



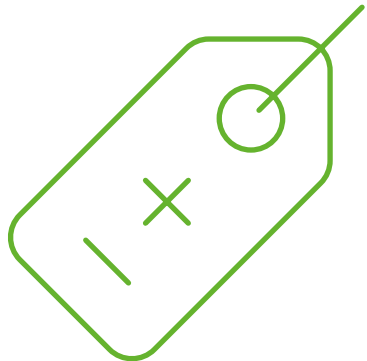
GRS Batterien
Service GmbH

www.grs-batterien.de

Annual Review 2021

GRS Consumer

in accordance with Section 15(1)
German Battery Act (BattG)





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Preliminary remarks

Battery manufacturers that have joined the GRS take-back schemes placed more than 31,000 t portable and industrial batteries that are used in private households on the market and fulfilled their legal take back obligations by means of GRS. The lion's share was accounted for by the respective manufacturer's own take-back scheme for portable batteries offered by Stiftung GRS Batterien.

By establishing new industry-specific take-back schemes for portable batteries, GRS Service GmbH intends to create an ever more efficient system for taking back batteries. Consequently, the foundation and the limited company can offer battery manufacturers and those who place batteries on the market take-back solutions that are specifically geared to customers' future needs. The schemes are sufficiently flexible to allow them to be adapted as required, whilst ensuring safe collection.

Furthermore, we can look back on a successful business year: we were able to significantly reduce the waste disposal costs for our customers, and look optimistically towards the future in view of favourable economic development.

We would also like to take this opportunity to thank you – our customers and partners – for your loyalty and good working relationship.

Sincerely

Dr Julia Hobohm (Cert. eng.)
Management Board
Gemeinsames Rücknahmesystem
Servicegesellschaft mbH
Hamburg, May 2022



Endorsement of the annual review 2021

GRS Service GmbH

Heidenkampsweg 44, 20097 Hamburg

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

The annual review 2021 (version dated 14/04/2021) was audited using documentation and other random samples provided in compliance with § 15 (1) of the German Batteries Act (06/25/2009 in its latest amendment dated 03/11/2020).*

On the basis of the audit result, this version of the annual review 2021 is hereby endorsed.

Nettersheim, Cologne, 27. April 2021

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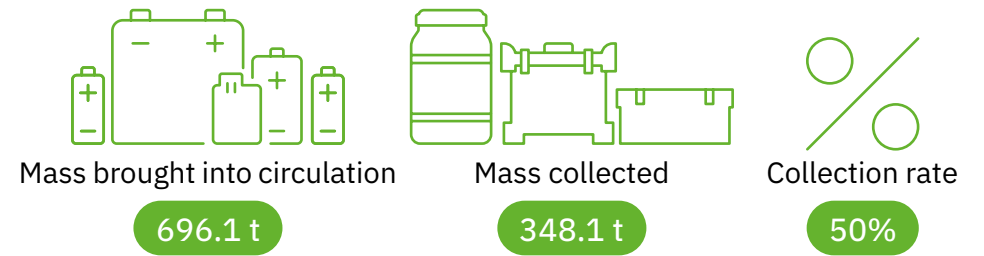
Based on an audit of the Annual Review 2021 of the foundation the following results are endorsed*:

Batteries Act	Requirements	Result
§ 15 Para. 1 No. 1	Mass of batteries distributed by members in 2021	696.1 tonnes
§ 15 Para. 1 No. 2	Mass of waste portable batteries taken back in 2021	348.1 tonnes
§ 15 Para. 1 No. 3	Mass of waste portable batteries fed into material recycling in 2021	348.1 tonnes
§ 15 Para. 1 No. 4	Collection rate achieved by GRS Service GmbH in 2021	50%
§ 15 Para. 1 No. 5	Recycling quota achieved by GRS Service GmbH Batterien in 2021	100%
§ 15 Para. 1 No. 6	Qualitative and quantitative recycling and disposal results in 2021	traceable

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

** For details, please refer to report No. 2021 GRS Service dated 27/04/2022. Above information based on Tables 1 and 2 published by German Environment Agency.

