

Nordic Ecolabelling for  
**Primary batteries**



Version 5.2

7 November 2018 – 31 December 2024

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001 Primary batteries, version 5.2, 30 November 2021

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## Addresses

In 1989, the Nordic Council of Ministers decided to introduce a voluntary official ecolabel, the Nordic Swan Ecolabel. These organisations/companies operate the Nordic Ecolabelling system on behalf of their own country's government. For more information, see the websites:

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This document may only be copied in its entirety and without any type of change. It may be quoted from provided that Nordic Ecolabelling is stated as the source.

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## What is a Nordic Ecolabelled primary battery?

The quality (operating time) of Nordic Ecolabelled primary batteries places them amongst the best on the market, which is essential to the environmental profile of the batteries. The longer the operating time, the fewer batteries will need to be used and, accordingly, produced. Strict requirements apply to the information provided to the consumer. Both of these points are intended to ensure that the battery will need to be replaced less frequently, thereby "sparing" the environment the burden of more batteries. The battery or packaging does not contain PVC, and the permitted content of lead, cadmium and mercury is lower than the levels stipulated by the authorities in their requirements.

Producers of batteries must demonstrate good corporate social responsibility regarding the sourcing of conflict minerals, as well as critical raw materials and working conditions.

A different Nordic Ecolabelling criteria document allows rechargeable batteries to be ecolabelled. Rechargeable batteries will in most cases represent a better choice in environmental terms than primary batteries. However, not all types of consumer household batteries have developed a market for rechargeable battery alternatives, e.g. button cells. There are differences between primary batteries with some representing a better choice in environmental terms than others. Nordic Ecolabelling has therefore opted to draft criteria for Nordic Ecolabelled primary batteries in order to be able to offer guidance to consumers who wish to purchase primary batteries and in doing so to take account of environmental considerations.

Nordic Swan Ecolabelled primary batteries:

- Meet stringent requirements for both battery operation time and shelf life – to ensure a long lifetime for the battery.
- Have a low content of mercury, cadmium and lead – to reduce the spreading and use of metals.
- Does not contain PVC\* – to reduce the environmental impact in particular waste handling.
- Meet a CSR policy – to ensure responsible use and sourcing of limited raw materials and "conflict-free" minerals.

*\*applies to 9V batteries from 30/6-2021.*

## Why choose the Nordic Swan Ecolabel?

- Licence holders may use the Nordic Swan Ecolabel trademark for marketing. The Nordic Swan Ecolabel is a very well known and well-reputed trademark in the Nordic region.
- The Nordic Swan Ecolabel is a simple way of communicating environmental work and commitment to customers.
- The Nordic Swan Ecolabel clarifies the most important environmental impacts and thus shows how a company can cut emissions, resource consumption and waste management.

- Environmentally suitable operations prepare primary batteries for future environmental legislation.
- Nordic Ecolabelling can be seen as providing a business with guidance on the work of environmental improvements.
- The Nordic Swan Ecolabel not only covers environmental issues, but also quality requirements, since the environment and quality often go hand in hand. This means that a Nordic Swan Ecolabel licence can also be seen as a mark of quality.

## What can carry the Nordic Swan Ecolabel?

The product group comprises the following products:

Portable primary batteries in accordance with the definition given in the European Union's Battery Directive, 2006/66/EC.

The following batteries and electrical appliances cannot be Nordic Swan Ecolabelled according to these criteria:

- Rechargeable batteries, for which separate criteria exist.
- Batteries that are built into or form a permanent part of electronic products and where replacement of the batteries is not possible.
- Car batteries and industrial batteries.

## How to apply

### Application and costs

For information about the application process and fees for this product group, please refer to the respective **national** web site. For addresses see first in this document.

### What is required?

The application must consist of an application form/web form and documentation showing that the requirements are fulfilled.

All product types and brands shall be listed in the application.

Each requirement is marked with the letter O (obligatory requirement) and a number. All requirements must be fulfilled to be awarded a licence.

The text describes how the applicant shall demonstrate fulfilment of each requirement. There are also icons in the text to make this clearer. These icons are:

☒      Enclose

📍      Requirement checked on site

All information submitted to Nordic Swan Ecolabelling is treated confidentially. Suppliers can send documentation directly to Nordic Ecolabelling, and this will also be treated confidentially.

## License validity

The Nordic Swan Ecolabel licence is valid providing the criteria are fulfilled and until the criteria expire. The validity period of the criteria may be extended or adjusted, in which case the licence is automatically extended and the licensee informed.

