

Nordic Ecolabelling of
Stoves



Version 3.1 • 12 October 2010 – 31 October 2014



Nordic Ecolabelling

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078 Stoves, version 3.1, 12 September 2012

This document is a translation of an original in Swedish. In case of dispute, the original document should be taken as authoritative.

Addresses

In 1989, the Nordic Council of Ministers decided to introduce a voluntary official ecolabel, the Swan. 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 is a Nordic Ecolabelled stove?

A stove is located in the room that is to be heated and reflects radiation of heat to a room. It may also distribute heat as a supplementary function via a water or ventilation system. It is fired on solid biofuel, that is wood, wood pellets or, in some cases, an alternative biofuel. Stoves include heaters such as wood stoves, slow heat release appliances such as tiled stoves and stone-clad stoves, inset stoves and sauna stoves.

The fuel can be fed by hand or mechanically. Wood is generally fed by hand while pellets are fed mechanically. A stove contains the fire. Air is supplied through special ducts and the air flow can often be regulated.

As a rule, a stove does not provide the majority of a building's heating requirement; rather it usually supplements another heat source. In energy efficient houses, however, a stove may cover all heating needs.

The flue gas emissions produced by the stove are tested. If the stove is fired on pellets, noise is also tested. The supplier must provide clear user information as to how to operate and maintain the stove for optimum performance.

A Nordic Ecolabelled stove offers high efficiency and has low emissions of particles, carbon monoxide (CO), organic gaseous carbon (OGC). The manufacturer must also ensure that the instruction manual contains comprehensive information and recommends that the stove is installed by a qualified fitter.

The requirements in the Nordic Ecolabel criteria on flue gas emissions are more stringent than the Norwegian, Swedish, Danish and Finnish national regulations. Norwegian and Danish law regulations only require particle tests and Swedish regulations only hydrocarbon tests. There are no law emission requirements in Finland.

Why choose the Nordic Ecolabel?

- The manufacturer and/or reseller may use the Swan trademark. The Nordic Ecolabel, the Swan, is well known and commands high consumer confidence throughout the Nordic region.
- The Nordic Ecolabel is a cost-effective and simple way to communicate that a stove is among the best on the market from an environmental viewpoint and that it has been tested by a third-party laboratory.
- Nordic Ecolabelling enables manufacturers to reach a growing number of professional and private consumers who wish to reduce their impact on the environment by using stove that produce the lowest emission levels and general environmental impact.
- Environmental issues are complex and it is difficult to compare the various parameters. For a long time, municipalities and other users have sought an aid that provides credible evaluations. The Swan leads the way.

What can carry the Nordic Ecolabel?

Stoves that are fired on solid biofuels such as wood and pellets, are eligible for the Nordic Ecolabelled. For example, woods stoves, slow heat release appliances (e.g. tiled stoves and stone-clad stoves), inset stoves and sauna stoves can be awarded the Nordic Ecolabel. Nordic Ecolabelled stoves for solid biofuel are fuelled by hand, with the exception of pellet stoves which are mechanically fed. Hand fed wood stoves may be followed to temporary or to continuous firing.

The stove may be a slow heat release appliance or standard appliance. A slow heat release stove normally stores the thermal energy in a solid material. There are also slow heat release stoves that store the heat in a water reservoir. These differ from water-jacketed stoves since they cannot be fired without water in the reservoir.

Stoves that have a water jacket are not defined as slow heat release appliances. They can be used both water filled and empty of water.

The stoves are dealt in the criteria document in several groups which are based on their function as follows. Manufacturer must classify a stove in the respective group.

Following group are actual:

- A slow heat release appliance is a stove which stores heat usually in stone but in certain cases stores heat in the water reservoir.
- A hand fed stove for temporary firing is a stove which has be manufactured for to replenish the other heat source. A that kind of stove must not be fired round the day.
- A hand fed stove for continuous firing is a stove which can be fired round the day and which can be function as a main heat source e.g. in the low energy house. A that kind of hand fed stove is usually water-jacketed.
- A mechanically fed stove has been manufactured for pellet firing.
- A inset stove for open firing place.
- A sauna oven is wood fired sauna stove.

If solar collectors are delivered with a stove as a heating system the requirement is set for solar collector.

Open fireplaces, where the fire burns in an open space and stoves for liquid biofuel, are not included in the product group.

The definitions of stove types, with some exceptions, follow the actual EN-standards of stoves with some exceptions, specified under Definitions.

How to apply

A manufacturer or reseller may apply for a licence using the designated application form. If a reseller applies for a licence, the manufacturer must also sign the application.

All requirements must be fulfilled. The requirements are marked in this document with the letter R and consecutive numbers. Icons indicate for each requirement how the applicant shall demonstrate that the requirement is fulfilled.

Icons in the text

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 documentation.
- 📖 Information must be provided in the instruction or installation manual.
- 📍 Requirement checked on site

Application

The application shall be sent to Nordic Ecolabelling in the country in which the stove is manufactured or sold. See page 2 for addresses. The documents required for application are an application form and documentation demonstrating fulfilment of the requirements (specified under each requirement). Further information and assistance can be obtained during application. Visit the Web site of the national ecolabelling body for more information.

