Nordic Ecolabelling of

Boilers for solid biofuel



Version 3.0

2014-01-31 - 2014-03-31
Consultation proposal

Nordic Ecolabelling

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This document is a translation of an original in Danish. 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 Nordic 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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It may be quoted from provided that Nordic Ecolabelling is stated as the source.

What is a Nordic Ecolabelled boiler?

Nordic Ecolabelled boilers for solid biofuel are relatively simple combustion systems of up to 500 kW. The fuel may be added manually or automatically. Solid biofuel is firewood, wood pellets, briquettes, wood chips or straw. The boiler's function is to be the home's primary heating system by heating water to transport heat via the home's central heating system.

A Nordic Ecolabelled boiler produces low emissions of particles, organic gaseous carbon/volatile hydrocarbons (OGC), carbon monoxide (CO) and NOx and has a high level of efficiency. Emissions have a negative effect on health, and the emission volumes vary considerably between the various types of fireplace. The boilers must also comply with stringent electricity consumption regulations. The requirement for the boiler to be equipped with a sensor system also ensures optimum combustion.

The Nordic Ecolabel makes requirements of a ban on the use of production chemicals with specific hazard classifications, and requires a five-year guarantee for the bearing structure.

The manufacturer must also clearly inform the customer about how the boiler is to be used and maintained in order to function optimally, and that the boiler must be installed by certified installation technicians, as well as the offer of annual service agreements, and the requirement of access to spare parts for ten years after the boiler is no longer manufactured.

Why choose the Nordic Ecolabel?

- The manufacturer may use the Nordic Ecolabel trademark for marketing. The Nordic Ecolabel is a very well-known and well-reputed trademark in the Nordic region.
- The Nordic Ecolabel is a cost-effective and simple way of communicating environmental work and commitment to customers and suppliers.
- Reducing environmental impact often creates scope for lowering costs, such as by cutting the consumption of energy and reducing amounts of packaging and waste.
- Environmentally suitable operations prepare the manufacturer for future environmental legislation.
- Environmental issues are complex. It can take a long time and extensive resources to gain an understanding of a specific area. Nordic Ecolabelling can be seen as aid in this work.
- The Nordic 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 Ecolabel licence can also be seen as a mark of quality.

What can carry the Nordic Ecolabel?

Boilers for solid biofuel with a nominal heat output of up to 500kW can achieve the Nordic Ecolabel. The fuel may be added manually or automatically. Solid biofuel is:

- Firewood
- Briquettes
- Wood pellets
- Straw
- Woodchips

Solar collectors may be included in the heating system.

How to apply

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

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

🔑 The requirement checked on site

If the requirement requires an explanation (e.g. footnotes), this is written in italics (explanatory text) directly after the requirement.

Application

Applications are made to the national ecolabelling organisation and the application is valid for 12 months. Applications may be processed by another ecolabelling organisation according to agreement between the organisations. The applicant is notified of this. Companies located outside the Nordic countries make applications to the national ecolabelling organisation of the primary market.

The application must consist of a completed application form together with all of the documentation required to demonstrate compliance with the requirements specified in the criteria document (this is specified for each requirement). The application form must specify in which Nordic countries the products in question are to be sold and the estimated turnover from the products in each country.

Further information and assistance may be available. Visit the relevant national website for information.

Sales in the Nordic region

Once granted, a licence is valid throughout the Nordic region. The licence document specifies in which Nordic countries the products are sold according to the information provided on the application. The products are published on Nordic Ecolabelling's website(s). The licensee undertakes to inform Nordic Ecolabelling of any changes as to where the product is sold. If the product is to be sold in other Nordic countries than

those initially specified in the application, the licensee must provide written notification of this and submit any extra documentation required to Nordic Ecolabelling in the country that issued the license.

On-site inspection

In connection with handling of the application, Nordic Ecolabelling 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.

Costs

An application fee is charged to companies applying for a licence. There is an additional annual fee based on the turnover of the Nordic Ecolabelled boiler for solid biofuel.

Enquiries

Please contact Nordic Ecolabelling if you have any queries or require further information. See page 3 for addresses.

What are the requirements of the Nordic Ecolabelling?

To be awarded a Nordic Ecolabel licence, all requirements must be fulfilled.

To gain the Nordic Ecolabel it is required that:

- The Nordic Ecolabel has performed on-site inspection.

