Stiftung
GRS Batterien

Annual Review

in accordance with
§ 15 (1) German Batteries Act

2020

Stiftung
GRS Batterien

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Foreword

2020 brought with it a fundamental change for battery take-back in Germany. Due to new legal requirements and compliance-related competitive disadvantages, the Stiftung GRS Batterien was forced to discontinue the hitherto successful solidarity system. As a newly approved collection scheme provider for batteries, however, it continues to fulfil its core mission.

Due to competitive costing requirements desired by the Federal Ministry for the Environment, since enshrined into law, it was necessary to reduce the collection rate to the legal minimum. The markedly strong reduction from 76.1% in 2019 to 46.6% in 2020 reveals that competitive costing in this industry is detrimental to the environment.

From an operational point of view, the changeover at the start of 2020 regrettably caused disruptions at many collection points and led to collection delays. Here, too, the reasons are primarily found in the German Battery Act (BattG) and its inadequate implementation. Following the discontinuation of basic disposal by GRS Batteries, the establishment of a procedure to connect collection points to the collection scheme providers was overlooked.

In addition, the operation of the battery take-back became considerably more difficult due to other external influences, not the least being the Corona restrictions.

Despite the negative development for the environment, we can look back on a commercially and economically successful year. As a result, the disposal cost contributions for all GRS users could be significantly lowered. In view of the favourable economic development, we are very optimistic about the future and would like to take this opportunity to thank you – our users and partners – for the trust you have placed in us and for your good cooperation.

Sincerely yours

Georgios Chryssos
Managing Director
Stiftung
Gemeinsames Rücknahmesystem Batterien
Hamburg, April 2021

Endorsement of Annual Review 2020

The Stiftung Gemeinsames Rücknahmesystem Batterien
Heidenkampsweg 44, 20097 Hamburg

measured the quantities placed on and collected from the market and presented these figures to ZER-QMS for auditing.

This annual review 2020 (version dated 14.04.2021) was audited using the supplied documentation and other random samples in compliance with § 15 para. 1 of the German Batteries Act (06/25/2009, in its latest amendment dated 04/13/2017).*

On the basis of the audit result, this version of the annual review 2020 is hereby endorsed

Nettersheim, Cologne, 30. April 2021

ZER-QMS GmbH **
Dr. Norbert Hüsgen
Environmental Auditor
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53947 Nettersheim

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The Stiftung Gemeinsames Rücknahmesystem Batterien
Heidenkampsweg 44, 20097 Hamburg

Based on an audit of the Annual Review 2019 of the foundation the following results are endorsed*:

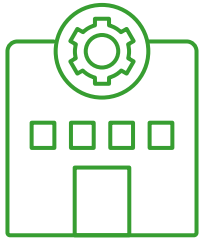
Batteries Act	Requirements	Result
§ 15 Para. 1 No. 1	Mass of batteries distributed by members in 2020	20,493,30 tonnes
§ 15 Para. 1 No. 2	Mass of waste portable batteries taken back in 2020	9,557,60 tonnes
§ 15 Para. 1 No. 3	Mass of waste portable batteries fed into material recycling in 2020	9,290,50 tonnes
§ 15 Para. 1 No. 4	Collection quota achieved by Stiftung GRS Batterien in 2020	46.6%
§ 15 Para. 1 No. 5	Recycling quota achieved by Stiftung GRS Batterien in 2020	97,2%
§ 15 Para. 1 No. 6	Qualitative and quantitative recycling and disposal results in 2020	traceable

* For details, please refer to report No. 2020 GRS dated 29.04.2021.

** Accredited by: DAU – Deutsche Akkreditierungs- und Zulassungsgesellschaft für Umweltgutachter mbH, Permit number: ZER-QMS : DE-V-0183

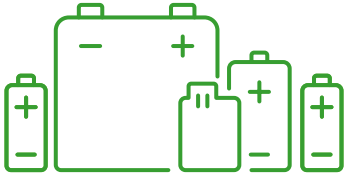
Documentation was done using Tables 1 and 2 published by the German Environment Agency in the Federal Gazette (BAnz AT B8 dated 22.12.2017).