Revised criteria shall be published at least one year prior to the expiry of the present criteria. The licensee is then offered the opportunity to renew their licence.

## On-site inspection

In connection with handling of the application, Nordic Swan Ecolabelling normally performs an on-site inspection to ensure adherence to the requirements. For such an inspection, data used for calculations, original copies of submitted certificates, test records, purchase statistics, and similar documents that support the application must be available for examination.

## Queries

Please contact Nordic Ecolabelling if you have any queries or require further information. See first in this document for addresses. Further information and assistance (such as calculation sheets or electronic application help) may be available. Visit the relevant national website for further information.

# 1 Production and product description

## 01 Description of the product

The applicant must submit the following information about the product(s):

- Brand and trading name(s).
- Name and contact details of production location(s) for the manufacture and brand owner(s) of batteries.
- Description of the product(s), detailing all constituent substances present in the battery in the application (weight %); cathode-and anode ingredients, electrolyte solutions, conductor-, separator- and container ingredients and other materials.
- Description of materials used in the primary packaging. Primary packaging: refers to the purchase packaging for the consumer, e.g. the packaging that holds the batteries, and which the consumer encounters in sales.
- Description of the manufacturing process for the product, including a general description of the batteries manufacturing process e.g. in a form of flow chart and which technology that is being used to produce the batteries.

☒ Description of the above points. Appendix 1 may be used. A flow chart is recommended to explain the production process.

## 2 Resources

### O2 Metal content of batteries

The metal content of the battery may not exceed the following limits:

Metal	Content
Mercury	< 0.1 ppm
Cadmium	< 1.0 ppm
Lead	< 10 ppm

*It should be noted that the EU's Battery Directive 2006/66/EC permits a maximum cadmium content of 20 ppm and a maximum mercury content of 5 ppm. The test laboratory may need special equipment in order to test batteries for a mercury content of < 0.1 ppm.*

At least four examples of the product in question must be analysed and all four must meet the requirement.

The metal content of the batteries must be analysed in accordance with “Battery Industry Standard Analytical Method. For the determination of Mercury, Cadmium and Lead in Alkaline Manganese Cells Using AAS, ICP-AES and “Cold Vapour”. European Portable Battery Association (EPBA), Battery Association of Japan (BAJ), and National Electrical Manufacturers Association (NEMA; USA). April 1998”.

Similar test methods may be approved if assessed and adjudged to be equivalent to the recommended method by an independent third party.

- Report from the analysis body showing the metal content of the batteries.
- Declaration confirming that the institution performing the analysis is impartial and fulfils the general requirements applicable to test laboratories, as described in the requirements applicable to the analysis laboratory/test institutions in appendix 6.

### O3 Plastic

Chlorine-based plastic must not be used in primary batteries.

*PVC used in separators between the individual 1,5 V cells/casing around each individual 1,5 V cell in 9V batteries are exempted from the requirement until 30/6-2021.*

- Declaration from the manufacturer of the battery that the requirement is fulfilled. Appendix 2 may be used.

## 3 Packaging and information

Primary packaging: refers to the purchase packaging for the consumer, e.g. the packaging that holds four batteries, and which the consumer encounters in sales.

Secondary packaging: refers to the transport packaging and protects the packs of batteries during transport to stores and consumers.

### O4 Battery labels and packaging

#### Battery labels:

The battery label\* must not contain PVC or other halogenated organic compounds in general (including flame retardants).

*\* The label itself, not any pigment or inks used for printing on the label.*

### **Packaging:**

The total proportion of pre- and post-consumer\* recycled material in the primary packaging for the batteries must be at least 80% by weight.

Chlorine-based plastic must not be used in primary and secondary packaging.

The primary packaging must be designed in such a way that dismantling is possible for all individual parts for waste sorting (e.g. cardboard, paper, plastic, metal) without using any tools.

*Small antitheft RFID components are excluded from the dismantling requirement.*

*\*Pre- and post-consumer material is defined in accordance with ISO 14021:*

*"Pre-consumer": Material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.*

*"Post-consumer/commercial" is defined as material created by households or commercial, industrial or institutional facilities in the role of end users of a product which can no longer be used for the intended purpose. This includes return of material from the distribution chain.*

- ☒ Declaration from the manufacturer of the battery label that the requirement is fulfilled. Appendix 3 may be used.
- ☒ Description of the primary and secondary packaging. Declaration from the manufacturer of the battery or brand owner(s) showing that the requirement is fulfilled. Appendix 4 may be used.
- ☒ Documentation from packaging suppliers showing the proportion of pre- and post-consumer recycled material in their products.
- ☒ Declaration from the manufacturer of the battery or brand owner(s) showing that the total proportion of pre- and post-consumer recycled material in the primary packaging exceeds 80% weight. Appendix 4 may be used.

