the area was thoroughly cleaned from the wastes, which were transported to the site in Montana in compliance with WMA.

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In conclusion

This White Book is designed and developed as a dynamically updated document in which the Company wishes to provide most detailed and accurate information about its overall sustainable development policy, innovations and circular economy. The regular updates and their popularization aim to make sure that all stakeholders will be duly informed of all and any actions and activities.

Monbat has been developing and expanding the scope of the applicable circular industrial processes since 2000. The company and its subsidiaries are part of the European supply and production in the lead-acid starter and industrial batteries sector, which creates jobs, generates sustainable economic growth, and further contributes extensively to the reduction of the impact on the environment. Proof for the continuous and strict compliance with the legal framework in the Republic of Bulgaria and the EU are the results and conclusions from the regular and *ad hoc* inspections and audits of all processes and activities performed by the companies within the economic group. The audit of the supply chains further shows that the rules applied are very demanding and do not allow deviations from the required standards. All conclusions point to a high level of compliance and appositeness of all legal and regulatory requirements.

Monbat has assumed constructive responsibility in solving the case of the end-waste (polyethylene separator) handled by third parties, which has been found to be unscrupulously stored, and acted proactively in order to neutralize its unfavorable impact for both society and environment.