Nordic Ecolabelling for

# De-icers

Version 3.1 • 23 November 2023 – 31 December 2029

Nordic Ecolabelling

# Content



063 De-icers, version 3.1, 17 September 2024

# Contact information

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

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

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

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

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

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

# What is a Nordic Swan Ecolabelled de-icer?

Nordic Swan Ecolabelled de-icers meet ambitious environmental requirements from a holistic life cycle perspective. This means that Nordic Swan Ecolabelled de-icers are amongst the environmentally best in their category.

Nordic Swan Ecolabelled de-icers:

- Meet ambitious requirements regarding environmentally hazardous chemicals, including requirements on ecotoxicity and biodegradability.
- Are not made of salt which is a better choice for trees and plants.
- Have low discharge of pollutants into the wastewater system, for example heavy metals.
- Meet ambitious requirements on avoiding corrosion on buildings, aircrafts, and vehicles.
- Is tested for de-icing effect.

# Why choose the Nordic Swan Ecolabel?

- The licensee may use the Nordic Swan Ecolabel trademark for marketing. The Nordic Swan Ecolabel is a very well-known and well-reputed trademark in the Nordic region.

- The Nordic Swan Ecolabel is a simple way of communicating environmental focus and commitment to customers.

- The Nordic Swan Ecolabel clarifies the most important environmental impacts and thus shows how a company can cut emissions, resource consumption and waste management.

- Environmentally suitable operations prepare the licensee for future environmental legislation.

- Nordic Ecolabelling provides businesses with guidance on the work of environmental improvements.

- The Nordic Swan Ecolabel not only covers environmental issues but also quality requirements since the environment and quality often go hand in hand. This means that a Nordic Swan Ecolabel licence can also be seen as a mark of quality.

# What can carry the Nordic Swan Ecolabel?

A Nordic Swan Ecolabel licence 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, roads, bridges, and cycle paths.

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

# How to apply

### Application and costs

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

### What is required?

The application consists of an application form and documentation showing that the requirements are fulfilled.

In this criteria document, each requirement is marked with the letter O (obligatory requirement) and a number. All requirements must be fulfilled to be awarded a licence.

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

✉ Enclose

🔑 Requirement checked on site

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

### Licence validity

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

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

### On-site inspection

In connection with handling of the application, Nordic Ecolabelling normally performs an on-site inspection visit 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 contact info first in this document. Further information and assistance (such as calculation sheets or electronic application help) is available. Visit the relevant national website for further information.

# 1 Environmental requirements

The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the Nordic Swan Ecolabelled de-icer. Impurities are not regarded as ingoing substances and are exempt from the requirements.

Ingoing substances and impurities are defined below, unless stated otherwise in the requirements.

- Ingoing substances: all substances in the Nordic Swan Ecolabelled product, including additives (e.g., preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g., formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.

- Impurities: residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the Nordic Swan Ecolabelled product in concentrations less than 100 ppm (0,0100 w-%, 100 mg/kg).

- Impurities in the raw materials exceeding concentrations of 1,0% are always regarded as ingoing substances, regardless of the concentration of the raw material in the Nordic Swan Ecolabelled product.

- A raw material consists of substances (one or more). Chemical requirements for substances apply to requirements for each substance. Limit values for impurities include both the product (0,0100 w-%) and the raw material (1,0%).

Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.

## O1 Description of the product

The applicant must provide the following information about the de-icer.

- Description of the physical form of the product (e.g., whether the product is liquid or solid).
- Description of the product's area of use.
- The product’s volume or weight.
- All trade names if the product is sold in multiple countries.

✉ Description of the product in line with Appendix 1.

✉ Copy of label and/or product sheet can be sent in as part of the documentation.

## O2 Formulation

The applicant must provide a complete recipe for the de-icer. The recipe must contain the information below for each ingoing raw material. If a raw material contains of two or more substances, each substance must be declared.

- Trade name
- Chemical name of all ingoing substances and impurities

- Amount (both with and without solvents, e.g., water)
- CAS no. / EC no.
- Function of the substance

✉ The complete recipe of the de-icer as set out in the requirement.

✉ Safety data sheet for each raw material in line with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/EC).

## O3 Classification of the product

The de-icer must not be classified in accordance with hazard classes described in the table below.

