Nordic Ecolabelling for

Rechargeable batteries and portable chargers

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Nordic Ecolabelling

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Contact information

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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What are Nordic Swan Ecolabel rechargeable batteries and portable chargers?

Nordic Swan Ecolabel rechargeable batteries and portable chargers live up to recognised quality and safety standards, placing them among the best in the market. Strict requirements apply to the information provided to the consumer. Both of these aspects are intended to ensure that the battery or portable charger will need to be replaced less frequently, thereby "saving" the environment the burden of more batteries than necessary. Portable chargers are designed in such a way that dismantling is possible. The content of lead, cadmium and mercury is lower than the levels stipulated by the authorities in their requirements. The plastic and metals used in the casings of both battery chargers and portable chargers must fulfil strict requirements regarding chlorinated plastic, flame-retardants and types of metals.

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

Nordic Swan Ecolabel rechargeable batteries and portable chargers:

- Meet stringent requirements for both battery capacity and durability – to ensure a long lifetime for the battery and portable charger.
- Live up to recognised quality and safety standards – to ensure good and safe consumer properties.
- Have a low content of mercury, cadmium and lead – to reduce the spreading and use of metals.
- Meet a CSR policy – to ensure responsible use and sourcing of limited raw materials and "conflict-free minerals.

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 rechargeable batteries and portable chargers 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 rechargeable batteries

Portable batteries that are rechargeable in accordance with the definition provided in the European Union's Battery Directive, 2006/66/EC.

Rechargeable batteries sold together with, or as accessories/parts for, electrical appliances, e.g. cordless power tools, can also be Nordic Swan Ecolabel (only the batteries). However, the battery must be designed to be replaced and charged in a separate charger. The Nordic Swan Ecolabel can´t be used on the packaging of the combination products (e.g. power tool + batteries). Use of the Nordic Swan Ecolabel, see requirement O14.

Rechargeable batteries sold in combination packs with external battery chargers are also eligible for a Nordic Swan Ecolabel. It must be made clear to the purchaser of combination packs of this type that the Nordic Swan Ecolabel applies solely to the batteries and not to the charger, or to other elements of the package.

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

- Car batteries and industrial batteries.
- Primary (non-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. Portable chargers (portable power banks) are exempt from this requirement, see below.
- Batteries that are built into or form a permanent part of electronic products and where the entire product is placed in a charger.
- Chargers sold for rechargeable batteries alone.

Portable chargers

A portable charger or "portable power bank" is defined as any portable energy-storage device containing secondary batteries with charging circuitry, and which is used to charge portable consumer electronic devices via DC output. Portable chargers with built-in solar panels can also be Nordic Swan Ecolabel.

The following products do not fall within the above definition of portable chargers: products with AC input, products with jump starter functions, higher-capacity power packs intended for charging high-power industrial devices, and Uninterruptible Power Supply (UPS) systems.

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 contact information 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 contact information. 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

O1 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 owners(s) of batteries and/or portable chargers.
- Description of the product(s) (detailing all constituent substances present in the battery/portable charger; metals, other solid substances and liquid chemical substances) in the application (weight %).
- Description of raw materials used in the casing of the battery charger or the portable charger.
- 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 or one portable charger, and which the consumer encounters in sales.
- Description of the manufacturing process for the product. Nordic Ecolabelling wants a general description of the battery/portable charger manufacturing process and which technology that is being used to produce the batteries/portable chargers. A flow chart is recommended to explain the production process.

✉ 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	< 5.0 ppm
Lead	< 5.0 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 5.

O3 Requirements applicable to plastic and metal in the casing of the battery charger and in the outer casing/container that encircles the batteries/cells in the portable charger

The requirement solely applies to plastic and metal in the casing of the battery charger and the outer casing that encircles the batteries/cells in the portable charger. The requirement does not apply to the battery, the casing encircling the battery/cell itself, circuit/PCBs, wires or USB/charge ports.

