

<p>Title: Batteries and Accumulators (Placing on the Market) Regulations 2008</p> <p>PIR No: PIR-63025</p> <p>Original IA/RPC No:</p> <p>Lead department or agency: Department for Environment Food and Rural Affairs</p> <p>Other departments or agencies: Office for Product Safety and Standards (OPSS)</p> <p>Contact for enquiries: batteries@defra.gov.uk</p>	Post Implementation Review
	Date: 24/05/2024
	Type of regulation: Domestic
	Type of review: Statutory
	Date measure came into force: 26/09/2008
	Recommendation: Keep
RPC Opinion: N/A	

1. What were the policy objectives of the measure? (Maximum 5 lines)

The subject of this PIR is the 2008 Batteries and Accumulators (placing on the market) Regulations ('the Battery Regulations'), which came into force on the 26th September 2008, and their amendment, the 2012 Batteries and Accumulators (Placing on the Market) (Amendment) Regulations, which came into force on the 31st May 2012. The objectives of the Regulations were set out in the original Impact Assessment in 2008¹. The primary objectives of the Regulations were to implement the placing on the market requirements of the Batteries and Accumulators and Waste batteries and Accumulators Directive 2006/66/ EC2 ('the Batteries Directive'), in order to protect the environment and human health and to ensure the smooth functioning of the Internal Market.

The Battery Regulations sought to achieve these aims by:

- reducing heavy metals in batteries by specifying composition and labelling requirements for new batteries and accumulators being placed on the market to limit the use of certain harmful substances and signpost correct disposal routes;
- requiring that certain types of new electrical and electronic equipment (EEE) must be designed to allow for easy removal of waste batteries to make batteries easier to recycle; and
- setting out enforcement provisions.

2. What evidence has informed the PIR? (Maximum 5 lines)

- The Impact Assessments (IAs) accompanying the Government response to the implementation of the Batteries Directive and consequential changes to the UK battery system.³
- Correspondence from battery producers, battery trade bodies and leading trade associations whom amongst them represent a majority share of the market.
- 'Supply of Batteries: Review of United Kingdom (UK) Legislation' 2021 report by Ricardo.⁴

¹ https://www.legislation.gov.uk/uksi/2008/2164/pdfs/uksiem_20082164_en.pdf

² [I_26620060926en00010014.pdf \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:2006L0066-02&from=doctrines)

³ https://www.legislation.gov.uk/uksi/2008/2164/pdfs/uksiem_20082164_en.pdf

⁴ <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=20542&FromSearch=Y&Publisher=1&SearchText=batte&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

- Defra commissioned project by Oakdene Hollins, Valpak and WMG: “Research to identify and address gaps in existing Batteries data relevant to the ongoing policy review”, expected to be published in January 2024.
- OPSS End of Year Enforcement reports 2019 - 2022.⁵
- Data from the National Waste Packaging Database (NPWD).

3. To what extent have the policy objectives been achieved? (Maximum 5 lines)

- Both the original and amending regulations continue to support the objective of protecting human health and the environment by limiting the use of certain harmful substances and signposting correct disposal routes. There is more to be done in this area, hence we propose to consult on more substantive reforms to the Batteries Regulations 2008 in 2024.
- While the UK was still an EU member, implementation of and compliance with the Regulations enabled the free movement of goods containing batteries around the Single Market.

Sign-off for Post Implementation Review: Chief economist/Head of Analysis and Minister

I have read the PIR and I am satisfied that it represents a fair and proportionate assessment of the impact of the measure.

Signed: Tom Murray

Date: 01/05/2024



Signed:

Date: 23/05/2024

⁵ Internal enforcement reports from OPSS shared with Defra under the terms of the regulatory MOU between the OPSS and Defra.

Further information sheet

Please provide additional evidence in subsequent sheets, as required.

4. What were the original assumptions? (Maximum 5 lines)

The original assumptions were set out in the Impact Assessment (IA) accompanying the partial implementation of the Batteries Directive, 'Impact Assessment of Implementation of Internal Market Provisions of Batteries and Accumulators Directive (2006/66/EC)'.

A key assumption was the type and the number of batteries that were assumed to be placed on the UK market.

The IA stated that the main risk of the analysis relates to the estimates of costs and benefits of the heavy metal restrictions on new batteries and accumulators. A key assumption in this cost estimate was the extent to which heavy metals were being used in batteries and accumulators and the estimates of how this would change in the absence of a prohibition.