Sales in other Nordic countries

Registering a licence in another Nordic country allows the Nordic Ecolabel to be used on a larger market. The following must be submitted to Nordic Ecolabelling:

- Application form marked with the intended country of sale.
- The applicable sections of the installation manual and operating and maintenance instruction translated into the national language(s) (R15 and R16).
- Take-back system for packaging (R27).

Registration is free of charge but an annual fee shall be paid in accordance with the national regulations.

On-site inspection

During the application process, Nordic Ecolabelling normally performs an on-site inspection at the manufacturing plant to ensure adherence to the requirements. For this inspection, the licensee must be able to present data used for calculations, original copies of submitted certificates, test records, purchase statistics, and similar documents that support the application. This inspection also covers the relevant sections of the quality assurance process or documented procedures.

Costs

An application fee is charged to companies applying for a licence. There is an additional annual fee based on the revenues produced by the Nordic Ecolabelled stove.

Enquiries

Please contact Nordic Ecolabelling if you have any queries or require further information. See page 2 for addresses.

1 Manufacture

Are the requirements met?

1.1 Product requirements

R1 Description of the manufacturing process

Yes No

A manufacturing process of the ecolabelled stove shall be described. A description shall least include the following information:

- A name and place for
 - the fabric(s) for manufacturing of stove
 - suppliers for surface treatment and metal coating
 - suppliers for other components which are dealt by the requirements.
- A description of the manufacturing process for the stove specifying the various phases of process including cleaning technology. A production technology and cleaning technology for surface treatment and metal coating shall be given.
- Copy of environmental authorization or control reports of environmental authorities for manufacturing. Give amounts of actual emissions from the past year.

Manufacturing does not include the primary production of steel, glass or plastic parts. Cast iron production is considered to occur if the producer of cast iron manufacture cast iron stoves. Cast iron parts for other stoves are not subject to the requirements.

A description of the manufacturing process according to the requirement.

Appendix no. _____

R2 Material requirements

Yes No

Manufacturer shall submit a complete list of parts in the stove that specifies the constituent materials of each part. The list shall include small parts such as screws, bolts, rivets, plugs, washers, hinges and suchlike.

The materials and design shall comply with the pertinent requirements of the applicable standard: EN 13240 (wood stoves), EN 14785 (pellet stoves), EN 13229 (inset stoves), EN 15250 (slow heat release appliances) or prEN 15821 (sauna stoves). The requirements cover parameters such as thickness, strength and permitted surface temperature (safety).

The description of materials approved by the test laboratory in connection with testing (see Section 1.1 of Appendix 1) may be used.

For material and fabrication faults on the carrying construction of the stove, excluding internal components, shall have a minimum guarantee of 5 years under normal usage.

Description on materials of the parts of the stove for example the description of the materials which test laboratory approves in connection with testing. Declaration from the manufacturer that the material and design requirements are fulfilled. Appendix 3.2 may be used.

Appendix no. _____

R3 Classification of chemical products

Yes No

Manufacturer shall submit a list of chemicals used during the manufacture and surface treatment of the stove.

Chemical products such as adhesives, sealants, cleaning agents, paints and lacquers that are used during the manufacture and surface treatment of the stove, must not be classified according to the risk phrases in the following table.

Manufacturing does not include the primary production of raw material such as steel, cast iron, glass or plastic parts.

Metal coating of parts is exempt from this requirement. Metal coating of parts must fulfil R6.

Exception is given also for hardeners of paints/lacquers where the hardener is classified as R43 or H317. This exception can be given if security supplies are used when the hardener is mixed with paint/lacquer and if spreading of the final two component product (hardener + paint/lacquer) is fulfilled in a closed system.

Table 1 Classification of chemical products

Classification	EU classification until 1 December 2010	EU classification from 1 December 2010
Dangerous for the environment	N with R50, R50/53, R51/53 or R59	Aquatic 1 with H400, Chronic 1/2 with H410, H411; EUH 059
Very toxic	Tx (T+ in Norway) with R26, R27, R28, R39	Acute Tox. 1/2 with H330, H310, H300, STOT SE 1 with H370
Toxic	T with R23, R24, R25, R39 or R48	Acute Tox. 2/3 with H331, H301 STOT SE 1 with H370 STOT RE 1 with H372
Sensitising	Xn with R42, Xi with R43	Resp. sens. 1 with H334 or Skin sens 1 with H317
Carcinogenic	Xn with R40 or T with R45, R49	Carc 1A/1B/2 with H350, H350i and/or H351
Mutagenic	T with R46 or Xn with R68	Mut 1B/2 with H340 and/or H341
Toxic for reproduction	T with R60 and/or R61. Or Xn with R62 and/or R63	Repr 1A/1B/2 with H360F, H360D, H361f, H361d, H360FD, H361fd, H360Fd, H360Df Lact with H362

**Classification in accordance with Council Directive 67/548/EEC and Council Directive 1999/45/EEC (until 1 December 2010 and during the transition period 2010-2015) or Regulation 1272/2008/EEC (as of 1 December 2010). The requirement also applies to combinations of risk phrases, such as T+ R26/R27/R28.*

- List of chemical products used during the manufacture and surface treatment of the stove. Appendix no. _____
- The material safety data sheets shall comply with applicable legislation in the country of application, e.g. Annex II of REACH (Council Regulation 1907/2006/EC) for all chemical products. Appendix no. _____
- Routines for security supplies which are used when mixing a hardener with paint/lacquer. A description of spreading methods for the two component paint-/varnish product. Appendix no. _____

R4 Chemical substances

Yes No

The following substances must not be actively added to chemical products such as adhesives, sealants, cleaning agents, paints and lacquers that are used during the manufacture and surface treatment of the stove:

- Lead (Pb), mercury (Hg), hexavalent chrome (Cr^{VI}), cadmium (Cd) and their compounds
- Halogenated organic compounds
- Alcylephenols, alcylephenoethoxylates or other substances which may form alcylephenols or alcylephenoethoxylates
- Phthalates

Manufacturing does not include the primary production of steel, cast iron, glass or plastic parts.