## **O5 Consumer information on the battery and primary packaging**

The battery must be marked in accordance with IEC 60086.

The primary packaging must clearly state:

- a) The types of energy-intensive appliances for which the battery is recommended in order to secure optimum use from the battery. This information must contain:
  - Information on whether the batteries are suitable for appliances with high, medium, low energy drain or if the batteries are suitable for all types of electrical appliances. The information must be shown with either pictograms or clear visible text.
- b) Date of manufacture or best before of the batteries (year and month).
- c) Use of the Nordic Swan Ecolabel according to "Guidelines for using the Nordic Swan Ecolabel"<sup>1</sup>

- ☒ Declaration from the manufacturer of the battery or brand owner(s) showing that the battery is marked in accordance with IEC 60086. Appendix 5 may be used.
- ☒ Sample of packaging showing compliance with the requirement.

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<sup>1</sup> <http://www.nordic-ecolabel.org/certification/graphical-guidelines/> (visited March 2018)

## 4 Corporate Social Responsibility

### 06 Sourcing of “conflict-free” minerals

The licensee must:

- Have a supply chain policy for responsible mineral sourcing that can be considered to cover tin, tantalum, tungsten, gold and cobalt. The policy must be both public and communicated to the supply chain.
- Have a process to identify smelters and refiners of at least tin, tantalum, tungsten, gold and cobalt.
- Be a part of an established multi-stakeholder program that works at supporting responsible sourcing programs for at least tin, tantalum, tungsten, gold and cobalt.

*The background document contains recommendations (verification guidelines) to what can be included in the documentation of the three points.*

- The most recent version of the public policy and a description of how it is communicated to the supply chain.
- A description of the licensee's structured work on identifying risk areas in their supply chain.
- Proof of participation in an approved multi-stakeholder program.

### 07 Sourcing of critical raw materials

The licensee must have a policy for the use of raw materials included in the EU's newest list of critical raw materials in batteries at the time of application. The EU 2017-list of critical raw materials can be found in appendix 7.

The policy must describe how the licensee works actively;

- to minimize and to phase out (in the long term) the use of critical raw materials in future.
- to recycle critical raw materials in the batteries.
- support recycling programs for collecting used batteries

- The licensee must submit a written policy that describes how the licensee work actively to phase out/recycle any critical raw materials in batteries, support recycling programs for collecting used batteries and minimizes the use of critical raw materials in the future.

### 08 Working conditions

The licensee must have a written Code of Conduct that explains how the licensee ensures compliance with the following UN conventions and the UN Global Compact at component and battery suppliers:

- The UN Convention on the Rights of the Child, Article 32.
- The UN Declaration (61/295) on the Rights of Indigenous Peoples.

The UN's: Global Compact, which comprises the following ten principles:

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights.
- Principle 2: Make sure that they are not complicit in human rights abuses.
- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining (ILO Conventions 87 and 98).
- Principle 4: The elimination of all forms of forced and compulsory labour; (ILO Conventions 29 and 105).

- Principle 5: The effective abolition of child labour (ILO Conventions 138 and 182).
- Principle 6: the elimination of discrimination in respect of employment and occupation (ILO Conventions 100 and 111).
- Principle 7: Businesses should support a precautionary approach to environmental challenges.
- Principle 8: Undertake initiatives to promote greater environmental responsibility.
- Principle 9: Encourage the development and diffusion of environmentally friendly technologies.
- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

The licensee must ensure that all suppliers are familiar with and comply with the Code of Conduct.

*If components and/or batteries are produced in countries in which these conventions are incorporated as part of the requirements of the authorities, no further documentation will be required beyond the signed application form for a licence for Nordic Ecolabelling.*

- ☒ Licensees must submit a written Code of Conduct that explains how the licensee ensures that its suppliers comply with the requirements of the UN conventions and the UN Global Compact.
- ☒ A description of how the licensee's Code of Conduct is communicated to all of its suppliers.

## 5 Electrical testing

### 09 Electrical testing

#### Minimum average duration (MAD)

The test conditions under which the batteries are tested must be in accordance with IEC 60086-1:2015.

This requirement encompasses the testing of the operating time in various applications depending on the type of battery; see Table 1-5 below. The tables uses the designations in IEC 60086-2:2015.

