

Nordic Ecolabelling for
Window replacement



Version 1.0 - 12 June 2024 – 04 September 2024

CONSULTATION

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Appendix 1: Installation materials

118 Window replacement, version 1.0, 12 June 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:

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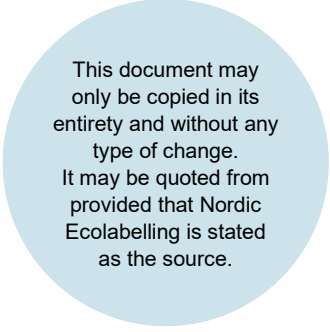
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1 Environmental communication guideline for Nordic Swan Ecolabel Window replacement

A Nordic Swan Ecolabel window replacement service contributes to a circular economy and reduced climate impact. It meets strict requirements for the whole life cycle of the service, including recycling of the glass in existing windows and doors, mapping of hazardous materials, handling of construction waste and the quality of the window installation. The service also ensures that the new installed windows, to a very high degree are certified with Nordic Swan Ecolabel thereby ensuring a high energy performance.

A Nordic Swan Ecolabel window replacement service:

- Contributes to circularity and significantly reduced climate impact as the float glass in existing windows and doors is recycled and used for new window glass.
- Ensures that harmful substances in the existing windows/doors and installation materials are identified and handled.
- Replaces existing windows with at least 90% Nordic Swan Ecolabel windows to ensure high energy performance and low environmental impact.
- Sorts the main fractions of waste – generated during dismantling and installation – for recycling.
- Meets quality requirements for the installation of the new windows.
- Meets strict chemical requirements for installation materials. Substances harmful to health and the environment are restricted and/or excluded. This applies to construction materials (e.g. insulation, tapes and sealing strips) and chemical building products such as sealants.

2 What service can carry the Nordic Swan Ecolabel?

Companies that offer window replacement on the Nordic market can be Nordic Swan Ecolabelled. The service is not restricted to certain building types. The clients will typically be private individuals (B2C) or professional building owners (B2B).

The criteria mainly cover replacement of windows and window doors covered by the harmonized product standard EN 14351-1 but can also include replacement of other types of window glass products not covered by EN14351-1 (e.g. fire-resistant glass).

The windows replacement service must include the following:

- The entire process from initial inspection of the existing windows to the final approval of the installation of the new windows.
- The service must include all window replacements conducted by the company.

The following are not included and cannot be Nordic Swan Ecolabelled:

- Renovation of existing windows.
- Replacement conducted by private individuals.
- Services that do not take full responsibility of the entire process from first customer meeting to final installation. This includes taking responsibility for, that the glass in the existing windows is sent for material recycling for new float glass.

3 How to read 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 licensee shall demonstrate fulfilment of each requirement. There are also icons in the text to make this clearer. These icons are:

- ☒ Enclose
- 📁 Upload
- ↑ Upload
- ↓ Download
- 📄 State data in electronic application
- 🔍 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.

4 Summary

Large amounts of glass waste from the construction sector goes to landfill instead of being reused or recycled. The number vary from around 50% (Sweden) to 70% (Norway) up to 100% (Iceland)¹. Lifecycle calculations from independent third party show that greenhouse gas emissions are reduced by 50% and energy consumption is reduced by 30%, if the float glass/window glass is recycled into new float glass in windows compared to if new raw materials are used in window

¹ Ökat Cirkulär Användning av Planglas, RISE Research Institute of Sweden, 2020. Vil samle inn flere ruter - Glass og Fasadeforeningen (glassportal.no),

production (which is standard practice in the industry today)². Furthermore, the sand that is of sufficient quality for float glass production is estimated to only last for another 50 years. This is the main environmental potential identified for the product group and the most critical requirement to succeed with. This gives the Ecolabelled service a strong contribution to circular economy and reduced climate impact.

Nordic Ecolabelling wishes to promote circular business models and developed the criteria during 2024. Companies that offer window replacement on the Nordic market can be Nordic Swan Ecolabelled. The service is not restricted to certain building types. The clients will typically be private individuals (B2C) or professional building owners (B2B).

This first generation of the criteria for replacement of windows has the following key requirements:

- Identification of hazardous materials. Identifies any hazardous materials in both the windows and the installation materials used in the existing building.
- Recycling of float glass. Ensures that all float glass identified as suitable for reuse is prepared for and sent to recycling into new float glass.
- Nordic Swan Ecolabelled Windows: Ensures that minimum 90 % of the new windows installed are certified according to the Nordic Swan Ecolabel³ to ensure high energy performance and low environmental impact (e.g. the materials used in the production of the window).
- Chemical products and construction products used for installation: Set strict requirements for the content of any harmful chemical substances in the products used in installation.
- Quality control of the installation. Ensures that proper self-monitoring is conducted thereby aiming to ensure a high-quality installation.

5 Scope and definitions

5.1 Definition of the product group

The product group is defined in chapter 2 “What service can carry the Nordic Swan Ecolabel”. This chapter contains more information on the background for product group definition.

Windows and window doors (e.g. balcony and terrace doors) are covered by the harmonized product standard EN 14351-1 and can be Nordic Swan Ecolabelled. In window replacement cases there can also be products that are not covered by this standard: rooflights according to EN 1873 and EN 14963; curtain walling according to EN 13830; industrial, commercial and garage doors and gates according to EN 13241; internal pedestrian door sets according to prEN 14351-2;

² Increased circular use of float glass, RISE, 2020.

³ <https://www.nordic-swan-ecolabel.org/criteria/windows-and-exterior-doors-062/>

revolving door sets, power operated pedestrian door sets according to EN 16361. All types of window glass handled in the service are subject to all requirements except O10 that only covers products handled in EN14351-1.

The main focus of these criteria is to establish a circular business model with a circular material flow of float glass into new float glass.

Renovation of old windows is an existing service where wooden parts of the window is exchanged and repaired. The old window is also often upgraded with an insulation glass to a better energy performance. Nordic Ecolabelling acknowledges that renovating and upgrading older windows can in many cases be more resource-saving than replacing and installing new ones. Windows manufactured before the 1950s can be of such good quality that it is wise to insert an insulating pane to improve the energy performance of the windows and thus the building. Another advantage of renovating existing windows is that you retain the appearance of the windows, which is important for the character of the building.

However, these criteria focus on the replacement of windows, as Nordic Ecolabelling sees a large potential in improving the environmental profile of the replacements conducted in the current Nordic market. Changing windows is one of the most common measures in remodelling and renovation and one of the most climate-impacting⁴.

5.2 Definitions

The first time a term is used in the document, it is written in bold italics or with a reference to this definition list.