Metal coating of parts is exempt from this requirement. Metal coating of parts must fulfil R6.

Substances that are not actively added by a chemical producer or their suppliers and that are not found in concentrations exceeding 100 ppm are exempt from the requirement.

- Declaration or other respective clarification (documentation) for example written routines from the chemical producer (or the chemical supplier) as to fulfilment that the given substances are not actively added to the chemical product. Appendix no. _____

- R5 Surface treatments containing organic solvents** Yes No
- The application and curing processes of surface treatments containing organic solvents shall be enclosed or shall be done in the enclosed room.
- The emission of organic solvents (VOC) during surface treatment
- a) must not exceed 20% of the applied solvent or VOC emissions must not exceed 100 mg/m³
- or
- b) producer shall give the plan for reduction of VOC emissions.
- If the alternative b is chosen and the consumption of the organic solvents (VOC) by surface treatment of the Nordic Ecolabelled products is 500 kg per year or more it must be documented that it is not possible by application to install a cleaning apparatus.
- Volatile organic compounds (VOC) are defined as organic compounds that at 293.15 K have a vapour pressure of 0.01 kPa or greater.*
- Description of the surface treatment process and settlement of emission of organic solvents (VOC) during surface treatment by calculations or measurements (see Appendix 3.2) or plan for reduction of VOC emissions if exception is used. Possibly a description on why it is not possible to install a cleaning apparatus. Appendix no. _____
- R6 Metal coating of parts** Yes No
- Lead, mercury, cadmium, chrome and nickel additives must not be added during the metal coating of parts.
- Parts may be coated with chrome, nickel or compounds of these if this is justified due to high chemical or mechanical wear or another specific technical requirement. Chrome plating must be based on trivalent chrome.
- If performed, chrome and nickel plating must be performed using purification, ion exchange, membrane technique or similar process to maximise the reuse of the chemical products. The emissions from coating must be recycled and destroyed. The system must be closed and without a drain.
- Declaration from the manufacturer that the requirement on metal coatings is fulfilled. Specification of need for metal coating and of the purification process. Appendix 3.2 may be used. Appendix no. _____
- R7 Packaging** Yes No
- It must be possible to recycle or reuse the packaging material. The manufacturer shall provide a description of the packaging and how this is dealt with in the Nordic countries in which the Nordic Ecolabelled stove will be sold.
- Chlorinated plastics and timber that is treated with wood preservatives/ biocides must not be used in packaging.
- Description of the packaging and its disposal, as provided in the installation manual, see R15. Appendix no. _____
- R8 Waste** Yes No
- The manufacturer shall sort waste at source into the fractions that arise during production, such as wood, glass, plastic and metal. A waste management plan specifying waste fractions, how the waste is managed (for example recycling, landfill or incineration) shall be appended.
- Waste management plan with waste fractions and waste recipients for the stove manufacturer's operations. Appendix no. _____

1.2 Peripheral equipment

Are the requirements met?

R9 Solar collector

If the heating system includes a solar collector, this must be type approved according to EN 12 975.

Yes No

Declaration from the manufacturer of the solar collector, see Appendix 4.

Appendix no. _____

R10 Fuel pellet hopper

The manufacturer of a Nordic Ecolabelled pellet stove shall inform the customer of how storage facilities for the recommended fuel should be designed

- to ensure that the quality of the fuel is not impacted when the fuel pellets are emptied into and stored in the customer's storage hopper.
- to ensure that carbon monoxide which eventually emits from storing of pellets does not cause a risk of health or danger to life.

Yes No

Information must be provided in the instruction manual.

Appendix no. _____

2 Operation of the Nordic Ecolabelled stove

Are the requirements met?

A stove which is tested may not be fitted by particle filter or catalyzer in order to meet the requirements in R11-R13.

R11 Air emissions

The stove must not exceed the emission limit values for organic gaseous carbon (OGC), carbon monoxide (CO) and particles specified in Table 2.

Yes No

Table 2 Emission limit values for Nordic Ecolabelled stove tested at 13% O₂ (dry gas). The requirement applies at nominal heat output unless specified otherwise. \bar{x} means a weighted mean value of test results by the given heat outputs within burn rate categories.

	OGC	CO	Particles
	mg/m ³	mg/m ³	mg/m ³
Hand fed slow heat release appliance	120	1200	50
	mg/m ³	mg/m ³	g/kg fuel
Hand fed stove for temporary firing or inset stove	120	1 700	4.0 (\bar{x} for up to 4 heat outputs) 8.0 (for each individual test)
Hand fed stove for continuous firing	60	800	3.5 (\bar{x} for up to 4 heat outputs) 7.0 (for each individual test)
Mechanically fed pellet stove	60 (nominal heat output) 60 (\bar{x} for partial heat output 1 and 2)	800	3.5 (\bar{x} for up to 4 heat outputs) 7.0 (for each individual test)
Hand fed sauna stove	120	1 700	100 mg/m ³

The following conditions apply to testing. The test methods are described in Appendix 1.

