

## **Guidelines on Portable Batteries Marking Requirements in the European Union**

These guidelines are intended as a tool to aid compliance with certain marking requirements of the Batteries Directive 2006/66/EC and Regulation (EU) 1103/2010 on capacity marking of portable rechargeable batteries.

All batteries are required to be marked, either on the battery or its packaging depending on size, with the separate collection symbol (crossed-out wheeled bin).

Batteries containing mercury, cadmium and lead are also required to be marked with the appropriate chemical symbol(s).

- Portable rechargeable batteries are required to be marked with their capacity from 30 May 2012 (Regulation (EU) 1103/2010).

The producer placing batteries on the market is responsible for fulfilling the marking requirements in accordance to the provisions of the Batteries Directive 2006/66/EC.

**September 2012**

### ***Disclaimer***

*This document is intended to provide guidance on the marking requirements as foreseen by art.21 of the Batteries Directive. The document is not a legally binding interpretation of the Batteries Directive, and should therefore not be relied upon as legal advice. This document can be updated at any time without prior notice.*

## Content

1. LEGAL REQUIREMENTS .....	3
1.1 Introduction .....	3
1.2 Marking Requirements of the Batteries Directive.....	3
1.2.1 Symbols .....	3
1.3 Marking Dimensions – Separate Collection Symbol.....	4
1.3.1 On Batteries .....	4
1.3.2 On Packaging .....	4
1.4 Marking Dimensions – Chemical Symbol .....	4
1.5 Capacity marking requirements for portable rechargeable batteries.....	4
1.5.1 Introduction .....	4
1.5.2 Individual portable rechargeable batteries.....	5
1.5.3 Portable Battery packs .....	5
1.5.4 Small portable rechargeable batteries.....	6
1.5.5 Portable Button cells and memory back-up batteries.....	6
1.5.6 Batteries supplied together with battery chargers.....	6
1.5.7 Exemption of the capacity marking requirement for embedded batteries.....	6
1.6 Capacity marking for portable primary batteries.....	6
2. INDUSTRY STANDARDS .....	8
2.1 Introduction .....	8
2.2 Multiple Chemical Symbols .....	8
2.3 Button Cells .....	8
2.4 Battery Packs.....	9
2.5 Qualification of Separate Collection Symbol .....	9
2.6 Batteries Incorporated into Appliances.....	10
2.6.1 Applications Exempted from Ready Removability .....	10
2.6.2 Applications Designed for Ready Removability .....	10
2.6.3 Instructions for Ready Removability .....	10
ANNEX.....	12

## 1. LEGAL REQUIREMENTS

### 1.1 Introduction

Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators (hereafter 'the Batteries Directive') requires that end users shall be informed about the necessity to collect separately for recycling all types of waste batteries and accumulators and that consumers should be informed about the heavy metals content of batteries.

The Batteries Directive also requires that the capacity of all portable and automotive batteries and accumulators is indicated on them in a visible, legible and indelible form.

Regulation (EU) 1103/2010 defines the capacity marking requirements for portable rechargeable and automotive batteries.

At the time of publication of these Guidelines, the EU Commission has not yet proposed any requirement for the capacity marking of portable primary batteries (see § 1.6 below).

*NB: The term battery, or batteries, used in this document means single cells or battery packs used as individual units.*

### 1.2 Marking Requirements of the Batteries Directive

#### 1.2.1 Symbols

All batteries, accumulators and battery packs are required to be marked with the separate collection symbol (crossed-out wheeled bin) either on the battery or its packaging depending on size.

In addition batteries, accumulators, battery packs and button cells should include the chemical symbol Hg when containing more than 0,0005% mercury, the chemical symbol Cd when containing more than 0,002% cadmium, the chemical symbol Pb when containing more than 0,004% lead. If the content is higher for more than one of the substances in question, all relevant chemical symbols have to be marked.

The symbols can be placed on the existing colour background as long as they are visible, legible and indelible. The symbols can be attached as labels, by durable printing, or as a surface profile, either indented or as relief.

### **1.3 Marking Dimensions – Separate Collection Symbol**

#### **1.3.1 On Batteries**

Prismatic shapes: The symbol shall cover at least 3% of the area of the largest side of the battery, accumulator or battery pack, up to a maximum size of 5x5 cm. The symbol may be marked on any side.

Cylindrical shapes: The symbol shall cover at least 1.5% of the battery surface area to a maximum of 5cm x 5cm.