Term in background and criteria documents	Definition
Chemical products	A chemical product is a substance or a mixture of two or more substances, in liquid, gaseous or solid form, which are used on a construction site or by a manufacturer of prefabricated building components. Chemical products both for indoor and outdoor use are covered by the requirements. Nordic Ecolabelling does not set chemical requirements for cement or concrete, nor for metal alloys such as steel or brass.
Construction products	Products used in the construction of buildings, for example wall elements, flooring, power cables, doors, thermal insulation etc. In EU regulation No 305/2011, a construction product is defined as "any product or kit which is produced and placed on the market for incorporation in a permanent manner in construction works or parts thereof and the performance of which has an effect on the performance of the construction works with respect to the basic requirements for construction works".
Fire resistant glass	Specially treated glass to control the spread of fire, vapours, and smoke. Typically used in doors and windows.
Float glass	A type of flat glass made by pouring molten glass on a bed of molten metal to get a consistent flatness and surface quality. Typically used in windows.
Foam glass	A porous, light weight and high strength building material with very good thermal and acoustic insulating properties.
Impurities in chemical products	Residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the raw material/ingredient and/or in the chemical product in concentrations of less than 1000 ppm (0.100 w-%, 1000 mg/kg) in the chemical product. Examples of impurities are residues of the following: Residues or

⁴ Cirkulära materialflöden i glasbranschen, IVL, rapport Nr B2450, september 2022.

Term in background and criteria documents	Definition
	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	<p><u>Chemical products:</u> All substances in the chemical product regardless of amount, including additives (e.g., preservatives and stabilizers) 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.</p> <p><u>Construction products:</u> All substances in the construction product that are present in concentrations higher than 100 ppm (0.010 w-%, 100 mg/kg).</p>
Insulating glass	Consists typically of 2, 3 or 4 panes of glass separated by a space filled with gas (argon, xenon for example) that give the product good properties to reduce heat transfer through the buildings window.
Laminated glass	A type of safety glass that consists of 2 sheets of float glass held together by a thin polymer in the middle. In case of shattering the glass is kept in place by the polymer and prevents to break into sharp large pieces. Typically, it is used for curtain walls, windscreens, and photovoltaics.
Nanomaterial	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.
Remediation contractor	Resolves issues related to contamination, environmental hazards, or structural problems on a construction site.
Window doors	Constructed as a window, which extends to floor level and allows access or passage for persons. Can be partially or fully glazed like balcony and terrace doors.
Window frame	Structural support that holds the window system in place and surrounds the glass.
Window joint	Connection between window frame and wall, both chemical and mechanical connection methods.
(Window) sealant	Chemical substance used to close cracks and gaps around the window to tighten against water and wind.

6 Requirements and justification of these

6.1 General requirements

O1 Description of the service

The licensee must account for the following:

1. General description of the business:
 - a. Customer types, size and share of B2B and B2C
 - b. Number of employees
 - c. Annual revenue
 - d. Business locations
 - e. Primary operations of the company; window replacement, renovation services, window production etc.
 - f. Total number of windows and window doors replaced the last financial year.
2. Process description of the window replacement service from the first customer contact to the final approval of the window replacement.
3. Division of responsibilities for the different phases of the service described in bullet 2.
4. Description of the use of subcontractors and the services provided by these.

Description of the bullets 1-4.

Background

This requirement aims at describing the basics of the service. In addition, it ensures a clear overview of the responsibilities for different processes within the company and any subcontractors used. This requirement is necessary for Nordic Ecolabelling to provide an efficient certification process and understand the service in question. As described in the product group definition these criterias focuses on window replacement services and not window renovations.

6.2 Prior to replacement

This section sets the framework for the work that must be done prior to the actual window replacement.

O2 Measurement of new windows and doors

The licensee must conduct all measurements for the new windows and doors prior to replacement.

A procedure for training of personnel and routine for conducting correct measurements for windows and window doors must be provided.

Procedure for conducting measurements of windows and doors.

Background

Faulty productions of windows and window doors are a common issue in the industry and an unnecessary waste of resources. After dialogue with the industry Nordic Ecoabelling sees a potential for ensuring that windows are measured correctly to minimize faulty productions. The best means of ensuring this is to require that all windows must be measured by a professional working for the installation company. The magnitude of the potential environmental benefit is hard to quantify, but as this is a commonly known problem in the industry, it is considered that this requirement will have an actual effect on the market. A procedure for conducting measurements of windows and doors must be handed in to verify that the licensee has a defined setup for measurements.

O3 Identification of hazardous materials

The licensee must have a procedure that ensures that any hazardous materials are handled in the window replacement service. This e.g. includes materials containing PCB, asbestos, chloroparaffins etc. above relevant threshold limits.

The method used can include both analysis of samples and e.g. risk assessments based on reports/surveys that have determined the presence of certain substances (PCB, asbestos, chloroparaffins etc.) for the material in question based on e.g. production year or producer.

Option A (often B2B customers) or B (often B2C customers) must be fulfilled for all replacements:

A. Window replacements covered by an existing hazardous materials survey and report.

When the existing windows, window frames and the areas around the windows (e.g. window joint, insulation material, wooden lists etc.) are covered by an existing hazardous material survey and report, this can be used as verification of the requirement. The report must be no older than 3 years. The extent of the assessment and report must be in accordance with national legislation.

B. Hazardous materials screening

A hazardous material screening must be performed, that at least covers the existing windows, window frames and the areas around the windows (e.g. window joint, insulation, wooden lists etc.). The hazardous material screening must identify materials categorized as hazardous waste according to national legislation/guidelines (e.g. containing PCB, asbestos, chloroparaffins etc.).

The person conducting the hazardous material screening must be qualified and have relevant education for identification of hazardous substances (e.g. PCB, asbestos, chloroparaffins etc.) relevant for the existing windows and associated installation materials. Educational programs must be approved by Nordic Ecolabelling.

Due to the precautionary principle, material samples must always be taken of the window sealant between window frame and the wall. When analysis of material samples is performed, the methods for representative sampling and testing must be defined by an accredited laboratory.

The result of the hazardous material screening must be documented in a case specific report that accounts for all the findings and results from any analyses.

The report must at least include the following:

1. Responsible for the report.
 2. Date of the report.
 3. Estimated age of the windows and estimated installation year
 4. Results of performed material samples (e.g. window sealant) and analyses.
 5. A list of the materials that are categorized as hazardous waste, according to national legislation and included information on:
 - a. The location identified by description, photographs, or drawings.
 - b. A description of measures for protecting the environment and human health
 6. Overall conclusion of the screening
- Procedure describing how window replacement cases are ensured to comply with either option A or B. This includes both reporting and approval of educational programme.
- A: Hazardous material survey reports, from relevant projects, must be shown upon request.
- B: Reports documenting the requirement must be shown upon request.

Background ^{5 6 7}

Older buildings may have been constructed using materials containing various hazardous substances. In the case of windows and the associated installation materials the use of PCB, asbestos, chloroparaffins, and heavy metals are a common issue. PCB and asbestos have been used in the production of windows from the 1950's to 1980's in the Nordic, but there are national variations. Chloroparaffins were used in window production in the 1980's. Heavy metals are typically found in paints. Asbestos, PCB and chloroparaffins (SCCP and MCCP) can be found in materials used during installation, e.g. the soft sealants that have been used to seal the area between window and building. During a window replacement or larger renovation, it is critical that the risk related to these hazardous substances is identified and eliminated. Depending on the substances, they pose a risk to the environment and/or human health.