Hand fed slow heat release appliance. Test at nominal heat output in accordance with:

- CEN/TS 15883:2009 for OGC emissions
- EN 15250 for CO emissions
- CEN/TS 15883:2009, Annex A.1 for particle emissions.

Hand fed wood stove (for temporary or continuous firing) or inset stove. Test at nominal heat output for CO and OGC emissions, and at up to four heat outputs within burn rate categories for particles in accordance with:

- CEN/TS 15883:2009 for OGC emissions
- EN 13240 (wood stoves) or EN 13229 (inset stoves) for CO.
- NS 3058 and NS 3059 with class 1 and 2 heat outputs for particle tests.

Mechanically fed pellet stove. Test at nominal heat output for CO emissions, and at nominal heat output and two different partial heat outputs for OGC emissions and for particles in accordance with:

- CEN/TS 15883:2009 with nominal and partial heat outputs defined according to test methods described in appendix 1 for OGC emissions
- EN 14785 for CO emissions
- NS 3058 and NS 3059 with nominal and partial heat outputs defined according to test methods described in appendix 1 for particle tests.

Hand fed sauna stove. Test at nominal heat output for CO, OGC and particle emissions in accordance with:

- CEN/TS 15883:2009 for OGC emissions
- prEN 15821 for CO emissions
- CEN/TS 15883:2009, Annex A.1 for particle emissions.

Requirements on laboratories, the testing of stoves and the measurement of emissions are described in detail in Appendix 1.

Full test report.

Appendix no. _____

R12 Efficiency

The efficiency of the appliance (η_{a}) when tested at nominal heat output in accordance with the pertinent EN standard, shall be at least:

- 83% for hand fed slow heat release appliances, as per EN 15250.
- 75% for hand fed wood stoves for temporary firing (EN 13240) and inset stoves (EN 13229).
- 85% for mechanically fed pellet stoves as per EN 14785 and for hand fed wood stoves for continuous firing as per EN 13240.
- 60% for hand fed sauna stoves as per prEN 15821.

Requirements on laboratories, the testing of stoves and the measurement of efficiency are described in detail in Appendix 1.

Full test report.

Yes No
Appendix no. _____

R13 NoiseYes No

The noise level from mechanically fed stoves must not exceed 55 d(B)A during normal use measured according to ISO 3743.

Requirements on laboratories are described in Appendix 1.

Full test report.

Appendix no. _____

R14 Declaration on the testing of emissions, efficiency and noiseYes No

A laboratory shall certify that the stove is tested in accordance with the specifications in Appendix 1, Section 1.3 for R11-R13.

The laboratory shall be accredited to perform the tests specified according to the Appendix 1, Section 1.2 Test laboratories.

Declaration demonstrating the fulfilment of the requirement.

Appendix no. _____

3 Customer information

Are the requirements met?

R15 Installation manualYes No

The stove shall be supplied with an installation manual. The installation manual shall be easy to understand and written in the national language of the Nordic country in which the stove is installed. The manual shall also be found as written in the national language or in English on the internet. The manual shall include the following information and recommendations:

- Installation of stove and possible particle filter shall be performed as specified by a qualified fitter.
- Technical data for the stove (such as material types, dimensions, weight, heat output).
- Necessary volume of air for combustion, air inlet flow per m³ per hour.
- Distance from combustible materials.
- Space required for operation, maintenance and chimney sweeping.
- Guidelines for the type of gas flue to which the stove can be connected with regard to flue gas temperature and the dimension including height and location of the gas flue canal/chimney.
- Guidelines for the design of a storage vessel for pellets, if such fuel shall be used. How the storage of pellets is designed in order to that a fuel keeps its quality by emptying and storing and that carbon monoxide which is possible emitted from storing does not cause health risk or danger to life.
- Ventilation and installation of sauna stoves in a sauna, with regard to the size of the sauna.
- How to dispose of packaging in the Nordic countries where a stove is sold.

Copy of the installation manual that is supplied with the stove to fitters and customers.

Appendix no. _____

R16 Operating and maintenance instructionsYes No

Operating and maintenance instructions shall be supplied with each supplied stove.

The instructions shall be easy to understand and written in the national language of the Nordic country in which the stove is sold. The instructions shall also be found as written in the national language or in English on the internet. The instructions shall contain the following information:

- Information on classification of stove for temporary firing or for continuous firing.
- How different fuels (types, grades) influence emissions.
- Suitable fuels for the stove and information that fossil fuels should not be used.

That Nordic Ecolabelled pellets should be used in pellet stoves.

- Recommendations for the handling and storage of wood, pellets and other possible solid biofuels. How the storage of pellets is designed in order to that a fuel keeps its quality by emptying and storing and for that carbon monoxide which is possible emitted from storing does not cause health risk or danger to life.
- How to light a fire.
- Directions on laying the fire and maximum wood length.
- Adjustment of air inlet. How by what kind of measures it is secured the required air inlet of air for combustion for a stove.
- How a low air supply can result in poor combustion, high emissions and low efficiency.
- Instructions on cleaning, inspection and maintenance of stove and possible particle filter.
- Instructions describing the recommended maintenance.
- Content of guarantee and period of validity in years shall be given. Guarantee shall meet the requirement in R2.