**Table 1 Classification of the product**

| Classification of chemical products CLP Regulation 1272/2008: | | |
|---|---|---|
| **Hazard statement** | **Hazard class and category** | **Hazard code** |
| Hazardous to the aquatic environment | Aquatic Acute 1<br>Aquatic Chronic 1<br>Aquatic Chronic 2<br>Aquatic Chronic 3<br>Aquatic Chronic 4 | H400<br>H410<br>H411<br>H412<br>H413 |
| Hazardous to the ozone layer | Ozone | H420 |
| Carcinogenicity* | Carc. 1A or 1B<br>Carc. 2 | H350<br>H351 |
| Germ cell mutagenicity* | Muta. 1A or 1B<br>Muta. 2 | H340<br>H341 |
| Reproductive toxicity* | Repr. 1A or 1B<br>Repr. 2<br>Lact | H360<br>H361<br>H362 |
| Acute toxicity | Acute Tox 1 or 2<br>Acute Tox 1 or 2<br>Acute Tox 1 or 2<br>Acute Tox 3<br>Acute Tox 3<br>Acute Tox 3<br>Acute Tox 4<br>Acute Tox 4<br>Acute Tox 4 | H300<br>H310<br>H330<br>H301<br>H311<br>H331<br>H302<br>H312<br>H332 |
| Specific target organ toxicity, single or repeated exposure | STOT SE 1<br>STOT SE 2<br>STOT RE 1<br>STOT RE 2 | H370<br>H371<br>H372<br>H373 |
| Skin corrosion/irritation | Skin Corr. 1A, 1B or 1C<br>Skin Irrit. 2 | H314<br>H315 |
| Aspiration hazard | Asp. Tox. 1 | H304 |
| Respiratory or skin sensitisation | Resp. Sens. 1, 1A or 1B<br>Skin Sens. 1, 1A or 1B | H334<br>H317 |
| Serious eye damage or eye irritation | Eye Dam. 1<br>Skin Irrit. 2 | H318<br>H319 |

** The classifications concern all classification variants. For example, H350 also covers classification H350i.*

*Please note that the producer/supplier is responsible for the classification.*

✉ Product label or safety data sheet for the product in line with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/EC).

✉ Completed and signed declaration from the manufacturer of the product (Appendix 2).

## O4 Classification of ingoing substances

Ingoing substances in the de-icer must not be classified in accordance with hazard classes described in the table below.

**Table 2 Classification of ingoing substances**

| Classification of chemical products CLP Regulation 1272/2008: | | |
|---|---|---|
| **Hazard statement** | **Hazard class and category** | **Hazard code** |
| Carcinogenicity* | Carc. 1A or 1B<br>Carc. 2 | H350<br>H351 |
| Germ cell mutagenicity* | Muta. 1A or 1B<br>Muta. 2 | H340<br>H341 |
| Reproductive toxicity* | Repr. 1A or 1B<br>Repr. 2<br>Lact | H360<br>H361<br>H362 |
| Endocrine disruption for human health** | ED HH 1<br>ED HH 2 | EUH380<br>EUH381 |
| Endocrine disruption for the environment** | ED ENV 1<br>ED ENV 2 | EUH431<br>EUH431 |
| Persistent, Bioaccumulative and Toxic properties**<br>Very Persistent, Very Bioaccumulative properties** | PBT<br>vPvB | EUH440<br>EUH441 |
| Persistent, Mobile and Toxic properties<br>Very Persistent, Very Mobile properties | PMT<br>vPvM | EUH450<br>EUH451 |

** Including all combinations of stated exposure routes and stated specific effect. For example, H350 also covers classification H350i.*

** Complexing agents of the MGDA and GLDA type may contain NTA impurities in the raw material in concentrations of less than 0.2% if the concentration of NTA in the product is below 0.1%.*

*** See also O10 for additional criteria for potential or identified endocrine disruptors and PBT/vPvB substances.*

✉ Safety data sheet for each raw material in line with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/EC).

✉ Completed and signed declaration from the manufacturer of the product (Appendix 2).

✉ Completed and signed declaration from the raw material supplier (Appendix 3).

## O5 Biodegradability

The de-icer must be readily biodegradable according to test method No 301 A–F or No 310 in OECD guidelines for testing of chemicals or other equivalent test methods evaluated by an independent body and controlled by Nordic Ecolabelling. Alternatively, the biodegradability of all constituent raw materials (with the exception of inorganic compounds) meeting the requirement, can be documented.

✉ Test report and results according to the requirement.

## O6 Oxygen demand

The products must comply with a chemical oxygen demand (COD) limit of maximum 0,50 g $O_2$/g of product. For products with other ingoing elements then C,H,Cl,N,Na,O,P and S - alternative 1 must be used.

Alternative 1:

The applicant shall verify compliance with the requirement by submitting a test report on the COD value in accordance with DIN 38 409-41 or DIN ISO 15705. (or equivalent testing methods evaluated by an independent body and controlled by Nordic Ecolabelling).

Alternative 2:

The ThOD value for the de-icer in use form are calculated.

The calculation of ThOD can be made from the elemental composition of each substance, in accordance with the following methods as described in OECD 301 for the compound structure $C_cH_hCl_{cl}N_nNa_{Na}O_oP_pS_s$.

*For calculation of ThOD, this calculator may be used:*

*https://www.aropha.com/thod-calculator.html*

✉ Test report and results or a calculation according to the requirement.

## O7 Ecotoxicity

Alternative 1:

The de-icer may not contain any raw material that display an aquatic ecotoxicity for algae, daphnia, fish, and bacteria in the product of EC50 ≤ 100 mg/l.

Alternative 2:

Compliance with the aquatic toxicity requirements can be verified by testing the complete product.