#### **1.3.2 On Packaging**

Where the size of the battery, accumulator or battery pack is such that the symbol would be smaller than 0.5cm x 0.5cm, the battery, accumulator or battery pack need not be marked but a symbol measuring 1cm x 1 cm shall be printed on the packaging offered to the consumer.

### **1.4 Marking Dimensions – Chemical Symbol**

Irrespective of whether the separate collection symbol is on the product or on the packaging, where relevant the chemical symbol Cd, Hg or Pb must be placed beneath the separate collection symbol and be at least one quarter of the area of that symbol.

Detailed dimensions of the symbols are available in the annex.

In absence of clear guidance in the Regulation and in conjunction with IEC 61429:1995, it is proposed that the background of the area in which the chemical symbol will be placed is included in the calculations for the dimensions.

### **1.5 Capacity marking requirements for portable rechargeable batteries.**

#### **1.5.1 Introduction**

Regulation (EU) 1103/2010 governs the capacity marking requirements of **portable rechargeable batteries** including specific requirements related to its minimum size and location. The capacity label shall include both the numeral and its units.

The capacity label is a marking which has to appear either on the battery label, the battery casing and/or the packaging.

The capacity of portable rechargeable batteries shall be expressed in 'milliampere-hour(s)' or 'ampere-hour(s)', using the abbreviations mAh or Ah respectively.

The capacity of portable rechargeable batteries shall be expressed as:

- an integer when 'mAh' units are used, e.g. 1200 mAh.
- a decimal number with one digit when the capacity is expressed in 'Ah', e.g. 1.2 Ah.

As indicated in Article 2 §2 of Regulation (EU) 1103/2010, the capacity of portable secondary (rechargeable) batteries and accumulators shall be determined on the basis of IEC/EN 61951-1, IEC/EN 61951-2, IEC/EN 60622, IEC/EN 61960 and IEC/EN 61056-1 standards depending on chemical substances contained therein.

The size of the capacity marking shall include the size of the numeral and the units combined.

The capacity of all rechargeable batteries will be indicated on these batteries in a visible, legible and indelible form. This can be placed on the existing colour background and can be attached as labels, by durable printing, or as a surface profile, either indented or as relief.

### ***1.5.2 Individual portable rechargeable batteries***

For individual portable cells and batteries with the exception of button cells and memory back-up batteries, the capacity label shall be placed on the front of the packaging and on the battery inside the packaging. When batteries are sold without packaging, the capacity label shall be located on the rechargeable battery itself.

Where the capacity label is printed on cells and battery labels, the minimum size shall be 1,0 x 5,0 mm (H&L). When printed on the packaging, the capacity label shall have a minimum size of 5,0 x 12,0 mm (H&L).

### ***1.5.3 Portable Battery packs***

For portable battery packs, the capacity label only has to be placed on the external housing of the battery and not on each individual cell inside the battery pack.

The following size requirements apply:

- Pack's largest side < 70 cm<sup>2</sup>: minimum size of the capacity label is 1,0 x 5,0 mm (H x L)
- Packs's largest side ≥ 70 cm<sup>2</sup>: minimum size of the capacity label is 2,0 x 5,0 mm (H x L)

#### **1.5.4 Small portable rechargeable batteries**

Where the size of the portable rechargeable battery is such that the above mentioned minimum capacity labels cannot be shown upon it, the capacity label shall be marked on the packaging with a minimum size of 5,0 x 12,0 mm (H x L). In case the portable rechargeable battery is not supplied with its own packaging, the capacity label shall be marked on the packaging of the appliance with which the batteries are sold.

#### **1.5.5 Portable Button cells and memory back-up batteries.**

The capacity label shall be placed on the front of the packaging and shall have a minimum size of 5,0 x 12,0 mm (H x L).

#### **1.5.6 Batteries supplied together with battery chargers**

For portable batteries supplied with battery chargers, the capacity label shall be placed on the front of the packaging which contains both the individual batteries and the charger. The capacity label shall also be placed on the battery inside the packaging provided the minimum size requirements can be respected.

Where the capacity label is printed on battery labels, the minimum size shall be 1,0 x 5,0 mm (H&L). When printed on the packaging, the capacity label shall have a minimum size of 5,0 x 12,0 mm (H&L).

#### **1.5.7 Exemption of the capacity marking requirement for embedded batteries**

Portable secondary (rechargeable) batteries and accumulators incorporated or designed to be incorporated in appliances before being provided to end-users, and not intended to be removed pursuant to Article 11 of Directive 2006/66/EC are exempt from the capacity labeling requirements. (Annex I – Regulation (EU) 1103/2010).