The plastic or metal in the casing of the battery charger and the outer casing that encircles the batteries/cells in the portable charger must fulfil the following requirements:

Plastic:

- Plastic parts covering a surface > 200 mm^2 in the casing must be labelled in accordance with ISO 11469.
- The plastic may not be chlorinated plastic.
- Cadmium and lead must not be actively added to the plastic in the casing.
- Chloro-paraffins must not be actively added to the plastic in the casing.
- The following flame retardants must not be added to the plastic in the casing:
  a) Hexabromocyclodecane (HBCDD), tetrabromobisphenol A (TBBP-A) and tris(2-chloroethyl)phosphate (TCEP).
  b) Other halogenated organic flame retardants and flame retardants that have been given one or several of the following risk phrases may not be added:
     - H350
     - H350i
     - H340
     - H360D
     - H360F
     - H360Df
     - H360Fd

Metal:

The following metals may not be actively added to the casing in the battery charger and the outer casing that encircles the batteries/cells in the portable charger:

Lead (Pb), mercury (Hg), chromium VI (CrVI), cadmium (Cd), cobalt (Co), antimony (Sb), zinc (Zn,), copper (Cu) or nickel (Ni).

Exception: Steel is allowed to be used in the base panel that holds the USB/charge ports in portable chargers, but only if the steel is coated/laminated or covered with e.g. plastic.

✉ Documentation showing that the casing is labelled in accordance with ISO 11469.

✉ Declaration from the manufacturer of the battery charger or portable charger that the requirement is fulfilled. Appendix 2 may be used.

O4 Battery charger, battery sizes

This requirement applies solely to chargers for rechargeable batteries of the following sizes: AAA: HR03, AA: HR6, C: HR14, D: HR20, 9V: HR 22.

If the rechargeable batteries are sold together with a charger, the charger must be suitable for use with a minimum of two battery sizes.

✉ Declaration from the licensee that the charger can be used for charging a minimum of two battery sizes. Appendix 2 may be used.

✉ A description/documentation of the charger confirming this must be attached.

3 Corporate Social Responsibility

O5 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 tin, tantalum, tungsten, gold and cobalt.
- Be a part of an established multi-stakeholder program that works at supporting responsible sourcing programs for 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 licensees structured work on identifying risk areas in their supply chain.

✉ Proof of participation in an approved multi-stakeholder program.

O6 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 3.

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.

O7 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, battery, battery charger and portable charger 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[1], which comprises the following ten principles:

1. Businesses should support and respect the protection of internationally proclaimed human rights.
2. Make sure that they are not complicit in human rights abuses.
3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining (ILO Conventions 87 and 98).
4. The elimination of all forms of forced and compulsory labour; (ILO Conventions 29 and 105).
5. The effective abolition of child labour (ILO Conventions 138 and 182).
6. The elimination of discrimination in respect of employment and occupation (ILO Conventions 100 and 111).
7. Businesses should support a precautionary approach to environmental challenges.
8. Undertake initiatives to promote greater environmental responsibility.
9. Encourage the development and diffusion of environmentally friendly technologies.
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, batteries, battery chargers and portable chargers 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.

4 Packaging and information

Primary packaging: refers to the purchase packaging for the consumer, e.g. the packaging that holds four batteries or one portable charger, and which 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.

O8 Packaging

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

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

[1] http://www.unglobalcompact.org

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

**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.

✉ Description of the primary and secondary product packaging. Declaration from the manufacturer of the battery/portable charger or brand owner(s) showing that the requirement is fulfilled. Appendix 4 may be used.

✉ Documentation from packaging suppliers showing the proportion of post-consumer recycled material in their products.

✉ Statement from the manufacturer of the battery/portable charger showing that the total proportion of pre- and post-consumer recycled material in the primary packaging exceeds 80% weight. Appendix 4 may be used.

5 Electrical testing

O9 Electrical testing

Nickel-metal hydride (NiMH) batteries and cells:

Battery capacity

The battery or cell capacity must be measured in accordance with paragraph 7.3.2 "Discharge performance at 20°C (rated capacity)" of IEC 61951-2:2017. The rated capacity (C) thereby determined must be at least as high as the nominal capacity (N) indicated on the battery and in the product documents.