Our Work in Figures



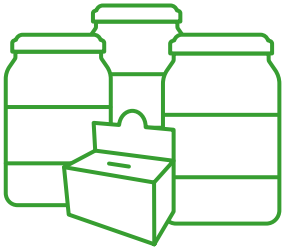
Users

> 4,400



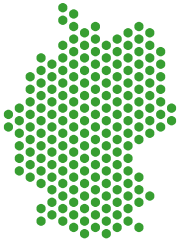
Placed on the market

20,493 t



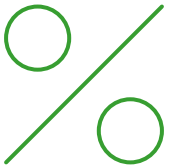
Collection quantity

9,557 t



Active Collection Points

> 15,000



Collection quota

46,6 %

Recycling quota

97.2 %

Our Foundation

With the establishment of the Stiftung Gemeinsames Rücknahmesystem Batterien in 1998, leading battery manufacturers and the German Electrical and Electronic Manufacturers' Association (ZVEI) laid the foundation for safe collection and recycling of batteries nationwide. With a constant focus on safety and quality, GRS Batterien has since made a significant contribution to the development of battery collection and recycling procedures and has set standards throughout Europe.

Until the end of 2019, the Stiftung GRS Batterien ensured the Germany-wide basic disposal of batteries with the "Joint Battery Take-back System" (according to § 6 of the German Battery Act, BattG) established by the Federal Ministry for the Environment. Since Jan. 1st 2020, the Foundation has been acting as a collection scheme provider (pursuant to § 7 BattG).

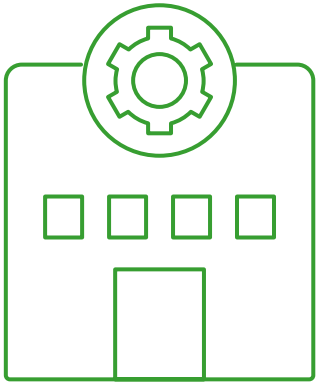
As such, we additionally fulfil the foundation's purpose as a non-profit company and fully meet the product responsibility of our customers. On their behalf, we take over legally prescribed product responsibilities, from registration to take-back and recycling of waste batteries.

GRS Service GmbH, a 100% subsidiary of the Stiftung GRS Batterien, handles the foundation's business operations. In addition to the take-back system for portable batteries, the portfolio of GRS Service GmbH also includes industry solutions for industrial batteries in the field of eMobility (small electric vehicles), Storage (stationary storage of, for example, solar power), Automation (small industrial batteries) as well as individual solutions for large industrial batteries, catering especially for large electric vehicles.

Our Customers

We handle the obligations under the German Battery Act (BattG) for over 4,400 manufacturers and distributors of portable batteries, such as those used in household, garden, telecommunications and similar appliances. They all rely on our decades of experience and our industry-leading safety standard, which includes solutions for the registration of damaged and transport-critical lithium batteries.

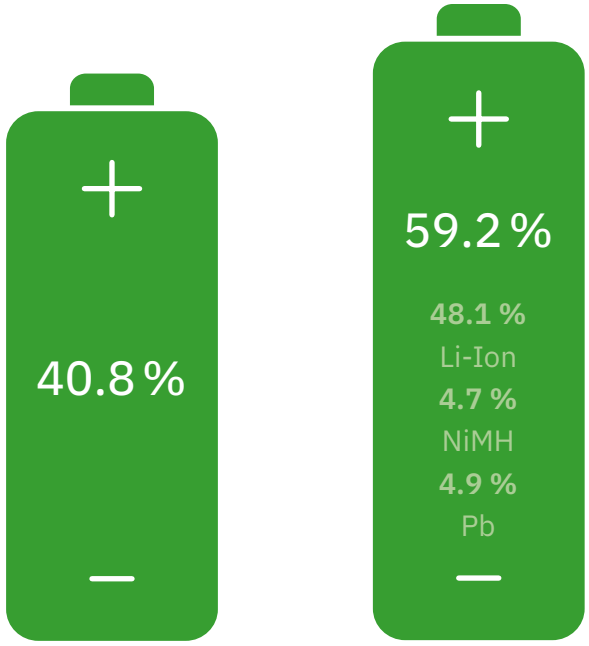
In addition to fulfilling state authority registration and reporting obligations, we also take care of the nationwide and proper take-back of portable batteries. After sorting, the waste batteries are recycled in proper recovery processes and valuable secondary raw materials are recovered.