Each test includes at least eight batteries per size and model, and all eight must meet the requirements.

The battery must meet the minimum permitted operation time specified in Table 1-5 for the specific battery dimension. The battery must meet the test requirement for all applications specified in Table 1-5 for the specific battery dimension. E.g., battery dimension LR20 must meet the test requirements for all three test specified in Table 1 in order to be approved.

Button cells and all other types of batteries with dimensions that do not match those specified in Table 1 – 5, including specially designed batteries, are subject to the following requirement:

If the battery in question is found in the standard IEC 60086-2:2015, the battery must be tested in accordance with the standard, and the test result must show that the battery is minimum 50% better than the operation time specified in the standard (MAD).

In the case of batteries of type and sizes not found in IEC 60086-2:2015: contact Nordic Ecolabelling. Nordic Ecolabelling will conduct an internal assessment of the operation time requirements that should be applicable with respect to such battery.

In the case of batteries with a different chemical composition than alkaline, but of the same size as the batteries specified in Table 1-5, the requirement in Table 1 – 5 applicable to the relevant battery dimension must be met.

**Table 1: Household batteries, dimension LR20**

Battery dimension	Application	Load	Daily period	EV (V)	Minimum permitted operating time
LR20	Portable lighting	2,2 Ω	4 min on, 11 min off for 8 h per day	0,9	19,5 h
LR20	Toy	2,2 Ω	1 h	0,8	24 h
LR20	Portable stereo	Current drain 600 mA	2 h	0,9	17 h

**Table 2: Household batteries, dimension LR14**

Battery dimension	Application	Load	Daily period	EV (V)	Minimum permitted operating time
LR14	Toy	3,9 Ω	1 h	0,8	21 h
LR14	Portable lighting	3,9 Ω	4 min on, 11 min off for 8 h per day	0,9	19 h
LR14	Portable stereo	Current drain 400 mA	2 h	0,9	13 h

**Table 3: Household batteries, dimension LR6**

Battery dimension	Application	Load	Daily period	EV (V)	Minimum permitted operating time
LR6	Digital still camera	1500 mW 650 mW	*	1,05	70 pulses
LR6	Portable lighting	3,9 Ω	4 min on, 56 min off for 8 h per day	0,9	370 min
LR6	Motor/toy	3,9 Ω	1 h	0,8	7,5 h
LR6	Toy, non-motorized	250 mA	1 h	0,9	8 h
LR6	CD, digital audio, wireless gaming and accessories	100 mA	1 h	0,9	24 h
LR06	Radio/clock/re mote control	50 mA	1 h on, 7 h off for 24 h per day	1,0	47,5 h

\*According to part 6.1.4 in IEC 60086-2:2015

**Table 4: Household batteries, dimension LR03**

Battery dimension	Application	Load	Daily period	EV (V)	Minimum permitted operating time
LR03	Portable lighting	5,1 $\Omega$	4 min on, 56 min off for 8 h per day	0,9	3,5 h
LR03	Toy	5,1 $\Omega$	1 h	0,8	190 min
LR03	Digital audio	50 mA	1 h on, 11 hr off for 24 h	0,9	19 h
LR03	Remote control	24 $\Omega$	15 s per min 8 h per day	1,0	21 h

**Table 5: Household batteries, dimension 6LR61/LF22**

Battery dimension	Application	Load	Daily period	EV (V)	Minimum permitted operating time
6LR61	Toy	270 $\Omega$	1 h	5,4	21 h
6LR61	Clock radio	620 $\Omega$	2 h	5,4	47 h
6LR61	Smoke detector*	Background: 10 k $\Omega$ Pulse: 0,62 k $\Omega$	1 s on, 3599 s off for 24 h day*	7,5	20 days

\*According to part 6.6.8 in IEC 60086-2:2015

### Leakage

During testing, no leakage may occur.

*The requirements concerning test laboratories and test instructions for operation time (MAD) and leakage are stated in appendix 6.*

- Complete test report, including information that the batteries have been tested in accordance with IEC 60086-1:2015 and that no leakage has occurred during testing.
- Documentation showing that the test laboratory fulfil the requirements stated in Appendix 6. Independent competent third party must confirm that the testing has been carried out in line with the requirement.

### **O10 Delayed discharge performance (shelf life)**

The battery must achieve a delayed discharge performance after 12 month, or 13 weeks when using the high temperature test, of minimum 90% of the specific MAD limit listed in requirement O9 for each battery dimension and applications.

The test conditions under which the batteries are tested must be in accordance with IEC 60086-1:2015.