In order to be granted a Nordic license, the following documentation must be attached to the application:

- User instructions in all relevant languages.
- Documentation demonstrating compliance with national rules and laws, as well as any industry agreements on return systems for packaging.

1 Production

1.1 Production requirements

O1 Description of the production process

The production process for the Nordic Ecolabelled boiler must be described.

The description must include the following:

- Name and contact details of:
  - production location(s) for final manufacture of boilers
  - subsuppliers for surface treatment
  - subsuppliers of other components subject to the requirements
- A description of the production process for the boiler stating the various process stages, including cleaning technique. Production technique and cleaning technique for surface finishing and metal coating must be stated.
- Copy of environmental licence/permit or inspection report from the environmental authority concerning final production, with details of emissions subject to the licence during the past year.

Final production of the boiler does not concern the production of raw materials such as steel, cast iron, stone/ceramic, glass or plastic elements.

✉ A description of the boiler's production process according to the requirement. Copy of the environmental licence/permit or inspection report from the environmental inspection authority concerning final production, with details of emissions subject to the licence during the past year.

O2 Materials

The manufacturer must draw up a list of all of the elements included in the boiler, stating the type and material, as well as technical drawings with measurement dimensions.

Materials and construction must comply with relevant requirements in the current standard, EN 303-5:2012. The requirement includes, for example, quality, thickness of materials, durability and temperature control (safety) in the boiler and materials.

A guarantee for materials and construction faults of at least five years must be given for the bearing structure (excluding the interior of the combustion chamber) on normal use.

✉ A description of materials for all of the elements included in the boiler, as well as technical drawings with measurement dimensions approved by the test laboratories in connection with testing of the boiler.

✉ Declaration from the manufacturer that the requirements of the materials and construction have been fulfilled. Appendix 2 may be used.

O3 Chemical products, classification

The manufacturer must draw up a list of the chemicals used in the final production (painting, installation and final inspection) of boilers and for surface treatment. Chemical products such as glue, sealant, cleaning/degreasing products, paints and varnishes used in the final production of the boiler and for surface finishing may not be classified according to the table below.

Final production of boilers does not concern the production of raw materials such as steel, cast iron, glass or plastic elements.

Table 1 List of non-permitted classification of the final chemical compound used in the product, in accordance with the CLP regulation 1272/2008, or later.

Signal word	Hazard phrase	Hazard description	Risk phrase
		Environmentally hazardous	
Warning, Aquatic acute 1	H400	N	R50
Warning, Aquatic chronic 1	H410	N	R50/53
Warning, Aquatic chronic 2	H411	N	R51/53
-, Aquatic chronic 3	H412	-	R52/53
-, Aquatic chronic 4	H413	-	R53
-, Ozone	EUH059	N	R59
		Carcinogenic	
Hazardous, Carc. 1A or 1B	H350	T	R45 and/or
Hazardous, Carc. 1A or 1B	H350i	T	R49
Warning, Carc. 2	H351	Xn	R40
		Mutagenic,	
Hazardous, Muta. 1A or 1B	H340	T	R46
Warning, Muta. 2	H341	Xn	R68
		Reprotoxic	
Hazardous, Repr. 1A or 1B	H360	T	R60
Hazardous, Repr. 1A or 1B	H360	T	R61
Warning, Repr. 2	H361	Xn	R62 and/or
Warning, Repr. 2	H361	Xn	R63
-	H362	-	R33
-	H362	-	R64
		Very toxic	
Hazardous, Acute Tox. 1 or 2	H330	Tx (T+ in Norway)	R26
Hazardous, Acute Tox. 1	H310	Tx (T+ in Norway)	R27
Hazardous, Acute Tox. 2	H300	Tx (T+ in Norway)	R28 and/or
Hazardous, STOT SE 1	H370	Tx (T+ in Norway)	R39
		Toxic,	
Hazardous, Acute Tox. 2 or 3	H330 or H331	T	R23
Hazardous, Acute Tox. 3	H331	T	R24
Hazardous, Acute Tox. 3	H301	T	R25
Hazardous, STOT SE 1	H370	T	R39 and/or
Hazardous, STOT SE 1	H372	T	R48
		Sensitising	
Hazardous, Resp. Sens. 1	H334	Xn	R42
Warning, Skin sens. 1	H317	Xi	R43

The classification applies in accordance with the EU's dangerous substances directive 67/548/EC with subsequent amendments and adjustments, and/or CLP regulation 1272/2008 with subsequent amendments. During the transition period, i.e. up to 1 June 2015, classification in accordance with the EU's dangerous substances directive or the CLP regulation may be used. After the transition period, only classification in accordance with the CLP regulation will apply.