✉ Alternative 1: Safety data sheet for each raw material in line with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/EC) and reference to DID number* or test report for the raw material covering each of the groups of organisms below:

- Daphnia test in accordance with OECD 202 Part l, EG C.2 or DIN EN ISO 6341.
- Fish test in accordance with OECD 203, EG C.1 or a fish embryo test in accordance with DIN EN ISO 15088 or OECD 236.
- Algae test in accordance with OECD 201, EG C.3 or ISO 8692.
- Bacteria test (pseudomonas cell multiplication inhibition test) in accordance with DIN EN ISO 10712 or a luminescent bacteria test in accordance with DIN EN ISO 11348-1 or DIN EN ISO 11348-2.

** The DID number is an ingredient's number on the DID list, version 2016 or later, which is used when calculating chemical requirements. The DID list can be obtained from Nordic Ecolabelling's websites, see addresses on page 2.*

✉ Alternative 2: Compliance with the aquatic toxicity requirements can also be verified by testing the product. If there is no fish test available for the product, performing a new test as verification for the Nordic Swan Ecolabel is not permitted because this involves testing vertebrate animals (exception OECD 236 or Part C49 of the Annex for Regulation (EG) No 440/2008).

## O8 Limitations on nitrogen, phosphorus, and chlorine

The following limit values may not be exceeded in the de-icer:

- Nitrogen content: 800 mg / kg product
- Phosphorous content: 800 mg / kg product
- Content of total chlorine: 100 mg / kg product

✉ For nitrogen content: Safety data sheet for each raw material in line with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/EC) and test report for the total bound nitrogen in accordance with DIN EN 16169 with addition for analysis technique using Kjeldahl (total nitrogen).

✉ For phosphorous content: Test report in accordance with DIN EN ISO 6878 or DIN 38405-11.

✉ For chlorine content: Test report in accordance with DIN EN ISO 10304-1 or DIN 38405-1.

## O9 Heavy metals

The limit values in the table below may not be exceeded in the de-icer.

**Table 3 Limit values for heavy metals**

| Heavy metal | Limit value (mg / kg product) |
|---|---|
| Arsenic | 0,1 |
| Cadmium | 0,1 |
| Chromium | 2 |
| Copper | 2 |
| Lead | 0,1 |
| Mercury | 0,1 |
| Nickel | 2 |

*When testing for the content of heavy metals, ICP- or AAS methods must 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.*

✉ Test report and results conducted by a third part test institution. The test 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.

## O10 Prohibited substances

The following substances are excluded from use in the de-icer:

- Bisphenols and bisphenol derivatives[1]
- DTPA (diethylenetriamine pentaacetate), CAS no. 67-43-6
- EDTA (ethylenediaminetetraacetic acid), CAS no. 13235-36-4, and its salts
- MI (methylisothiazolinone), CAS no. 2682-20-4
- Microplastics

[1] Assessment of regulatory needs: Bisphenols. ECHA – 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed – restriction https://echa.europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02

*We use the same definition of microplastics as the EU*:*

*Microplastics are synthetic polymer microparticles, which means polymers that are solid and which fulfil both of the following conditions:*

*a) are contained in particles and constitute at least 1 % by weight of those particles; or build a continuous surface coating on particles;*

*b) at least 1 % by weight of the particles referred to in point (a) fulfil either of the following conditions:*

*i) all dimensions of the particles are equal to or less than 5 mm;*

*ii) the length of the particles is equal to or less than 15 mm and their length to diameter ratio is greater than 3.*

*The following polymers are excluded from this designation:*

*a) polymers that are the result of a polymerisation process that has taken place in nature, independently of the process through which they have been extracted, which are not chemically modified substances;*

*b) polymers that are degradable as proved in accordance with Appendix [X] of the Annex XVII to Regulation (EC) No 1907/2006;*

*c) polymers that have a solubility greater than 2 g/L as proved in accordance with Appendix [Y] of the Annex XVII to Regulation (EC) No 1907/2006;*

*d) polymers that do not contain carbon atoms in their chemical structure.*

**The regulation is not officially adopted yet. See Annex for the definition.*

- Nanomaterials/-particles

  *Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01):*

  *'Nanomaterial' means a natural, incidental or manufactured material consisting of solid particles that are present, either on their own or as identifiable constituent particles in aggregates or agglomerates, and where 50 % or more of these particles in the number-based size distribution fulfil at least one of the following conditions:*

  *(a) one or more external dimensions of the particle are in the size range 1 nm to 100 nm;*

  *(b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 1 nm and the other dimension is larger than 100 nm;*

  *(c) the particle has a plate-like shape, where one external dimension is smaller than 1 nm and the other dimensions are larger than 100 nm.*
- Nitroalkanes: nitromethane (CAS no. 75-52-5), 1-nitropropane (CAS no. 108- 03-2) and nitroethane (CAS no. 79-24-3).
- NTA (nitrilotriacetic acid), CAS no. 139-13-9 and its salts.