The costs of introducing various marking and labelling requirements were estimated based on the assumption that the cost per battery or accumulator would be 10% of 1 pence for 1 billion portable batteries and accumulators. These costs were assumed to be on-going. Labelling was assumed to have the benefit of enabling proper treatment and recycling of batteries and accumulators at the end of their life, but this benefit was not quantified.

5. Were there any unintended consequences? (Maximum 5 lines)

No unintended consequences as a result of the Batteries Regulations have been identified. Defra has consulted a range of stakeholders including battery producers, battery trade organisations and leading trade associations who have provided feedback stating that there have not been any unintended consequences as a result of the 2008 Batteries Regulations (as amended).

6. Has the evidence identified any opportunities for reducing the burden on business? (Maximum 5 lines)

These regulations implemented the placing on the market elements of EU Batteries Directive which minimised burdens for producers by ensuring UK businesses only had to comply with one set of regulations to access the European market.

Whilst we recognise the importance of reducing the burden on businesses, the evidence has not identified further specific opportunities to do so.

The current requirements are important to maintain as the regulation:

- sets a level playing field for those manufacturers who had already moved away from using mercury and cadmium, setting minimum standards to avoid a race to the bottom; and,
- limits the environmental and human health impacts of substances, which in the case of mercury and cadmium, can be very serious.

7. How does the UK approach compare with the implementation of similar measures internationally, including how EU member states implemented EU requirements that are comparable or now form part of retained EU law, or how other countries have implemented international agreements? (Maximum 5 lines)

The UK implemented the EU Batteries Directive fully, albeit through several pieces of implementing legislation. The Directive provides little flexibility within the restrictions on substances and labelling required by Member States, however there is scope for varying implementation. No two Member States have the exact same system with regards to e.g. enforcement of the placing on the market requirements and some have opted to make the requirements more rigorous through e.g. environmental fees in Sweden, but the UK's approach is broadly consistent with that of comparable member states like France. It has not been possible to quantify differences.



Department
for Environment
Food & Rural Affairs

Review of the Batteries and Accumulators (Placing on the market) Regulations 2008

Post Implementation Review

Date: May 2024

We are the Department for Environment, Food and Rural Affairs. We are responsible for improving and protecting the environment, growing the green economy, sustaining thriving rural communities and supporting our world-class food, farming and fishing industries.

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Review of the 2008 Batteries and Accumulators (Placing on the market) Regulations (as amended)

Background

1. The Batteries and Accumulators and Waste Batteries and Accumulators Directive

- 1.1 The Council Directive 91/157/EEC on batteries and accumulators containing certain dangerous substances came into force on 18 March 1991. The directive aimed to reduce quantities of hazardous substances in waste batteries and to improve environmental performance of batteries within the Internal Market.
- 1.2 The UK transposed the 1991 Directive into UK law as 'the Batteries and Accumulators (Containing Dangerous Substances) Regulations 1994' (S.I. 1994/232) (and amending instruments S.I. 2000/3097 and 2001/2551); and 'the Batteries and Accumulators (Containing Dangerous Substances) Regulations (Northern Ireland) 1995' (S.R. 1995/122) (and amending instrument S.R. 2002/300).
- 1.3 The 1991 Directive was considered to have at least partially achieved its objectives. However, as the aims had not been fully attained and the subsequently adopted WEEE Directive called for a revision, the European Commission proposed updating the 1991 Directive in 2003. The proposal extended existing provisions to non-hazardous batteries and accumulators and introduced the principle of producer responsibility. The aim was to increase clarity, provide greater protection and promotion of the European Internal Market, and reduce environmental detriment where waste batteries and accumulators are concerned.
- 1.4 The original Directive 91/157/EEC was repealed and replaced by The Batteries and Accumulators Directive (Directive 2006/66/EC). The Batteries and Accumulators and Waste Batteries and Accumulators Directive (2006/66/ EC) came into force on 6 September 2006.
- 1.5 The aims of the 2006 Directive were to "minimise the negative impact of batteries and accumulators and waste batteries and accumulators on the environment, thus contributing to the protection, preservation and improvement of the quality of the environment" and to "harmonise requirements concerning the heavy metal content and labelling of batteries

and accumulators and so to ensure the smooth functioning of the internal market and avoid distortion of competition within the Community”⁶.

1.6 The UK partially transposed the 2006 Directive into UK law as ‘the Batteries and Accumulators (Placing on the Market) Regulations 2008’ (SI 2008 No. 2164). These Regulations were amended by ‘The Batteries and Accumulators (Placing on the Market) (Amendment) Regulations 2012’ (SI 2012 No. 1139).