- Copy of the operation and maintenance instructions that are supplied with the stove to fitters and customers.

Appendix no. _____

4 Information to resellers and fitters

Are the requirements met?

R17 Qualification requirementsYes No

If the stove has a water jacket and a supplementary solar collector, the reseller must recommend a qualified fitter.

- Example of the written information supplied to resellers and fitters.

Appendix no. _____

R18 Design and sizing of the heating systemYes No

If the stove has a water jacket and the heating system has a supplementary solar collector, the heating system of water jacketed stove/solar collector must be correctly designed and sized.

- Example of the written information supplied to resellers and fitters.

Appendix no. _____

R19 Other information

Yes No

The manufacturer shall inform resellers that:

- The stove should be installed by a qualified fitter.
- That the user must have access to the installation manual and operating and care instructions.

Example of the written information supplied to resellers and fitters.

Appendix no. _____

5 Quality and regulatory requirements

Are the requirements met?

To ensure that Nordic Ecolabelling requirements are fulfilled, the following procedures must be implemented. If the manufacturer’s environmental management system is certified to ISO 14 001 or EMAS, where the following procedures (R24 R26) are applied, it is sufficient for the accredited certification body to certify that the requirements are implemented.

R20 Laws and regulations (regulatory requirements)

Yes No

The licensee must ensure that local applicable laws and regulations in force are observed at facilities at which the Nordic Ecolabelled stove is manufactured. For example, local regulations and provisions regarding health and safety, the working environment, environmental legislation (including REACH) and plant-specific conditions and concessions, must be followed in the country where the stove is manufactured.

Declaration from the licensee that the requirement is met, and details of the regulatory authority. See Appendix 2.

Appendix no. _____

R21 Licence administrators

Yes No

The manufacturer and the licensee if it is the other one than manufacturer shall appoint an individual responsible for ensuring the fulfilment of Swan requirements, and a contact person for communications with Nordic Ecolabelling.

Organisational structure showing the above areas of responsibility.

Appendix no. _____

R22 Documentation

Yes No

The licensee must keep the following documents during the licence period. The licensee must be able to present these documents during the application process and follow-up inspections:

- Copy of the entire application.
- Facts/basic data (including test reports, documents from suppliers and suchlike).
- Results from inspections of the production of the ecolabelled product.
- Returns and complaints.

Checked on site by licensee/manufacturer.

- R23 Stove quality** Yes No
- The licensee must ensure that the quality of manufacturing of the Nordic Ecolabelled stove is maintained throughout the validity period of the licence.
- Nordic Ecolabelling maintains the right to request documentation of the annual quality inspection of manufacturing if the laboratory has performed such a test.
- Requirements regarding the quality of materials are found under R2.
- Procedures for collating and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Ecolabelled stove. Appendix no. _____
- Documentation regarding quality control during manufacture if requested by Nordic Ecolabelling.
- R24 Planned changes** Yes No
- Planned changes to manufacturing controlled by Nordic Ecolabel requirements must be reported in writing to Nordic Ecolabelling and the licensee (if other than the product manufacturer).
- Procedures detailing how planned changes are handled. Appendix no. _____
- R25 Unplanned nonconformities** Yes No
- Unplanned nonconformities in manufacturing related to areas controlled by Nordic Ecolabel requirements must be reported in writing to Nordic Ecolabelling and the licensee (if other than the product manufacturer) with keeping records.
- Procedures detailing how unplanned nonconformities are handled. Appendix no. _____
- R26 Traceability** Yes No
- The licensee/manufacturer must have a traceability system for the production of the Nordic Ecolabelled stove.
- Description of/procedures for the fulfilment of the requirement. Appendix no. _____
- R27 Take-back system** Yes No
- Applicable national regulations, legislation and/or agreements within the sector regarding the recycling systems for products and packaging shall be met in the Nordic countries in which the Nordic Ecolabelled stove is marketed.
- Statement from the applicant regarding adherence to existing recycling/ take-back agreements. Appendix no. _____
- R28 Marketing** Yes No
- A Nordic Ecolabelled stove may be marketed using the Swan label so long as the associated licence is valid.
- The label must be positioned so that there is no doubt as to what the label refers and so that it is clear that the stove is ecolabelled.
- More information on marketing can be found in "Regulations for the Nordic Ecolabelling of products" of 22 June 2011 or later version.
- The filled appendix 5. Appendix no. _____

Design of the Nordic Ecolabel

Design of the Nordic Ecolabel:



Each licence has a unique, six-digit licence number that must be displayed along with the label.

More information on the design of the label can be found in "Regulations for the Nordic Ecolabelling of products" of 22 June 2011 or later version.

Follow-up inspections

Nordic Ecolabelling may decide to check whether the stove fulfils ecolabel 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 the stove does not meet the requirements.

How long is a licence valid?

Nordic Ecolabelling adopted version 3.0 of the criteria on 12th October 2010. These criteria are valid through 31th October 2014.

On 12 September 2012 the secretariat managers meeting decided to add the exception on classification R43 of the chemical products in the requirement R3. The new criteria version is 3.1 and is valid until 31th October 2014.