Nordic Ecolabelling are convinced that the handling of hazardous materials can be improved in the industry. Especially in the case of smaller construction projects, it is found that sufficient investigations are not always performed⁸. The ecolabelled service must ensure that such materials are identified and handled

⁵ Metoder til fjernelse af miljøproblematiske stoffer – Udredning af teknologier til identifikation og fjernelse af miljøproblematiske stoffer og materialer fra bygninger til nedrivning eller renovering. Miljøprojekt nr. 1656, 2015. <https://www2.mst.dk/Udgiv/publikationer/2015/03/978-87-93283-86-2.pdf>

⁶ Materialeatlas. InnoBYG projekt fra 2016. <https://www.innobyg.dk/media/75876/materialeatlas.pdf>

⁷ <https://www.dmr.dk/miljoescreening-bygningsundersogelse/miljoekortlaegning-miljoefarlige-stoffer/>

⁸ Boverket, Uppdrag att förbättra kunskapsnivån om hantering av asbest i byggnader, Rapportnummer: 2023:14

properly either by an existing hazardous material survey or a hazardous material screening of the specific building parts. Due to the rapid changes in regulations and knowledge within the field of environmental surveys, a previously conducted survey must not be more than three years old.

Nordic Ecolabelling have found that the identification of Chloroparaffins (SCCP and MCCP) in windows is currently not done to a sufficient extent in large parts of the Nordic. Sampling and analysis can be difficult as the substances are typically present between the layers of glass. In addition, there is currently no overview of which producers and in what timeframe the substances have been used. Glascentrum in Sweden is currently assessing the situation in Sweden regarding chloroparaffins. Ruteretur in Norway have conducted the assessment “Kartlegging av isolerglasslim”⁹ and have concluded the windows produced after 1990 can be handled as non-hazardous waste. However, the assessment in fact found windows with Chloroparaffins in windows from 2020. In these criteria for Window replacement, it is a clear requirement that all hazardous materials/waste must be identified and handled in accordance with the legislation

The high risk associated with the soft sealants between window frame and the building means that material samples must always be taken of the window sealant (exterior caulk).

The survey must include the list of substances that are harmful to human health and the environment, according to the requirements/recommendations of the national authorities, national guidelines, and industry standards. The national legislation must have implemented Commission Decision 2000/532/EC establishing a list of hazardous waste, Commission Regulations (EU)1357/2014 replacing Annex III to Directive 2008/98/EC and (EU)2017/997 amending Annex III to Directive 2008/98/EC.

O4 Identification and marking of window glass

A procedure for correct identification and marking of glass must be available for all personnel.

The licensee must have the knowledge to identify windows and window doors suitable for float glass recycling. All personnel that work with dismantling the windows and window doors must have education* to:

- Identify different types of glass (laminated, coloured, fire resistant, wired glass etc.)
- Mark windows and window doors according to the type of glass and risk of hazardous substances (based on the results from O3 or other supplementary information).

Proof of education (e.g. diploma) must be stored and shown upon request for all relevant employees.

** Glascentrums (SE) “Utbildning Glasinventare” is considered as sufficient education. Other educational programs must be approved by Nordic Ecolabelling.*

⁹ Kartlegging av isolerglasslim, 2023, Ruteretur, Kristin Runde (prosjektleder), Guro K. Milli-Solheim (kvalitetssikrer) og Sverre Valde

- ☒ A procedure for correct identification and marking of glass.
- ☒ Procedure ensuring that all relevant personal is educated according to the requirement.

Background

Recycled glass intended for manufacturing of new float glass is very sensitive to contamination. For example, a few grams of aluminium per tonne of glass pulp can cause bubbles in the float glass, and lead to a loss of several days of production. In addition, not all types of float glass are suitable for recycling.¹⁰ Depending on the recycling facilities preconditions, simple float glass, insulating glass, heat-hardened glass and laminated safety glass are often mentioned as recyclable. However, laminated glass is e.g. not suitable for new float glass production but e.g. only for glass wool. Examples of non-recyclable glass products are fire-resistant glass, wire glass and some fire protection glasses.¹¹

The first step in the recycling process is an inventory of the available float glass. This basically means that all glass must be correctly identified and marked correctly. To achieve an economically viable and quality-assured recycling of window glass, it must be ensured that the inventory is carried out by a competent technician. Nordic Ecolabelling have therefore defined a competence requirement covering both identification of the type of glass and any potential hazardous substances in the glass / window frame (partly handled in O3). This includes all hazardous substances regulated by national legislation e.g. PCB, asbestos and chloroparaffins.

The Swedish industry's joint technology and training centre "Glascentrum", has developed a new training course for glass inventors¹². The aim is that, after completing the training, you should be able to carry out an inventory of flat glass in the interior and exterior of the building for recycling/reuse. The training focuses on knowledge and methods for identifying glass and carrying out an inventory. It is essential to be able to distinguish between glass that can be recycled and those that today cannot be recycled into new flat glass. Currently, similar courses have not been identified in the other Nordic Countries, but as the industry evolves, we expect this to happen. According to our information participants from Norway has already taken the course. Other courses must be approved by Nordic Ecolabelling.

O5 Handling of identified hazardous materials

The licensee must provide a procedure describing how hazardous materials are handled when they are identified in O4.

When remediation work on site is necessary due to findings of hazardous materials in O4 it must be handled by a remediation contractor qualified to conduct remediation work within the parameters of the building type and the complexity in question.

¹⁰ Email correspondence with a leading float glass producer in Europe.

¹¹ Suomen tasolasiyhdistys, Kierrätys, <https://www.tasolasiyhdistys.fi/lasitietoa/kierratys/>

¹² <https://glascentrum-mtk.se/utbildningar/>

The remediation work must be documented in a remediation report that as minimum accounts for the type and amount of hazardous waste and documents how the hazardous materials have been removed or handled.

- ☒ Procedure describing how hazardous materials identified in O3 and windows marked as contaminated in O4 are handled.
- ☒ Remediation reports for relevant replacement cases must be shown upon request.

Background¹³

The hazardous material survey/screening aims to identify all hazardous materials relevant for remediation as well as hazardous substances retained in the building. The remediation firm is responsible for choosing the method for the removal, storage, and transport of the hazardous waste. There may be multiple removal methods available, but the choice of most appropriate method often depends on the equipment available to the remediation firm.

After dialogue with the industry, it has been identified that remediation is not always handled properly – especially in the case of smaller projects (e.g. work on private houses). This requirement is a mean of verifying that a complete remediation is performed before replacement work continues.