1.7 The focus of this post implementation review will be on the Battery Regulations introduced on 26th September 2008⁷ and the amendment on 31st May 2012⁸, to comply with the Batteries Directive. Key requirements and overall measures⁹ are set out below:

- **Restrictions on certain hazardous substances** (regulation 4): prohibitions on mercury (Hg) and cadmium (Cd) content in batteries. These do not apply to button cells with a mercury content of no more than 2% by weight.
- **Labelling requirements** (regulation 6): new batteries being placed on the UK market must not contain more than 0.0005% of mercury or 0.004% of lead by weight unless marked with the chemical symbols Hg and Pb, respectively. For cadmium, batteries cannot contain more than 0.002% of by weight unless marked with the chemical symbol Cd and falling into the following categories: portable batteries intended solely for alarm systems, emergency lighting and medical equipment and cordless power tools. Portable and automotive batteries and accumulators should also be labelled with their capacity.
- **Marking with a crossed out wheeled bin symbol** (regulation 5): all batteries must be marked with the crossed-out wheeled bin symbol. Under some circumstances and where the battery is small this symbol can be placed on the battery packaging.
- **Removability requirement** (regulation 7): electrical or electronic appliances should be designed so waste batteries and accumulators are removable by the end user safely and without difficulty. Where this is not possible, an independent qualified professional must be able to remove the battery. This requirement is subject to certain exceptions where for safety, performance, medical or data integrity reasons, continuity of power supply is necessary.
- **Enforcement provisions** (regulations 8 – 25): a requirement for the Secretary of State to appoint persons to act on their behalf to purchase batteries or appliances to ascertain whether they are infringing goods and to serve notice if that is the case.

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006L0066&from=EN>

⁷ https://www.legislation.gov.uk/ukxi/2008/2164/pdfs/ukxi_20082164_en.pdf

⁸ https://www.legislation.gov.uk/ukxi/2008/2164/pdfs/ukxi_20082164_en.pdf

⁹ Articles 4, 6(2), 11 and 21(1), (3), (4), (5) and (6) of the Batteries Directive were transposed into UK law in the 2008 Batteries Regulations.

- 1.8 Only batteries meeting the above listed requirements can be put on the UK market, and any non-compliant batteries will be removed from the market.

Stakeholder engagement

2. Defra assessment of the regulations using evidence from industry

- 2.1 We obtained evidence to inform this section through correspondence with key industry stakeholders (including producers, trade bodies and associations), data published by the Environment Agency (EA) and Half Year Enforcement Reports by the Office for Product Safety and Standards (OPSS). The following section examines the effectiveness of each regulation that was introduced in the 2008 Battery Regulations.
- 2.2 The original impact assessment (IA) estimated that the Batteries Directive would place obligations on around 1,000 businesses. According to 2023 data from the National Waste Packaging Database, there are approximately 2,720 battery producers, who are currently obligated under the regulations. Of the 2,139 portable battery producers, 596 are categorised as large producers (placing more than 1 tonne of portable batteries on the market per year), and 1,543 are categorised as small producers (placing 1 tonne of portable batteries or less on the market per year). There are 131 producers of automotive batteries and 450 producers of industrial batteries.
- 2.3 Several industry stakeholders were contacted (including producers, trade bodies and associations) to inform this PIR, however, many did not provide quantitative or qualitative data regarding the impacts of the requirements of the 2008 Batteries Regulations, including unintended consequences. They were not able to share costs as they have no readily available data on costs of the requirements and are not currently facing significant costs because of the 2008 Batteries Regulations. The analysis below suggests that the costs to business of the 2008 Batteries Regulations were considerably lower than the anticipated costs estimated in the IA. We believe the amount of research and evidence collected is proportional to the impacts.
- 2.4 Combined, the IA projected that the measures would result in an average present-value cost to businesses of £6.1-6.5 million per year over the period of 2008 to 2017. This cost was assumed to be driven by the costs of substance prohibitions. However, due to length of time these measures have been in place and lack of quantitative data provided by industry, we have been unable to complete a comprehensive review of the total costs to businesses.
- 2.5 Based on the views of stakeholders and evidence that we have been able to collect for the purposes of this PIR, set out below, we estimate that the average annual costs calculated in the original IA are an overestimate of the

actual costs. Given that the highest predicted costs, the costs of prohibition and labelling, are likely overestimates, there is a strong possibility that the average annual costs are below £5 million.