4,400 +

Customers

Mass and percentage placed on market



Primary batteries

8,369 t

Secondary batteries

12,123 t

20,493 t

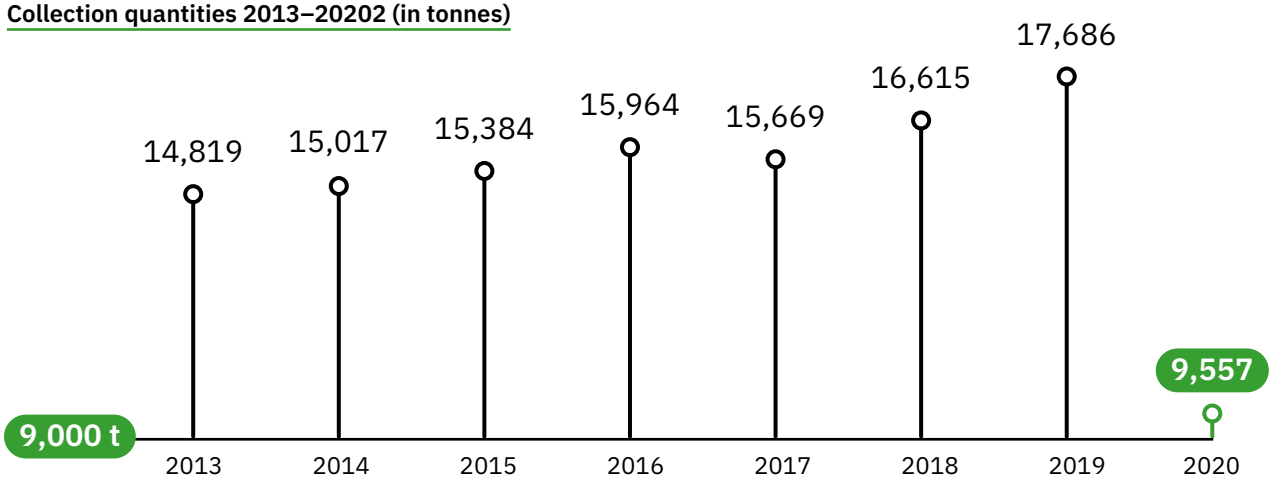
Placed on the market

Our Collection Results

The collection targets set out in the German Battery Act (BattG) increased from 35% in 2012 to 45% in 2016. The increase of the collection rate to 50%, effective as off 2021, can be seen as an intermediate step towards the collection rate of 65% planned for the whole of Europe in the future. Of importance in this context is the calculation method, which the Federal Environment Agency (Umweltbundesamt, UBA) defined in 2014 in the UBA-FAQ and in 2018 in a new guideline (cf. BAnz AT B8 of 22.12.2017).