The test must be carried out on a minimum of three batteries, in accordance with the sample size specified in IEC 61951-2:2017. All three tested batteries/cells must meet the requirements.

Endurance in cycles

The cell must be tested in accordance with paragraph 7.5.1 "Endurance in cycles" of IEC 61951-2:2017. The test must be carried out on a minimum of three batteries, in accordance with the sample size specified in IEC 61951-2:2017.

The total number of cycles obtained when the test is completed shall be ≥ 75% above the specific limit for cell types listed in paragraph 7.5.1 of IEC 61951-2. In table 1 below are listed examples of requirements for minimum number of cycles for cylindrical cells dimensionally interchangeable with primary batteries.

Table 1: Endurance in cycles for cylindrical cells dimensionally interchangeable with primary batteries.

Type of cell	Stated capacity	Total number of cycles
HR 03 AAA	< 800 mAh	≥ 350
HR 03 AAA	≥ 800 mAh	≥ 175
HR 06 AA	< 2100 mAh	≥ 350
HR 06 AA	≥ 2100 mAh	≥ 175
HR 14 C	-	≥ 350
HR 20 D	-	≥ 350

Leakage

During testing, no leakage may occur.

The requirements concerning test laboratories and test instructions for capacity and endurance in cycles are stated in Appendix 5.

Li-ion/LiP batteries and cells:

Battery capacity

The battery capacity must be measured in accordance with paragraph 7.3 "Discharge performance at 20°C (rated capacity)" of IEC 61960-3:2017. The rated capacity (C) thus determined must be at least as high as the nominal capacity (N) indicated on the battery and in the product documents.

The test must be carried out on a minimum of three batteries, in accordance with the sample size specified in IEC 61960-3:2017. All three tested batteries/cells must meet the requirements.

Endurance in cycles

The battery or cell must be tested in accordance with paragraph 7.6 "Endurance in cycles" of IEC 61960-3:2017. The test must be carried out on a minimum of three batteries, in accordance with the sample size specified in IEC 61960-3:2017.

The total number of cycles obtained when the test is completed shall be≥ 75% above the specific limit for cell types listed in cells dimensionally paragraph 7.6 of IEC 61960-3:2017.

In table 2 below are listed examples of requirements for minimum number of cycles for secondary lithium cells and batteries.

Table 2: Endurance in cycles at a rate of 0,2 I_tA

Parameter	Reference paragraph	Number of cycles - cells	Number of cycles - batteries
Endurance in cycles at a rate of 0,2 I_tA	7.6.2	≥ 700	≥ 525

In order to accelerate the test, the following alternative procedures may be carried out; "Endurance in cycles at a rate of 0,5 ItA (accelerated test)". The test instructions are stated in appendix 5.

The tested cells/batteries must meet the requirements stated in table 3.

Table 3: Endurance in cycles at a rate of 0,5 I_tA (accelerated test

Parameter	Reference paragraph	Number of cycles - cells	Number of cycles - batteries
Endurance in cycles at a rate of 0,5 I_tA (accelerated)	7.6.3	60% C_5 Ah	60% C_5 Ah

Leakage

During testing, no leakage may occur.

The requirements concerning test laboratories and test instructions for capacity and endurance in cycles are stated in Appendix 5.

✉ Complete test report, including information that no leakage has occurred during testing.
✉ Documentation showing that the test laboratory fulfils the requirement stated in Appendix 5.

O10 Charged battery

The requirement solely applies to Nickel-metal hydride (NiMH batteries) and cells.

The battery must be fully charged when it leaves the production site.

Fully charged is defined as minimum 70% electrical stored capacity (SOC).

✉ A declaration confirming that the battery is fully charged when leaving the production site for delivery to customers/brand owners. Appendix 1 may be used.

6 Safety

O11 Battery safety

The requirement applies to both batteries and batteries used in portable chargers.

NiMH batteries/cells:

The battery must fulfil the testing requirements in IEC 62133-1.

Lithium-ion/lithium polymer batteries/cells:

The batteries must fulfil the testing requirements in IEC 62133-2.

The requirements concerning test laboratories are stated in Appendix 5.

