



CAPACITY MARKING

Portable Rechargeable Batteries



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DG Environment
Stakeholder Meeting
Dec. 19, 2008



CAPACITY MARKING Portable Rechargeable Batteries

1. CURRENT PRACTICE

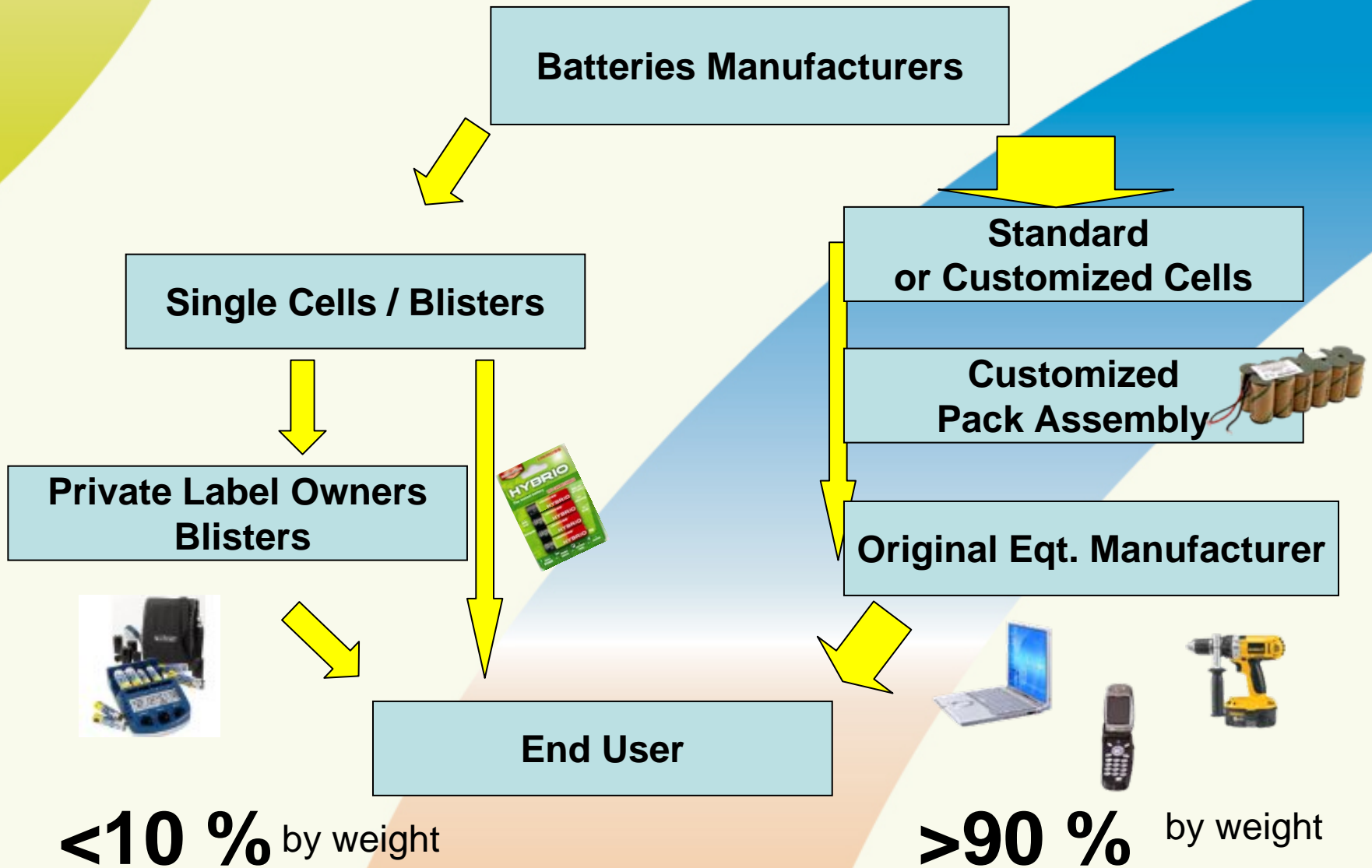
2. RECHARGE's POSITION



**DG Environment
Brussels, Dec. 19, 2008**



The Portable Rechargeable Batteries Market





Current labeling practice for Portable Rechargeable Batteries (PRB) & Battery Packs (PRB&P).

1. Incorporated cells and packs.

For portable rechargeable batteries, the capacity labeling is made by the PRB manufacturer in accordance to specifications required by the Original Equipment Manufacturer.