Each test includes at least eight batteries per size and model, and all eight must meet the requirements.

In case the manufacturer of the battery or licensee has not had time to perform a delayed discharge test (e.g. new battery design/-chemistries) at the time of application, the licensee must present a specific plan for when the test is started and expected to be completed.

*The requirements concerning test laboratories are stated in Appendix 6.*

- Complete test report.

- Documentation showing that the test laboratory fulfil the requirements stated in Appendix 6. Independent competent third party must confirm that the testing has been carried out in line with the requirement.
- In case of no test at the time of application: The licensee must present a specific plan for performing delayed discharge performance tests for the relevant battery/ies. When the test is completed it must be sent to Nordic Swan Ecobelling.

## 6 Safety

### O11 Lithium batteries, safety

Lithium batteries must fulfil the testing requirements in IEC 60086-4.

*The requirements concerning test laboratories are stated in Appendix 6.*

- Complete test report.
- Documentation showing that the test laboratory fulfil the requirements stated in Appendix 6.

## 7 Waste plan

### O12 Waste sorting in the production process

A waste plan for sorting waste generated in the production process must be submitted. The waste plan must as a minimum contain the following:

- Overview of all waste fractions occurring in production. (The waste plan must specify discarded batteries and discarded semi-manufactured batteries.)
- Description of how waste is handled during the production process and after delivery (landfill, incineration, treatment, material recycling...)
- Name and address of the business/organisation(s)/authority (authorities) that collect/receive the waste.

Discarded batteries and discarded semi-manufactured batteries\* must be collected and sent for recycling. Documentation must be submitted in the form of a declaration from the collector/recipient confirming that these batteries/semi-manufactured batteries have been sent for material recycling.

*\*In case of specific national regulatory requirements that prohibit companies to recycle discharged batteries/ discharged semi-manufactured partial batteries (i.e. unsealed cans), the licensee must:*

*- describe and document the national regulatory requirements for recycling of discharged semi-manufactured partial batteries*

*- describe how they handle discarded semi-manufactured partial batteries*

- Waste plan as described in the requirement.
- Declaration from collector/recipient of discarded batteries and discarded semi-manufactured batteries confirming that they are sent for material recycling.
- In case of specific national regulatory requirements for recycling of discarded batteries, the licensee must: a) describe and document the national regulatory requirements for recycling of discharged semi-manufactured partial batteries and b) describe how they handle discarded semi-manufactured partial batteries.

## 8 Requirements of the authorities and quality requirements

To ensure that Nordic Ecolabelling requirements are fulfilled, the following procedures must be implemented.

### O13 Responsible person and organisation

The company shall appoint individuals who are responsible for ensuring the fulfilment of the Nordic Ecolabelling requirements, for marketing and for finance, as well as a contact person for communication with Nordic Ecolabelling.

- Organisational chart showing who is responsible for the above.

### O14 Documentation

The licensee must archive the documentation that is sent in with the application, or in a similar way maintain information in the Nordic Ecolabelling data system.

- To be checked on site as necessary.

### O15 Quality of primary batteries

The licensee must guarantee that the quality of the Nordic Swan Ecolabelled product does not deteriorate during the term of validity of the licence.

- Procedures for archiving claims and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Swan Ecolabelled primary batteries.

- The claims archive is checked on site.

### O16 Planned changes

Written notice must be given to Nordic Ecolabelling of planned changes in products and markets that have a bearing on Nordic Ecolabelling requirements.

- Procedures detailing how planned changes in products and markets are handled.

### O17 Unplanned nonconformities

Unplanned nonconformities that have a bearing on Nordic Ecolabelling requirements must be reported to Nordic Ecolabelling in writing and journalised.

- Procedures detailing how unplanned nonconformities are handled.

### O18 Traceability

The licensee must be able to trace the Nordic Swan Ecolabelled primary batteries in production.

- Description of/procedures for the fulfilment of the requirement.

### O19 Legislation and regulations

The licensee shall ensure compliance with all applicable local laws and provisions at all production facilities for the Nordic Swan Ecolabelled product, e.g. with regard to safety, the working environment, environmental legislation and site-specific terms/permits.

- Duly signed application form.

## Regulations for the Nordic Ecolabelling of products

When the Nordic Swan Ecolabel is used on products the licence number shall be included.

More information on graphical guidelines, regulations and fees can be found at [www.nordic-ecolabel.org/regulations/](http://www.nordic-ecolabel.org/regulations/)

## Follow-up inspections

Nordic Ecolabelling may decide to check whether primary batteries fulfils Nordic Ecolabelling requirements during the licence period. This may involve a site visit, random sampling or similar test.