  *Exemption: Complexing agents of the MGDA and GLDA type may contain NTA impurities in the raw material in concentrations of less than 0.2% if the concentration of NTA in the product is below 0.1%.*
- PFAS (per- and polyfluoroalkyl substances).
- Potential or identified endocrine disruptors according to any of the EU member state initiative ”Endocrine Disruptor Lists” List I; II; and III.

o https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu

o https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption

o https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities

*A substance which is transferred to one of the corresponding sublists called "Substances no longer on list", and no longer appears on any of List I-III, is no longer excluded. The exception is those substances on sublist II which were evaluated under a regulation or directive which doesn't have provisions for identifying EDs (e.g., the Cosmetics Regulation, etc.). For those substances, ED properties may still have been confirmed or suspected. Nordic Ecolabelling will evaluate the circumstances case-by-case, based on the background information indicated on sublist II.*

- Substances categorized as Substances of Very High Concern (SVHC) and included on the Candidate List: https://echa.europa.eu/candidate-list-table.
- Substances that have been judged in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative), in accordance with the criteria in Annex XIII of REACH, plus substances that have not yet been investigated but that meet these criteria.
- Triazoles

✉ Completed and signed declaration from the manufacturer of the product (Appendix 2).

✉ Completed and signed declaration from the raw material supplier (Appendix 3).

### O11 Corrosion

The de-icer must not cause corrosion damage more than the following values. Test method ASTM F 483 is to be used.

- On aluminium (AMS 4041 or equivalent test): 0.3 mg / $cm^2$ for 24 hours.
- On carbon steel (AMS 5045 or equivalent test): 0.8 mg / $cm^2$ for 24 hours.

✉ Test report and results according to the requirement.

## 1.1 Efficiency

### O12 Efficiency

The de-icer must comply with the applicable requirements for its fitness for use and safety. The de-icing effect must be experimentally proven in a standard process.

*Products intended for airports:*

The applicant shall submit a declaration that the technical requirements for the product in accordance with SAE, the latest version of AMS 1435 for liquid de-icers or the latest version of AMS 1431 for solid de-icers have been observed and shall also submit the relevant reports. The experimental data for the de-icing effect of the product should be determined under specified temperature conditions (-2°C, -10°C) after 5, 10 and 30 minutes in accordance with the latest version of SAE AS 6170 test method. (SAE - International Engineering Society for Advancing Mobility Land, Sea, Air and Space; AMS - Aerospace Material Specification; AIR - Aerospace Information Report).

✉ Declaration and test report in accordance with the requirement.

*Products intended for other areas than airports:*

The experimental data for the de-icing effect of the product should be determined under specified temperature conditions (-2°C, -10°C) after 5, 10 and 30 minutes in accordance with the latest version of SAE AS 6170 test method. shall be submitted.

✉ Test report in accordance with the requirement.

## 1.2 User information

### O13 User information

This requirement does not apply to products intended for airports. The product's label or accompanying product sheet must include information about what dosage that is recommended to provide the most satisfactory result under various weather conditions (including variations in temperature and precipitations) and surrounding environment (parks, forests, harbours, airports, bridges, car parks etc.).

Further, for products classified with health hazard, the product sheet must include an instruction on the use of security equipment (e.g. gloves and protection glasses).

✉ For products not intended for airports: copy of label and/or product sheet.

## 1.3 Licence maintenance

The purpose of the licence maintenance is to ensure that fundamental quality assurance is dealt with appropriately.

### O14 Customer complaints

The licensee must guarantee that the quality of the Nordic Swan Ecolabelled product does not deteriorate during the validity period of the licence. Therefore, the licensee must keep an archive over customer complaints.

Note that the original routine must be in one Nordic language or in English.

✉ The company's routine for handling and archiving customer complaints.

### O15 Traceability

The licensee must be able to trace the Nordic Swan Ecolabelled products in the production. A manufactured / sold product should be able to trace back to the occasion (time and date) and the location (specific factory) and, in relevant cases, also which machine / production line where it was produced. In addition, it should be possible to connect the product with the actual raw material used.

You can upload your company's routine or a description of the actions to ensure traceability in your company.

✉ A routine or a description.

# Regulations for the Nordic Ecolabelling of products

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

More information on graphical guidelines, regulations and fees can be found at www.nordic-swan-ecolabel.org/regulations

# Follow-up inspections

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

The licence may be revoked if it is evident that the product 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.

# Criteria version history

Nordic Ecolabelling adopted version 3.0 of the criteria for de-icers on 23 November 2023. The criteria are valid until 31 December 2029.

On 17 September 2024 Nordic Ecolabelling decided to adjust requirement 09 Heavy metals. The new version is called 3.1.

# Appendix 1 Description of the product

The declaration relates to the following de-icer:

| |
|---|
| De-icer |
| Manufacturer |
| Supplier / importer |

Describe the physical form of the product (e.g., whether the product is liquid or solid):

_____

_____

Describe the product's area of use:

_____

_____

State the product's volume or weight:

_____

_____

State all trade names if the product is sold in multiple countries:

_____

_____

_____

| | |
|---|---|
| Place and date | Company name / stamp |
| Person responsible | Signature of responsible individual |
| Phone | E-mail |

# Appendix 2 Declaration from the manufacturer of the product

To be used in conjunction with an application for a licence for the Nordic Swan Ecolabelling of de-icers. To complete the following declaration, you will need declarations for all raw materials (Appendix 3 or equivalent declaration).

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

Product name: _____

The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the Nordic Swan Ecolabelled de-icer. Impurities are not regarded as ingoing substances and are exempt from the requirements.