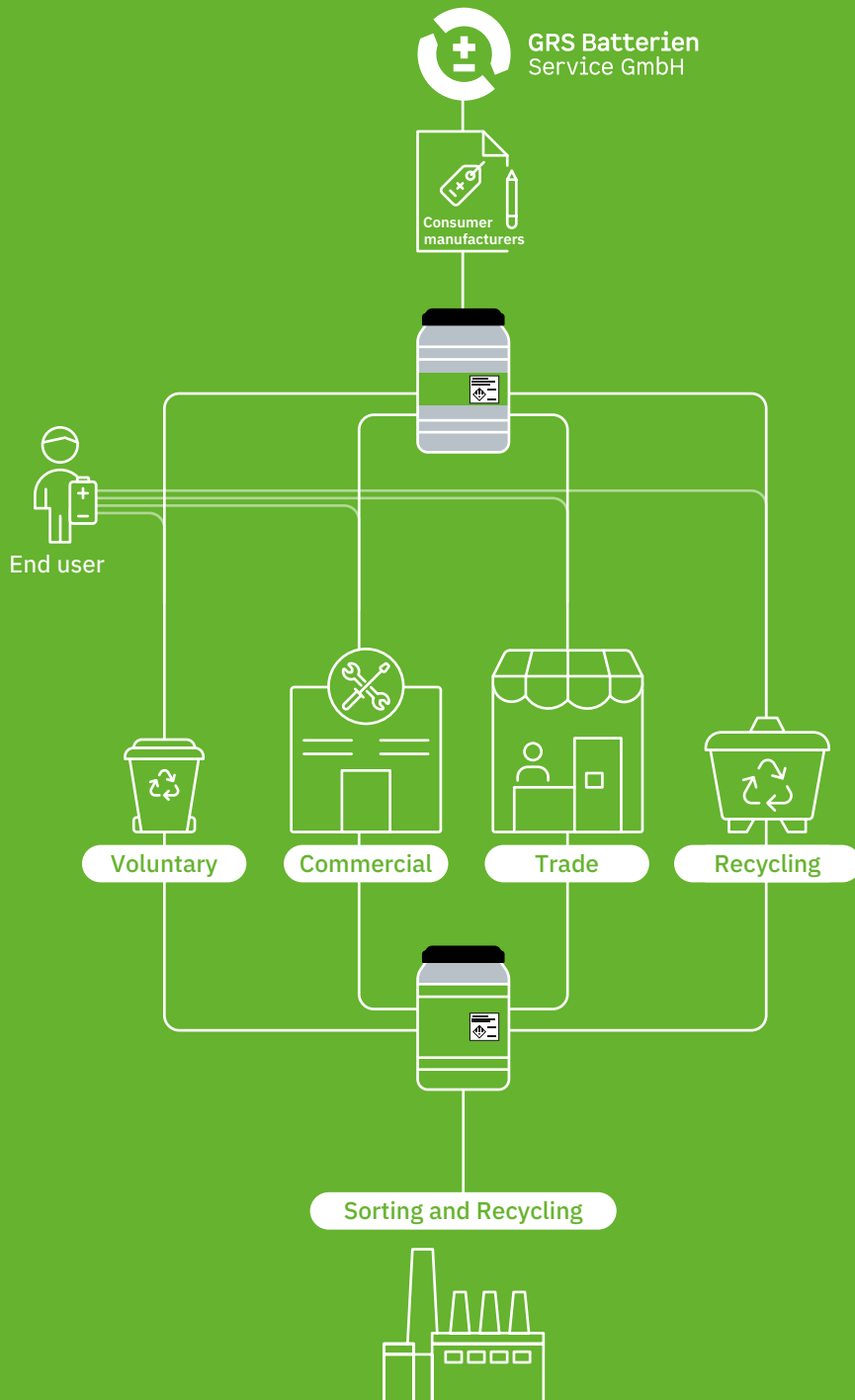
GRS Consumer – industry-specific solution



In 2021, we established four industry-specific solutions for waste portable batteries in order to target the needs of manufacturers and collection points for certain industries. In accordance with legal obligations, our schemes offer collection of waste portable batteries free of charge to all legally obligated parties and voluntary collection points.

