Nordic Ecolabelling of

De-icers

Version 2.13 • 18 March 2004 – 31 March 2025

On 22 September 2017, the criteria for the CLP Regulation were updated.

Nordic Ecolabelling

Content

063 De-icers, version 2.13, 13 February 2024

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 Swan Ecolabelling system on behalf of their own country's government. For more information, see the websites:

Denmark
Ecolabelling Denmark
info@ecolabel.dk
www.svanemaerket.dk

Finland
Ecolabelling Finland
joutsen@ecolabel.fi
https://joutsenmerkki.fi/

Sweden
Ecolabelling Sweden
info@svanen.se
www.svanen.se

Iceland
Ecolabelling Iceland
svanurinn@ust.is
www.svanurinn.is

Norway
Ecolabelling Norway
info@svanemerket.no
www.svanemerket.no

What is a Nordic Swan Ecolabelled de-icer?

De-icers bearing the Nordic Swan Ecolabel meet a number of environmental, health and quality requirements.

This means that requirements are imposed on the effectiveness of the de-icers and their effects on the environment and people. This is done by imposing threshold values and bans on chemical products and heavy metals that might be harmful to humans and the environment. Requirements are for example imposed on the oxygen demand of the de-icers, content of chlorides, nutrients and additives classified as harmful to health and the environment. Requirements are also imposed to ensure that the de-icers function efficiently without having an excessive corrosive effect on buildings, aircraft and vehicles.

Why choose Nordic Swan Ecolabelled de-icers?

- Manufacturers of de-icers with a licence to use the Nordic Swan Ecolabel may display this trademark in their marketing material. The Nordic Swan Ecolabel enjoys a high level of recognition and credibility in the Nordic countries.
- The Nordic Swan Ecolabel is a cost-effective and simple means for a business to draw the attention of customers and suppliers to its environmental work and commitment to the environment.
- Environmentally friendly operations also prepare the business for future environmental requirements.
- Environmental issues are complex and it may take some time to familiarize oneself with the specific issues. Nordic Ecolabelling can be viewed as an aid in this work.
- The Nordic Ecolabel criteria contain not only environmental requirements, but also quality requirements since environment and quality are parameters that go hand in hand. This means that the Nordic Swan Ecolabel licence can also be viewed as a mark of quality.

What de-icers qualify for a Nordic Swan Ecolabel?

A Nordic Swan Ecolabel may be awarded for de-icers used for the purpose of removing ice and snow on flat areas, preventing further ice formation or maintaining friction on for example runways at airports and roads.

The de-icers may be either liquid or solid (granulate). Sand and grit cannot be Nordic Swan Ecolabelled.

Please note that Nordic Swan Ecolabelled de-icers may contain a maximum of 1.0 percent by weight of chloride ions and that a threshold for oxygen consumption of the de-icers has been established in relation to dosage.

How to apply

Application and costs

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

What is required?

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

Each requirement is marked with the letter R 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

🔑 The requirement checked on site

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

License validity

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.

On-site inspection

In connection with handling of the application, Nordic 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 addresses first in the document. Further information and assistance (such as calculation sheets or electronic application help) may be available. Visit the relevant national website for further information.

1 Environmental requirements

R1 Information about the product

The applicant must provide detailed information on the de-icer for which a Nordic Swan Ecolabel is sought.

✉ The trademark/trade name.

The countries and sales outlets in which the products are expected to be on sale.

The forecast annual sales of the product (in terms of turnover and weight) in each Nordic country.

The volume of package the products will be sold in (e.g. 2 litres, 5 kilos or larger amounts).

A description of the products (e.g. liquid or solid).

R2 Classification of the product

The product must not be classified according to Table 2.

CLP Regulation 1272/2008:		
Classification	Hazard Class and Category Code	Hazard statement
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Chronic 1 Aquatic Chronic 2 Aquatic Chronic 3 Aquatic Chronic 4	H400 H410 H411 H412 H413
Skin corrosion/irritation	Skin Corr. 1A, 1B or 1C Skin Irrit. 2	H314 H315
Serious eye damage/eye irritation	Eye Dam. 1 Eye irrit. 2	H318 H319*
Respiratory or skin sensitisation	Resp. sens. 1, 1A or 1B Skin Sens. 1 , 1A or 1B	H334 H317
Carcinogenicity	Carc. 1A or Carc. 1B Carc. 2	H350 H351
Germ cell mutagenicity	Muta. 1A or Muta. 1B Muta. 2	H340 H341
Reproductive toxicity	Repr. 1A or Repr. 1B Repr. 2 Lact	H360 H361 H362
Acute toxicity	Acute Tox 1 or 2 Acute Tox 1 or 2 Acute Tox 1 or 2 Acute Tox 3 Acute Tox 3 Acute Tox 3 Acute Tox 4 Acute Tox 4 Acute Tox 4	H300 H310 H330 H301 H311 H331 H302 H312 H332
Specific target organ toxicity after single and repeated exposure	STOT SE 1 STOT SE 2 STOT RE 1 STOT RE 2	H370 H371 H372 H373

