

Introduction

- “the initiative will modify the Directive or a proposal for a new Regulation repealing the Directive will be prepared, to notably encompass end-of-life and sustainability requirements. (... Q4 2020)” 2020 CWP
- Information from
 - Studies and consultation underpinning the assessment and evaluation of the Directive,
 - Studies and consultation carried out in the context of the ‘eco-design’ process,
 - Extensive consultation processes during and following up to the Strategic Action Plan on Batteries,
 - Two specific studies,
 - *Feasibility of measures addressing shortcomings in the current EU batteries framework system,*
 - *Study addressing particular topics on batteries (legal statuses, restrictions, etc).*

Proposed approaches and measures

- Taken from
 - EU institutions
 - Stakeholders' proposals
 - Technical and scientific publications
- Disclaimer

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Batteries Directive 2006/66/EC

Initial results of the study in support of the assessment of the Batteries Directive

Measure 15: Consumer, safety and sorting labels



Labelling

Measure 15

Consumer, safety and sorting labels

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Measure 15 – Consumer, safety and sorting labels (I)

Problem description

- Several stakeholders have noted that there is a lack of adequate information for the following issues on batteries (confirming the evaluation findings) :
 - **Consumer purchasing information** – to make better informed purchasing decisions;
 - **Consumer and operator health and safety information** – allowing users to better understand the potential hazards of batteries (to inform/convince consumers to not put Li-ion into mixed battery collection points) ; and
 - **Battery sorting information** – more comprehensive battery composition information would make batteries more easily identifiable at sorting facilities. Miss-sorting of batteries can cause risks and costs due to fires in recycling facilities (particularly for Li-ion batteries) as well as a potential loss of resources.
- To ensure that all these issues are addressed, a harmonised approach may be required, as a battery (and/or its packaging) can only show a limited amount of information.

Measure 15 – Consumer, safety and sorting labels (IIa)

Alternative options

Baseline – only for portable and automotive batteries!

- The “wheelie-bin” symbol from Annex II will be preserved.
- The capacity of batteries will still be displayed.
- The chemical symbols Hg, Cd and Pb on batteries with exceeding (low) limits of the metals.



Measure 15 – Consumer, safety and sorting labels (IIb)

Alternative options

Option 1: Consumer Labels

- Additional labels could be included on battery packaging (and possibly on appliances containing batteries) to ensure better purchasing decisions. This could include:
 - Environmental footprint (GHG emissions, due diligence of manufacturers for acquiring resources), and/or
 - Battery effectiveness (e.g. lifetime or number of recharge cycles).
 - Safety information (e.g. fire risk from Li-ion batteries)

Option 2: Recycling/sorting colour identification

- Coloured fluorescent paints could be used on batteries (to indicate what type they are), to help improve their identifiability at end of life.
- Coloured labels could be an alternative, however they have the potential to come off (scratched or broken off) by the time of EoL of the battery.
- Colours for each of the 4 major battery types: Alkaline, Pb-acid, Ni-Cd, Li-ion.

Measure 15 – Consumer, safety and sorting labels (IIc)

Alternative options

Option 3: ‘Digital passport’

- This would provide some digital form of identification that could be accessed by either a battery user (consumer) or sorter/recycler.
 - For consumers this would be more logically placed on the battery packaging.
 - For sorters/ recyclers it would need to be on the battery or battery cell.

- This passport could provide all use, risk and type (disposal) information. For example:
 - Battery material composition by element,
 - Hazardous and safety information,
 - Battery health (number of charges – only applicable for electric vehicles),
 - Battery efficiency (consumer information),
 - Information on local collection points.
 - Information on deposit system (if applicable)
 - Information on category (industrial or portable)

- Could be provided as a **QR code** or a **Radio Frequency Identification (RFID)** strip.