For more detailed rules please consult Regulation (EU) 1103/2010 published in the Official Journal which is the legally binding document.

#### **1.6 Capacity marking for portable primary batteries**

Mr. Potočník, Environment Commissioner, has summarised the state of play of the discussions on capacity marking for portable primary batteries in a response given to a European Parliamentary question on 23 March 2012.

The Commissioner said that “*given the technical complexity to design a single and meaningful label for portable non-rechargeable batteries and accumulators, the Commission has issued a mandate to the standardization bodies (CEN/CENELEC) to*

*study the feasibility of establishing a standardized capacity label by June 2012. Such capacity label would provide an indication in ampere hours (Ah)."<sup>1</sup>*

Until EU harmonised legislation for portable non-rechargeable batteries and accumulators is in place, Member States are not obliged to introduce or require the use of capacity labels, and battery producers are not obliged to place capacity labels on them, unless required under national law. Any national labelling requirements will apply only until harmonised EU requirements are in place. Meanwhile, EU Member States must notify the Commission of any new technical implementing measure(s), in accordance with Directive 98/34/EC for standardisation and technical regulations."

---

<sup>1</sup> SR35, the responsible working group under CENELEC, will finalise the feasibility study by November 2012.

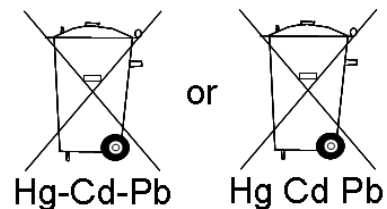
## 2. INDUSTRY STANDARDS

### 2.1 Introduction

The following recommendations have been developed by the EPBA in cooperation with RECHARGE and DIGITALEUROPE to promote a standardised approach on marking related issues that are not clearly defined in the Batteries Directive. Use of these standards are therefore entirely voluntary and at the discretion of the “producer”.

### 2.2 Multiple Chemical Symbols

In those cases where it is necessary to include more than one chemical symbol the format should be as indicated below. Dimensions of the separate collection symbol and the chemical symbols as required by the Directive should be followed.



### 2.3 Button Cells

The dimensions of a very limited number of button cell batteries are such that the separate collection symbol should be marked on the cell according to a strict reading of the Batteries Directive’s marking requirements in Art. 21.4.

However this is not an effective method for informing consumers about separate collection for the following reasons:

- a. Button cells do not have a label on which the symbol could be printed since both its ends are designed to act as electrical contacts. Application of any substances such as inks, etc could insulate the contact between the battery and the appliance into which it is placed causing malfunction. As a result the symbol would have to be engraved into the metal and this would not be easily visible to the consumer and be contrary to Art. 21.6 of the Batteries Directive.
- b. According to the IEC standards button cells should display the following information on cell because of safety and performance issues:
  - polarity "+" symbol (safety),
  - designation to indicate compliance with IEC 60086-3As a result the available space for the separate collection symbol is restricted.



Therefore, the following practise is recommended:

Placing the separate collection symbol, measuring 1cm x 1cm, on the packaging of all button cells will provide consumers with information about their proper disposal visibly, legibly and indelibly.

## **2.4 Battery Packs**

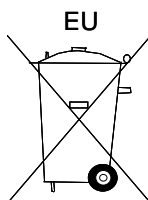
The Batteries Directive defines ‘battery pack’ as “any set of batteries or accumulators that are connected together and/or encapsulated within an outer casing so as to form a complete unit that the end user is not intended to split up or open.”

The marking requirements of Article 21.1. of Batteries Directive 2006/66/EC includes battery packs together with batteries and accumulators that have to be appropriately marked with the separate collection symbol. Since end users are not intended to come into contact with batteries inside a pack it is not necessary to place the separate collection mark on each individual cell inside the battery pack but instead to mark the pack according to the Directive’s requirements noted in section 1 above.

## **2.5 Qualification of Separate Collection Symbol**

The following recommendations have been developed for those producers wishing to advise non-EU markets that the separate collection symbol is relevant in the EU only.