✉ Complete test report.
✉ Documentation showing that the test laboratory fulfils the requirement stated in Appendix 5.

O12 Portable charger safety

Portable chargers (power banks) must be tested and comply with IEC 62368-1 (*Information technology equipment – Safety – Part 1: General requirements).*

The requirements concerning testing laboratories are stated in Appendix 5.

✉ Complete test report.
✉ Documentation showing that the test laboratory fulfils the requirement stated in Appendix 5.

7 Quality of the battery charger

O13 Quality of the battery charger

If the rechargeable batteries are sold together with a charger, the charger must fulfil the following requirements:

Testing of the charger: the quality of the charger must be tested by a testing laboratory that is impartial and fulfils the general requirements applicable to the test institutions provided for in the “Analysis laboratory/test institution” chapter in appendix 5.

C = The maximum capacity (expressed as mAh) specified on the batteries that the charger is sold with.

The reference charge is defined as a constant charge at 1C, cut off at $-\Delta V = 5$ mV/cell.

Discharge to the cut-off requirement of 1 V/cell.

The resting time is set at 20 minutes between each cycle of charge/discharge and discharge/charge.

Condition of battery and termination of charged capacity at 7 cycles:

Cycle 1	Residual Discharge	C/5
Cycle 2-5	Conditioning	1C
Cycle 6	Determining reference charge	1C
Cycle 7	Charging of battery in charger	

Cycles 1-6 to be performed in equipment for testing rechargeable batteries.

The charging phase is registered in cycles 6 and 7 to determine the charged capacity for the reference charger and the test charger.

After 7 cycles the average trickle charge and no-load current for the charger are measured.

The measurement must produce the following results:

- The charger must automatically stop charging when the battery is fully charged. Fully charged is defined as a reference charge with a cut-off of –ΔV = 5 mV + 10%.
- The maximum trickle charge current must on average be < C/20, based on the lowest battery capacity that the charger is recommended to charge by the dealer.
- The maximum no-load current must on average be < C/50, based on the lowest battery capacity that the charger is recommended to charge by the dealer.

The requirements concerning test laboratories are stated in Appendix 5.

✉ Complete test report.
✉ Documentation showing that the test laboratory fulfil the requirement stated in Appendix 5.

8 Consumer information

O14 Consumer information on the battery and portable charger

Battery:

The battery (or battery pack) must be marked in accordance with IEC 61951-2 (NiMH) or IEC 61960-3 (Lithium).

The batteries must carry a clear indication of their capacity, in accordance with the requirements applicable to capacity labelling provided for in the EU's Battery Directive 2006/66/EC and regulation (EU) 1103/2010 on the capacity marking of portable rechargeable batteries.

"Clear indication" means that the capacity labelling shall be expressed in terms of a unit (mAh) and that other numerical markings on the battery must not be such that the customer is likely to be misled into thinking that they represent the capacity labelling.

Use of the Nordic Swan Ecolabel according to "guidelines for using the Nordic Swan Ecolabel"[2].

[2] http://www.nordic-ecolabel.org/certification/graphical-guidelines/

Use of the Nordic Swan Ecolabel on rechargeable batteries sold/marked together with electrical appliances, e.g. cordless power tools: The Nordic Swan Ecolabel must be used in a way so there is no doubt that the Nordic Swan Ecolabel applies solely to the batteries and not to the electrical appliances or to other elements of the package.

Portable charger:

Portable chargers must be supplied with the following safety information:

a) Minimum instructions for use as specified below:
   - The portable charger (power bank) will generate heat when charging. Always charge in a well-ventilated area. Do not charge under pillows, blankets or on flammable surfaces.
   - Keep the portable charger away from heat sources, direct sunlight, combustible gas, humidity, water or other liquids.
   - Do not dismantle, open, microwave, incinerate, paint or insert foreign objects into the portable charger.
   - Do not subject the power bank to mechanical shock such as crushing, bending, puncturing or shredding. Avoid dropping or placing heavy objects on the portable charger.
   - Do not short-circuit the portable charger or store it in a receptacle where it may be short-circuited by other metallic or conductive objects.
   - Do not operate the portable charger if it has been wet or otherwise damaged, so as to avoid electric shock, explosion and/or injury. Contact the dealer or authorised agent.
   - Portable charger usage by children should be supervised.
   - Please read the operating instructions (including charging instructions and information on the minimum and maximum operating temperatures) supplied with this portable charger.

b) Instructions on how to charge the portable charger.

c) Information on the minimum and maximum operating temperatures for the portable charger.