- 2.6 The qualitative evidence provided by industry has, however, enabled us to review the success of the reforms against the following policy objectives:
- the extent of compliance amongst UK businesses and the extent to which a level playing field exists; and,
 - the extent to which batteries placed on the UK market fulfil the substance restriction and labelling requirements.

Current Requirements

3. Prohibitions on mercury and cadmium

- 3.1 The IA estimated the costs related to the restriction of certain hazardous substances in batteries as £6.7 million per year in 2009, falling over time to under £5.7 million in 2016¹⁰.
- 3.2 From industry feedback, we understand that producers faced minimal costs: a leading battery trade association informed us that its producer members incurred “minimal costs”. As these costs were minimal, they told us that there was no data available on the costs of the substance prohibition requirements.
- 3.3 Some of the key assumptions regarding number, size, type, chemistry and volume of batteries placed on the market, and the extent to which heavy metals were used in batteries and accumulators at the time the IA was made, were inaccurate, as there was minimal firm data on this for batteries and accumulators placed on the UK market. The IA estimated that 30,000 tonnes of portable batteries were placed on the market in 2006.
- 3.4 The IA also highlighted that there was a high level of “uncertainty over the costs and benefits of prohibition”, and a “number of assumptions” needed to be made to estimate the potential costs of a ban. The IA states that there was “no official data on the volume and type of portable, industrial or automotive batteries and accumulators that are placed on the market in the UK in any particular year.” Therefore, the IA’s costs are based on estimates of the size and composition of the UK market. One of the aims of the 2006 Batteries Directive was to collect such data, to obtain a clearer picture of the operations of the Internal Market concerning batteries and accumulators.
- 3.5 The costs of a ban were estimated by calculating the number of nickel-cadmium (NiCd) batteries and accumulators that would be replaced by

¹⁰ https://www.legislation.gov.uk/ukia/2008/178/pdfs/ukia_20080178_en.pdf

nickel metal-hydride (NiMH) batteries and accumulators due to the cadmium restrictions. This was then multiplied by the assumed price difference between NiCd and NiMH batteries and accumulators in 2008, of 10%, with NiMH batteries and accumulators assumed to be more expensive. This price difference was assumed to be constant.

- 3.6 The IA estimated that there were 22-23 million NiCd portable cells placed on the market in the UK in 2007, which in the absence of the ban would fall to just under 19 million cells placed on the market in 2016. The IA assumed that the fall in the use of NiCds would be equal to the increase in the use of NiMHs in the absence of substance prohibitions, which would be a rate of 2% per annum. This is likely to be an underestimate, as producers were voluntarily moving away from the use of mercury and cadmium in batteries for several years before the 2008 Batteries Regulations came into force. Producers were likely to continue this trend, even without the legal requirements of substance prohibitions, as highlighted by an industry source obtained through further correspondence. Providing for this in the Regulations ensured a level playing field for all battery producers and ensured the move away from hazardous substances was consistent across the market.
- 3.7 The first reason for this is that, as pointed to by an industry association, superior technology alternatives were replacing NiCd batteries and accumulators, and the IA did not account for the significant growth in Lithium-ion or alkaline batteries sales. As an example, Lithium-ion batteries now compose almost 50% of rechargeable portable batteries, as shown in table 1 below. The vast majority of non-rechargeable batteries placed on the market are alkaline (88%). This expansion in newer battery technology occurred, it is likely that producers would have accelerated the move away from NiCd batteries and accumulators. This would result in them being replaced at a faster rate than the 2% estimated in the IA, in the absence of the substance prohibition requirements.¹¹

Table 1:

Battery Type	Chemistry Type	Actual Quantity (%)	Estimated Quantity (tonnes)
Rechargeable	Nickel cadmium (NiCd)	0%	78.52
	Lead	0%	91.51
	Nickel metal hydride (NiMH)	15%	3,698.83
	Lithium Ion	49%	12,348.43
	Lithium polymer	29%	7,237.72
	Other	7%	1,722.22
Total			25,177.23

- 3.8 The second reason is that many UK producers, that had not already, would likely have moved away from placing NiCd batteries and accumulators on

the UK market, even in the absence of UK specific regulations. As the IA points out, the Batteries Directive defines a producer as those who place batteries and accumulators on the market, not as those actually manufacturing the battery. At the time of the directive there were no UK manufacturers of 'standard-size, general-use' portable batteries and three manufacturers of industrial batteries. As such, it is likely that UK producers would continue to import batteries that met the requirements of the 2006 Batteries Directive, and the much larger associated European market, regardless of their transposition as the 2008 Batteries Regulations.