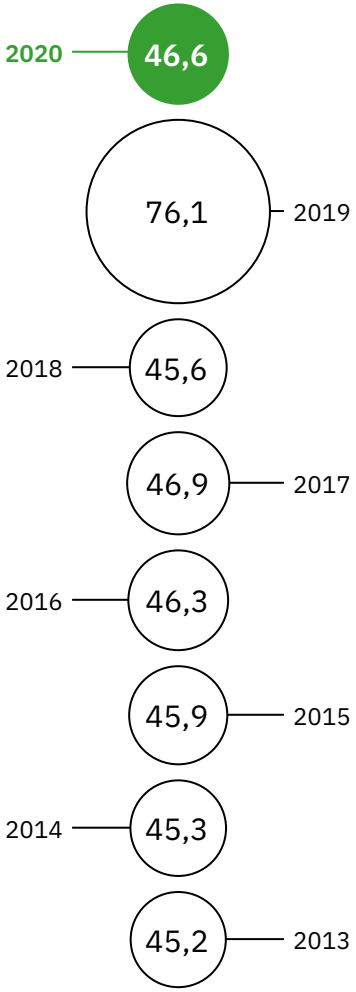
GRS Batterien exceeded the collection rate in all cases and was able to come up with the leading result of 76.1 % in 2019. The decline to 46.6 % is due to the cost competition and unequal treatment of the take-back systems as already stated above. Consequently, we had to reduce the collection volume of waste portable batteries taken back via the GRS collection network from 17,686 to 9,557 tonnes by weight for competitive reasons.

Collection quantities 2013–20202 (in tonnes)



Collection quota* 2013–2020 in percent

Statutory collection quota as of 2016: 45 %



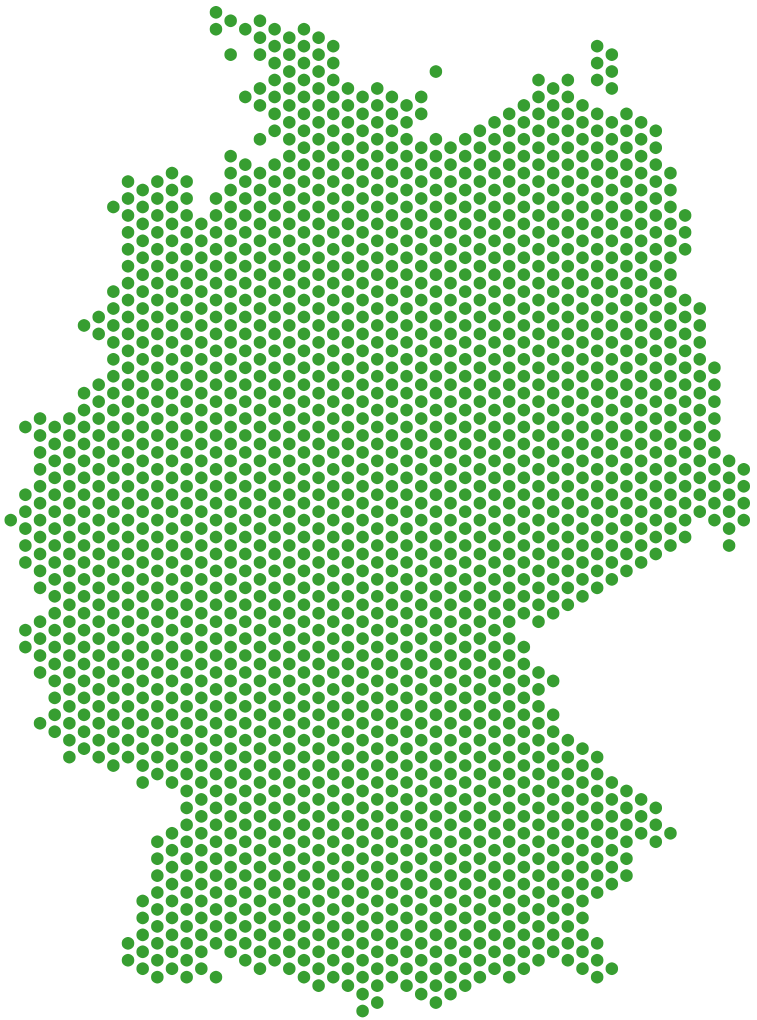
* Calculation method for the years 2014-2018 according to UBA-FAQ. Calculation method for the year 2019 according to UBA guidelines (BAnz AT B8 dated 22.12.2017).