✉ A sample of the information provided on the battery.

✉ Rechargeable batteries sold/marked together with electrical appliances: A sample of the battery in combination with the electrical appliances, showing that the use and placement of the logo assure that there is no doubt that the Nordic Swan Ecolabel applies solely to the battery.

✉ A sample of the safety information supplied with the portable charger.

9 Design of the portable charger

O15 Recyclable design of the portable charger

The portable charger must be designed in such a way that dismantling is possible. The requirement consists of the following individual requirements:

- A qualified professional, working alone, must be able to dismantle the product.
- It must be possible to separate the substances, preparations and components listed in ANNEX VII of the WEEE Directive (2012/19/EU).
- It must be possible to remove the secondary batteries/cells for recycling purposes.

- The battery/cell chemicals must be prevented from leaking during the removal.

✉ Declaration from the manufacturer of the portable charger showing that the requirements are met. Appendix 2 may be used.

10 Requirements of the authorities and quality requirements

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

O16 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.

O17 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.

O18 Quality of rechargeable batteries and portable charger

The licensee must guarantee that the quality of the Nordic Swan Ecolabel 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 Ecolabel rechargeable batteries and portable chargers.

🔑 The claims archive is checked on site.

O19 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.

O20 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.

O21 Traceability

The licensee must be able to trace the Nordic Swan Ecolabel rechargeable batteries and portable chargers in production.

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

O22 Legislation and regulations

The licensee shall ensure compliance with all applicable local laws and provisions at all production facilities for the Nordic Swan Ecolabel 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/

Follow-up inspections

Nordic Ecolabelling may decide to check whether rechargeable batteries or portable chargers 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 rechargeable batteries or portable chargers do not meet the requirements.

History of the criteria

Nordic Ecolabelling adopted version 5.0 of the criteria for rechargeable batteries and portable chargers on 15. June 2018. The criteria are valid until 30. June 2023.

On 26 November 2019, the definition of “fully charged” in requirement O10 was changed from at least 85% to 70%. Also, it has been clarified that you can use both pre- and post-consumer recycled material in the primary packaging (O8). Finally, the requirement for sourcing of conflict-free minerals (O5) and critical raw materials (O6) has been aligned with the same wording as Nordic Swan Ecolabelling criteria for 001 primary batteries.

Nordic Ecolabelling decided on the 30 November 2021 to prolong the validity of the criteria with 18 months to the 31 December 2024. The new version is 5.2.

Nordic Ecolabelling decided on the 14 May 2024 to prolong the validity of the criteria with 14 months to the 28 February 2026. The new version is 5.3.

Nordic Ecolabelling decided on the 7 January 2025 to prolong the validity of the criteria with 12 months until 28 February 2027. The new version is 5.4.

Nordic Ecolabelling decided on the 10 February 2026 to prolong the validity of the criteria with 7 months until 30 September 2027. The new version is 5.5.

Nordic Ecolabelling decided on the 13 October 2026 to prolong the validity of the criteria with 6 months until 31 March 2028. The new version is 5.6.

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 rechargeable 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, durability of the battery and portable charger.
- Requirements concerning safety.