3.9 For the reasons set out above and the views provided by stakeholders, there is a strong possibility that the anticipated costs in the IA are an overestimate of the actual costs to battery producers associated with prohibitions on levels of mercury and cadmium, and that the estimated costs are likely to have been significantly lower than the estimates set out in the IA. However, due to a lack of available data, it has not been possible to quantify exactly what these costs were.

3.10 Table 2 below, shows the estimated scale of NiCd batteries that would have been placed on the market (POM) compared to total battery placed on the market data, in the absence of a prohibition. The 2008 IA's estimate of the tonnage of NiCds removed from the market because of the prohibitions is compared to an estimate of the tonnage of batteries placed on the market in the absence of prohibition. It shows that prohibitions only applied to about 1% of estimated batteries that would have been placed on the market.

Table 2: Tonnage of NiCds estimated by the IA to be removed from the marked due to prohibition compared to portable batteries POM from 2009 to 2017

	2009	2010	2011	2012	2013	2014	2015	2016	2017
IA estimated NiCds removed from the market (tonnes)	409	480	471	461	452	443	434	425	417
Estimated POM (tonnes)	46,244	43,969	40,284	37,098	37,342	37,386	39,420	39,084	40,085
NiCds removed from the marked as % of estimated POM	1.06%	1.09%	1.17%	1.24%	1.21%	1.18%	1.10%	1.09%	1.04%

4. Labelling with mercury, cadmium, and lead symbols and marking the crossed out wheeled bin symbol

- 4.1 At the time that the 2008 Regulations were introduced, some batteries and accumulators were already marked, or labelled with some, or all, of the requirements, as the 1991 Batteries Directive required certain marking and labelling. In particular, the marking requirement for batteries and accumulators containing mercury, cadmium and lead was part of the 1991 Batteries Directive and so was not expected to result in significant additional costs to businesses.
- 4.2 The 1991 Batteries Directive also required batteries containing mercury, lead and cadmium to be marked with the crossed-out wheeled bin symbol. Since automotive and industrial batteries at the time consisted of one or more of these chemistries, they were not expected to incur any additional costs as a result of the 2008 Batteries Regulations. However, the IA stated that it was difficult to estimate the number of portable batteries and accumulators that met some or all the requirements due to a lack of official data on the volume and type of batteries placed on the market.
- 4.3 The IA estimated costs of marking and labelling to be in the region of £1 million per annum for the estimated 1 billion portable batteries and accumulators put on the market in the UK in 2006. The IA asserted that it was “difficult to estimate” the proportion of labelling costs that were one-off and the proportion that were ongoing.
- 4.4 The IA overestimated the ongoing costs of labelling requirements. One trade organisation informed us that the costs of labelling were “initial costs for artwork changes” but as sufficient time was given for them to make the changes, the initial costs were minimal, and there are “no current costs for members”. Another trade association advised us that producer’s faced costs for labelling for two years following the introduction of the Regulations. After two years, it is estimated that producers faced minimal ongoing costs.
- 4.5 The table below shows the expected costs of the labelling and marking requirements estimated in the IA, compared to estimated actual costs based on the new information from trade associations that these costs would only occur for up to two years. The estimated actual annual costs for 2008 and 2009 adopt the same assumptions as the 2008 IA as we have no additional information or data to update these.

Table 3: Expected costs of labelling and marking compared to estimated actual costs

Labelling Costs	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Expected (IA)	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.4