- Location of the qualifier should be outside the boundaries of the symbol.
- Preferably the qualifier should be on top of the symbol. To avoid confusion, it should not be marked under the separate collection symbol because the Batteries Directive reserves that space for chemical symbols (see § 2.2. above).
- The qualifier could be used with the symbol either on battery label or on the battery’s packaging.
- The recommended qualifier is “EU” for European Union as shown in the following illustration:



## **2.6 Batteries Incorporated into Appliances**

Art. 11 of the Battery Directive requires that “manufacturers design appliances in such a way that waste batteries and accumulators can be readily removed.” However this requirement does not apply where “for safety, performance, medical or data integrity reasons, continuity of power supply is necessary and requires a permanent connection between the appliance and the battery or accumulator.” Finally the Battery Directive requires “appliances into which batteries and accumulators are incorporated shall be accompanied by instructions showing how they can be removed safely.”

### **2.6.1 Applications Exempted from Ready Removability**

Batteries incorporated into appliances that are exempted from “readily removed” requirement of the Batteries Directive for safety, performance, medical or data integrity reasons, need not be marked with the separate collection and chemical symbols since end users are not expected to dispose of the battery separately from the appliance. Such batteries would be separated from the appliance during the treatment phase of the appliance as required under the WEEE Directive 2002/96/EC-recast. In particular, this exemption should also apply to button cells, memory back-up batteries, individual cells and battery packs when those batteries/packs are supplied embedded (\*) in the equipment.

(\*) where embedded means “not intended for replacement during the service life of the equipment.”

### **2.6.2 Applications Designed for Ready Removability**

Marking of the separate collection and chemical symbols for batteries and accumulators that can be “readily removed” shall be as follows:

- Where the size of the battery or accumulator is such that following the symbol size conditions noted under 1.3.1 above the symbol would not be smaller than 0.5 cm x 0.5 cm, symbol(s) should be placed on the battery or accumulator.
- Where the size of the battery or accumulator is such that the symbol would be smaller than 0.5cm x 0.5cm, the battery or accumulator should not be marked but a symbol measuring 1cm x 1 cm shall be printed either: 1) on the packaging of the appliance; 2) inside the instructions/manual.

### **2.6.3 Instructions for Ready Removability**

The Battery Directive requires that instructions for safe removal of batteries should be incorporated within its instructions for use. Instructions may be made available to the consumer on a separate leaflet or printed on the packaging.

For further general information on marking guidelines, please contact:

**EPBA**  
Avenue Jules Bordet 142  
1140 Brussels  
Belgium  
Tel: +32 2 761 16 02  
Fax: +32 2 761 16 99  
Email: [epba@kelleneurope.com](mailto:epba@kelleneurope.com)

**RECHARGE aisbl**  
Ave. de Tervueren, 168 B-3.  
B-1150 Brussels.  
Belgium.  
Tel. + 32 2 777 05 60  
Fax + 32 2 777 05 65  
E-mail : [jpwiaux@rechargebatteries.org](mailto:jpwiaux@rechargebatteries.org)

**ANNEX**

**MARKING DIMENSIONS ACCORDING TO EN 61429 AND EXAMPLES FOR  
SPECIFIC BATTERY SIZES**

The following table has been derived using formula:  $a \geq 0.12 \sqrt{A}$

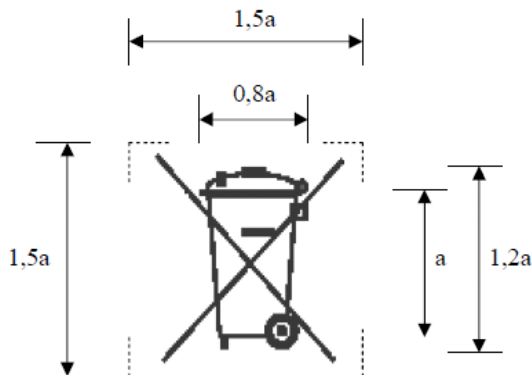
a = nominal symbol dimension

A = half battery curved surface

Battery Size		Minimal "a" (in millimetres)	With chemical symbol (1,5a x 2a)  May be horizontally extended to banderole shape (in millimeters)	Without chemical symbol (1,5a x 1,5a)  May be horizontally extended to banderole shape (in millimeters)
ANSI	IEC code			
AA	R6	4,1	6,1 x 8,1	6,1 x 6,1
6F22	6LR61	4,0	6,0 x 8,0	6,0 x 6,0
C	R14	5,4	8,2 x 10,9	8,2 x 8,2
D	R20	6,9	10,3 x 13,8	10,3 x 10,3

area (cylindrical) or area  
of largest side (prismatic)

**Separate collection marking without collection symbol**



*Separate collection marking with chemical symbol*