Such information is indicated in milliAmpere-hour (mAh) or Ampere-hour (Ah) on the battery pack. The open cell voltage is also indicated in Volts.

A typical labeling for a Portable Computer pack would be : 11.2 V – 4800 mAh.

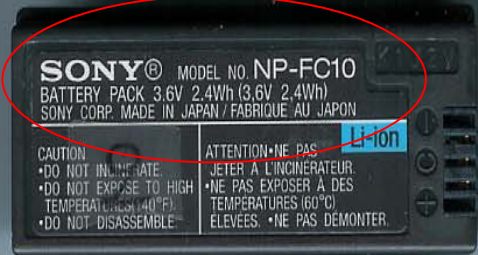
2. Individual cells.

For individual cells commercialized on the retail market, the capacity is indicated on the cells and/or on the blister which carries the cells by two or four units. The open cell voltage is also indicated in Volts.

A typical labeling for a blister of individual cells would be : 1.2 V – 800 mAh.



DSC

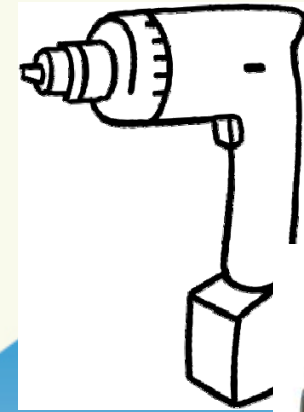


DSC



MobilePhone

RECHARGE



Capacity on battery packs.

Performances specification for dedicated equipment

**Information between the Batteries Manufacturer
and the Equipment Manufacturer**

**End User has not the choice between 2 brands at time of purchase
of equipment**





International Standards used by the Portable Rechargeable Battery Industry on Worldwide Basis.

The following international standards exist for the evaluation of the capacity of a rechargeable cell.

Nickel-Cadmium : prismatic, cylindrical and button cells
IEC Standard N° 61951-1-IEC 2003 & A 1. 2005

Nickel-Metal Hydride : cylindrical and button cells
IEC Standard N° 61951-2 – IEC 2003

Lithium-Ion : single cell and cells assembly in a battery
IEC Standard N° 61960 – IEC 2003

Example of technical performances to be achieved under IEC 61951-2 for nickel-metal hydride cells.

61951-2 © IEC:2003

Ni-MH

Table 5 - Discharge performance at 20°C for small prismatic cells and cylindrical cells

Discharge conditions		Minimum discharge duration h/min			
		Cell designation			
Rate of constant current A	Final Voltage V	L/LT/LU	M/MT/MU	H/HT/HU	x
		0,2 I_1^a	1.0	5h	5h
1,0 I_1	0.9	–	42 min	48 min	54 min
5,0 I_1^b	0.8	–	–	6 min	9 min
10,0 I_1^b	0.7	–	–	–	4 min

^a Five cycles are permitted for this test. The test shall be terminated at the end of the first cycle which meets the requirements

^b Prior to the 5,0 I_1 A and 10,0 I_1 A tests, a conditioning cycle may be included if necessary. This cycle shall consist of charging at 0,1 I_1 A in accordance with 7,1 and discharging at 0,2 I_1 A, in an ambient temperature of 20°C ± 5°C, according to 7,2,1

Acceptable quality level : 1 failure over 50 units tested for a batch of 150'000



2. RECHARGE's POSITION

1. Q&A

2. PRACTICAL ASPECTS

3. DEFINITIONS

Portable Rechargeable Batteries and Packs

Q 1 : Do you agree with the approach suggested by the Consultant.

**Yes, the criteria for capacity marking should correspond to internationally adopted standards (existing IEC/EN standards)
>>> Avoid any new EU standard different from International Standards.**

Q 2 : Do you agree with the labelling approach ?

The principle of labelling the capacity is accepted by the PRB Industry and It is currently implemented.

Do you think this contains useful information to consumers?