Our Collection Network

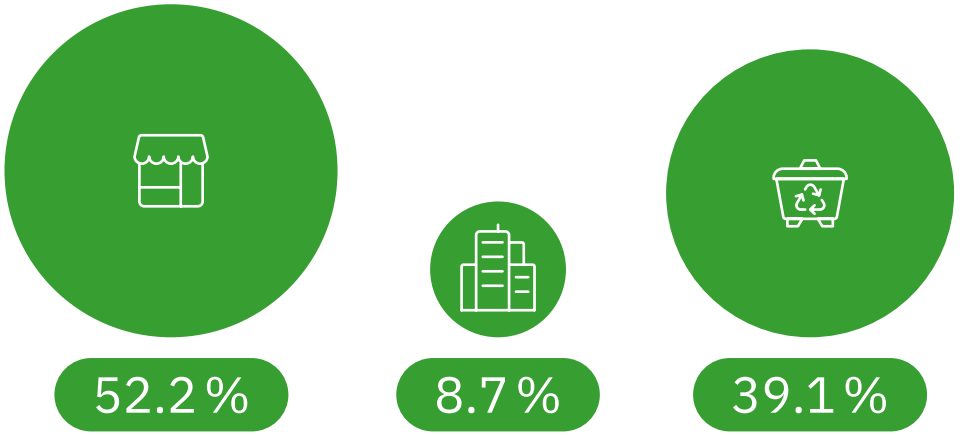
Batteries are collected via our nationwide network from thousands of trade-related, municipal and commercial end user collection points. On behalf of our customers, the GRS users, we supply the collection points with collection and transport containers and additionally ensure the safe collection of transport-critical batteries. To this end, we also provide, as part of our service offering, detailed information material and packaging instructions.

> 15,000

Active collection points



Mass of returned batteries by origin



52.2 % Retail

8.7 % Trades

39.1 % Municipalities

Total

9,557

Our Communication

This performance review is presented in a new layout, which, together with a new and improved online presence, is part of the revision of the GRS Batterien Foundation and GRS Service GmbH corporate design. Manufacturers, collection points, representatives of the press and, last but not least, consumers will benefit from clear and user-oriented navigation to find relevant information more efficiently.

The topic of safety in handling lithium batteries deserves special mention at this point. Irrespective of the safe collection, we see it as increasingly necessary to inform consumers about the correct handling of these literally incendiary energy sources.

The G2 Infoplatform, which emerged from the G2 project, continues to be an important instrument for consumer communication. Involved stakeholders—including public waste management authorities, consumer advice centers, educational institutions and distributors—can download and use suitable communication materials/content via the download portal.

Thanks to Stiftung GRS Batterien's initiative, all authorised battery collection schemes have launched the implementation of Section 18 BattG as part of a concerted action. To support this, a coordination and communication office will be set up before the end of the first half of 2021, through which the necessary communication and information measures are to be planned, coordinated and controlled. We would highly appreciate the adoption of the tried and tested concept on which the G2 Infoplatform is based.

Stiftung
GRS Batterien

Annual Review 2020

Annex

Mass and number of batteries placed on the market

Mass 2020		Tonnes	
Primary batteries			
Round cells	ZnC	1,225	6.0
	AlMn	6,074	29.6
	Zn-air	3	0.0
	Li	335	1.6
Button cells	AgO	69	0.3
	AlMn	157	0.8
	Zn-air	118	0.6
	Li	388	1.9
Subtotal I		**8,369**	**40.8**
Secondary batteries			
Round cells	AlMn	155	0.8
	Li-Ion	9822	47.9
	NiMH	965	4.7
	Pb	1003	4.9
	NiCd	128	0.6
Button cells	Li-Ion	43	0.2
	NiMH	7	<0.1
	NiCd	0	<0.1
Subtotal II		**12.123**	**59.2**
Total		**20.493**	**100.0**

Quantity 2020		Tsd, Stück	
Primary batteries			
Round cells	ZnC	67,317	7.4
	AlMn	295,867	32.5
	Zn-air	30	<0.1
	Li	13,097	1.4
Button cells	AgO	36,479	4.0
	AlMn	81,186	8.9
	Zn-air	148,127	16.2
	Li	113,893	12.5
Subtotal I		**755,995**	**82.9**
Secondary batteries			
Round cells	AlMn	7,281	0.8
	Li-Ion	75,349	8.3
	NiMH	40,941	4.5
	Pb	1,252	0.1
	NiCd	570	0.1
Button cells	Li-Ion	28,302	3.1
	NiMH	1,952	0.2
	NiCd	18	<0.1
Subtotal II		**155,665**	**17.1**
Total		**911,660**	**100.0**