An 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.

New criteria

Prior to the next revision of this criteria document, the following items shall be evaluated:

- Material and chemical requirements.
- The manufacturing process of stoves and raw materials including energy consumption and surface treatment.
- Test methods and variations of test at different laboratories.
- Requirement levels regarding efficiency and emissions. It is evaluated if requirement of NOx may be set.
- Relationship to EuP and RES directives.
- Impact of particle size on health.

Definitions

Stoves are defined according to the following standards:

Hand fuelled stoves:

- Slow heat release appliance: defined in EN 15 250, section 6.6 “Thermal storage capacity”, as follows: “The time period from the appliance achieving the maximum surface temperature and falling to 50% of that maximum value based upon differential surface temperatures against ambient temperatures shall be not less than 4 hours”.

There are also slow heat release appliances that store the heat in a water reservoir. These differ from water-jacketed stoves since they cannot be fired without water in the reservoir.

- Wood stove: EN 13240.
- Inset stove: EN 13229.
- Sauna stove: prEN 15821

Mechanically fuelled stoves:

- Pellet stove: EN 14785.

Appendix 1 Testing

1.1 Testing

The stove must be tested to determine the flue gas emissions regarding carbon monoxide, hydrocarbons expressed as organic gaseous carbon (OGC), particles and efficiency. Testing is based on the European standards. But testing shall also be performed at the heat outputs specified by the Norwegian standard (NS).

Mechanically fed stoves must also be tested for noise.

The test laboratory shall produce a comprehensive test report that contains information on the following.

1. Selected test method.
2. Results from all tests.
3. A clear definition of the stoves.
4. Confirmation that the test has been performed in accordance with the method specified, except where stated otherwise.
5. Specification of the test fuel.
6. That the laboratory fulfils the specified requirements and can demonstrate that testing is performed in an impartial, competent manner.

Sample products shall be chosen at random from the factory's warehouse or from the open market.

Nordic Ecolabelling maintains the right to request additional documents regarding the fulfilment of requirements and test reports.

1.2 Test laboratory

Flue gas tests shall be performed by an accredited laboratory that fulfils the general requirements of SS EN ISO/IEC 17 025. An alternative laboratory may perform testing if the laboratory has applied for accreditation according to an applicable test method but has not yet been granted approval or because it does not exist accreditation for technical specification or a proposal of a standard. The laboratory must be able to show that it is independent and qualified.

If the country of origin lacks an accredited laboratory, the laboratory may be chosen following approval from Nordic Ecolabelling.

Noise can be tested by the manufacturer of the appliance if the manufacturer has been assessed by a notified body in accordance with Directive 2002/14/EC relating to noise emission.

1.3 Test methods

Testing of hand fed stoves

Slow heat release appliances shall be tested at nominal heat output only. CO and efficiency tests shall comply with EN 15 250 and OGC test shall comply with CEN/TS 15883, with the following modifications. Particle tests shall comply with applicable sections of CEN/TS 15883:2009, Annex A.1.

Wood stoves for temporary and continuous firing: CO and efficiency tests shall comply with EN 13 240 and OGC test shall comply with CEN/TS 15883, with the following modifications. Particle emissions from wood stoves shall be tested at up to four heat outputs (within burn rate categories) according to NS3058 and NS3059.

Inset stoves: CO and efficiency tests shall comply with EN 13 229 and OGC test shall comply with CEN/TS 15883, with the following modifications. Particle emissions from inset stoves shall be tested at up to four heat outputs (within burn rate categories) according to NS3058 and NS3059.

Sauna stoves: CO and efficiency tests shall comply with prEN 15 821 and OGC test shall comply with CEN/TS 15883. Particle emissions from sauna stoves shall be tested at nominal heat output according to CEN/TS 15883:2009, Annex A.1.

Test assembly

Slow heat release appliances and sauna stoves

Stoves are tested for CO₂, OGC and particles at nominal heat output connected to an extraction system according to the instructions in the standard in question.

Stoves and inset stoves

Nominal heat output tests for CO and OGC shall be performed with the stove connected to an extraction system according to the instructions in the standard in question. The rest of the extraction system shall be designed as a dilution tunnel as described in NS 3058-2, Section 4.2.

Testing for particles at different heat outputs (within burn rate categories) shall be conducted with the stove connected to a chimney as described in NS 3058-1, Section 3.1, and the rest of the extraction system shall act as a dilution tunnel as described in NS 3058-2, Section 4.2.

Stoves with water tanks must also be connected to a water system that can ensure the flow temperature is maintained at 80°C ± 5°.

Fuel

Hand fed stoves shall at nominal output be fired on the fuel specified in each standard.

At different heat outputs (within burn rate categories) the test fuel and fill quantity must comply with NS 3058-1, Section 4.3.

Procedure

During particle testing, pre-firing (stove ageing) in accordance with NS 3058 1, Section 6.1 may be excluded, if the partial heat output tests are not part of a complete type approval in accordance with Norwegian NS 3058 and NS 3059.

Nominal output tests of hand fed stoves shall comply with EN standards. The measurement of the total hydrocarbon content (THC) shall comply with CEN/TS 15883.

Different heat output tests (within burn rate categories) for particles of hand fed stoves shall comply with EN 3058 2, Section 6.2 and 6.3. Testing shall be conducted at normal pressure with outputs equivalent to class 1 and 2 different heat outputs.