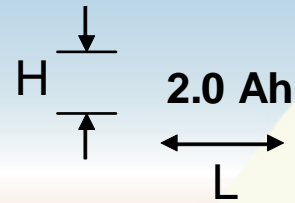
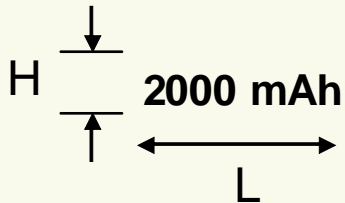
On PRB&P , this information is mainly useful for professional users

It can be used by other end users at the time of replacement of the PRB&B

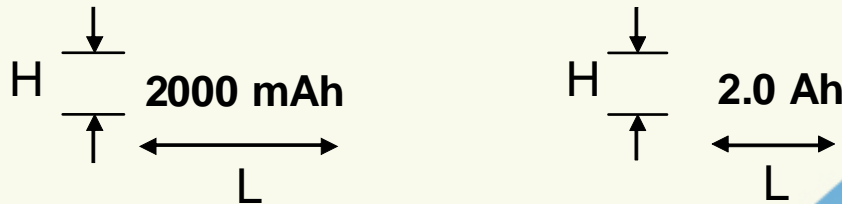
Q 2 a. How should the label express the capacity of the battery.

The text should be indicated in milliAmpere-hour (mAh) or Ampere-hour (Ah)

Q 2 b. What should the label look like (icons, letters, numbers)?



Q 2 b. What is the recommended label SIZE ?



INDIVIDUAL CELLS SIZE (equivalent to D, C, AA,AAA, others ...)	PACKS SIZE (Small e.g. mobile phones = max 70 cm ² for largest side)	PACKS SIZE (Large e.g. Laptops & Cordless Tools)
Standard sizes Minimum size H = 1.0 mm L = 5.0 mm	Mobile Phone Packs Minimum Size H = 1.0 mm L = 5.0 mm	Computer and Cordless Tools Minimum Size H = 2.0 mm L = 5.0 mm

RECHARGE's proposal is to respect a minimum size value of 1.0 mm X 5.0 mm that could be further adapted on each individual geometry.

A mark which is visible at arms length (i.e. approx 50 cm) with a 20/20 vision, is legible.

Q 2 c. Where should the label by placed?

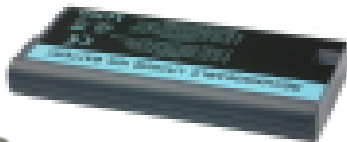


1. Standard Cells either Cylindrical or Prismatic

On the packaging

2. Battery Packs

On the outer casing of the pack



~~Not on individual cells~~

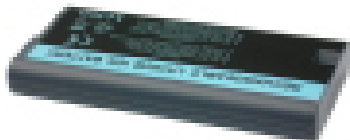
Q 2 d. Where, on the battery or on the pack, should the label be placed ?

Q 2 e. Where shall the capacity label be placed in relation to other labels ?



1. Standard Cells either Cylindrical or Prismatic.

2. Battery Packs



As a general principle, freedom should be left to manufacturers/producers who will consider the many other safety and regulatory marking requirements.

3. Do you agree with exempting some categories of batteries from the capacity labelling requirements?

>>> For rechargeable button cells and memory-back-up batteries sold...

3.a. Separately >>> labelling on the packaging.

**3.b Incorporated and embedded in equipment
>>> exemption from labelling**

Explanation : End user has not access to the battery (will not replace)

>>> For individual cells sold ...

**3.c. incorporated in an equipment with a longer life than equipment ...
>>>> Labelling on the packaging - *End user has not access to battery***

**3.d. together within equipment packaging >>> marking on packaging
NB. Marking in users manual >>> more appropriate.**

4. Do you have any suggestions for an alternative (more simplified) approach?

In the PRB market, the capacity marking is mainly an information for professionals. The capacity information indicated today on power packs for mobile phones, laptops, cordless tools battery packs is mainly used as technical information between manufacturers.

Because the power pack is sold together with the equipment, the end user does not have the freedom to choose between 2 different brands for the given application, at the time of purchase.

The capacity marking is an issue linked to the “information for end-users”.

This type of information should be communicated via modern communication tools such as the WEB sites of producers, rather than to be imposed under a printed format on the battery or its packaging.



2. OTHER PRACTICAL ASPECTS.

2.1. Implementation timing.

**6 months period is not practical
18 months interval period is required
(distribution → enforcement)**

2.2. Enforcement.

**There should be a recommendation for an enforcement mechanism.
Self-regulation will probably be guiding industry's response.**

2.3. Accuracy/tolerance range needs to be discussed.

IEC standard offers a guarantee that a minimum requirement is achieved.