Metal coating of parts is exempt from the requirement- On metal coating of parts, requirement O5 must be fulfilled.

☒ List of chemicals used in final production and for surface finishing.

☒ Safety datasheet issued within the last three years for the final chemical compound used in the Ecolabelled product, in accordance with Annex II of Reach (regulation 1907/2006/EC, with later amendments and additions).

O4 Component substances in chemical products

The following substances may not be included in the chemical products (e.g. glue, sealant, cleaning/degreasing products, paint and varnish) that are used in the final production of the boiler, as well as for external coating:

- lead (Pb), mercury (Hg), chromium IV (CrIV), cadmium (Cd) and compounds thereof
- halogenated organic compounds
- alkylphenols, alkylphenol ethoxylates or other substances that can build alkylphenols or alkylphenol ethoxylates
- phthalates
- nanoparticles (from nanomaterials*)
- substances on the EU's candidate list in accordance with REACH, 1907/2006/EC, article 59, section 10 on the website of the European Chemicals Agency (ECHA). In the background document there is a link to the list.

There is exemption from the list for metal coating of parts. On metal coating of parts, requirement O5 must be fulfilled.

The following definition must be used concerning "included" Unless otherwise stated, included substances are all substances in the product, including additives (such as preserving agents or stabilisers) in the raw materials, but not contaminants from raw materials production. Contaminants are residual substances from raw materials production that are included in the finished product in concentrations below 100 ppm (0.0100% by weight, 100 mg/kg), but not substances added deliberately to a raw material or product for a purpose, irrespective of the quantity. Known degradation products from constituent substances are also considered to be included.

**The definition of nanomaterial follows the European Commission's definition of nanomaterial from 18 October 2011, with the exception of the threshold for the distribution of particle size, which is now reduced to 1%: Nanomaterial is a natural accidentally or deliberately produced material that contains particles in their free state, or in the form of aggregate or agglomerate, and where at least 1% of the particles in the distribution of number by size has one or more dimensions in the size range of 1 - 100 nm. This definition applies to all of the material, even particles outside the range of 1 - 100 nm, for as long as 1% of the material is particles in the range of 1 - 100 nm. The definition concerns nanoparticles in both bound and unbound state.*

✉ Declaration or other equivalent documentation from the chemicals producer/supplier. Appendix 3 may be used.

O5 Metal coating of parts

Parts og metal may not be coated with lead (Pb), mercury (Hg), cadmium (Cd), chromium VI (CrVI), nickel (Ni) or compounds thereof.

Exceptionally, parts may be coated with chromium III, nickel or compounds thereof in cases where this is necessary due to chemical or mechanical wear, or other documented special technical requirements.

Any chromium and nickel-plating processes must take place using cleaning techniques, ion-exchange techniques, membrane techniques or similar techniques, in order to be able to recover the metals to the greatest possible extent. Residual products from coating must be used in recycling or waste handling schemes. The system must be without a drainage system.

✉ Declaration from the manufacturer that the requirement concerning metal coating has been fulfilled. Appendix 2 may be used.

✉ Report on any need for metal coating and on which cleaning technique may be used by the boiler's manufacturer.

O6 Labelling of plastic elements

Plastic elements weighing more than 50 g must be labelled in accordance with ISO 11469.

Cables are not subject to the requirement.

✉ Declaration from the manufacturer of the boiler that the requirement is fulfilled. Appendix 4 may be used to document the requirement.

O7 Product and transport packaging

It must be possible to recycle or reuse materials in product and transport packaging. The manufacturer must submit a description of the packaging, as well as instructions for how the packaging is to be handled in the Nordic countries in which the Nordic Ecolabelled boiler is sold.

Chlorine-based plastic and biocide-treated/impregnated wood may not be used in the product and transport packaging.

✉ A description of the product and transport packaging and instructions for handling in the individual Nordic countries can be found in the installation manual, see O19.

O8 Waste

The manufacturer must perform sorting at source of the various waste fractions occurring in the production of boilers, such as waste wood, waste glass, waste electronics, plastic and metal. A waste plan with a description of waste fractions and of how the waste is handled (such as reuse, depositing and incineration) must be submitted.