BattG German Act governing the placing on the market, collection and environmentally compatible disposal of conventional and rechargeable batteries
Primary batteries Non-chargeable batteries **Secondary batteries** Rechargeable batteries
AgO Silver oxide **AlMn** Alkaline manganese **Cd** Cadmium **Li** Lithium **Li-Ion** Lithium ion **NiCd** Nickel cadmium **NiMH** Nickel metal hydride **Pb** Lead **Zn-air** Zinc air **ZnC** Zinc carbon

Mass of collected batteries by type group und system

Type groups		Tonnes[1]
Primary batteries		
Round cells	ZnC/Zn-air	354
	AlMn[2]	6,892
	Li	116
Button cells[2]	AgO	174
	AlMn	
	Zn-air	
	Li	
Secondary batteries		
Round cells	Li-Ion	945
	NiMH	286
	NiCd	509
	AIMn[2]	–
Button cells[2]	NiCd	
	Li-Ion	
	NiMH	
Small lead batteries		281
Total		**9,557**

1 Composition based on the results of sorting,
2 Where sorting was not possible, these results include both primary and secondary batteries,,

The mass of 9,5577 t returned batteries represents a collection rate of 46.6 per cent.

BattG German Act governing the placing on the market, collection and environmentally compatible disposal of conventional and rechargeable batteries
Primary batteries Non-chargeable batteries **Secondary batteries** Rechargeable batteries
AgO Silver oxide **AlMn** Alkaline manganese **Cd** Cadmium **Li** Lithium **Li-Ion** Lithium ion **NiCd** Nickel cadmium **NiMH** Nickel metal hydride **Pb** Lead **Zn-air** Zinc air **ZnC** Zinc carbon

Mass of recycled batteries: Qualitative and quantitative recycling and disposal results

		Mass of waste batteries fed into material recycling (t)	Mass of waste batteries disposed of (t)	Mass of waste batteries fed into material recycling outside the scope of jurisdiction (t)
Primary batteries		**(t)**	**(t)**	**(t)**
Round cells/ Block batteries	ZnC/Zn-air	5,402,2		1,942,9
	AlMn[1]			
	Li			
Button cells[1]	AgO	212,0		
	AlMn			
	Zn-air			
	Li			
Subtotal I		**5,614,2**		**1,942,9**
Secondary batteries				
Round cells/ Prismatic cells/ Block batteries	AlMn[1]			
	Li-Ion	312,0		447,9
	NiMH	302,9		
	NiCd	255,5		193,3
	Pb	221,7		
Button cells[1]	Li-Ion			
	NiMH			
	NiCd			
Subtotal II		**1,092,1**		**641,2**
Total		**6,706,3**		**2,584,2**

1 Where sorting was not possible, these results include both primary and secondary batteries.

System	Input mass (t)	Output mass (t)	Recycling efficiency (%)
Pb	221,744	144,1336	65.00
NiCd	255,5	203,13	79.50
„Other“	9,145,82	6,410,49	70.09
Subtotal	**9,623,06**	**6,757,75**	

Taking into account the annual storage figures carried forward, the recycling quota pursuant to § 15 (1) No. 5 BattG amounts to 97.2%.

BattG German Act governing the placing on the market, collection and environmentally compatible disposal of conventional and rechargeable batteries
Primary batteries Non-chargeable batteries **Secondary batteries** Rechargeable batteries
AgO Silver oxide **AlMn** Alkaline manganese **Cd** Cadmium **Li** Lithium **Li-Ion** Lithium ion **NiCd** Nickel cadmium **NiMH** Nickel metal hydride **Pb** Lead **Zn-air** Zinc air **ZnC** Zinc carbon

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