If tolerance is accepted for other batteries systems, PRB should also be granted a tolerance value on the rated capacity



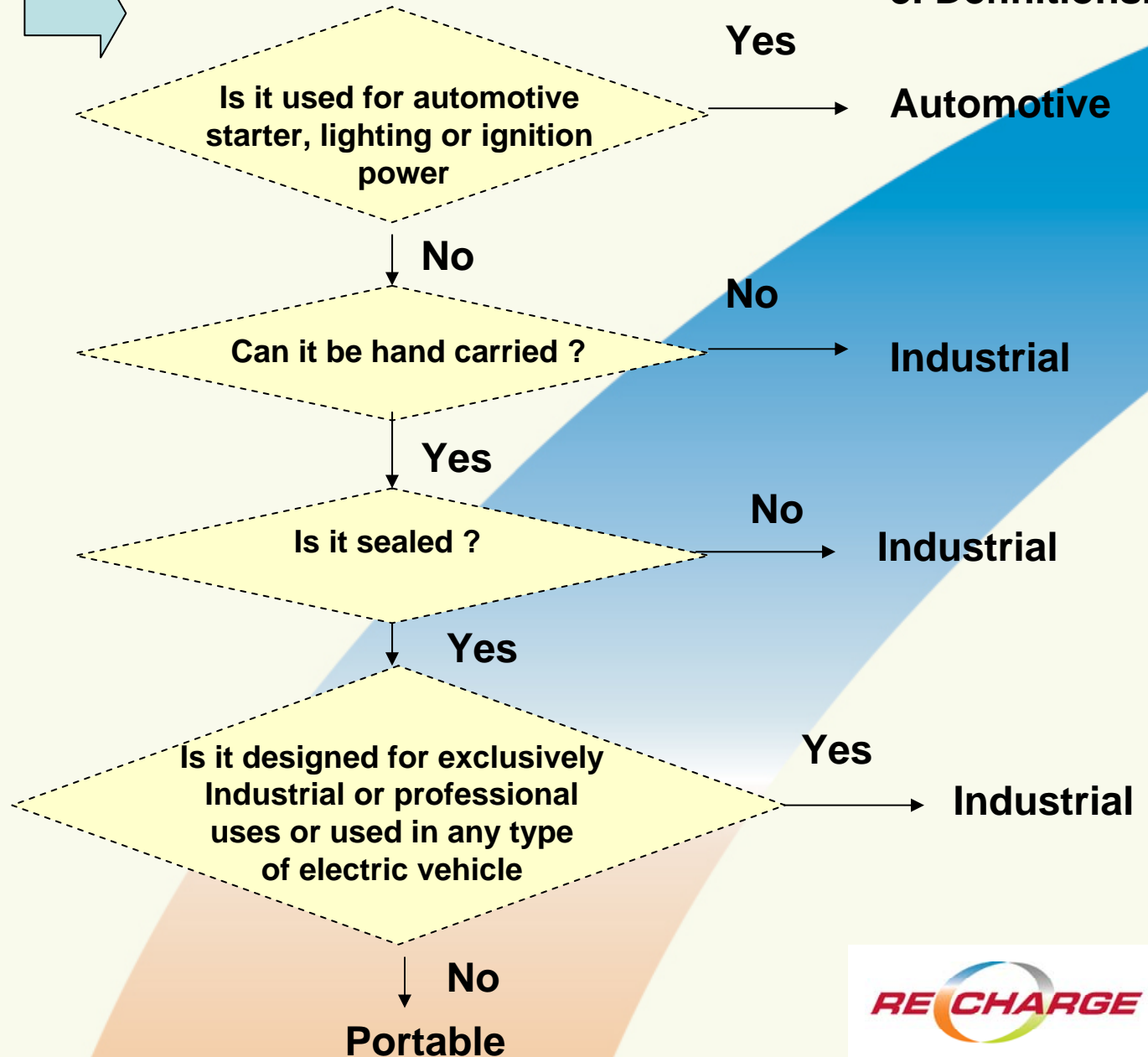
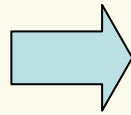
3. Definitions.

Producers of Industrial Rechargeable Batteries normally have control of the type of batteries that are placed on the market as these batteries are designed for professional and/or industrial applications.

In particular when individual cells are assembled into a power pack, this power pack is designed for a specific application which is known by the pack assembler.

The criteria defined in the Batteries Directive have been summarized in a decision tree that is proposed by the UK/BERR. This decision tree uses the terms of the Definitions supplied in Article 3 of the Batteries Directive 2006/66/EC (see Annex 2).

Applicable to
Individual cells
&
Power packs



**Batteries
Definition
>>>>>>>>>>
Decision
Tree**



Thank you...

Rechargeable batteries...

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... energy wherever needed