The licence may be revoked if it is evident that primary batteries does not meet the requirements.

Random samples may also be taken in-store and analysed by an independent laboratory. If the requirements are not met, Nordic Ecolabelling may charge the analysis costs to the licensee.

## History of the criteria

Nordic Ecolabelling adopted version 5.0 of the criteria for primary batteries on 7 November 2018. The criteria are valid until 31 December 2023.

Nordic Ecolabelling decided on April 28 2020 to change the requirement for minimum permitted operation time (O9) from min. 60% to 50%. New version is called 5.1.

Nordic Ecolabelling decided on the 30 November 2021 to prolong the validity of the criteria with 12 months to the 31 December 2024. The new version is 5.2.

## New criteria

As part of any future evaluation of the criteria, it will be relevant to consider the following:

- The product definition – new types of primary batteries.
- The possibility of imposing further requirements on constituent substances, particularly heavy metals and the use of solvents in the production of batteries.
- The possibility of imposing requirements concerning the sourcing of conflict-free minerals and critical raw materials.
- Requirements for electrical testing – battery capacity, minimum average duration (MAD), shelf life.

## Terms and definitions

Term	Explanation or definition
Button cell	Button cell means any small round portable battery or accumulator whose diameter is greater than its height and which is used for special purposes such as hearing aids, watches, small portable equipment and back-up power.
Conflict-affected and high-risk areas	Areas in a state of armed conflict, fragile post-conflict areas, as well as areas witnessing weak or non-existing governance and security, such as failed states. In these areas, there are often widespread and systematic violations of international law, including human rights abuses.
DoD	Depth of Discharge.
High, medium or low energy drain level	High energy drain is >500 milliamperes. Medium energy drain is >100<500 milliamperes. Low energy drain is <100 milliamperes.
Li-ion	Lithium-ion.
mAh or Ah	Milliamp hours or amp hours: the amount of power expected over time. The higher the number, the greater the capacity. This is the electrical charge (current) that passes through a specific circuit in one hour.
MAD	Minimum Average Duration.
OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas	For more information: <a href="http://www.oecd.org/corporate/mne/mining.htm">http://www.oecd.org/corporate/mne/mining.htm</a>
PVC	PolyVinyl Chloride.
Pre- and post-consumer material	Pre- and post-consumer defined in accordance with ISO 14021:  Pre-consumer: Material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.  Post-consumer/commercial: Material created by households or commercial, industrial or institutional facilities in the role of end users of a product which can no longer be used for the intended purpose. This includes return of material from the distribution chain.
Primary packaging	Refers to the purchase packaging for the consumer, e.g. the packaging that holds 4 batteries or one portable charger, and what the consumer encounters in sales.
Secondary packaging	Refers to the transport packaging and protects the packs of batteries and portable chargers during transport to stores and consumers.
WEEE	Waste Electrical and Electronic Equipment.

## Appendix 1 Description of the primary battery, material composition and production

This declaration is based on the knowledge we have at the time of the application, based on tests and/or declarations from raw material manufacturers, with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling.

Product: Brand/trading name(s):	
Name and contact details of production location(s) for the manufacture and brand owner(s) of batteries:	

For each battery type, detailing list of all constituent substances present the battery in the application (weight %); cathode-and anode ingredients, electrolyte solutions, conductor-, separator- and container ingredients and other materials.

<b>Product name:</b>		
<b>Cathode ingredients:</b> Substance and CAS nr.:	<b>Concentration of total weight-%</b>	<b>Function:</b>
<b>Anode ingredients:</b> Substance and CAS nr.:		
<b>Electrolyte solutions:</b> Substance and CAS nr.:		
<b>Conductor:</b> Substance and CAS nr.:		
<b>Seperator:</b> Substance and CAS nr.:		
<b>Other ingredients:</b> Substance and CAS nr.:		
<b>Container:</b> Substance and CAS nr.:		
<b>Battery label:</b> Substance and CAS nr.:		

Description of materials used in the primary packaging:

*Primary packaging: refers to the purchase packaging for the consumer, e.g. the packaging that holds 4 batteries, and which the consumer encounters in sales.*

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Description of manufacturing process of the product:

*Nordic Ecolabelling wants a general description of the batteries manufacturing process and which technology that is being used to produce the batteries. A flow chart is recommended to explain the production process:*

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Applicant's or manufactures signature:

Place and date	Company name
Responsible person	Responsible persons signature
Telephone number	E-mail

## Appendix 2 Plastic

Name of the manufacturer of the battery:	
Name/type of primary battery/-batteries:	

I hereby declare that chlorine-based plastic is not used in the primary battery/-batteries.