The Housing Authority in Sweden (Boverket) has carried out an investigation¹⁴ about the state of knowledge about asbestos management in the construction industry, which showed major knowledge gaps. Ignorance, time pressure and other factors often mean that the inventory and remediation of asbestos is not done at all or takes place in an incorrect way, which implies major health risks for the professionals on the construction site.

A report documenting the completed remediation must be handed in to verify that the process has been completed and conducted according to national legislation.

Nordic Ecolabelling expects that in some cases the hazardous material screening will not show any findings that leads to the necessity to hire a remediation contractor on site. This strongly depends on the buildings construction method and the products used in the joint between the window frame and wall. If wooden lists are e.g. used instead of chemical sealants the likeliness of hazardous materials is significantly lower. Another example is that contaminated windows and window frames in some cases, if there is no risk for migration of hazardous substances, can be removed and handled as hazardous waste. In this case there is not always a need for a remediation contractor.

O6 Moisture and ventilation assessment

This requirement only applies to window replacements in private homes (B2C).

¹³ Metoder til fjernelse af miljøproblematiske stoffer – Udredning af teknologier til identifikation og fjernelse af miljøproblematiske stoffer og materialer fra bygninger til nedrivning eller renovering. Miljøprojekt nr. 1656, 2015. <https://www2.mst.dk/Udgiv/publikationer/2015/03/978-87-93283-86-2.pdf>

¹⁴ Boverket, Uppdrag att förbättra kunskapsnivån om hantering av asbest i byggnader, Rapportnummer: 2023:14

The licensee must have a procedure for conducting an assessment on the effects of the window replacement regarding moisture and ventilation in the building. The assessment must account for the following:

- Risk that the window replacement will lead to new challenges regarding moisture in the indoor climate. When relevant recommendations must be given on compensatory measures (e.g. fresh air valves, adjustment of ventilation etc.).
- Effect on the existing ventilation system. If ventilation is affected recommendations must be given on relevant compensatory measures (e.g. adjustment of the system).

Information and guidance on the effects of the window replacement on moisture and ventilation in the building must be given to the end-customer.

- Procedure describing how the assessment is implemented in the licensee's quality system.
- Documentation for all individual window replacement cases must be stored by the licensee and shown upon request.

Background¹⁵

Replacement of windows can affect the existing building's indoor climate, primarily due to their higher level of air tightness. In order not to damage the existing building and create mould and moisture problems, this issue should be taken into consideration before the windows are replaced.

An example is properties with self-drafting, where new airtight windows can affect the house's ventilation and thereby can cause issues with moisture in the indoor climate. Ultimately it can lead to mould damage or that it is necessary to invest in a new ventilation system.

Another general challenge is that it is normally necessary to have a controlled source of supply air as buildings usually have exhaust air in kitchens and bathrooms. Too much exhaust air compared to the air supply causes a negative pressure which would draw cold air from outside through cracks and leaks inside. In the long run this causes moisture damages in these places. This balance can be affected if all windows in the building is replaced.

Nordic Ecolabelling requires that information and guidance on the effects of the window replacement on moisture and ventilation in the building are given to the end-customer. It is better to identify a potential issue with moisture/mould before the installation is conducted. A potential for improvement is seen compared to the standard practice in the industry that can be verified through specific assessment of all individual window replacement cases.

B2B customers will typically have professional advisors connected to their window replacement and /or renovation projects. Nordic Ecolabelling therefore sees little potential for improving the status in this part of the market.

¹⁵ Boverket, Risker med fönster och dörrar, <https://www.boverket.se/sv/byggande/forebygg-fel-brister-skador/risker/risker-fuktskador/fuktrisker-yttervaggar/fasadmaterial-ytskikt/risker-fonster-dorrrar/>

6.3 Circular Economy

O7 Storing and packaging of float glass

All windows and window doors that are dismantled in the project must be safely stored and packed in order not to be damaged during storage and transport for recycling. The licensee must have written instructions on the following:

- Information on how windows and window doors are secured for safe transport on pallets or alternative equipment provided by the recycling company.
- Information on labelling/marketing of the windows and window doors according to the recycling companies' instructions, see O3.
- Instructions on where and how the windows and window doors can be stored to ensure that they are easily accessible for the recycling companies, depending on the type of vehicles.

☒ Instructions for sorting, storage, and packaging according to the bullets above.

Background

The basis of an effective circular recycling service is that the raw materials (e.g. glass) can be collected efficiently and safely. If pick-ups of material must be cancelled due to problematic storage locations or glass is broken during transport the environmental benefit of the recycling will be diminished or become economically unfeasible. Dialogue with the industry has shown that this can be a challenge.

Nordic Ecolabelling sees a potential in ensuring clear instructions for the licensee to ensure efficient collection by the waste contractor.

O8 Recycling of float glass

A. Glass suitable for recycling into new float glass

All float glass handled by the licensee and identified as suitable for recycling into new float glass (see requirement O4) must be sent for recycling to new float glass.

It must be documented/confirmed by the glass manufacturer that minimum 90% of the float glass sent from the waste contractor is used for manufacturing of new float glass.

The following must be documented by the licensee:

- An agreement/contract between the licensee and a waste contractor who has a facility that guarantees that the window glass is prepared as raw material for new float glass.
- Documentation/Confirmation that the licensee's waste contractor has an agreement with a float glass producer that uses minimum 90% of the float glass sent from the waste contractor for manufacturing of new float glass.

If Windows are classified as hazardous waste the waste contractor handling and dismantling the windows must have a permit to handle hazardous waste.

B. Glass not suitable for recycling into new float glass

Float glass identified as not suitable for recycling into new float glass must be sent for recycling to other forms of glass products such as glass wool, glass foam, or container glass.

Fire resistant glass, wire glass and float glass contaminated with PCB or FA is exempted from this requirement.

The following must be documented by the licensee:

- Confirmation that the licensee's waste contractor has agreements with other companies or facilities that uses the window glass for other recycling products (glass wool insulation, container glass, glass foam). A list of the companies receiving material must be provided.

Annual reporting

The following must be documented in an annual report from the waste contractor(s):

- a) Total amounts of float glass received by the waste contractor from the licensee.
- b) Amounts of float glass from the licensee sent by the waste contractor for manufacturing of new float glass and other recycling.
- c) Documentation/confirmation from the float glass producer that minimum 90% of the float glass sent from the waste contractor is used for manufacturing of new float glass.

- Documentation in accordance with the two bullets in part A.
- Documentation in accordance with the bullet in part B.
- Annual report from the waste contractor according to the bullets a-d in the requirement.