✉ A waste plan with a description of waste fractions and waste recipients for the company (who collects the individual waste fractions) from the manufacturer of the boiler.

1.2 Requirements of control of optimum combustion

O9 Electronic control

The boiler must be equipped with a lambda probe or equivalent sensor system to ensure optimum combustion.

✉ Description of sensor system to ensure optimum combustion.

1.3 Supplementary components

O10 Accumulation tank

Manually fired boilers must be equipped with an accumulation tank. The accumulation tank must be dimensioned to store heat from a fully loaded combustion chamber. This entails that the accumulation tank must be at least 15 times the boiler's combustion chamber volume.

✉ The instruction manual must include the information that manually fired boilers must be installed with an accumulation tank, and the size of the accumulation tank.

O11 Solar collector

If the heating system includes a solar collector, this must be type approved according to EN 12975.

✉ Declaration from the manufacturer of solar collectors, see Appendix 5.

O12 Fuel pellet hopper

The manufacturer of the Nordic Ecolabelled pellet stove must inform the customer of how a hopper for the wood pellets should be designed

- to ensure that the recommended fuel retains its quality when the fuel pellets are emptied into the customer's storage hopper;
- so that carbon monoxide that may occur when wood pellets are stored does not entail a health risk or mortal danger.

✉ Information must be provided in the instruction manual

2 Operation of the Nordic Ecolabelled boiler

O13 Electricity consumption

The boiler's electricity consumption during operation with maximum heat output may not exceed the threshold values in the following table.

Table 2 Threshold values for the boiler's electricity consumption during operation at maximum heat output

Manually fired boiler ≤ 20kW	Max 125 Watt
Manually fired boiler > 20kW	≤ 0.6% of nominal output
Automatically fired boiler ≤ 20 kW	Max 150 Watt
Automatically fired boiler > 20 kW	≤ 0.75% of nominal output

Test in accordance with EN303-5:2012. The electrical consumption is determined according to EN 15456.

✉ Full test report in accordance with EN303-5:2012 and EN15456.

O14 Emissions to air

The boiler may not exceed threshold values for carbon monoxide (CO), organic gaseous carbon (OGC), particles and NOx in the following table.

Boilers ≤ 20 kW:

- CO and OGC are only tested at nominal load
- Particles and NOx are tested at nominal load and low load

Boilers > 20 kW:

- CO, OGC, Particles and NOx are tested at nominal load and low load

Low load: 30% of nominal load

Table 3 Threshold values for Nordic Ecolabelled boilers tested at 10% O_2.

	CO	OGC	Particles	NOx
	mg/m^3	mg/m^3	mg/m^3	mg/m^3
Manually fired boiler ≤ 20kW	250	10	40/60	180/180
Manually fired boiler > 20kW	250/400	10/20	40/60	180/180
Automatically fired boiler ≤ 20 kW	90	7	20/40	180/180
Automatically fired boiler > 20 kW	90/200	7/7	20/40	180/180

Test instructions are stated in Appendix 1.

Test of CO, OCG and particles in accordance with EN303-5:2012.

Test of NOx in accordance with EN14792.

✉ Full test report in accordance with the standards.

O15 Efficiency

Efficiency, (n_k), at nominal load and low load (30% of nominal load) must be tested according to the respective standard and must be at least:

Manually fired boiler ≤ 20 kW:

- 90% at nominal load according to EN 303-5:2012
- 89% at low load (30% of nominal load) according to EN 303-5:2012

Manually fired boiler > 20 kW:

- 90% at nominal load according to EN 303-5:2012
- 90% at low load (30% of nominal load) according to EN 303-5:2012

Automatically fired boiler ≤ 20 kW:

- 91% at nominal load according to EN 303-5:2012
- 90% at low load (30% of nominal load) according to EN 303-5:2012

Automatically fired boiler > 20 kW:

- 91% at nominal load according to EN 303-5:2012
- 91% at low load (30% of nominal load) according to EN 303-5:2012

Requirements of laboratories, testing of fireplaces and measurement of efficiency are stated in Appendix 1.

✉ Full test report in accordance with the standard EN 303-5:2012.