Ingoing substances and impurities are defined below, unless stated otherwise in the requirements. Be aware that this is not the same definitions as in REACH ((EU) 1907/2006) and CLP ((EU) 1272/2008).

- Ingoing substances: all substances in the Nordic Swan Ecolabelled product, including additives (e.g., preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g., formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.

- Impurities: residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the Nordic Swan Ecolabelled product in concentrations less than 100 ppm (0,0100 w-%, 100 mg/kg).

- Impurities in the raw materials exceeding concentrations of 1,0% are always regarded as ingoing substances, regardless of the concentration in the Nordic Swan Ecolabelled product.

Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.

| **O3 Classification of the product** | | |
|---|---|---|
| *Is the product classified with any of the hazard phrases below?*<br>*Including all combinations of stated exposure routes and stated specific effect. For example, H350 also covers classification H350i.* | *Yes* | *No* |
| H400 – Toxic to aquatic life, hazard category 1 | ☐ | ☐ |
| H410 – Toxic to aquatic life | ☐ | ☐ |
| H411 – Toxic to aquatic life | ☐ | ☐ |
| H412 – Toxic to aquatic life | ☐ | ☐ |
| H413 – Toxic to aquatic life | ☐ | ☐ |
| H420 – Hazardous to the ozone layer | ☐ | ☐ |
| H350 – May cause cancer, hazard category 1A and 1B | ☐ | ☐ |
| H351 – Suspected of causing cancer, hazard category 2 | ☐ | ☐ |
| H340 – May cause genetic defects, hazard category 1A and 1B | ☐ | ☐ |
| H341 – May cause genetic defects, hazard category 2 | ☐ | ☐ |
| H360 – Toxic for reproduction, hazard category 1A and 1B | ☐ | ☐ |
| H361 – Toxic for reproduction, hazard category 2 | ☐ | ☐ |
| H362 – Toxic for reproduction, effects on or through breastfeeding (supplementary category) | ☐ | ☐ |
| H300 – Acute toxicity | ☐ | ☐ |
| H310 – Acute toxicity | ☐ | ☐ |
| H330 – Acute toxicity | ☐ | ☐ |
| H301 – Acute toxicity | ☐ | ☐ |
| H311 – Acute toxicity | ☐ | ☐ |
| H331 – Acute toxicity | ☐ | ☐ |
| H302 – Acute toxicity | ☐ | ☐ |
| H312 – Acute toxicity | ☐ | ☐ |
| H332 – Acute toxicity | ☐ | ☐ |
| H370 – Specific target organ toxicity: single exposure and repeated exposure | ☐ | ☐ |
| H371 – Specific target organ toxicity: single exposure and repeated exposure | ☐ | ☐ |
| H372 – Specific target organ toxicity: single exposure and repeated exposure | ☐ | ☐ |
| H373 – Specific target organ toxicity: single exposure and repeated exposure | ☐ | ☐ |
| H314 – Skin corrosion/irritation | ☐ | ☐ |
| H315 – Skin corrosion/irritation | ☐ | ☐ |
| H304 – Aspiration hazard | ☐ | ☐ |
| H334 – Respiratory or skin sensitising | ☐ | ☐ |
| H317 – Respiratory or skin sensitising | ☐ | ☐ |
| H318 – Serious eye damage or eye irritation | ☐ | ☐ |
| H319 – Serious eye damage or eye irritation | ☐ | ☐ |

If the answer to any of the above questions is Yes, state the CAS no. (where possible), chemical name and level (in ppm, % by weight or mg / kg). Also state whether the substance is contained in the form of an impurity or an added substance.

_____

_____

| **O4 Classification of ingoing substances** | | |
|---|---|---|
| Does the raw material contain substances classified with any of the hazard phrases below? Including all combinations of stated exposure routes and stated specific effect. For example, H350 also covers classification H350i. | Yes | No |
| H350 – May cause cancer, hazard category 1A and 1B | ☐ | ☐ |
| H351 – Suspected of causing cancer, hazard category 2 | ☐ | ☐ |
| H340 – May cause genetic defects, hazard category 1A and 1B | ☐ | ☐ |
| H341 – May cause genetic defects, hazard category 2 | ☐ | ☐ |
| H360 – Toxic for reproduction, hazard category 1A and 1B | ☐ | ☐ |
| H361 – Toxic for reproduction, hazard category 2 | ☐ | ☐ |
| H362 – Toxic for reproduction, effects on or through breastfeeding (supplementary category) | ☐ | ☐ |
| EUH380 ED HH 1 - Endocrine disruption for human health<br>EUH381 ED HH 2 | ☐<br>☐ | ☐<br>☐ |
| EUH430 ED ENV 1 - Endocrine disruption for the environment<br>EUH431 ED ENV 2 | ☐<br>☐ | ☐<br>☐ |
| EUH440 PBT - Persistent, Bioaccumulative and Toxic properties***<br>EUH441 vPvB - Very Persistent, Very Bioaccumulative properties*** | ☐<br>☐ | ☐<br>☐ |
| EUH450 PMT - Persistent, Mobile and Toxic properties<br>EUH451 vPvM - Very Persistent, Very Mobile properties | ☐<br>☐ | ☐<br>☐ |

If the answer to any of the above questions is Yes, state the CAS no. (where possible), chemical name and level (in ppm, % by weight or mg / kg). Also state whether the substance is contained in the form of an impurity or an added substance.