Estimated actual costs	1.2	1.2	Minimal
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- 4.6 The crossed-out wheeled bin symbol was expected to have had environmental benefits, increasing recycling and proper treatment of spent batteries. As in the IA, we have been unable to quantify whether labelling has had this benefit. One trade association recognised that the labelling requirement may have “encouraged recycling” of batteries.
- 4.7 However, another trade association told us that the crossed-out wheeled bin symbol has not directly increased recycling, pointing out that the number of batteries that are disposed of has not changed significantly. This industry source recognised that the labelling and marking requirements had not caused any disbenefits.
- 4.8 Businesses in the trade association highlighted that the benefit of the labelling and marking requirements was the consistency with the European market, as it is a well-understood tool in the UK and across the EU which decreased the costs of labelling for businesses. However, this benefit is hard to quantify.
- 4.9 Ultimately, industry members have various views on the success of this regulation. Overall, they have indicated that they have no issue with the labelling requirement to remain in place, even where they have told us that there were limited benefits.
- 4.10 Ultimately, the costs predicted in the original IA are likely to be an overestimate of the actual costs. The highest cost was predicted to be associated with the substance restriction requirements. This cost has been shown to be an overestimate with industry citing minimal costs associated with this measure. Additionally, the costs relating to labelling were estimated to be 1.2 million per year. However, stakeholders have informed us that costs were only applicable in the first two years (but with no information regarding the size of these costs), and minimal thereafter. Therefore, based on the views provided by stakeholders, and evidence that we have been able to collect for the purposes of the PIR, there is a very strong possibility that the actual average annual costs of the regulations were below £5 million.

5. Removability of batteries incorporated into electrical appliances

- 5.1 The IA did not quantify the costs or benefits of removability requirements as it did not expect them to be significant. This is because most products were already compliant with the removability requirements.
- 5.2 There are exceptions to the removability requirement where safety, performance, medical or data integrity reasons require a permanent connection between the appliance and the battery/accumulator.

- 5.3 There are also mixed opinions regarding removability requirements.¹¹ Some stakeholders stated that all industrial and automotive batteries are inherently removable, and the current requirements therefore still work well. Other stakeholders noted the increasing use of glues and resins to ensure the safety of the batteries which makes them difficult to extract, particularly batteries in small portable electronic appliances such as mobile phones
- 5.4 Feedback from a producer highlighted that the removability requirements in the 2006 Batteries Directive were fit for purpose as they set out a framework for environmental protection without prescribing how battery producers should meet the removability requirements.
- 5.5 However, a response from a battery association reported that the industry has changed, reducing the viability of removing batteries from consumer electronics because of product health and safety concerns. They point out that due to product innovation, portable electronic technology has moved on to lithium-ion batteries and a standard of waterproofing, meaning that batteries must be glued in. They said that the requirements were initially fit for purpose but have since become redundant as technology has evolved. However, certain types of electrical and electronic equipment such as toys and tools are a sizeable market for appliances where batteries remain removable.
- 5.6 Table 4, below, shows the estimated total quantities of rechargeable and non-rechargeable portable batteries that were placed on the market in 2020. The table shows the estimated totals of batteries that are sold as loose and batteries that are integrated into electrical and electronic equipment (EEE). Loose batteries represent an estimated 35% of batteries POM, whilst 65% of batteries are integrated into EEE. However, of the 65% of batteries that are integrated into EEE, we do not have evidence on the number of integrated batteries that are removable. The estimates suggest that more batteries are POM integrated into EEE than sold as loose batteries, however some of the information that was provided was inconsistent.

Table 4: Estimated quantities of portable batteries POM in tonnes in 2020 by battery type and chemistry type – by fitting type. Numbers are based on producer returned estimates for each specific chemistry¹²

Battery Type Chemistry Type	Loose Battery (%)	Estimates Loose Batteries (tonnes)	Integrated into EEE (%)	Estimates integrated into EEE (tonnes)
Total	35%	13,929.40	65%	26,140.49

¹¹<https://randd.defra.gov.uk/ProjectDetails?ProjectID=20542&FromSearch=Y&Publisher=1&SearchText=batte&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

¹²

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=20542&FromSearch=Y&Publisher=1&SearchText=batte&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

Further Assessment of the Regulations

6. Other assessment of market conditions

- 6.1 We commissioned Ricardo consultants to review the current Batteries Regulations and requirements, which the 2008 Batteries and Accumulators (placing on the market) Regulations are a part of. They were also commissioned to gather opinions and insights on potential improvements from those within the UK's battery industry in 2021. The findings were published in the report 'Supply of Batteries: Review of United Kingdom (UK) Legislation'.¹³
- 6.2 Broadly the report supports our assessment above with Ricardo summarising: "The current POM Battery Regulations have generally been seen as effective by all stakeholder groups. They have broadly achieved what they set out to do." Specifically, they have restricted and reduced levels of hazardous material within batteries and labelling requirements are seen as providing consistency across multiple markets. However, removability requirements are considered unclear and not at pace with the step change in technology. It was also considered that current labelling conventions like the crossed-out wheeled bin logo are not sufficient for influencing consumer behaviour, so continuous consumer awareness raising will be a vital component of new labelling requirements.
- 6.3 The Office for Products Safety and Standards provide Defra with annual reports summarising activities undertaken for monitoring and enforcement. From 2019 to 2022, the OPSS identified a number of non-compliant producers and distributors based on targeted enforcement work based on intelligence received, as set out below.
- 2019: 62
 - 2020: 14
 - 2021: 19
 - 2022: 14
- 6.4 The OPSS has focussed on producers rebranding batteries to their own specifications and, producers placing batteries on the market to use outside of their original intended application. The batteries became non-compliant at the point of being re-labelled or used outside of their original intended application. The OPSS ensured that non-compliant products were removed from the market and businesses supported to be brought into compliance.