Measurements

The following measurements must be taken during testing at nominal heat output:

- CO, CO₂ or O₂ and flue gas temperature measured in accordance with the specific EN standard.
- Room temperature measured according to the specific EN standard.
- Total hydrocarbon content (THC) measured according to CEN/TS 15883, as a basis for determining OGC.
- Particle emissions for hand fed stoves and inset stoves measured in accordance with NS 3058-2. The ignition phase is not included in the measurements.
- Flue gas pressure and temperature measured according to the specific standard.
- Particle emissions from slow heat release appliances and sauna stoves shall be measured from chimney according to CEN/TS 15883:2009, Annex A.1.
- Efficiency measured according to the specific EN standard.

For different heat outputs the following shall be measured:

- Flue gas temperature in accordance with NS 3058 1, Section 4.1.2.
- Particle emissions for hand fed stoves and inset stoves measured in accordance with NS 3058 2. The ignition phase is not included in the measurements.
- Flue gas pressure measured in accordance with NS 3058 1, Section 3.8.

Calculations

OGC calculations shall follow CEN/TS 15883 and be based on total hydrocarbon content (THC) measured at nominal heat output for stoves for temporary and continuous firing and inset stoves.

Particle emissions for hand fed stoves and inset stoves shall be calculated according to NS 3059, Section 4. The emission level shall be calculated for each individual heat output range and as a weighted mean value of all tests.

Particle emissions from slow heat release appliances and sauna stoves shall be calculated according to CEN/TS 15883:2009, Annex A.1.

Testing of mechanically fed stoves

Pellet stoves: CO and efficiency tests shall comply with EN 14 785 and OGC test shall comply with CEN/TS 15883, with the following modifications. Partial heat output tests are performed without thermostatic control. OGC and particle emissions from pellet stoves shall be tested at nominal heat output and at two partial heat outputs (within different burn rate categories) according to NS 3058 and NS 3059 with partial heat outputs defined according to test methods described under in the chapter “Procedure”.

Stoves shall also be tested for noise according to ISO 3743.

Test assembly

Nominal heat output tests shall be performed with the stove connected to an extraction system according to the instructions in the standard. The rest of the extraction system shall be designed as a dilution tunnel as described in NS 3058-2, Section 4.2.

Testing at partial heat output shall be conducted with the stove connected to a chimney as described in NS 3058 1, Section 3.1, and the rest of the extraction system shall act as a dilution tunnel as described in NS 3058 2, Section 4.2.

Mechanically fed stoves with built-in smoke extraction or other mechanical installations in the air and/or smoke ducts may be connected to a chimney according to the manufacturer's instructions.

Stoves with water tanks must also be connected to a water system that can ensure the flow temperature is maintained at $80^{\circ}\text{C} \pm 5^{\circ}$.

Noise emissions shall be measured during combustion at a power output of 3-5 kW. Testing shall comply with ISO 3743.

Fuel

Pellets complying with the specifications of EN 14 785 shall be used for testing. The specifications allow a variable grade of pure wood raw material. If testing uses a fuel of a lesser grade but that nonetheless fulfils the standard, this shall be specified. In this case, the customer must be encouraged to purchase fuel of such a grade.

In exceptional cases, following approval from Nordic Ecolabelling, fuel grades other than pure wood raw material may be used, such as straw pellets or other biomaterial. This must be stated clearly. In this case, the customer must be encouraged to purchase fuel of such a grade. Peat is not considered to be a biofuel.

Procedure

Partial heat output testing shall be conducted over 2 x 4 hours (4 hours for each output level). Testing shall be performed at ≤ 2 kW and 3.5 kW. Testing shall take place at normal pressure, unless otherwise stated by the manufacturer or if the stove is designed to operate with a smoke extractor or other mechanical installations in the air and/or smoke ducts. In both tests, measurement begins after half an hour once the stove output has stabilised.

Measurements

The following measurements must be taken during testing at nominal heat output:

- CO, CO₂ or O₂ and flue gas temperature measured in accordance with EN 14 785.
- Room temperature measured according to EN 14 785.
- Total hydrocarbon content (THC) measured according to CEN/TS 15883 to determine OGC.

- Particles measured in accordance with NS 3058 2. The ignition phase is not included in the measurements.
- Flue gas pressure measured according to EN 14 785.
- Efficiency measured according to the specific EN 14 785.
- Noise measured according to ISO 3743.

For partial heat output the following shall be measured:

- Flue gas temperature in accordance with NS 3058 1, Section 4.1.2.
- Particle emissions in accordance with NS 3058 2. The ignition phase is not included in the measurements.
- Total hydrocarbon content (THC) measured according to CEN/TS 15883 to determine OGC.
- Flue gas pressure measured in accordance with NS 3058 1, Section 3.8.

Noise emissions shall be measured during combustion at a power output of 3-5 kW. Testing shall comply with ISO 3743.

Calculations

OGC calculations shall be made in accordance with CEN/TS 15883 based on the measured THC at nominal heat output and two partial heat outputs. A weighted mean value is calculated for partial heat outputs.

Particle emissions shall be calculated according to NS 3059, Section 4. The emission level shall be calculated for each individual heat output range and as a weighted mean value of all tests.