The GRS Consumer industry-specific solution is aimed first and foremost at manufacturers of batteries, private label goods or small electrical devices containing batteries that are sold in shops and stores.

Our industry-specific solution is geared towards offering services that go beyond the basic statutory services pertaining to collection points: we wish to respond individually to the needs of all those collection points that have been set up by those manufacturers financing the system, or where their batteries are expected to accrue due to the typical return routes of end users. These are, for example, the branches belonging to the manufacturers or their customers, whose special requirements include lower minimum collection quantities, individualised containers or shorter collection cycles.





Manufacturers

The GRS Consumer take-back system was approved by the 'stiftung ear' with effect from 01.12.2021. The GRS Service GmbH assumes the duties for registered manufacturers in line with the 'BattG'. These include:

Section 4 Duty to Register Registration with the relevant authorities.

Section 5 Take-back Duties Proposal for taking back batteries applicable to distributors, public waste disposal entities, voluntary collection points and treatment facilities.

Section 14 Recycling and Disposal Guaranteed treatment and recycling of batteries according to the law, where the prescribed recycling efficiencies are achieved or exceeded.

Section 15 Efficiency Review Annual efficiency review to record the amount of batteries taken back and recycled, the amount collected and recycled as a percentage as well as the treatment results of waste batteries, which are either recycled or disposed of.

Section 18 Duty to Notify Information and methods of communication for distributors regarding legal information pertaining to end users.

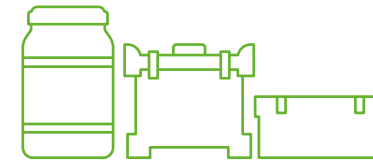


Take-back network

To meet the obligations associated with the take-back system, a sufficient mass of waste portable batteries was taken over from the manufacturers' own take-back scheme by Stiftung GRS Batterien.

Shortly after having received approval to run the system, we began to develop our own national collection point network, and we intend to extend this to include several thousand collection points in stores, from local councils, commercial end users as well as voluntary collection points.

On behalf of our customers, we equip the collection points with collection and transport containers and ensure the safe collection, including batteries that are hazardous during transport. To this end, we provide detailed information and packaging instructions.



Collection results

The collection targets set out in the 'BattG' were raised from 35% in 2012 to 45% in 2016. The collection goal of 50% to be met for the first time in the 2021 reporting year can be seen as an intermediate step towards the future European-wide planned collection rate of 65%.

348.1 tonnes of waste portable batteries were recycled in 2021. The percentage of portable waste batteries collected amounts to 50%, the recycled amount accounts for 100%.