Measure 15 – Consumer, safety and sorting labels (IIIa)

Impacts of the options – initial results

Environmental impacts

Option 1: Consumer Labels

- **Environmental / CO2 labels** were generally suggested by most stakeholders; however their benefits were not quantified (Northvolt, T&E, Systemiq, EUROBAT, AVERE, ECOS, EEB, FEBELAUTO, RECHARGE).
 - **Product Environment Footprint (PEF) methodologies** were suggested by FEBELAUTO, Northvolt, ECOS, EEB, RECHARGE as providing the most useful information.
 - This information may provide some demand-side push for ‘cleaner’ batteries to be manufactured, but this is arguably better regulated by chemical exclusion legislation.
- **Desirability for non-disposal and guarantees of due diligence** for manufacturers noted by several as desirable, but already covered.
 - The desirability of not disposing in general waste is already provided by the ‘wheelie-bin’

Measure 15 – Consumer, safety and sorting labels (IIIb)

Impacts of the options – initial results

Environmental impacts

Option 1: Consumer Labels

- **Battery effectiveness information** perceived by some as having little added-value for private end users and risked overpopulating labels on batteries. However energy labels are common in appliances and are generally accepted, as worthwhile. Case for some information (e.g. see labels below - recharging cycles and energy losses after ten years), should be reviewed

Measure 15 – Consumer, safety and sorting labels (IIIc)

Impacts of the options – initial results

Environmental impacts

Option 2: Recycling/sorting colour identification

- ✓ Colour coding was noted by ECOS and EEB as being a useful approach not only for recyclers and sorters, but also for consumers.
- The EPTA notes such labels are already suggested by the IEC however are ineffective, as after years of use the labels can wear off.
- EuRIC also noted that labels are easily worn and can become illegible. Supported colour coding of the battery types.
- Easier sorting should improve the recycling. (less batteries in the wrong process)
- Improved sorting (as a result of better labeling) could also decrease recycling facility fires (EURIC data and study support this)
 - Currently 1-2 per recycling facility per year.
 - Decreased water use and treatment (which is required to put out fires).
 - Decreased possibility of waste battery fluid in the environment.
 - Details of this to be elaborated in a forthcoming EuRIC study.

Measure 15 – Consumer, safety and sorting labels (IIId)

Impacts of the options – initial results - Environmental impacts

Option 3: Digital Passport

- A digital passport could provide all environmental hazard and performance information in one place.
 - On the battery packaging, for consumers.
 - On the battery cell, for sorters and recyclers.
- No data identified or provided on environmental impacts, however it should lead to:
 - Increased collection rate (due to increased consumer awareness of environmental hazards).
 - Reduced recycling facility fires (from Li-ion batteries), due to easier automated/electronic sorting. The passport could also include information on the charge of the battery. Shredding charged batteries can also cause fires.
 - Main impact of QR code for recyclers would be better sorting and subsequently better recycling (less batteries in the wrong recycling process).
- Some stakeholders noted the potential for such labels to be removed from the battery either through intensive use or battery damage. However, this is a design issue and if it was well designed (and/or on packaging for consumers) it could be useful.

Measure 15 – Consumer, safety and sorting labels (IIIe)

Impacts of the options – initial results

Economic impacts

For all options: Small administrative burden to manufacturers and producers on increased labeling requirements and maintenance per Member State. More costs involved for option 3.

Option 1: Consumer labels

- Small increase in spending on more ‘environmentally friendly’ batteries (i.e. with lower GHG emissions per packet or based on PEF).
- Should be reduced risk of fires (and the costs they impose) in the facilities responsible for the collection, storage and treatment of Li-ion batteries (through consumers making better informed decisions on Li-ion disposal).
- Potential savings to consumers through a shift (through being better informed) in favour of the purchase of batteries that last longer (i.e. have a lower lifetime cost)

Measure 15 – Consumer, safety and sorting labels (III f)

Impacts of the options – initial results

Economic impacts

Option 2: Recycling/sorting colour identification

- Better sorting could lead to fewer recycling facility fires (currently 1-2 annually per facility).
 - Fires are increasing in frequency/severity. This is linked to increased WEEE with Li-ion batteries inside being in the waste stream.
 - Costs of large fires can be millions of Euros per facility – final data will be provided in a study by EURIC.
 - Insurance companies were noted as being more averse to sorting and recycling facilities as a result of this.
- Better sorting should also improve the recovery rates (reduce wastage and avoid batteries going into the wrong processes)

Option 3: Digital passport

- Similar impacts and benefits of options 1 and 2.
- A likely higher administrative burden, because a wider range of information is required to be complied and updated, along with website/app maintenance costs.