Elements for explosives	Unstable Explosive Division 1.1 Division 1.2 Division 1.3 Division 1.4 Division 1.5 Division 1.6	 H200 H201 H202 H203 H204 H205
Oxidising liquids	Ox. Liq. 1 Category 2 and 3	H271 H272
Oxidising solids	Ox. Sol. 1 Category 2 and 3	H271 H272
Oxidising gases	Ox. Gas 1	H270
Flammable gases (including chemically unstable gases)	Flam. Gas. 1 Flam. Gas. 2 Chemically unstable gas Category A Category B	H220 H221 H230 H231
Flammable and non-flammable aerosols	Category 1 Category 2 Category 3	H222, H229 H223, H229 H229
Flammable liquids	Flam. Liq. 1 Flam. Liq. 2 Flam. Liq. 3	H224 H225 H226
Flammable solids	Category 1 and 2	H228
Self-reactive substances and mixtures	Type A Type B Self-react. CD Self-react. EF Self-react. G	H240 H241 H242 H242
Pyrophoric liquids/solids	Pyr. Liq.1 Category 1	H250
Self-heating substances and mixtures	Category 1 Category 2	H251 H252
Substances or mixtures which in contact with water emit flammable gases	Category 1 Category 2 and 3	H260 H261

** Potassium formiate, CAS No. 590-29-4, is excluded from the classification requirement.*
Please note that the producer/supplier is responsible for the classification.

✉ Safety data sheets for the product in accordance with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/E2EC).

R3 Biodegradability

The de-icer must be biodegradable in accordance with at least one of the following requirement levels:

- Test methods OECD 301 A, OECD 301 E, ISO 7827, OECD 302 A, ISO 9887, OECD 302 B or ISO 9888 must show a degradation percentage of at least 70% during the course of 28 days.
- Test methods OECD 301 B, ISO 9439, OECD 301 C, OECD 302 C, OECD 301 D, ISO 10707, OECD 301 F, ISO 9408, ISO 10708 or ISO 14593 must show a degradation percentage of at least 60% during the course of 28 days.
- Test methods OECD 303 or ISO 11733 must show a degradation percentage of at least 80% during the course of 28 days.

✉ The applicant must submit the relevant documentation, product safety datasheets, test reports and/or declaration from a manufacturer. The test method and results must be specified as outlined above.

R4 Declaration of the oxygen demand

The oxygen demand of the de-icer as used, COD or ThOD, is to be measured and stated.

☒ The result of analyses from a test institution in accordance with ISO 6060 (or equivalent) of chemical oxygen demand, COD, or calculations for determining ThOD (theoretical oxygen demand).

R5 Oxygen consumption during degradation

The oxygen consumption during degradation of the recommended dosage, (see R13) of the de-icer at preventive usage at -5 ºC must not exceed 5 g O_2/m^2.

☒ Calculation and statement of g O_2/m^2 at recommended dosage.

The calculation of ThOD must be performed on the product $C_cH_hCl_{cl}N_nNa_{na}O_oP_pS_s$ in accordance with one of the following methods as described in OECD 301 (a discussion of which methods are used is attached):

Without nitrification: $ThOD_{NH3}$ (gram O_2/gram de-icer) =

$$\frac{16[2c + 1/2(h - cl - 3n) + 3s + 2{,}5p + 1/2na - o]\ g/g}{\text{MW (molar weight)}}$$

With nitrification: $ThOD_{NO3}$ (gram O_2/gram de-icer) =

$$\frac{16[2c + 1/2(h - cl) + 2{,}5n + 3s + 2{,}5p + 1/2na - o]\ g/g}{\text{MW (molar weight)}}$$

R6 Information on chemical content

The applicant must provide detailed information on the chemical content of the de-icer for which a Nordic Swan Ecolabel is sought.