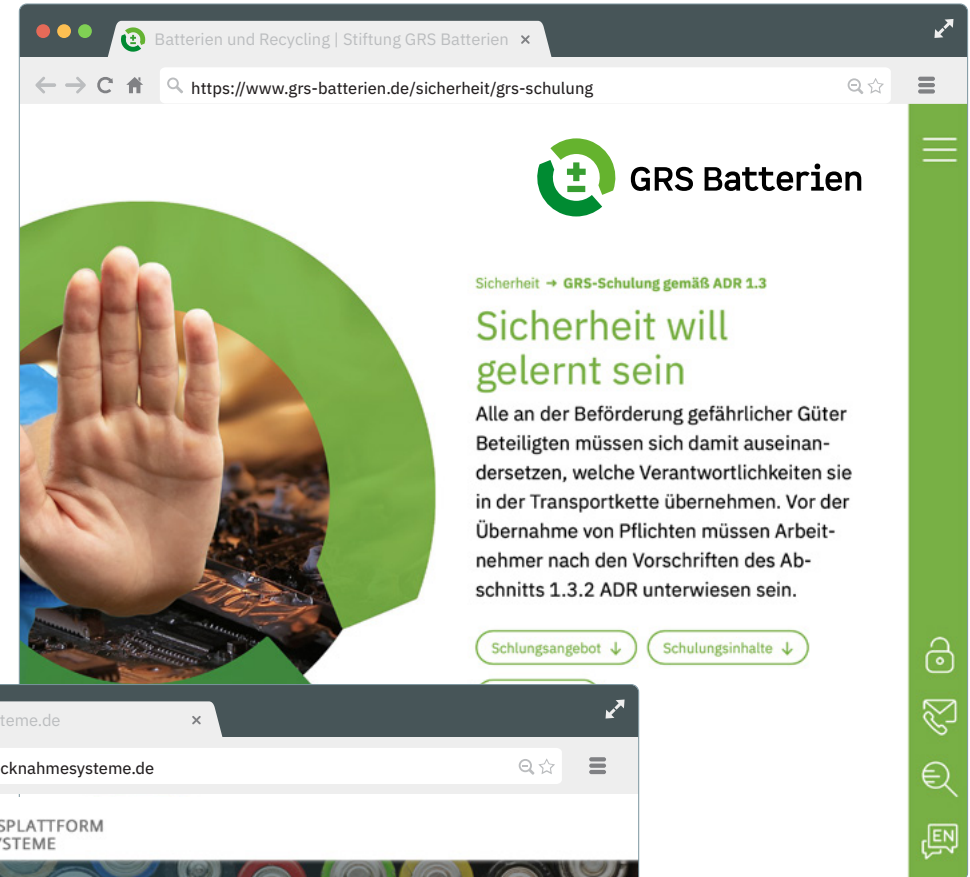


Communication

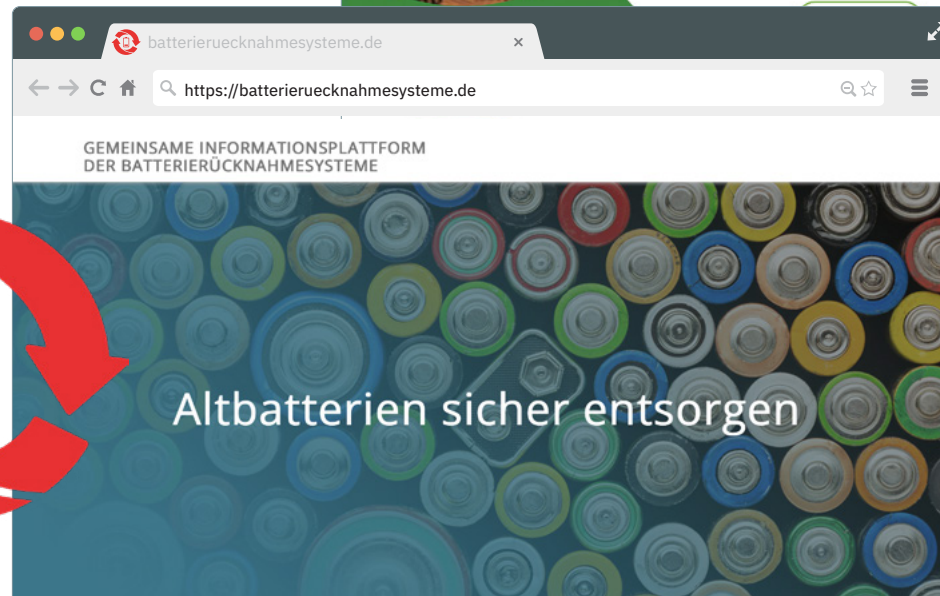
Besides ongoing optimisation of our own communication, all approved portable battery take-back schemes have implemented, upon the initiative of Stiftung GRS Batterien, Section 18 BattG as part of a concerted action.

This is now taking shape: the platform that emerged from the G2 project <https://batterieuecknahmesysteme.de> is a significant tool for consumer communication in this respect. Stakeholders involved — including public waste management authorities, consumer advice centres, educational institutions and distributors — can download appropriate communication material/content via the download portal, adapt it according to their requirements and use it freely.

Irrespective of the joint communication measures, we feel that it is necessary to provide consumers with more information on how to correctly handle lithium batteries due to their hazardous sources of energy.