_____

_____

| **O10 Substances prohibited from products** | | |
|---|---|---|
| *Does the product contain any of the following substances?* | *Yes* | *No* |
| Bisphenols and bisphenol derivatives[2] | ☐ | ☐ |
| DTPA (diethylenetriamine pentaacetate), CAS no. 67-43-6 | ☐ | ☐ |
| EDTA (ethylenediaminetetraacetic acid), CAS no. 13235-36-4, and its salts | ☐ | ☐ |
| MI (methylisothiazolinone), CAS no. 2682-20-4 | ☐ | ☐ |
| Microplastics<br>*We use the same definition of microplastics as the EU*:*<br>*Microplastics are synthetic polymer microparticles, which means polymers that are solid and which fulfil both of the following conditions:*<br>*a) are contained in particles and constitute at least 1 % by weight of those particles; or build a continuous surface coating on particles;* | ☐ | ☐ |

[2] Assessment of regulatory needs: Bisphenols. ECHA – 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed – restriction https://echa.europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02

| | | |
|---|---|---|
| *b) at least 1 % by weight of the particles referred to in point (a) fulfil either of the following conditions:*<br>*i) all dimensions of the particles are equal to or less than 5 mm;*<br>*ii) the length of the particles is equal to or less than 15 mm and their length to diameter ratio is greater than 3.*<br><br>*The following polymers are excluded from this designation:*<br>*a) polymers that are the result of a polymerisation process that has taken place in nature, independently of the process through which they have been extracted, which are not chemically modified substances;*<br>*b) polymers that are degradable as proved in accordance with Appendix [X] of the Annex XVII to Regulation (EC) No 1907/2006;*<br>*c) polymers that have a solubility greater than 2 g/L as proved in accordance with Appendix [Y] of the Annex XVII to Regulation (EC) No 1907/2006;*<br>*d) polymers that do not contain carbon atoms in their chemical structure.*<br>**The regulation is not officially adopted yet. See Annex for the definition.* | | |
| Nanomaterials/-particles<br>*Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01):*<br>*'Nanomaterial' means a natural, incidental or manufactured material consisting of solid particles that are present, either on their own or as identifiable constituent particles in aggregates or agglomerates, and where 50 % or more of these particles in the number-based size distribution fulfil at least one of the following conditions:*<br>*(a) one or more external dimensions of the particle are in the size range 1 nm to 100 nm;*<br>*(b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 1 nm and the other dimension is larger than 100 nm;*<br>*(c) the particle has a plate-like shape, where one external dimension is smaller than 1 nm and the other dimensions are larger than 100 nm.* | ☐ | ☐ |
| Nitroalkanes: nitromethane (CAS no. 75-52-5), 1-nitropropane (CAS no. 108- 03-2) and nitroethane (CAS no. 79-24-3). | ☐ | ☐ |
| NTA (nitrilotriacetic acid), CAS no. 139-13-9 and its salts<br>*Exemption: Complexing agents of the MGDA and GLDA type may contain NTA impurities in the raw material in concentrations of less than 0.2% if the concentration of NTA in the product is below 0.1%.* | ☐ | ☐ |
| PFAS (per- and polyfluoroalkyl substances) | ☐ | ☐ |
| Potential or identified endocrine disruptors according to any of the EU member state initiative "Endocrine Disruptor Lists" List I; II; and III.<br>o https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu<br>o https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption<br>o https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities<br>*A substance which is transferred to one of the corresponding sublists called "Substances no longer on list", and no longer appears on any of List I-III, is no longer excluded. The exception is those substances on sublist II which were evaluated under a regulation or directive which doesn't have provisions for identifying EDs (e.g., the Cosmetics Regulation, etc.). For those substances, ED properties may still have been confirmed or suspected. Nordic Ecolabelling will* | ☐ | ☐ |

| | | |
|---|---|---|
| *evaluate the circumstances case-by-case, based on the background information indicated on sublist II.* | | |
| Substances categorized as Substances of Very High Concern (SVHC) and included on the Candidate List: https://echa.europa.eu/candidate-list-table. | ☐ | ☐ |
| Substances that have been judged in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative), in accordance with the criteria in Annex XIII of REACH, plus substances that have not yet been investigated but that meet these criteria. | ☐ | ☐ |
| Triazoles | ☐ | ☐ |

If the answer to any of the above questions is Yes, state the CAS no. (where possible), chemical name and level (in ppm, % by weight or mg / kg). Also state whether the substance is contained in the form of an impurity or an added substance.

_____

_____

In the event of any change to the composition of the product, a new declaration of fulfilment of the requirements is to be submitted to Nordic Ecolabelling.

| | |
|---|---|
| Place and date | Company name / stamp |
| Person responsible | Signature of responsible individual |
| Phone | E-mail |

# Appendix 3 Declaration from the manufacturer of the raw material to de-icers

To be used in conjunction with an application for a licence for the Nordic Swan Ecolabelling of de-icers.