*PVC used in separators between the individual 1,5 V cells/casing around each individual 1,5 V cell in 9V batteries are exempted from the requirement until 30/6-2021.*

Manufacture of the battery signature:

Place and date	Company name
Responsible person	Responsible persons signature
Telephone number	E-mail

## Appendix 3 Battery label

Type of battery (eg. AAA or AA): Materials in the battery label:	
Name of the manufacturer of the battery label:	

I hereby declare that the battery label\* does not contain PVC or other halogenated organic compounds in general (including flame retardants).

*\* The label itself, not any pigment or inks used for printing on the label.*

Manufacture of the battery label:

Place and date	Company name
Responsible person	Responsible persons signature
Telephone number	E-mail

## Appendix 4 Packaging

Name of the manufacturer of the battery or brand owner:	
Name/type of primary battery/-batteries:	

### Definitions:

*Primary packaging: refers to the purchase packaging for the consumer, e.g. the packaging that holds four batteries, and which the consumer encounters in sales.*

*Secondary packaging: refers to the transport packaging and protects the packs of batteries during transport to stores and consumers.*

*Post-consumer material is defined in accordance with ISO 14021: "Post-consumer/commercial" is defined as material created by households or commercial, industrial or institutional facilities in the role of end users of a product, which can no longer be used for the intended purpose. This includes return of material from the distribution chain.*

Description of materials used in the primary and secondary product packaging:

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I hereby declare that:

- the total proportion of pre- and post-consumer recycled material in the primary packaging for the batteries is at least 80% by weight.
- chlorine-based plastic is not used in the primary and secondary product packaging.
- the primary packaging is designed in such a way that dismantling is possible for all individual parts for waste sorting (e.g. cardboard, paper, plastic, metal) without using any tools.

*Small antitheft RFID components are excluded from the dismantling requirement.*

Manufacturer of the battery or brand owner signature:

Place and date	Company name
Responsible person	Responsible persons signature
Telephone number	E-mail

## Appendix 5 Consumer information on the battery

Name of the manufacturer of the battery or brand owner:	
Name/type of primary battery/-batteries:	

I hereby declare that the battery is marked in accordance with IEC 60086.

Manufacturer of the battery or brand owner signature:

Place and date	Company name
Responsible person	Responsible persons signature
Telephone number	E-mail

## Appendix 6      Analysis and testing laboratories

Testing of quality specifications must be performed by laboratories, which are accredited to the current standard and fulfil the general requirements in the standard EN ISO/IEC 17025 or have official GLP status. A non-accredited laboratory may perform tests if the laboratory has applied for accreditation according to the current testing method, but has not yet been granted approval, or if accreditation is not available for the technical specification or proposed standard. In such case, the laboratory must prove that it is an independent, competent laboratory.

The manufacturer's analysis laboratory/test procedure may be approved for analysis and testing if:

- Sampling and analysis are monitored by the authorities; or
- The manufacturer's quality assurance system covers analyses and sampling and is certified to ISO 9001; or
- The manufacturer can demonstrate agreement between a first-time test conducted at the manufacturer's own laboratory, and testing carried out in parallel at an independent test institute, and the manufacturer takes samples in accordance with a fixed sampling schedule.

## Appendix 7 List of critical raw materials<sup>2</sup>

Raw materials	Main global producers (average 2010-2014)	Main importers to the EU (average 2010-2014)	Import reliance rate*	Substitution indexes EI/SR**	End-of-life recycling input rate***
Antimony	China 87%	China 90%	100%	0,91/0,93	28%
	Vietnam 11%	Vietnam 4%			
Baryte	China 44%	China 53%	80%	0,93/0,94	1%
	India 18%	Morocco 37%			
	Morocco 10%	Turkey 7%			
Beryllium	USA 90%	n/a	n/a <sup>3</sup>	0,99/0,99	0%
	China 8%				
Bismuth	China 82%	China 84%	100%	0,96/0,94	1%
	Mexico 11%				
	Japan 7%				
Borate	Turkey 38%	Turkey 98%	100%	1,0/1,0	0%
	USA 23%				
	Argentina 12%				
Cobalt	DRC 64%	Russia 91%	32%	1,0/1,0	0%
	China 5%	DRC 7%			
	Canada 5%				
Coking coal	China 54%	USA 39%	63%	0,92/0,92	0%
	Australia 15%	Australia 36%			
	USA 7%	Russia 9%			
	Russia 7%	Canada 8%			
Fluorspar (Fluorite)	China 64%	Mexico 38%	70%	0,98/0,97	1%
	Mexico 16%	China 17%			
	Mongolia 5%	South Africa 15%			
Gallium <sup>4</sup>	China 85%	China 83%	34%	0,95/0,96	0%
	Germany 7%	USA 11%			
	Kazakhstan 5%	Ukraine 9%			
Germanium	China 67%	China 60%	64%	1,0/1,0	2%
	Finland 11%	Russia 17%			
	Canada 9%	USA 16%			
	USA 9%				
Hafnium	France 43%	Canada 67%	9%	0,93/0,97	1%
	USA 41%	China 33%			
	Ukraine 8%				
	Russia 8%				
Helium	USA 73%	USA 53%	96%	0,94/0,96	1%
	Qatar 12%	Algeria 29%			
	Algeria 10%	Qatar 8%			
		Russia 8%			