Background

The environmental benefits of recycling float glass are great. The production of float glass is both resource- and energy-intensive. In the production of float glass with virgin raw materials, sand, lime and soda are melted down in a furnace at approximately 1500 °C. If recycled flat glass is used instead, the energy requirement for melting the raw materials can be reduced by 30%, and the CO_{2e} emissions by over 50%. Each ton of glass shards reduces the need for virgin raw materials by more than 1.2 tons.^{16 17}

The enormous amount of sand mining in the world, which is the main component of glass, has led to major ecological and humanitarian consequences. Because sand from the desert is too smooth to be used in the manufacture of glass and concrete, the raw material is usually mined from rivers or sea beaches and seabeds. This happens at a higher rate than new sand is generated, as it is formed by erosive processes over thousands of years. Specially, sand used for the

¹⁶ 2020: Ökat Cirkulär Användning av Planglas, RISE Research institutes of Sweden;

¹⁷ Suomen tasolasiyhdistys, Kierrätys, <https://www.tasolasiyhdistys.fi/lasitietoa/kierratys/>

production of float glass has very high purity requirements and only a fraction of the world's sand resources are usable for this. Peak sand is an issue of concern and some experts fear the raw material to run out in 50 years.^{18,19}

Large amounts of glass waste from the construction sector goes to landfill instead of being reused or recycled. The number vary from around 50% (Sweden)²⁰ to 70% (Norway)²¹ up to 100% (Iceland)²². There is a lot of raw material available, but it is a challenge for the recycling industry that landfill is the cheapest way of handling glass.

The recycling process consists of many steps and partly involves manual work. Some processes can lead to losses of the raw material, for example glass remaining in frames in the separation process. Minor losses of the dismantled float glass caused by the facilities preconditions do not need to be accounted for in the requirement. The same applies to dismantled windows that the licensee's customer wishes to keep for the purpose of own reuse or selling on the reuse market. Fire resistant glass, wire glass, float glass contaminated with PCB or FA (Fluoroacetate) is exempted from this requirement as it can currently not be recycled. Nordic Ecolabelling will follow the development of this closely in the future.

The current situation in the Nordic is that a collection system is available in more or less the whole of Sweden whereas that is not the situation in the other countries. In Norway dialogue with the industry shows that recycling of float glass into new float glass is under consideration but currently no plans of implementation are available. Norway already has a very well functioning system (Ruteretur) for collection of PCB contaminated windows where the glass is currently sent for recycling into glass wool. In addition, Ruteretur are now considering to start collection of non-contaminated double glazed windows. Nordic Ecolabelling sees a potential for Norway's collection systems to be a source of float glass for recycling of new float glass in the future. In Denmark and Finland there are currently no plans for sending float glass for recycling to manufacturing of new float glass. However, based on the environmental potential and the future lack of suitable sand we expect that this will happen in the future.

Nordic Ecolabelling recognizes that it can be a challenge for the producers of glass wool if significant amounts of float glass is recycled into new float glass. However, the purpose of this requirement is to keep the glass at the highest possible state of the waste hierarchy thereby preserving the quality of the resource. In addition, there are large amounts of float glass available in the market, that is currently sent for landfill. The solution for the industry could therefore be to increase the amount of glass recycled to solve this problem.

The requirement is designed to verify the route of the float glass to verify that it is used for new float glass to as high an extent as possible. Due to the lack of certification systems or similar, it is based on agreements and confirmations from waste management company and producers. In addition, a threshold limit is set to verify that the glass sent to the float glass producers are actually used for float

¹⁸ 2014: Sand, rarer than one thinks, UNEP

¹⁹ Nature, Time is running out for sand, <https://www.nature.com/articles/d41586-019-02042-4>

²⁰ Ökat Cirkulär Användning av Planglas, RISE Research Institute of Sweden, 2020.

²¹ Vil samle inn flere ruter - Glass og Fasadeforeningen (glassportal.no)

²² Mail correspondence with 3 recycling companies from Iceland

glass production and not discarded. Threshold limit is set after dialogue with the industry.

Hazardous materials can potentially be present in both the window and the installation materials. Materials and Windows/doors classified as hazardous waste must be stored on site in a secure way and transported by waste contractors with accurate permit for transportation. In addition, the receiver(s) of the hazardous waste must have permission for handling of hazardous waste.

O9 Waste management

This requirement applies to construction waste other than windows and doors.

The licensee must have a waste management routine that ensures the following:

- Non-hazardous waste, generated during the dismantling and installation of windows, must as minimum be sorted in the fractions wood, plastic (packaging), mineral wool and waste for incineration.
Note: B2B projects, that are part of a larger renovation project, can use the established waste sorting system on the construction site if the minimum of fractions is fulfilled. Documentation for this must be archived by the licensee and shown upon request.
- Hazardous waste must be stored on site in a secure way and transported by waste contractors with accurate permit for transportation. If hazardous waste is intermediate stored an accurate permit for storage is needed. See also O5.

- The licensee's routines for sorting and storage of construction waste (including hazardous waste when relevant).
- Agreement with waste contractor, including attestation on permit for transportation of hazardous waste if relevant.

Background

When the old windows are removed and new ones are installed, waste is generated on site. This waste needs to be sorted and handled in a way that gives opportunities for material recycling but also minimizes the risk of local environmental impact.

When windows are replaced on single family houses (B2C) normally only very small amounts of waste are generated. The requirement covers the three most common fractions; wood (various remains of wood material. lining, frame, painted wood and wooden boards), mineral wool and plastic packaging materials. The remaining must be sorted for incineration.

When windows are replaced on professional properties the waste can be sorted and handled according to the waste sorting system on the construction site. This system will in many cases offer a greater number of material fractions to be sorted but can never be less than what is generally required. Nordic Ecolabelling requires that the license holder have written waste routines that cover the various types of waste that arise.

6.4 New windows and installation materials

O10 Nordic Swan Ecolabelled windows

On a yearly basis a minimum level of 90% of the replaced windows and window doors (e.g. balcony and terrace doors), covered by the harmonized product standard EN 14351-1, must be Nordic Swan Ecolabelled.

This must be documented in an annual report to Nordic Ecolabelling containing the following information:

- Product name
- Producer(s)
- License number
- Annual share of Nordic Swan Ecolabel windows and doors in the service

At the time of application, the requirement can be documented by contracts with producers if an annual report complying with the requirement is not available upon certification.

- At the time of application: Annual statistics or by contracts with window producers.
- Annual report showing compliance with the requirement.

Background

Nordic Swan Ecolabel windows and external doors:

- Have a low climate impact due to low energy losses through the window/door
- Meet strict requirements for materials and chemicals
- Must document good function and quality
- Offer a long service life
- Contribute to circular economy through design for disassembly, take-back systems, recycling of float glass and waste management
- Have good instructions for installation and maintenance

Further details can be found in the background document for Nordic Swan Ecolabel windows and external doors: <https://www.nordic-swan-ecolabel.org/criteria/windows-and-exterior-doors-062/>.

Based on this Nordic Ecolabelling wishes to promote the use of ecolabelled windows by setting a minimum annual share for the window replacement service. The steerability of the requirement is high as the annual status will be controlled.

Due to the high share of ecolabelled windows in the service the waste majority of installed windows will be certified and controlled in detail in relation to all life cycle perspectives. Therefore, no further requirements are set on the remaining 10% of the windows as the additional environmental benefit is considered low.