Altbatterien sicher entsorgen





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Annual Review GRS Consumer 2021

Annex





Mass and quantity of batteries placed on the market

Quantity for 2021		'000 pieces	%
Primary batteries			
Round cells	AlMn/NiZn	890	81.0
	Li	47	4.2
	Zn-Luft	1	0.1
	ZnC	0	0
Button cells	AgO	6	0.6
	AlMn	1	0.1
	Li	52	4.7
	Zn-Luft	5	0.5
Subtotal I		1,002	91.2
Secondary batteries			
Round cells	AlMn	69	6.3
	Li-Ion	9	0.8
	NiCd	4	0.4
	NiMH	15	1.3
Button cells	Pb	0	0
	Li-Ion	0	0
	NiCd	0	0
	NiMH	0	0
Subtotal II		97	8.8
Total		1,099	100.0

Mass in 2021		Tonnes	%
Primary batteries			
Round cells	AlMn/NiZn	688	98.8
	Li	1	0.2
	Zn-Luft	0	0
	ZnC	0	0
Button cells	AgO	0	0
	AlMn	<1	0.1
	Li	<1	0.1
	Zn-Luft	0	0
Subtotal I		690.7	99.2
Secondary batteries			
Round cells	AlMn	1	0.2
	Li-Ion	3	0.4
	NiCd	<1	0.1
	NiMH	1	0.2
Button cells	Pb	0	0
	Li-Ion	0	0
	NiCd	0	0
	NiMH	0	0
Subtotal II		5.4	0.8
Total		696.1	100.0

BattG Act governing placement on the market, collection and environmentally compatible disposal of conventional and rechargeable batteries

Primary batteries non-rechargeable 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 NiZn Nickel-zinc Pb Lead Zn-Luft Zinc-air ZnC Zinc-carbon



Mass of batteries taken back according to category and scheme

Category/typ	Mass taken back (own scheme)	Mass purchased from other take-back schemes	Mass sold to other take-back schemes	Result (Basis for calculating the collection rate)
Primary batteries		Tonnes		
Round cells	ZnC	9.1		9.1
	AlMn/NiZn ¹	274.0		274.0
	Zn-Luft			
Button cells ²	Li	4.6		4.6
	AgO			
	AlMn	4.4		4.4
	Zn-Luft			
Li				
Subtotal I		292.0		292.0
Secondary batteries				
Round cells	AlMn			
	Li-Ion	29.6		29.6
	NiMH	9.4		9.4
	NiCd	17.1		17.1
Button cells	Pb			
	Li-Ion			
	NiMH			
NiCd				
Subtotal II		56.0		56.0
Total		348.1		348.1

The take-back mass of 348.1 t amounts to a collection rate of 50.0%.

¹ Composition based on the sorting results.

² Where sorting was not possible, these results include both primary and secondary batteries.

BattG Act governing placement on the market, collection and environmentally compatible disposal of conventional and rechargeable batteries

Primary batteries non-rechargeable 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 **NiZn** Nickel-zinc **Pb** Lead **Zn-Luft** Zinc-air **ZnC** Zinc-carbon



Mass of recycled batteries: qualitative and quantitative analysis of recycled and disposal results

Category/typ	Mass of recycled waste batteries	Mass of disposed waste batteries	Mass of waste batteries sent to recycling depots outside of Germany
Primary batteries		Tonnes	
Round cells	ZnC/AlMn/NiZn	283.1	43.9
	Zn-Luft		
	Li	4.6	
Button cells ¹	AgO		
	AlMn	4.4	
	Zn-Luft		
	Li		
Subtotal I	292.0		43.9
Secondary batteries			
Round cells	AlMn		
	Li-Ion	29.6	6.0
	NiMH	9.4	9.4
	NiCd	17.1	8.4
	Pb		
Button cells ¹	Li-Ion		
	NiMH		
	NiCd		
Subtotal II	56.0		23.8
Total	348.1		67.7

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

Typ	Input mass (t)	Output mass (t)	Recycling efficiency (%)
Pb	0.0	0.0	0.0
NiCd	17.1	14.1	82.6
„Other“	331.0	235.1	71.0
Total	348.1	249.2	

Taking into account the annual storage figures carried forward, the ratio recycled pursuant to § 15 (1) No. 5 BattG amounts to 100%.

BattG Act governing placement on the market, collection and environmentally compatible disposal of conventional and rechargeable batteries
Primary batteries non-rechargeable 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 **NiZn** Nickel-zinc **Pb** Lead **Zn-Luft** Zinc-air **ZnC** Zinc-carbon



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