¹³[http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=20542&FromSearch=Y&Publisher=1&SearchText=batte&SortString=ProjectCode&SortOrder=Asc&Pageg=10#Description](http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=20542&FromSearch=Y&Publisher=1&SearchText=batte&SortString=ProjectCode&SortOrder=Asc&Page=g=10#Description)

Any actions against such producers has ensured that inferior products are not placed on the market, resulting in a more level playing field for manufacturers and battery producers.

- 6.5 Testing was undertaken for capacity and labelling requirements in automotive batteries under the regulations between 2019 and 2022. Further testing for nickel cadmium content in power tool batteries was undertaken as part of a wider project conducted by OPSS. Tests showed that some batteries exceeded restrictions; as a result, in 2019, 12 requests for take downs from online platforms were processed.
- 6.6 In 2019, one Enforcement Notice was issued for labelling non-conformance resulting in 200,000 lithium-ion cells being removed from the market and disposed of.
- 6.7 Enforcement work done by OPSS indicates that businesses generally undertake voluntary remedial actions prior to notices and formal sanctions becoming necessary. Between 2019 and 2022, businesses were supported to bring over three million items into compliance with correct labelling.
- 6.8 Enforcement work undertaken by the OPSS is targeted, therefore it has not been possible to determine the overall level of non-compliance across the battery supply chain.

7. Unintended consequences

- 7.1 No unintended consequences have been identified as a result of the 2008 Batteries Regulations and the 2012 amendment.
- 7.2 Defra has consulted a range of stakeholders including battery producers, battery trade organisations and leading trade associations who have provided feedback stating that there have not been any unintended consequences as a result of the Regulations.
- 7.3 Stakeholders have highlighted that the placing on the market requirements set out in the 2008 Batteries Regulations were appropriate for the types of batteries placed on the market at the time and therefore had an impact in protecting human and environmental health. However, they are no longer fit for purpose as the types and chemistries of batteries placed on the market have changed markedly since the regulations came into force.
- 7.4 For example, the removability requirements have been superseded by innovation with portable electrical and electronic equipment moving towards using lithium-ion batteries and towards implementing waterproofing standards, meaning that batteries have to be glued into the equipment, thus not fulfilling the removability requirements. However, some electrical and

electronic equipment, including toys and tools, is constructed for batteries to be removable, and make up a sizeable market for appliances.

- 7.5 Although feedback from industry does not identify any direct unintended consequence of the 2008 Batteries Regulations, it has highlighted that the batteries market has and still is changing since the regulations came into force. Defra intends to investigate these areas further in the upcoming review of the Batteries regulations to ensure they are fit for purpose for technologies that have developed since the 2008 regulations and for those that emerge in future.

8. Policy recommendations arising

- 8.1 The 2008 Batteries Regulations have functioned as intended to protect human and environmental health and create a level playing field with no unintended consequences arising as a result. As such we recommend keeping the regulations in place.
- 8.2 However, the batteries market has and still is changing, and the regulations could benefit from review. We plan to publish a consultation on the UK Batteries Regulations (including the 2008 Batteries Regulations (as amended) in 2024. The consultation will consider measures to promote the recovery, reuse or recycling of all battery chemistry types to drive a circular economy and to reduce the environmental impact throughout the full battery lifecycle.
- 8.3 This aligns with the strategic ambitions to maximise the value of resource use and to minimise waste and its impact on the environment which have been set out in the Resources and Waste Strategy for England¹⁴ and the 2023 Environmental Improvement Plan.¹⁵
- 8.4 The EU Batteries Regulation entered in to force in August 2023¹⁶. It includes far more extensive placing on the market requirements and applies to any type of battery placed on the EU market, irrespective of its origin. We are considering the impacts these changes may have across the UK battery supply chain, alongside implications for Northern Ireland regarding Windsor Framework obligations for batteries.