Nordic Swan Ecolabelled Windows and doors are widely available in Sweden and Norway. Only one producer has available products in Denmark. No NSE windows and doors are available in Finland and Iceland.

O11 List of installation materials

The licensee must deliver a list with all installation materials used in the service covered by the requirement O12. As a minimum the list must contain information about the following:

- Product name
- Product type and/or use
- Name of producer

The list of materials must be updated at all times and be presented to Nordic Ecolabelling upon request. New installation materials cannot be used without approval from Nordic Ecolabelling.

- ☒ List of installation materials.
- ℙ List of installation materials is compared to the licensee's stock of materials and the purchasing statistics.

Background

The licensee must deliver a list of installation materials to account for all installation materials used. This is the basis for the requirement O12 Chemical products and construction products in installation. In addition, the list provides Nordic Ecolabelling with knowledge of the installation techniques used.

O12 Chemical products and construction products in installation

Chemical products and construction products used in the installation and listed in O11 must comply with the requirements in Appendix 1 (requirements are aligned with the following requirements in the criteria for 089 New Buildings generation 4).

The products used must be documented in Nordic Ecolabelling's SCDP (Supply chain declaration portal).

Nordic Swan Ecolabelled or EU Ecolabelled products can be used without any further documentation.

The requirements in Appendix 1 are aligned with the following requirements in the criteria for 089 New Buildings generation 4 or later (the mentioned O-numbers is referring to 089 New Buildings generation 4): O14 Classification of chemical products, O15 CMR substances, O16 Preservatives in indoor paint and indoor varnish, O17 Preservatives in other chemical products intended for indoor use, O18 Prohibited substances, O19 Nanoparticles in chemical products and O25 Excluded substances in construction products, construction goods and materials.

Login to the SCDP is only provided for the licensee and not for e.g. suppliers or subcontractors.

- ℙ List of approved chemical products and construction products in Nordic Ecolabelling's SCDP.

Background

Chemical – and construction products can contain harmful substances. Nordic Ecolabelling has specific knowledge on this issue due to the many Nordi Swan Ecolabelled new buildings that are certified every year. When installing windows

a relatively small amount of installation material is used (sealant, insulation, wooden lists, tape, etc.), however, on an annual basis the service company will use a significant amount of material and a significant number of buildings will be affected.

Furthermore, it is considered relevant to ensure that the final customer can rely on, that a Nordic Swan ecolabelled service sets requirements for any harmful substances used during installation.

See appendix 1 for the specific details for the individual material requirements.

6.5 Quality and environmental management

013 Quality control of the installation

The licensee must have a self-monitoring system to ensure the quality of the installation. This includes control of air tightness, fixing of the windows, properly performed insulation, control of rain density, noise level (when a requirement from the end customer), and fire safety when relevant.

The following must be accounted for:

- A procedure for the installer to check the quality of the installation.
- A procedure for the supervisor's control of the installation work. As a minimum visible work must be checked. On projects larger than 50 window replacements random sample control is accepted.
- A procedure for annual conduction of thermography of minimum three random window replacement projects. The investigations must be done in accordance with ISO 6781-1:2023 and can be conducted by internal or external expert with minimum three years' experience in building thermography.

The results of the quality controls must be stored for a minimum of 5 years and must be shown to Nordic Ecolabelling upon request.

- A procedure for the installer to check the installation.
- A procedure for the supervisor's control of the installation work.
- Procedure for conduction of yearly thermography measurements, including documentation for the expert's competence (CV)
- Results of controls performed by installer/supervisor and thermography.

Background

The requirement aims to ensure a solid quality self-monitoring system for the Window replacement service. A low-quality installation can for instance cause lower lifetime of the windows, a less airtight building with higher energy demand and issues with moisture in the constructions. The requirement is designed to include the most critical elements in a typical window replacement and defines that both installer and supervisor must control the work performed. Important points to check are typically: air tightness, fixing of the windows, properly

performed insulation, control of rain density²³, noise level (when a requirement from the end customer), and fire safety when relevant.

Thermography is an efficient way of ensuring proper installation of the windows. It will lead to identification of systematic mistakes and ensure good air tightness. Measurements must be conducted as random yearly samples in accordance with ISO 6781-1:2023. Interpretation of the results requires experience which is why a competence requirement of minimum three years' experience is set.

O14 Warranty

The licensee must provide a warranty of at least:

- 3-year on installation.
- 10-year glass against condensation between glass.
- 10-year functional guarantee on the function of the window and window door.
- 10-year against rot damage in the wooden parts of the window and window door (B2B, entrepreneurs)
- 20-year against rot damage in the wooden parts of the window and window door (B2C, households)

The warranties and the warranty conditions must be published on the licensee's website.

The warranty periods above are often associated with warranty conditions such as abnormal use, incorrect installation or if the products have been exposed to abnormal loads.

For the Nordic Swan Ecolabelled windows, the bullets 2-5 are already covered by the requirements for Nordic Swan Ecolabelled Windows and doors.

- A copy of the warranty or information on the manufacturer's website, that states the terms and conditions of the product guarantee.

Background

A guarantee/warranty is a voluntary commitment and always gives the consumer rights in addition to those that apply according to consumer law. The scope of the warranty and how long it shall apply must be clearly described in a durable and legible form for the consumer. Nordic Ecolabelling requires a guarantee both for the installation work and different product guarantees covering the windows and window doors that are installed. A warranty can be designed in many ways, but Nordic Ecolabelling set as a minimum requirement that states which parameters must be included.

A Nordic Swan Ecolabel service must have a good quality, and together with other requirements in the criteria, warranty is a factor that signals the product's lifetime and says something about what the customer can expect from the execution of the work and the product. However, warranty should not be equated with longevity alone, which is affected by many factors, including how careful and often the product is used.

²³ [Unngå byggskader ved innsetting av vinduer - SINTEF](#)

For the Nordic Swan Ecolabelled windows, the bullets 2-5 are already covered by the requirements for Nordic Swan Ecolabelled Windows and doors.

O15 Annual reporting

The licensee must conduct an annual follow up of the following requirements:

- O8 Recycling of float glass
- O10 Ecolabelled windows

Any deviations must be reported in accordance with O17.

The result of the annual follow-up must be ready before the 1st of April every year and reported to Nordic Ecolabelling upon request. For details, see the respective documentation requirements.

- Annual report demonstrating compliance with O8 and O10.

Background

Annual reporting is a mean of ensuring that core requirements in the criteria are always fulfilled. The two core requirements of the criteria are selected for the annual follow up. Furthermore, it provides Nordic Ecolabelling with detailed knowledge of any challenges with fulfilling these requirements.

O16 Information and training of personnel

Employees involved in the construction process, including supervisors, site managers, project leaders, procurement manager, subcontractors etc., must have the relevant knowledge to ensure fulfilment of the requirements.

The routines for the training and information programme must at least include the following:

- Content and scope of the training/information, depending on the participant's role.
- Frequency of the training/information.
- Division of responsibilities for the information/training.