Terms and definitions

Term	Explanation or definition
AC input	Direct integrated plug to the power outlet. Designed for “stationary” charging and therefore not portable.
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.
DC output	Direct current (DC) is the unidirectional flow of an electrical charge. A battery is a good example of a DC power supply.
DoD	Depth of Discharge.
EEE	Electrical and Electronic Equipment.
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.
NiMH	Nickel-metal hydride battery.
OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas	For more information: http://www.oecd.org/corporate/mne/mining.htm
PCB	Printed circuit board.
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.
SLI batteries	Batteries used for vehicle starting, lighting and ignition systems.
SOC	SOC, short for electrical stored capacity in a rechargeable cell or battery,
SWCNT	Single-walled carbon nanotube.
UPS	Uninterruptible power supply (UPS) systems.
USB ports	A USB port is a standard cable connection interface for e.g. personal computers and consumer electronics devices. They can also supply electric power across the cable to devices that require it.
WEEE	Waste Electrical and Electronic Equipment.
Wh-Watt hours	A measure of electrical energy equivalent to power consumption of one watt for one hour. A simple way to determine the current delivered by the power bank is to divide the watts by the voltage rating of the device. Electrical power is measured in watts and power equals the voltage multiplied by the current (amp).

Appendix 1 Description of the rechargeable battery/portable charger, material composition and production

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

For each battery type and portable charger, list the chemical composition, the weight-% and function of each ingoing substance (detailing all constituent substances present in the battery; metals, other solid substances, and liquid chemical substances) in the application: cathode-and anode ingredients, electrolyte solutions, conductor-, separator- and container ingredients and other materials.

Product name:		
Cathode ingredients: Substance and CAS nr.:	**Concentration of total weight-%**	**Function:**
Anode ingredients: Substance and CAS nr.:		
Electrolyte solutions: Substance and CAS nr.:		
Conductor: Substance and CAS nr.:		
Seperator: Substance and CAS nr.:		
Other ingredients: Substance and CAS nr.:		
Container: Substance and CAS nr.:		

Description of raw materials used in the casing of the battery charger or the portable charger:

_____
_____
_____
_____

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 or one portable charger, and which the consumer encounters in sales.

_____
_____
_____
_____

Description of manufacturing process of the product:

_____
_____
_____
_____

Charged battery (O10):

The requirement solely applies to Nickel-metal hydride (NiMH batteries) and cells.

I hereby declare that the battery is fully charged when it leaves the production site.

Fully charged is defined as minimum 70% electrical stored capacity (SOC).

Applicant or manufactures signature:

Date:	Company Name:
Responsible person:	Responsible persons signature:

Appendix 2 Battery charger and portable charger

If you are applying for battery charger, fill in part A and part B below. If you are applying for portable charger, fill in part A and part C below.

Name/type of battery charger or portable charger:	
Manufacturer of the battery charger or portable charger:	

A. Plastic and metal in the casing of the battery charger and portable charger (O3):

The requirement solely applies to plastic and metal in the casing of the battery charger and the outer casing that encircles the batteries/cells in the portable charger. The requirement does not apply to the battery, the casing encircling the battery/cell itself, circuit/PCBs, wires or USB/charge ports.

Plastic:

Does the casing of the battery charger or portable charger consist of plastic parts covering a surface > 200 m²? Yes ☐ No ☐

If yes, is the plastic part labelled in accordance with ISO 11469? Yes ☐ No ☐

Does the plastic contain chlorinated plastic? Yes ☐ No ☐

Have cadmium and lead actively been added to the plastic in the casing? Yes ☐ No ☐

Have chloro-paraffins actively been added to the plastic in the casing? Yes ☐ No ☐

Have the following flame retardants been added to the plastic in the casing?

a) Hexabromocyclodecane (HBCDD), tetrabromobisphenol A (TBBP-A) and tris(2-chloroethyl)phosphate (TCEP)? Yes ☐ No ☐

b) Other halogenated organic flame retardants and flame retardants that have been given one or several of the following risk phrases may not be added:
   - H350
   - H350i
   - H340
   - H360D
   - H360F
   - H360Df
   - H360Fd

Metal:

Have the following metals actively been added to the plastic in the casing: Lead (Pb), mercury (Hg), chromium VI (CrVI), cadmium (Cd), cobalt (Co), antimony (Sb), zinc (Zn,), copper (Cu) or nickel (Ni)? Yes ☐ No ☐

Exception: Steel is allowed to be used in the base panel that holds the USB/charge ports in portable chargers, but only if the steel is coated/laminated or covered with e.g. plastic.