Alternative test methods

Nordic Ecolabelling may approve products for licensing based on test results from testing methods other than those mentioned above if the test method in question is assessed as equivalent by an independent, competent body.

Appendix 2 Declaration of fulfilment of manufacturing regulations

Product name:
Manufacturer:

The following requirements are met

Yes No

Local applicable laws and regulations in force are observed at facilities at which the Nordic Ecolabelled stove is manufactured. For example, local regulations and provisions regarding health and safety, the working environment, environmental legislation (including REACH) and plant-specific conditions and concessions, must be followed in the country where the stove is manufactured.

Details of local regulatory authorities:

.....

Date	Licensee (Company name)
Administered by (signature)	Phone
Name (block capitals)	E-mail

Appendix 3.1 Declaration regarding chemical products

3.1 Production of chemicals (to be filled by the producer of the chemical products)

Name of chemical product:

Chemical substances (R4)

The following requirements are met

Yes No

The following chemical substances are not actively added to chemical products (such as adhesives, sealants, cleaning agents, paints and lacquers) that are used during the manufacture and surface treatment of the stove:

- Lead (Pb), mercury (Hg), hexavalent chrome (Cr^{VI}), cadmium (Cd) and their compounds
- Halogenated organic compounds
- Alkylphenols, alkylphenoethoxylates or other substances which can which can form alcylephenols or alcylephenoethoxylates
- Phthalates

The metal coating of parts is exempt from this requirement, see R6 in Appendix 3.2.

Substances that are not actively added by a chemical producer or their suppliers and that are not found in concentrations exceeding 100 ppm are exempt from the requirement.

Producer/supplier of chemical products (company name)	Date
Administered by (signature)	Phone
Name (block capitals)	E-mail

Appendix 3.2 Declaration on material requirements (R2), surface treatments containing organic solvents (R5), and the metal coating of small parts (R6)

3.2 Manufacture of the stove (to be filled by manufacturer of stoves)

Product name:
Manufacturer:
Weight of material/part:

Material requirements (R2)

The following requirements are met:

Yes No

- The materials and design comply with the requirements of EN 13240 (wood stoves), EN 14785 (pellet stoves), EN 13229 (inset stoves), EN 15250 (slow heat release appliances) or prEN 15821 (sauna stoves).

We declare that:

- For material and fabrication faults on the carrying construction of the stove, excluding internal components, have a minimum guarantee of 5 years under normal usage.

Surface treatment – organic solvents (R5)

The following requirements are met

Yes No

- Application and curing of surface treatment containing organic solvents is enclosed or done in the enclosed room.
- The emission of organic solvents (VOC)
 - a. does not exceed 20% of the applied solvent or VOC emissions does not exceed 100 mg/m³.or
 - b. producer gives the plan for reduction of VOC emissions. Then it shall be documented that it is not possible by application to install a cleaning apparatus if the consumption of the organic solvents (VOC) by surface treatment of the Nordic Ecolabelled products is 500 kg per year or more.

- Submit from license applicant a description regarding surface treatment and a report of the emission of organic solvents (VOC) during surface treatment thorough calculations or measurements or the plan for reduction of VOC emissions in case the exception is used. Possibly a description on why it is not possible to install a cleaning apparatus.

Appendix no. _____

Metal coating of parts (R6)

The following requirements are met:

Yes No

- Lead, mercury, cadmium, chrome and nickel additives must not be added during the metal coating of parts.

Metal coating of parts

- Parts may be coated with chrome, nickel or compounds of these if this is justified due to high chemical or mechanical wear or another specific technical requirement. If components are chrome or nickel coated, please document the background to this.

Chrome plating must be based on trivalent chrome.

If performed, chrome and nickel plating must be performed using purification, ion exchange, membrane technique or similar process to maximise the reuse of the chemical products. The emissions from coating must be recycled and destroyed. The system must be closed and without a drain.

- Submit a report that justifies the possible need for metal coating, specifies the cleaning method. The declaration shall be based on sufficient documentation from suppliers.

Appendix no. _____

Stove manufacturer, signature

Date	Company name
Administered by	Phone
Name (block capitals)	E-mail

Appendix 4 Declaration on supplementary solar collector

The following requirement is met:

Yes No

The supplementary solar collector intended for use with the Nordic Ecolabelled stove is type approved to EN 12975.

Product name (solar collector): _____

Product name (stove): _____

Date	Manufacturer (Solar collector)
Administered by	Phone
Name (block capitals)	E-mail

Appendix 5 Marketing of Nordic Ecolabelled stoves

We hereby certify that we are well acquainted with the regulations governing the use of the Nordic Ecolabel as detailed in "Regulations for the Nordic Ecolabelling of products" of 22 June 2011 or later version. We agree to follow these regulations when marketing the Nordic Ecolabelled stoves.

Further, we confirm that we are familiar with the criteria document regarding the Nordic Ecolabelling of stoves.

We undertake to advise those individuals within the company involved in marketing the Nordic Ecolabelled stoves of the criteria for the Nordic Ecolabelling of stoves and "Regulations for the Nordic Ecolabelling of products" of 22 June 2011 or later version.

Place and Date	Company
Signature, Contact person	
Name (block capitals)	Phone
Signature, marketing responsible	
Name (block capitals)	Phone

In case of a change in personnel, a new declaration must be submitted to Nordic Ecolabelling.