☒ A description of the contents of the product (complete recipe) and known pollutants. The description must include the trade name, chemical name, specification of quantity and CAS number of each ingredient in the product.

A specification of the manufacturer and function of each individual ingredient, i.e. the reason for which the individual ingredient has been added to the product.

Specification of the water content (as a percentage) of each individual ingredient.

Safety data sheets for each individual ingredient in accordance with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/E2EC).

R7 Ecotoxicity

Only products that fulfil the following requirements must be present in the product in concentrations in excess of 0.1 percent by weight for individual substances and 0.2 percent by weight in total:

The substance must not have IC_{50} (for algae) or EC_{50} (for daphnia) or LC_{50} (for fish) ≤ 1 mg/l according to the test methods OECD 201 for algae, OECD 202 for daphnia and OECD 203 for fish.

If LC_{50} (for algae) or EC_{50} (for daphnia) or LC_{50} (for fish) lies between 1 mg/l and 100 mg/l according to the test methods OECD 201 for algae, OECD 202 for daphnia and OECD 203 for fish, the substance must be readily degradable according to the test methods OECD 301A-E or have a $logP_{ow}$ (log octanol/water distribution coefficient) ≤ 3.0 (unless the experimentally determined bioconcentration factor (BCF) ≤ 100).

The above requirements are imposed on the basis of the criteria for the classification of toxicity for waterborne organisms in Council Directive No. 92/32 of 30 April 1992 concerning the classification, packaging and labelling of dangerous substances.

It will be sufficient for the applicant to assess the toxicity data on the basis of one or two of the three aforementioned groups of organisms (fish, daphnia or algae) if the applicant does not have toxicity data on all three groups (for example in the form of datasheets).

If toxicity data is available for more than one of the three mentioned groups of organisms, the value of the group that shows the highest toxicity (that is the lowest toxicity dose) must be used.

If toxicity data is available for several species within the same group of organisms (fish/algae/daphnia) the value for the species within the group showing the highest toxicity must be applied.

✉ Safety data sheets for each individual ingredient in the de-icer in accordance with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/E2EC), in which toxicity is specified.

If toxicity is not specified in the product safety datasheet in accordance with the above, and information can not be found elsewhere in literature, the results of analyses conducted by a test institution must be submitted.

R8 Chloride ions

Ingredients in the de-icer as used must contain less than 1 percent by weight of chloride ions.

✉ Safety data sheets for each individual ingredient in accordance with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/E2EC) or technical description of the product showing the overall content of chloride ions in the de-icer.

R9 Heavy metals

The total content of heavy metals must be less than:

Arsenic	10 mg/kg DS
Cadmium	0.8 mg/kg DS
Chromium	40 mg/kg DS
Copper	40 mg/kg DS
Lead	40 mg/kg DS
Mercury	0.8 mg/kg DS
Nickel	30 mg/kg DS
Zinc	30 mg/kg DS

DS = Dry substance

✉ Analysis report with test results conducted by a test institution.

Test method: When testing for the content of heavy metals, ICP- or AAS methods shall be used. For each metal a method using a detection limit of at least ten times lower than the level of the requirement must be applied. The analysis report must contain the results of testing for the total content of heavy metals, information on the method of analysis and the sensitivity of the method.

R10 Nutrients

The total content of nitrogen (N) and phosphorus (P) must be less than 1 percent by weight.

☒ Safety data sheets for each individual ingredient in accordance with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/E2EC) or technical descriptions of the product, showing the total content of N and P in weight percentage.

R11 Corrosion

The de-icer must not cause corrosion damage in excess of the following values:

On aluminium (AMS 4041 or equivalent test): 0.3 mg per cm^2 during the course of 24 hours.

On carbon steel (AMS 5045 or equivalent test): 0.8 mg per cm^2 during the course of 24 hours.

☒ The results of analyses performed by a test institution where test method ASTM F 483 is used in tests on the solution in use of the product.

R12 Efficiency

The applicant must be able to prove that the de-icer has a satisfactory efficiency in relation to the purpose of the use.

The efficiency must be measured by either:

1) test from laboratory, or

2) user test

Both tests are to assess the capability of the de-icer to melt ice (melting capacity).

1. Test from laboratory:

The melting capacity of the de-icer must be more than 1.8 g ice melted/g de-icer used after 30 minutes.

Alternatively the melting capacity must be more than 2.4 g ice melted/g de-icer after 60 minutes.