Manufacture of the battery charger or portable charger signature:

Date:	Company Name:
Responsible person:	Responsible persons signature:

B. Battery charger (O4)

The requirement applies solely to chargers for rechargeable batteries of the following sizes: AAA: HR03, AA: HR6, C: HR14, D: HR20, 9V: HR 22.

I hereby declare that the charger is suitable for use with a minimum of two battery sizes.

Manufacture of the battery charger signature:

Date:	Company Name:
Responsible person:	Responsible persons signature:

C. Recyclable design of the portable charger (O15)

The portable charger must be designed in such a way that dismantling is possible.

I hereby declare that:

- A qualified professional, working alone, is able to dismantle the portable charger.
- It is possible to separate the substances, preparations, and components according to ANNEX VII of the WEEE Directive (2012/19/EU).
- It is possible to remove the secondary batteries/cells for recycling purposes.
- The battery/cell chemicals are prevented from leaking during the removal of the battery/cell(s).

Manufacturer of the portable charger signature:

Date:	Company Name:
Responsible person:	Responsible persons signature:

Appendix 3 List of critical raw materials[3]

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% Vietnam 11%	China 90% Vietnam 4%	100%	0.91/0,93	28%
Baryte	China 44% India 18% Morocco 10%	China 53% Morocco 37% Turkey 7%	80%	0,93/0,94	1%
Beryllium	USA 90% China 8%	n/a	n/a[4]	0.99/0,99	0%
Bismuth	China 82% Mexico 11% Japan 7%	China 84%	100%	0,96/0,94	1%
Borate	Turkey 38% USA 23% Argentina 12%	Turkey 98%	100%	1,0/1,0	0%
Cobalt	DRC 64% China 5% Canada 5%	Russia 91% DRC 7%	32%	1,0/1,0	0%
Coking coal	China 54% Australia 15% USA 7% Russia 7%	USA 39% Australia 36% Russia 9% Canada 8%	63%	0,92/0,92	0%
Fluorspar (Fluorite)	China 64% Mexico 16% Mongolia 5%	Mexico 38% China 17% South Africa 15% Namibia 12% Kenya 9%	70%	0.98/0,97	1%
Gallium[5]	China 85% Germany 7% Kazakhstan 5%	China 83% USA 11% Ukraine 9% South Korea 8%	34%	0,95/0,96	0%
Germanium	China 67% Finland 11% Canada 9% USA 9%	Chine 60% Russia 17% USA 16%	64%	1,0/1,0	2%
Hafnium	France 43% USA 41% Ukraine 8% Russia 8%	Canada 67% China 33%	9%	0,93/0,97	1%

[3] 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

[4] 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.

[5] Gallium is a by-product; the best available data refer to production capacity, not to production as such.

Helium	USA 73% Qatar 12% Algeria 10%	USA 53% Algeria 29% Qatar 8% Russia 8%	96%	0,94/0,96	1%
Indium	China 57% South Korea 15% Japan 10%	China 41% Kazakhstan 19% South Korea11% Hong Kong 8%	0%	0,94/0,97	0%
Magnesium	China 87% USA 5%	China 94%	100%	0,91/0,91	9%
Natural graphite	China 69% India 12% Brazil 8%	China 63% Brazil 13% Norway 7%	99%	0,95/0,97	3%
Natural rubber	Thailand 32% Indonesia 26% Vietnam 8% India 8%	Indonesia 32% Malaysia 20% Thailand 17% Ivory Coast 12%	100%	0,92/0,92	1%
Niobium	Brazil 90% Canada 10%	Brazil 71% Canada 13%	100%	0,91/0,94	0,3%
Phosphate rock	China 44% Morocco 13% USA 13%	Morocco 31% Russia 18% Syria 12% Algeria 12%	88%	1,0/1,0	17%
Phosphorus	China 58% Vietnam 19% Kazakhstan 13% USA 11%	Kazakhstan 77% China 14% Vietnam 8%	100%	0,91/0,91	0%
Scandium	China 66% Russia 26% Ukraine 7%	Russia 67% Kazakhstan 33%	100%	0,91/0,95	0%
Silicon metal	China 61% Brazil 9% Norway 7% USA 6% France 5%	Norway 35% Brazil 18% China 18%	64%	0,99/0,99	0%
Tantalum[6]	Rwanda 31% DRC 19% Brazil 14%	Nigeria 81% Rwanda 14% China 5%	100%	0,94/0,95	1%

[6] 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.