9. Comparison with other member states

- 9.1 The UK fully implemented the requirements from Articles 4, 6, 11 and 21 of the 2006 Batteries Directive relating to substance restrictions, labelling, and marking requirements and requirements for removability from electrical appliances with the 2008 Batteries Regulations (as amended). The substance restriction and labelling requirements set out in the Batteries

¹⁴ <https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>

¹⁵ <https://www.gov.uk/government/publications/environmental-improvement-plan>

¹⁶ <https://eur-lex.europa.eu/eli/reg/2023/1542/oj>

Directives provide little flexibility, however how these articles are implemented by Member States can vary. No two Member States have the exact same system, however, a few examples of other Member State systems are provided below. The information has been taken from 'Study in support of the preparation of the Implementation report on Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators'¹⁷. It is important to note, that the report summarises how all articles of the Batteries Directive have been implemented, not only the placing on the market elements considered in this PIR. It has not been possible to provide accurate cost comparisons.

- 9.2 In France, batteries and accumulators placed on the market are required to respect the maximum levels of mercury and cadmium content and the labelling obligations set out by the Batteries Directive. It is an offence to place batteries and accumulators on the market which do not comply with the requirements. In cases of non-compliance, authorised agents may order that the products are brought into line with the regulations and in some instances, non-complying products can be withdrawn from the market.
- 9.3 In Sweden, in addition to meeting substance restrictions, producers are required to pay an environmental fee for cadmium batteries placed on the market of 300 SEK/kg (approx. £23¹⁸). Prior to January 2009, an environmental fee also covered lead and mercury batteries. The purpose of the fee is to fund measures to reduce negative impacts on people and the environment related to batteries. This additional measure falls under producer responsibility regulations and so is not within scope of this PIR, however it is interesting to note that it links the placing on the market requirements, which are being assessed in this PIR, with producer responsibility obligations.
- 9.4 The new EU Batteries Regulation¹⁹ builds significantly on the 2006 Batteries Directive, which it replaces. It applies in Northern Ireland under current Windsor Framework arrangements. The regulation includes far more extensive placing on the market requirements and applies to any type of battery placed on the EU market irrespective of its origin.

Conclusion

10. Conclusion

- 10.1 The PIR has been informed by: informal consultation carried out involving key stakeholders; correspondence from trade bodies and associations; IAs accompanying the Government response to the implementation of the Batteries Directive and consequential changes to the UK battery system; commissioned research projects ('Supply of Batteries: Review of United

¹⁷ <https://ec.europa.eu/environment/pdf/waste/Published%20Study%20Implementation.pdf>

¹⁸ Using currency rates from February 2023

¹⁹ <https://eur-lex.europa.eu/eli/reg/2023/1542/oj>

Kingdom (UK) Legislation' 2021 report by Ricardo and Oakdene Hollins, Valpak and WMG: "Research to identify and address gaps in existing Batteries data relevant to the ongoing policy review"); OPSS End of Year Enforcement report data; and, data from the National Waste Packaging Database (NPWD).

- 10.2 It is clear from the evidence that the 2008 Battery Regulations have achieved the intended objectives to ensure compliance with the Battery Directive and to ensure the smooth functioning of the EU internal market by avoiding distortion. The 2008 Battery Regulations have also contributed to fairer competition in the UK battery market by providing a level-playing field for all manufacturers and producers and ensuring high levels of compliance among UK battery producers.
- 10.3 It is also clear that they have met the objectives of protecting environmental and human health by creating clear requirements that batteries or accumulators that are placed on the market must not contain prohibited levels of dangerous metals, such as mercury and cadmium, and that they must be labelled to show the heavy metal content and to help consumers choose the correct recycling routes.
- 10.4 The UK left the EU in 2020. The Government remains supportive of the core principles of the 2006 Batteries Directive as implemented by the 2008 UK Battery Regulations. To this effect the UK will continue to implement these principles through the Batteries regulations and will consider how best to make improvements to the UK Batteries regime.
- 10.5 Whilst no unintended consequences of these Regulations have been identified, evidence does suggest regulations around removability could be reassessed in future.
- 10.6 Defra's Resources and Waste Strategy 2018 and the Environmental Improvement Plan 2023 committed to consult on a review of the UK Battery Regulations. This will consider measures to promote the recovery, reuse or recycling of all battery chemistry types and will review measures across the battery supply chain, from placing on the market to waste treatment. Following the review, we will amend the Regulations as necessary.