2. User test

If the applicant chooses to show the efficiency of the de-icer by using a user test, this must be performed as in the following description:

A. Answer must be received from at least 3 users forming a representative selection of all users.

B. Test method and dosage must resemble recommendations in instruction of use from the manufacturer of the de-icer.

C. Test period must last for at least 2 weeks, or the de-icer must have been used for at least 1 month.

D. Each of the 3 users must evaluate the efficiency of the de-icer by assessing the ability of the de-icer to melt ice. Test on a transport area in asphalt must be a part of the assessment.

E. The answers must be measured on a scale with at least 3 levels: ”not sufficient efficient”, ”sufficient efficient” and ”very efficient”.

F. All 3 users must evaluate the ability of the de-icer as ”sufficient efficient” and ”very efficient”.

G. The applicant in their testing of a de-icer must not in any way influence users.

(Appendix 2 may be used for documentation of the test.)

Test from laboratory must be performed at -5°C using the recommended dose for spreading on ice at -5°C. The user test shall be performed using a dosage corresponding to the weather conditions (See R13).

✉ **1. Test from laboratory**:

Test results from a test institution must be attached to the application. The test must be performed in accordance with the methods specified in the SHRP H - 205.1 (in the case of de-icers in solid form) and SHRP H - 205.2 (in the case of liquid de-icers) or similar tests. As a minimum, three replications of the test must be made. The test method shall not necessarily meet demands to cold room.

2. User test

Test results from 3 users must be attached to the application. The results must be signed by the users. A declaration stating that tests has been performed without influence of the applicant must also be signed by the user and attached to the application. Information about where, when and by whom the test has been performed together with information about weather conditions (temperature, rain, snow, wind) must be attached.

R13 Instructions for use

Instructions for use must be supplied with the de-icer, either on the packaging or in a text attached to the packaging. The instructions for use must briefly explain what dosage is recommended to provide the most satisfactory result. The explanation must provide information on the dosages that are to be used under various weather conditions (including variations in temperature and precipitations) and surrounding environment (parks, forests, harbours, airports, bridges, car parks etc.).

For de-icers on solid form (granulate) the instruction must also contain an instruction on the use of security equipment (e.g. gloves and protection glasses).

✉ A copy of the instructions for use.

R14 Recycling systems

The Nordic Ecolabelling's Critiera Group decided on the 9 October 2017 to remove this requirement.

2 Other requirements

2.1 Requirements of the authorities

R15 Requirements of the authorities as to safety, the working environment and the external environment

Holders of licences for Nordic Swan Ecolabelled products are responsible for ensuring that their de-icers and the production of de-icers fulfil the requirements, statutes and regulations on the environment and the working environment in force in the country of production in question.

The licence may be revoked if this requirement is not fulfilled.

2.2 Eco and quality assurance

R16 Eco and quality assurance

Manufacturers holding an Nordic Swan Ecolabelled licence themselves or through distributors/importers must seek to secure the following by means of documented procedures and instructions:

- that the requirements of the ecolabelling criteria are met
- that the level of quality of the Nordic Swan Ecolabelled products encompassed by the licence is maintained
- that the organization of the internal quality and eco-assurance is structured in such a way that it ensures that the Nordic Swan Ecolabel criteria are fulfilled
- that a person within the organization is allocated responsibility for maintaining contact with Nordic Ecolabelling

☒ The following must be attached to the application:

Written details of the organizational structure, contact person and other persons with responsibility and their areas of responsibility.

Procedures aimed at ensuring that the requirements of the criteria document are fulfilled.

Procedures for documenting and reporting planned changes to production with a bearing of fulfilment of the Nordic Swan Ecolabel criteria.

Procedures for processing and reporting unforeseen deviations from the Nordic Swan Ecolabel criteria.

Procedures for processing and reporting complaints and claims relating to Nordic Ecolabelling. The license holder shall keep complaints and claims.

The procedures of the contact person for reporting to the ecolabelling organization.

Procedures for ensuring the trace ability of the Nordic Swan Ecolabelled products in the production process to distinguish them from other production.

2.3 Marketing

R17 Marketing

The requirement is removed as decided by the Board of Directors 17 November 2014.

3 Control

3.1 Control at the time of application

The ecolabelling organization will conduct control measures in accordance with the Regulations for Nordic Ecolabelling of products. The application material will be checked against the documentation instructions for each requirement. Inspections will also be made at relevant points in the production process for, during which the documentation in the application will be compared with observed conditions.