Tungsten[7]	China 84% Russia 4%	Russia 84% Bolivia 5% Vietnam 5%	44%	0,94/0,97	42%
Vanadium	China 53% South Africa 25% Russia 20%	Russia 71% China 13% South Africa	84%	0,91/0,94	44%
Platinum Group Metals	South Africa 83% -Iridium, platinum, rhodium, ruthenium Russia 46% -palladium	Switzerland 34% South Africa 31% USA 21% Russia 8%	99,6%	0,93/0,98	14%
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%

[7] 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.

Appendix 4 Packaging

Name of the manufacturer of the battery/portable charger or brand owner:	

Definitions:

Primary packaging: refers to the purchase packaging for the consumer, e.g. the packaging that holds four batteries or one portable charger, and which 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.

**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.

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

_____

_____

_____

_____

_____

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 individually parts for waste sorting (e.g. cardboard, paper, plastic, metal) without using any tools.

Manufacturer or brand owner signature:

Date:	Company Name:
Responsible person:	Responsible persons signature:

Appendix 5 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.

Determination of battery endurance in cycles for NiMH batteries and cells

Preparation of the test

1. Determination of the rated capacity (C) in accordance with IEC 61951-2, paragraph 7.3.2 “Discharge performance at 20°C (rated capacity)” at an ambient temperature of 20 °C.
2. Determination or specification of the nominal capacity (N).
3. Prior to endurance in cycle test, the cell shall be discharged at a constant current of 0,2 I_tA, to a final voltage of 1,0 V.

Performance of the tests

1. Charge and discharge currents, ambient temperature and the respective periods of rest must be carried out in accordance with IEC 61951-2, paragraph 7.5.1 “Endurance in cycles”.
2. The tests must carry out on a minimum of three batteries, in accordance with the sample size specified in IEC 61951-2. Each test must include at least three batteries of each size and brand model. The highest capacity value specified on the cell must be used for the purposes of testing.
3. All three batteries must meet the requirements listed therein.

Determination of endurance in cycles for Li-ion/LiP batteries and cells

Preparation of the test

1. Determination of the rated capacity (C) in accordance with IEC 61960-3, paragraph 7.3.1 “Discharge performance at 20°C (rated capacity)” at an ambient temperature of 20°C.
2. Determination or specification of the nominal capacity (N).
3. Prior to charging, the cell or battery shall be discharged at 20 °C ± 5° C at a constant current of 0,2 I_tA, down to a specified final voltage.

Performance of the tests

1. Charge and discharge currents, ambient temperature and the respective periods of rest must be carried out in accordance with IEC 61960-3, paragraph 7.6.2 "Endurance in cycles at a rate of 0.2 I_t A".
2. The tests must be performed on a minimum of three batteries in accordance with the sample size specified in IEC 61960-3. Each test must include at least 3 batteries of each size and brand model. The highest capacity value specified on the cell must be used for the purposes of testing
3. All three batteries must meet the requirements listed therein.

Endurance in cycles at a rate of 0,5 I_tA (accelerated test procedure)

In order to accelerate the test, the following alternative procedures may be carried out as an alternative to above test "Endurance in cycles at a rate of 0.2 I_t A".

Table 4

Cycle number [a]	Charge	Stand in charged condition h	Discharge
A: 700 or B: 525	Method declared by the manufacturer	0 to 1	0,5 I_tA to final voltage
[a] A: for cell, B: for batteries.			

The remaining capacity measured according to step 1 to step 3 of paragraph 7.3.1 "Discharge performance at 20°C" when the test is completed shall be no less than the requirement stated in the table below.

Table 5

Parameter	Reference paragraph	Amount of cycles - cells	Amount of cycles - batteries
Endurance in cycles (accelerated)	7.6.3	60% C_5 Ah	60% C_5 Ah