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

*For suppliers: If you do not have knowledge about the complete composition of the raw material/ingredient you are obliged to obtain this information from the manufacturer.*

Name of raw material: _____

Function of raw material: _____

Please note that the information in this declaration is internally shared with certification personnel in Nordic Ecolabelling to be used in evaluation of applications of chemical technical products.

The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the Nordic Swan Ecolabelled de-icers. Impurities are not regarded as ingoing substances and are exempt from the requirements.

Ingoing substances and impurities are defined below, unless stated otherwise in the requirements. Be aware that this is not the same definitions as in REACH ((EU) 1907/2006) and CLP ((EU) 1272/2008).

- Ingoing substances: all substances in the Nordic Swan Ecolabelled product, including additives (e.g. preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g. formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.

- Impurities: residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the Nordic Swan Ecolabelled product in concentrations less than 100 ppm (0,0100 w-%, 100 mg/kg).

- Impurities in the raw materials exceeding concentrations of 1,0% are always regarded as ingoing substances, regardless of the concentration in the Nordic Swan Ecolabelled product.

Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.

Ingoing substances in the raw material/ingredient (chemical name, CAS number, amount in weight-%):

_____

_____

Function of the raw material/ingredient(s), including all ingoing substances:

_____

| **O4 Classification of ingoing substances** | | |
|---|---|---|
| *Does the raw material contain substances classified with any of the hazard phrases below? Including all combinations of stated exposure routes and stated specific effect. For example, H350 also covers classification H350i.* | *Yes* | *No* |
| H350 – May cause cancer, hazard category 1A and 1B | ☐ | ☐ |
| H351 – Suspected of causing cancer, hazard category 2 | ☐ | ☐ |
| H340 – May cause genetic defects, hazard category 1A and 1B | ☐ | ☐ |
| H341 – May cause genetic defects, hazard category 2 | ☐ | ☐ |
| H360 – Toxic for reproduction, hazard category 1A and 1B | ☐ | ☐ |
| H361 – Toxic for reproduction, hazard category 2 | ☐ | ☐ |
| H362 – Toxic for reproduction, effects on or through breastfeeding (supplementary category) | ☐ | ☐ |
| EUH380 ED HH 1 - Endocrine disruption for human health<br>EUH381 ED HH 2 | ☐<br>☐ | ☐<br>☐ |
| EUH430 ED ENV 1 - Endocrine disruption for the environment<br>EUH431 ED ENV 2 | ☐<br>☐ | ☐<br>☐ |
| EUH440 PBT - Persistent, Bioaccumulative and Toxic properties***<br>EUH441 vPvB - Very Persistent, Very Bioaccumulative properties*** | ☐<br>☐ | ☐<br>☐ |
| EUH450 PMT - Persistent, Mobile and Toxic properties<br>EUH451 vPvM - Very Persistent, Very Mobile properties | ☐<br>☐ | ☐<br>☐ |

If the answer to any of the above questions is Yes, state the CAS no. (where possible), chemical name and level (in ppm, % by weight or mg / kg). Also state whether the substance is contained in the form of an impurity or an added substance.

_____

_____

| **O10 Substances prohibited from products** | | |
|---|---|---|
| *Does the raw material contain any of the following substances?* | *Yes* | *No* |
| Bisphenols and bisphenol derivatives[3] | ☐ | ☐ |
| DTPA (diethylenetriamine pentaacetate), CAS no. 67-43-6 | ☐ | ☐ |
| EDTA (ethylenediaminetetraacetic acid), CAS no. 13235-36-4, and its salts | ☐ | ☐ |
| MI (methylisothiazolinone), CAS no. 2682-20-4 | ☐ | ☐ |
| Microplastics<br>*We use the same definition of microplastics as the EU*:*<br>*Microplastics are synthetic polymer microparticles, which means polymers that are solid and which fulfil both of the following conditions:*<br>*a) are contained in particles and constitute at least 1 % by weight of those particles; or build a continuous surface coating on particles;*<br>*b) at least 1 % by weight of the particles referred to in point (a) fulfil either of the following conditions:*<br>*i) all dimensions of the particles are equal to or less than 5 mm;*<br>*ii) the length of the particles is equal to or less than 15 mm and their length to diameter ratio is greater than 3.*<br>*The following polymers are excluded from this designation:*<br>*a) polymers that are the result of a polymerisation process that has taken place in nature, independently of the process through which they have been extracted, which are not chemically modified substances;*<br>*b) polymers that are degradable as proved in accordance with Appendix [X] of the Annex XVII to Regulation (EC) No 1907/2006;*<br>*c) polymers that have a solubility greater than 2 g/L as proved in accordance with Appendix [Y] of the Annex XVII to Regulation (EC) No 1907/2006;*<br>*d) polymers that do not contain carbon atoms in their chemical structure.*<br>**The regulation is not officially adopted yet. See Annex for the definition.* | ☐ | ☐ |
| Nanomaterials/-particles<br>*Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01):*<br>'Nanomaterial' means a natural, incidental or manufactured material consisting of solid particles that are present, either on their own or as identifiable constituent particles in aggregates or agglomerates, and where 50 % or more of these particles in the number-based size distribution fulfil at least one of the following conditions:<br>(a) one or more external dimensions of the particle are in the size range 1 nm to 100 nm; | ☐ | ☐ |