<sup>2</sup> EU list of 27 CRMs was published in the communication on the list of critical raw materials 2017:

[http://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical\\_en](http://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en)

<sup>3</sup> The EU import reliance cannot be calculated for the beryllium, as there is no production and trade for beryllium ores and concentrates in the EU.

<sup>4</sup> Gallium is a by-product; the best available data refer to production capacity, not to production as such.

Indium	China 57%	China 41%	0%	0,94/0,97	0%
	South Korea 15%	Kazakhstan 19%			
	Japan 10%	South Korea 11%			
		Hong Kong 8%			
Magnesium	China 87%	China 94%	100%	0,91/0,91	9%
	USA 5%				
Natural graphite	China 69%	China 63%	99%	0,95/0,97	3%
	India 12%	Brazil 13%			
	Brazil 8%	Norway 7%			
Natural rubber	Thailand 32%	Indonesia 32%	100%	0,92/0,92	1%
	Indonesia 26%	Malaysia 20%			
	Vietnam 8%	Thailand 17%			
	India 8%	Ivory Coast 12%			
Niobium	Brazil 90%	Brazil 71%	100%	0,91/0,94	0,3%
	Canada 10%	Canada 13%			
Phosphate rock	China 44%	Morocco 31%	88%	1,0/1,0	17%
	Morocco 13%	Russia 18%			
	USA 13%	Syria 12% Algeria 12%			
Phosphorus	China 58%	Kazakhstan 77%	100%	0,91/0,91	0%
	Vietnam 19%	China 14%			
	Kazakhstan 13%	Vietnam 8%			
	USA 11%				
Scandium	China 66%	Russia 67%	100%	0,91/0,95	0%
	Russia 26%	Kazakhstan 33%			
	Ukraine 7%				
Silicon metal	China 61%	Norway 35%	64%	0,99/0,99	0%
	Brazil 9%	Brazil 18%			
	Norway 7%	China 18%			
	USA 6%				
	France 5%				
Tantalum <sup>5</sup>	Rwanda 31%	Nigeria 81%	100%	0,94/0,95	1%
	DRC 19%	Rwanda 14%			
	Brazil 14%	China 5%			
Tungsten <sup>6</sup>	China 84%	Russia 84%	44%	0,94/0,97	42%
	Russia 4%	Bolivia 5% Vietnam 5%			
Vanadium	China 53%	Russia 71%	84%	0,91/0,94	44%
	South Africa 25%	China 13%			
	Russia 20%	South Africa			

<sup>5</sup> Tantalum is covered by the Conflict Minerals Regulation (Regulation (EU) 2017/821) establishing a Union system for supply chain due diligence to curtail opportunities for armed groups and security forces to trade in tin, tantalum and tungsten, and their ores, and gold.

<sup>6</sup> Tungsten is covered by the Conflict Minerals Regulation (Regulation (EU) 2017/821) establishing a Union system for supply chain due diligence to curtail opportunities for armed groups and security forces to trade in tin, tantalum and tungsten, and their ores, and gold.

Platinum Group Metals	South Africa 83% -Iridium, platinum, rhodium, ruthenium	Switzerland 34%	99,6%	0,93/0,98	14%
		South Africa 31%			
	Russia 46% -palladium	USA 21%			
		Russia 8%			
Heavy Rare Earth Elements	China 95%	China 40% USA 34% Russia 25%	100%	0,96/0,89	8%
Light Rare Earth Elements	China 95%	China 40% USA 34% Russia 25%	100%	0,90/0,93	3%