3 Customer information

O16 Installation manual

There must be an installation manual for each boiler delivered. The installation manual must be written clearly in the national language in the Nordic country in which the boiler is sold and installed. The manual must also be available on the manufacturer and/or distributor's website(s). The manual must present recommendations and information on:

- the installation of the boiler in the designated way, and a recommendation for the boiler to be installed by an authorised/competent distributor/installation technician, as well as reference to the present;
- technical information/specifications concerning the boiler;
- the boiler's electricity consumption;
- installation of accumulation tanks together with manually fired boilers;
- information on the size of the accumulation tank (O10);
- the required volume of air for combustion, air volume in m^3 per hour;
- distance to flammable material;
- instructions for the type of smoke flue/chimney to which the boiler may be connected in terms of flue gas temperature, drawing, dimensions, height and position of the smoke flue/chimney;
- instructions for the design of the wood pellet hopper, if this fuel type is used how the wood pellet hopper must be designed for the fuel to retain its quality on emptying and storage, and so that any carbon monoxide arising as a consequence of the storage of wood pellets does not present a health risk or mortal danger (O12);

- information on the heat cover that the heating system can achieve;
- how the packaging is to be handled in the Nordic countries in which the boiler is sold.

✉ A copy of the installation manual must be included when the boiler is delivered to the installation technician and customer.

O17 Operating and maintenance instructions

Operating and maintenance instructions must be included with each boiler delivered. The instructions must be written clearly in the national language in the Nordic country in which the boiler is sold and installed. The instructions must also be available on the manufacturer and/or distributor's website(s). The instructions must include details of:

- information on how various fuel types (types, materials, quality, moisture content) affect output and emissions;
- information on which type of fuel the boiler has been tested with;
- fuel types suitable for the boiler, and that fossil fuels should not be used that Nordic Ecolabelled wood pellets should be used in automatically fired boilers;
- recommendations for the handling and storage of firewood, wood pellets and any other solid biofuels;
- how the boiler is lit;
- instructions for filling and the volume and size of firewood on lighting/filling;
- adjustment of air intake how, by which measures, sufficient combustion air to the boiler is ensured;
- instructions for cleaning, inspection and maintenance of the boiler;
- instructions describing the recommended maintenance;
- content of the guarantee and validity in number of years must be stated. The guarantee must fulfil the requirement in O2.

✉ A copy of the operating and maintenance instructions must be included when the boiler is delivered to the installation technician and customer.

4 Information to distributors and installation technicians

O18 Competence requirements

The manufacturer of the boiler must inform the distributor/installation technician of the following:

- the boiler must be installed by a certified installation technician;
- the importance of the customer/user being offered an annual service agreement;
- the customer/user must have access to the installation manual and the operating and maintenance instructions.

✉ Information provided to the distributor or installation technician.

O19 Dimensioning and design of the heating system

The boiler's manufacturer must ensure that the installation technician has easy access to relevant information and technical data, so as to be able to perform correct dimensioning and design of the heating system. This also applies if the heating system is supplemented with a solar collector.

✉ Declaration from the manufacturer of the boiler that the requirement is fulfilled.

O20 Spare parts

Access to spare parts must be guaranteed for at least ten years after the manufacture of the boiler is discontinued.

✉ Declaration from the manufacturer of the boiler that the requirement is fulfilled.

5 Quality and official requirements

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

If the manufacturer's environmental management system is certified to ISO 14 001 or EMAS, and the following procedures implemented, it is sufficient for the accredited auditor to certify that the requirements are observed.

O21 Nordic Ecolabel licence person

The company shall appoint a person responsible for ensuring the fulfilment of Nordic Ecolabel requirements, and a contact person for communications with Nordic Ecolabelling.

✉ A chart of the company's organizational structure detailing who is responsible for the above.

O22 Documentation

The licensee must be able to present a copy of the application, and factual and calculation data supporting the documents submitted on application (including test reports, documents from suppliers and suchlike).

🔑 Checked on site.

O23 Quality of the boiler

The licensee must guarantee that the quality of the production of the Nordic Ecolabelled boiler is maintained throughout the validity period of the licence.

✉ Procedures for collating and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Ecolabelled boiler.

O24 Planned changes

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

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

O25 Unplanned nonconformities

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

✉ Procedures detailing how unplanned nonconformities are handled.

O26 Traceability

The licensee must have a traceability system for the production of the Nordic Ecolabelled boiler.

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

O27 Take-back system

Relevant 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 boiler are marketed.

✉ Declaration from the applicant regarding adherence to existing recycling/take-back agreements.