- Routine in the quality management system and training programme.

- List of participants that have completed the training programme must be available.

Background

The requirement covers the need for the licensee to define the training programme, showing the content and scope of the training/information. The aim is to provide information on the Nordic Ecolabelling requirements and how the requirements can affect standard processes and routines. All employees, supervisors, site managers, subcontractors and subcontractors involved in the service must have the relevant knowledge to be able to ensure fulfilment of the requirements in relation to the project.

O17 Planned changes and non-conformities

Planned changes and unforeseen non-conformities affecting Nordic Ecolabelling's requirements must be reported to Nordic Ecolabelling immediately. This must be done in accordance with the [licensee's commitment](#).

- Routine(s) describing how planned changes and unforeseen nonconformities will be handled.
- In the event of changes or unforeseen nonconformities: Written report on the change or non-conformity.

Background

The requirement ensures that proper routine(s) are defined so that planned changes and unforeseen nonconformities will be handled in the license period.

O18 Customer complaints

The licensee must guarantee that the quality of the Nordic Swan Ecolabel service does not deteriorate during the validity period of the licence. Therefore, the licensee must have a documented and dated routine for handling of customer complaints.

The licensee must keep an archive over customer complaints.

- Routine for handling and archiving customer complaints.

Background

The company must have an implemented customer complaint handling system. To document your company's customer complaint handling, you must upload your company's routine describing these activities. The routine should be dated and signed and will normally be part of your company's quality management system.

If your company does not have a routine for customer complaint handling, it is possible to upload a description of how your company perform these activities. During the on-site visit, Nordic Ecolabelling will check that the customer complaint handling is implemented in your company as described. The customer complaints archive will also be checked during the visit.

7 Environmental impact of Window replacement

Nordic Ecolabelling sets requirements concerning the topics and processes in the life cycle that have a high environmental impact – also called hotspots. R represents the environmental relevance; P is the potential to reduce the environmental impact and S is the steerability on how compliance with a requirement can be documented and followed up. The criteria contain requirements in those areas in the life cycle that have been found to have high RPS, since there is potential to achieve positive environmental gains.

Table 1: Summary of results of the RPS analysis. The aspects assessed to have high or medium relevance are those covered by requirements in the criteria.

Area	RPS level (high/medium/low)	Comment
Recycling of float glass	R= High P= High S= High	<p>The relevance and potential for recycling of float glass to new float glass is high. Large amounts of glass waste from the construction sector goes to landfill instead of being reused or recycled. The number vary from around 50% (Sweden)²⁰ to 70% (Norway)²¹ up to 100% (Iceland)²². Climate calculations show that greenhouse gas emissions are reduced by as much as 50 % and energy consumption is reduced by 30% if the float glass/window glass is recycled compared to if new raw materials are used in window production (which is standard practice in the industry). This is the case even though the collected glass in the case investigated is transported from Sweden to Germany by truck.²⁴</p> <p>In addition, sand of sufficient quality for float glass production is estimated to only last for another 50 years which makes float glass very relevant to material recycle.¹⁸¹⁹</p> <p>Almost no float glass is currently recycled into new float glass in the Nordics. The glass is instead sent for landfill, glass wool production or packaging material.⁴</p> <p>The steerability is considered high as the delivery of the existing float glass to the production facilities of new float glass can be documented.</p>
Energy efficiency in use phase	R= High P= High S= High	<p>Old windows are often associated with high U-values and poor insulation. In older buildings with double-glazed windows, the U-value of the windows is usually around 3.0 W/m²K. The U-value of a newer insulating glass window is around 1 W/m²K or even lower²⁵. Replacement will result in significant environmental benefits. High relevance and potential are identified.</p> <p>A minimum requirement on the U-value can be set and easily documented with high steerability.</p>
Environmental survey / hazardous substances	R= High P= High S= Medium/High	<p>PCB, asbestos, and other hazardous substances are highly problematic and are not handled correctly in many renovations (especially in private housings or minor renovation projects). For asbestos and PCB these substances can be present in many buildings built or renovated before 1980.¹⁴</p> <p>Window replacement projects that currently do not conduct a hazardous material survey have a high potential to improve and thereby secure correct handling and removal of the hazardous substances.</p> <p>Hazardous material surveys and waste management reports can document the presence of substances and the handling of these substances. Steerability is considered medium/high.</p>
Performance and environmental impact of the new windows	R= High P= Medium S= Medium	<p>The relevance and potential to require new float glass made of recycled materials is in theory high, and it would enhance all the above-mentioned environmental benefits with assuring recycling of float glass to new float glass. However, the recycling system is not yet up and running in a large scale²⁶, meaning that the steerability is currently higher at the end of life for old windows. Requirements for recycled float glass can currently not be set for production of new windows.</p> <p>It is relevant to impose criteria on wood raw material due to the environmental impact from loss of forest/biodiversity. Wood can be sustainably grown and can be sourced from areas where forestry is certified according to a certification system. Steerability is good through requirements for certification and</p>

²⁴ Ökat Cirkulär Användning av Planglas, RISE Research Institute of Sweden, 2020. Vil samle inn flere ruter - Glass og Fasadeforeningen (glassportal.no),

²⁵ Energimyndigheten, Energieffektiva fönster och dörrar, <https://www.energimyndigheten.se/energieffektivisering/husguiden---for-dig-som-vill-energieffektivisera-ditt/minska-behovet-av-varme-och-varmvatten/fonster-dorrrar/>