[3] Assessment of regulatory needs: Bisphenols. ECHA – 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed – restriction https://echa.europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02

| | | |
|---|---|---|
| (b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 1 nm and the other dimension is larger than 100 nm;<br>(c) the particle has a plate-like shape, where one external dimension is smaller than 1 nm and the other dimensions are larger than 100 nm. | | |
| Nitroalkanes: nitromethane (CAS no. 75-52-5), 1-nitropropane (CAS no. 108- 03-2) and nitroethane (CAS no. 79-24-3). | ☐ | ☐ |
| NTA (nitrilotriacetic acid), CAS no. 139-13-9 and its salts<br>Exemption: Complexing agents of the MGDA and GLDA type may contain NTA impurities in the raw material in concentrations of less than 0.2% if the concentration of NTA in the product is below 0.1%. | ☐ | ☐ |
| PFAS (per- and polyfluoroalkyl substances) | ☐ | ☐ |
| Potential or identified endocrine disruptors according to any of the EU member state initiative ”Endocrine Disruptor Lists” List I; II; and III.<br>o https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu<br>o https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption<br>o https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities<br>A substance which is transferred to one of the corresponding sublists called “Substances no longer on list”, and no longer appears on any of List I-III, is no longer excluded. The exception is those substances on sublist II which were evaluated under a regulation or directive which doesn’t have provisions for identifying EDs (e.g., the Cosmetics Regulation, etc.). For those substances, ED properties may still have been confirmed or suspected. Nordic Ecolabelling will evaluate the circumstances case-by-case, based on the background information indicated on sublist II. | ☐ | ☐ |
| Substances categorized as Substances of Very High Concern (SVHC) and included on the Candidate List: https://echa.europa.eu/candidate-list-table. | ☐ | ☐ |
| Substances that have been judged in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative), in accordance with the criteria in Annex XIII of REACH, plus substances that have not yet been investigated but that meet these criteria. | ☐ | ☐ |
| Triazoles | ☐ | ☐ |

If the answer to any of the above questions is Yes, state the CAS no. (where possible), chemical name and level (in ppm, % by weight or mg / kg). Also state whether the substance is contained in the form of an impurity or an added substance.

_____

_____

In the event of any change to the composition of the product, a new declaration of fulfilment of the requirements is to be submitted to Nordic Ecolabelling.

| | |
|---|---|
| Place and date | Company name / stamp |
| Person responsible | Signature of responsible individual |
| Phone | E-mail |

# Appendix 4 Test methods and analysis laboratories

## 1 Requirement for analysis laboratory

The following applies to tests regarding ecotoxic effects and performance tests.

The analysis laboratory must fulfil the general requirements of standard ISO 17025 or have official GLP status.

## 2 Exotoxological test methods

International test methods (OECD Guidelines for Testing of Chemicals, ISBN 92-64-1222144) or equivalent methods must be used for documentation. If equivalent methods are used, these must be assessed by an independent body to ensure that the results are also equivalent. The relevant test methods that must be used are stated below.

## 3 Acute aquatic toxicity

For acute aquatic toxicity, test methods nos. 201, 202, 203 or 229 in the OECD Guideline for the Testing of Chemicals (ISBN 92-64-1222144) or DIN 38412-33 are to be used. Other scientifically accepted test methods may be used if the test results are assessed by an independent body and checked by Nordic Ecolabelling.

## 4 Chronic aquatic toxicity

For chronic aquatic toxicity, test method no. 211 (Daphnia magna) and 210, 215 or 229 (fish) in the OECD Guideline for the Testing of Chemicals is to be used. Other scientifically accepted test methods may be used if the test results are assessed by an independent body and checked by Nordic Ecolabelling.

OECD 201 (algae) may be used as a chronic test for algae, if chronic endpoints are chosen.

## 5 Bioaccumulation

If the bioaccumulative properties of a substance can be tested on fish in line with OECD test 305 A-E and its bioconcentration factor (BCF) is > 500, the substance is considered to be bioaccumulative. If the BCF value is not available, a substance is considered to be bioaccumulative if its logKow ≥ 4.0 according to 107, 117 or 123 in the OECD Guidelines for the Testing of Chemicals (ISBN 92-64-1222144) or equivalent, unless proven to be otherwise. If the highest measured BCF ≤ 500, the substance is not considered to be bioaccumulative even if its logKow ≥ 4.0.

The OECD's test 107 cannot be applied to surfactants which have both fat and water-soluble properties. Based on what is known today, for such substances it must be demonstrated with a high degree of certainty that they and their degradation products do not pose any risk to aquatic organisms over a longer time perspective.

Data models (such as BioWin) are accepted, but if the results of the model calculations are close to the limit values or Nordic Ecolabelling has contradictory data, more certain information may be required.

## 6 Aerobic degradability

For ready biological degradability, test method no. 301 (A-F) or no. 310 in OECD guidelines for testing of chemicals shall be used.

Other scientifically accepted test methods may be used if the test results are assessed by an independent body and checked by Nordic Ecolabelling.