Measure 15 – Consumer, safety and sorting labels (IIIg)

Impacts of the options – initial results

Social impacts

Option 1: Consumer labeling

- On the issue of hazardous substances, there was a variety of opinions.
 - Many stakeholders feel that the chemical risk issue is already covered sufficiently for consumers in the Directive or other legislation, e.g. REACH. However labelling to highlight the risks of tampering with end of life batteries would not be difficult, and may be beneficial.
 - There is potential synergy with digital passport to provide the information (see following slide).
 - Specifically for Li and Li-ion batteries, risks for fire in private homes / collection points appears low – but the risk is present. Highlighting this fire risk in a label would be relatively low cost and effort.
 - Standardised information on energy performance would be useful for consumers.

Measure 15 – Consumer, safety and sorting labels (IIIh)

Impacts of the options – initial results

Social impacts

Option 2: Recycling/sorting colour identification

- Fewer injuries as a result of recycling facility sparks and fires (no data on amount).

Option 3: Digital Passport

- Could also provide benefits of decreased injuries resulting from fewer recycling facility fires (see above).
- Could increase consumer protection through the passport including risks if the battery is tampered with and breaks or leaks.
 - However as noted by stakeholders the risk of this is low.
- Consumer benefits through reduced expenditure (better purchasing decisions, to favour lower lifetime cost of batteries)

Measure 15 – Consumer, safety and sorting labels (IV)

Comparison of options

Impact	Baseline	Option 1: consumer labels	Option 2: colour coding	Option 3: QR code
Environmental benefits	No /	Minor increased consumption of 'environmentally friendly' batteries + better disposal (Li-ion) +	Minor impacts from increased recycling rate +	Increased recycling rate, increased correct consumer disposal, increased use of 'environmentally friendly' batteries ++
Environmental burdens	Li-ion fires -	No apparent burdens /	No apparent burdens /	No apparent burdens /
Additional savings (Euro)	n.a.	Consumers save from purchasing lower lifetime cost batteries +	Savings from decreased Li-ion related fires, and improved sorting +	Consumer savings and savings from less Li-ion fires and improved sorting ++
Additional costs (Euro)	Costs from Li-ion fires -	Costs of agreeing label content and style -	Some minor additional costs of labelling -	Costs for labelling and compiling the required information --
Administrative burden (annual)	None /	Very low. Some efforts required to agree labelling style and content -	Very low – relatively basic information, should not need frequent updates -	Low – updating and auditing / verifying the required information for consumers --
One-time administrative burden	n.a.	Low -	Low -	Medium (labelling on packaging and batteries) --

Measure 15 – Consumer, safety and sorting labels (V)

Initial conclusions

- ✓ Consumer labels can provide some environmental benefits, encouraging consumers to buy more ‘environmentally friendly’ batteries, and improving handling/disposal of waste Li-ion batteries. The options have low to very low administrative burden.
- ✓ Colour sorting labels could reduce the risk of fires in battery/ WEEE recycling facilities, both increasing recycling rate and decreasing costs and social risks for dealing with fires. Implementation costs are similarly low.
- ✓ A digital passport would provide information (and therefore the benefits) of both of the above. The issue is ensuring the label is not removed by intensive battery use or damage. It also would likely have a higher administrative cost than more simple labels. Exact costs are unclear.
- ✓ Stakeholders noted that thought should be given to not causing confusion from excessive labelling.
- ✓ Consumers and sorters/recyclers have different labelling ‘needs’ – these could both be met by having a simple colour code on batteries with more detailed information on consumer packaging.