O28 Legislation and regulations

The licensee must guarantee adherence to safety regulations, working environment legislation, environmental legislation and conditions/concessions specific to the operations at all sites where the Nordic Ecolabelled product is manufactured.

No documentation is required, but Nordic Ecolabelling may revoke the licence if the requirement is not fulfilled.

O29 Marketing

Marketing of the Nordic Ecolabelled boiler must comply with "Regulations for the Nordic Ecolabelling of products" 22 June 2011 or later versions.

✉ Appendix 6 duly completed.

Marketing

The Nordic Ecolabel is a very well-known and well-reputed trademark in the Nordic region. Nordic Ecolabelled products and services may be marketed using the Nordic Ecolabel 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 boiler is ecolabelled.

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

Design of the Nordic Ecolabel

Design of the Nordic Ecolabel:



Each licence has a unique six-figured 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" 22 June 2011 or later versions.

Follow-up inspections

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

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

How long is a licence valid?

Nordic Ecolabelling adopted the criteria for boilers for solid biofuel, version 3.0, on DAY MONTH YEAR. The criteria are valid until DAY MONTH YEAR.

The 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

In any forthcoming new criteria it will be relevant to include the following items in the evaluation:

- Materials and chemicals requirements
- RPS concerning whether the boiler is easy to dismantle for recycling
- Levels of emissions and efficiency required It must be investigated whether requirements are to be made of emissions of Black Carbon (BC)
- New technologies to improve the boiler's combustion
- Relation to EU ecodesign and energy labelling
- Impact of particle size on health

Terms and definitions

Term	Explanation or definition
BC	Black Carbon
CO	Carbon monoxide
OGC	Organically bound carbon/volatile hydrocarbons
PAH	Polycyclic aromatic hydrocarbons
NOx	Nitrogen oxides
VOC	Volatile organic compounds
RPS	Relevance, Potential and Controllability: Tool to analyse whether environmental problems are relevant, whether there is potential for improvement, and whether a licence holder has the control measures in place to achieve these environmental improvements.
PVC	Poly vinyl chloride
CMR substances	CMR substances are carcinogenic, mutagenic and reprotoxic substances
PM2,5	Threshold value for fine particles (PM2.5)

Appendix 1 Test

Test:

The boiler must be tested to determine the content of flue gas emissions in the form of carbon monoxide (CO), hydrocarbons expressed as organic gaseous carbon (OGC), particles and efficiency. The test must take place in accordance with EN 303-5:2012

NOx must be tested according to EN14792

The boiler's electrical consumption is determined according to EN 15456

The test laboratory must draw up a complete test report with details of:

1. choice of testing method
2. results from all measurements
3. clear definition of the boiler
4. performance of testing according to the stated method, with the exception of the stated exemptions
5. specification of test fuels
6. the laboratory's fulfilment of the requirements stated and proof that the test is performed on an impartial and competent basis

Products to be tested are selected randomly from the manufacturer's stock or from the open market.

Nordic Ecolabelling is entitled to require supplementary documentation of the fulfilment of requirements and test reports.

Test laboratory:

Test of emissions and efficiency must be performed by laboratories that are accredited to the current standard and which fulfil the general requirements in standard EN ISO/IEC 17025. 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.

If there is no accredited test laboratory, another laboratory may be used, subject to approval by Nordic Ecolabelling.

Noise can be tested by the manufacturer of the fireplace if the manufacturer has been inspected by the notified authorising body in accordance with Directive 2002/14/EC relating to noise emission

Appendix 2 Declaration concerning materials requirements (O2) and metal coating of parts (O5)

Manufacture of the boiler (to be completed by the manufacturer of the fireplace)

Name of boiler:
Manufacturer:

Materials requirements (O2)

The following requirements are fulfilled: ☐Yes ☐No

- Materials and construction must comply with relevant requirements in the current standard, EN 303-5:2012. The requirement includes, for example, quality, thickness of materials, durability and temperature control (safety) in the boiler and materials.

We hereby declare that

- A guarantee for materials and construction faults of at least five years is given for the bearing structure (excluding the interior of the combustion chamber) on normal use.

Metal coating of parts (O5)

The following requirements are fulfilled: ☐Yes ☐No

- Metal parts not coated with lead (Pb), mercury (Hg), cadmium (Cd), chromium VI (CrVI), nickel (Ni) or compounds thereof.
- Exceptionally, parts may be coated with chromium III, nickel or compounds thereof in cases where this is necessary due to chemical or mechanical wear, or other documented special technical requirements.