During the inspection visit checks will be made to ensure that the operation and organization of production complies with the information provided in the application.

3.2 Follow-up inspection

The national ecolabelling organization may make follow-up inspection visits to manufacturers holding Nordic Swan Ecolabel licences and their suppliers. An inspection of this type may take a variety of forms. The ecolabelling organization may, for example, make inspection visits to ensure that production follows the guidelines described in this document. The licence holder will be liable for the cost of inspections of this kind if the production process does not comply with the information provided in the application.

4 Test institutions

The test institution used must be competent and impartial as provided for in the following:

The laboratory must fulfil the general requirements contained in the standard DS/EN SO/IEC 17025 or be an officially GLP-approved laboratory. The applicant is liable for the cost of documentation and analyses.

DS/EN SO/IEC 17025 was formerly EN 45000.

The manufacturers own laboratory may be approved for the performance of such analyses if the authorities are granted access to perform monitoring. The manufacturer's laboratory may also be approved if it operates under a quality assurance system certified to ISO 9001 or ISO 9002.

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-swan-ecolabel.org/regulations

The validity of the criteria document

This criteria document was adopted by Nordic Ecolabelling on 18 March 2004 and will remain in force until 18 March 2009.

On 15 April 2008, the Secretariat managers meeting decided to prolong the validity of the criteria. At the same time, a change in the requirement to laboratory test on melting efficiency was adopted. The new version is called 2.1 and it is valid until 31 December 2011.

On 9 November 2010, the Secretariat Managers Meeting decided to prolong the validity of the criteria. The new version is called 2.2 and is valid until 30 June 2013.

On 15 June 2012, the Nordic Ecolabelling Board decided to prolong the validity of the criteria. The new version is called 2.3 and is valid until 31 December 2014.

On 19 February 2014, the Secretariat Managers Meeting decided to prolong the validity of the criteria. The new version is called 2.4 and is valid until 31 December 2016.

On 8 December 2015, the Nordic Ecolabelling's Criteria Group decided to prolong the validity of the criteria. On 17 November 2014 the Board of Directors decided to remove requirement R17 Marketing. The new version is called 2.5 and is valid until 31 December 2018.

On 15 December 2016, the Nordic Ecolabelling's Criteria Group decided to prolong the validity of the criteria. The new version is called 2.6 and is valid until 30 June 2020.

On 22 September 2017, the Nordic Ecolabelling's Criteria Group decided per capsulam to adjust R2 and update the criteria to the CLP Regulation. The new version is called 2.7.

On 15 January 2019 Nordic Ecolabelling decided to prolong the validity of the criteria with 18 months to 31 December 2021. The new version is called 2.8.

On 16 December 2019 Nordic Ecolabelling decided to prolong the validity of the criteria to 31 December 2022. The new version is called 2.9.

On 8 December 2020 Nordic Ecolabelling decided to prolong the validity of the criteria to 31 December 2023. The new version is called 2.10.

On the 9 October 2017, the Nordic Ecolabelling's Criteria Group decided to remove R14 Recycling systems. The new version is called 2.11.

On 29 November 2022 Nordic Ecolabelling decided to prolong the validity of the criteria to 31 December 2024. The new version is called 2.12.

On 13 February 2024 Nordic Ecolabelling decided to prolong the validity of the criteria to 31 March 2025. The new version is called 2.13.

Future criteria

In future criteria Nordic Ecolabelling will consider the possibility of improving the efficiency requirements and introducing lower threshold values for heavy metals and nutrients.

Ecolabelling is in constant development, for which reason it cannot be excluded that other criteria proposals will be put forward.

Appendix 1 - Marketing of ecolabelled products

The appendix is removed as decided by the Board of Directors 17 November 2014.

Appendix 2 – User test

Appendix to be useed during application for Nordic Swan Ecolabelling of de-icers.

Name of the product:	
Name of the manufacturer:	
Test performed by: **Company:** **Contact person:** **Telephone:**	
Test period:	
User method:	
Temperature when the test was performed:	
Dosage:	
Conditions on road (ice, snow etc.):	
Has the product been tested on transport area with asphalt? Yes ❒ no ❒	
Assessment of the products efficiency (ability to melt ice):	
Not sufficient efficient ❒	
Sufficient efficient ❒	
Very efficient ❒	
Comments to test performance:	

_____ _____

Date Company

_____

Signed by the responsible for the test