Any chromium and nickel-plating processes must take place using cleaning techniques, ion-exchange techniques, membrane techniques or similar techniques, in order to be able to recover the metals to the greatest possible extent. Residual products from coating must be used in recycling or waste handling schemes. The system must be without a drainage system.

☒ A report on any need for metal coating and which cleaning technique may be used by the boiler's manufacturer must be submitted separately.

☒ The declaration has been drawn up on the basis of adequate information from the subsupplier.

Manufacturer of the boiler, signature:

Date	Name of company
Contact person	Telephone
Contact person (name in capitals)	E-mail

Appendix 3 Declaration concerning component substances in chemicals

Production of chemicals (to be completed by the chemicals producer/supplier)

Name of chemical product:

Component substances in chemical products (O4)

The following requirements are fulfilled: ☐Yes ☐No

The following substances may not be included in the chemical product (e.g. glue, sealant, cleaning/degreasing products, paint and varnish) that are used in the final production of boilers, as well as for external coating:

- lead (Pb), mercury (Hg), chromium IV (CrIV), cadmium (Cd) and compounds thereof
- halogenated organic compounds
- alkylphenols, alkylphenol ethoxylates or other substances that can build alkylphenols or alkylphenol ethoxylates
- phthalates
- nanoparticles (from nanomaterial*)
- substances on the EU's candidate list in accordance with REACH, 1907/2006/EC, article 59, section 10 on the website of the European Chemicals Agency (ECHA). In the background document there is a link to the list.

There is exemption from the list for metal coating of parts. On metal coating of parts, requirement O5 must be fulfilled.

The following definition must be used concerning "included" Unless otherwise stated, included substances are all substances in the product, including additives (such as preserving agents or stabilisers) in the raw materials, but not contaminants from raw materials production. Contaminants are residual substances from raw materials production that are included in the finished product in concentrations below 100 ppm (0.0100% by weight, 100 mg/kg), but not substances added deliberately to a raw material or product for a purpose, irrespective of the quantity. Known degradation products from constituent substances are also considered to be included.

**The definition of nanomaterial follows the European Commission's definition of nanomaterial from 18 October 2011, with the exception of the threshold for the distribution of particle size, which is now reduced to 1 %: Nanomaterial is a natural accidentally or deliberately produced material that contains particles in their free state, or in the form of aggregate or agglomerate, and where at least 1% of the particles in the distribution of number by size has one or more dimensions in the size range of 1 - 100 nm. This definition applies to all of the material, even particles outside the range of 1 - 100 nm, for as long as 1% of the material is particles in the range of 1 - 100 nm. The definition concerns nanoparticles in both bound and unbound state.*

Producer/supplier of the chemical:

Date	Name of company
Contact person	Telephone
Contact person (name in capitals)	E-mail

Appendix 4 Declaration concerning labelling of plastic elements

Manufacture of the boiler (to be completed by the manufacturer of the fireplace)

Name of boiler:
Manufacturer:

Labelling of plastic elements (O6)

The following requirements are fulfilled: ☐Yes ☐No

Plastic elements weighing more than 50 g must be labelled in accordance with ISO 11469.

Cables are not subject to the requirement.

Manufacturer of the boiler, signature:

Date	Name of company
Contact person	Telephone
Contact person (name in capitals)	E-mail

Appendix 5 Declaration concerning supplementary solar collectors

Supplementary solar collectors (to be completed by the producer/supplier of the solar collector)

Name of solar collector:
Producer/supplier:

Solar collector (O11)

The following requirements are fulfilled: ☐Yes ☐No

- Supplementary solar collectors for the Nordic Ecolabelled boiler are type-approved in accordance with EN 12975.

Producer/supplier of the solar collector, signature:

Date	Name of company
Contact person	Telephone
Contact person (name in capitals)	E-mail

Appendix 6 Marketing of Nordic Ecolabelled boilers for solid biofuel

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" 22 June 2011 or later versions. We agree to follow these regulations when marketing the Nordic Ecolabelled boiler.

Further, we confirm that we are familiar with the criteria document regarding the Nordic Ecolabelling of boilers for solid biofuel.

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

Date and place	Company
Signature, contact person	
Clarification of name	Phone
Signature, marketing director	
Clarification of name	Phone

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