²⁶ Dialogue with industry expert from Saint-Gobain

Area	RPS level (high/medium/low)	Comment
		<p>traceability along the processing chain. RPS is considered high. These requirements are handled through the high degree of Nordic Swan Ecolabelled Windows required (90 %).</p> <p>Non-renewable materials: The environmental impact from energy used for material extraction and production is relevant. But the use phase of the window has a much larger energy consumption seen in a lifecycle perspective. High RPS is found for energy performance of the new windows (U-value) which is described in RPS for the "Energy efficiency in use phase".</p> <p>There is medium RPS for setting requirements for the materials used in the window production such as aluminium, PVC etc. These requirements are handled through the high degree of Nordic Swan Ecolabelled Windows required (90 %). Thereby ensuring ambitious requirements for e.g. wood, steel aluminium and chemical products used in production of the windows.</p>
Installation materials and chemical products	<p>R= Medium P= Medium S= High</p>	<p>During installation of the new windows, different chemicals such as glue, paint, putty, and filler are used. In addition, different building materials of solid texture such as sealing strips, insulation material (glass wool for insulation between the window frames and the wall), windowsills and wooden interior lists are used. Due to the limited amounts, the relevance is considered medium.</p> <p>There is a medium potential to set requirements on problematic chemical substances on e.g. sealants and building foam.</p> <p>The steerability is high as the purchased products can be documented by the producers in question.</p>
Quality of the installation	<p>R= medium P= medium S= medium</p>	<p><u>Technical installation quality:</u> Correct installation is essential to avoid moisture problems, achieve the right air tightness and longest possible life span. Systematic quality assessment of the installation has the potential to improve the quality. RPS is medium.²³</p> <p><u>Control measurement:</u> Good knowledge about construction is needed to avoid mistakes in measurements of new windows. For example, what is behind the frames and lining affects the size of the window. If customers do the measurements themselves, the risk of faulty production increases and you may even have to throw away newly produced windows. The RPS is medium.</p> <p><u>Ventilation:</u> In properties with self-drafting, new airtight windows can affect the houses ventilation. The risk for moisture problems after a window replacement is much lower if the existing ventilation of the house is considered. This aspect should always be investigated beforehand to avoid unpleasant surprises such as mold and moisture damage. Medium RPS.¹⁵</p>
Waste management	<p>R= Low/medium P= Medium S= Medium</p>	<p>Non-hazardous waste from the existing building and waste from new installation materials can be better recycled if proper processes and systems for waste sorting is in place. Especially in smaller projects that generate small amounts of waste the materials can often end up as unsorted waste. However, only relatively small amounts of construction waste are generated meaning that the relevance and potential is limited low/medium.</p> <p>Steerability is medium when the paper trail is followed from source to handling of the waste.</p>
The following aspects are not covered by requirements in the criteria due to low relevance or low steerability.		
Transportation within the scope of the service	<p>R= Low P= medium S= Low</p>	<p>Installation of windows require transport in relation to customer meeting, transport of windows, transport of installation crew, transport of installation waste and old windows for waste management and glass recycling. This is typically associated with the use of conventional vehicles.</p>

Area	RPS level (high/medium/low)	Comment
		<p>There are alternatives to conventional means of transport, e.g. electrical vehicles, so a potential for improvement is present. However, the transportation in this product group is fragmented using different types of vehicles for the different stages. Old windows for recycling of glass are typically collected by the waste/recycling company and not delivered by the installation company, meaning a low steerability. Compared to the lifecycle of impact of a window the total impact of transport is limited.</p> <p>In total, it is found that there is low/medium steerability for setting requirements due a fragmented transport need, difficulties with long distances, lack of infrastructure for electrical vehicles in some areas and a limited total impact on the whole lifecycle.</p>

8 Future criteria generation

The following topics are probable to be assessed in next generation of the criteria.

- Transportation performed in the service
- Share of recycled glass in new windows
- Stricter waste sorting with multiple fractions
- Setting threshold limit for the share of float glass that goes to manufacturing of new float glass.

9 Criteria version history

Nordic Ecolabelling adopted version 1.0 of the criteria for Nordic Swan Ecolabel Window replacement on X November 2024. The criteria are valid until DAY MONTH YEAR.

10 How to apply and regulations for the Nordic Ecolabelling

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.

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

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 prolonged or

adjusted, in which case the licence is automatically prolonged, 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 on-site inspection visit/-s 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.

Follow-up inspections

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

Regulations for the Nordic Swan Ecolabelling of Window replacement

To easily identify Nordic Swan Ecolabel services, the licence number and a descriptive sub text shall always accompany the Nordic Swan Ecolabel.

The descriptive sub text for 118 Window replacement is: Nordic Swan Ecolabel Window replacement.

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

Appendix 1 Installation materials

This Appendix show all the requirements that must be meet for all chemical products and construction products.

The requirements are directly aligned with the following requirements in the criteria for Nordic Swan Ecolabel New Buildings (089, generation 4):

- O14 Classification of chemical products,
- O15 CMR substances
- O16 Preservatives in indoor paint and indoor varnish
- O17 Preservatives in other chemical products intended for indoor use,
- O18 Prohibited substances,
- O19 Nanoparticles in chemical products
- O25 Excluded substances in construction products, construction goods and materials.

All materials must be documented in Nordic Ecolabelling’s supply chain declaration portal (SCDP).

The following are not subject to any requirement:

- Builders' hardware (e.g., locks, handles, hole plates and hinges).
- Nails, screws, nuts, bolts, washers and similar fixings and fasteners.
- Palletising trays, plastic spacers, ground spacers, inflow and outflow pipes for white goods and similar items
- Temporary products and structures used in the construction but later removed. E.g. plastic film temporarily used for weather protection or sealing.

The following sections show the material requirements for the service:

Chemical products

A chemical product is a substance or a mixture of two or more substances, in liquid, gaseous or solid form, which are used on a construction site or by a manufacturer of prefabricated building components.

Chemical products for both indoor and outdoor use are covered by the requirements. The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the chemical product. Impurities are not regarded as ingoing substances and are exempt from the requirements. Ingoing substances and impurities are defined in the “Definitions section”.

Classification of chemical products

Chemical products must not be classified according to Table 1.

Table 1 Classification of the product

Classification of chemical products CLP Regulation 1272/2008:		
Classification	Hazard class and category	Hazard code
Hazardous to the aquatic environment	Aquatic Acute 1	H400
	Aquatic Chronic 1	H410
	Aquatic Chronic 2	H411

Hazardous to the ozone layer	Ozone	H420
Acute toxicity	Acute Tox. 1 or 2	H300
	Acute Tox. 1 or 2	H310
	Acute Tox. 1 or 2	H330
	Acute Tox. 3	H301
	Acute Tox. 3	H311
	Acute Tox. 3	H331
Specific target organ toxicity: single or repeated exposure	STOT SE 1	H370
	STOT RE 1	H372
Carcinogenicity	Carc. 1A or 1B	H350
	Carc. 2	H351
Germ cell mutagenicity	Muta. 1A or 1B	H340
	Muta. 2	H341
Reproductive toxicity	Repr. 1A or 1B	H360
	Repr. 2	H361
	Lact.	H362

The classifications in the table concern all classification variants. For example, H350 also covers classification H350i.

Exemptions:

- Naphtha-based primers and adhesives classified H411 for outdoor use.
- Finland: Classifications H351 and H362 for spray polyurethane foams used in element factories and at construction sites for sealing of windows and balcony doors when temperature is below 5 °C.
- Declaration from the manufacturer of the chemical product, in accordance with Appendix 6 in the criteria for New Buildings 089 generation 4.
- Safety data sheet in accordance with Annex II to REACH (Council Regulation (EC) no. 1907/2006) for all chemical products.

Background: Classification of chemical products

Nordic Ecolabelling seeks to ensure that the health and environmental effects of chemical products are as low as possible. The requirements therefore specify that products classified as environmentally hazardous, highly toxic, toxic, carcinogenic, mutagenic or reprotoxic must not to be used.

The requirement concerns the classification of the actual chemical products and not the individual compounds in the products, which are governed by subsequent requirements.

There are a few exemptions from the prohibited classifications of chemical products where the functionality requires substances for which unclassified alternatives are not available.

CMR substances (Chemical products)

Chemical products, used in the installation, must not contain any ingoing substances classified as carcinogenic, mutagenic or reprotoxic according to CLP Regulation 1272/2008, see Table 2 below.

Table 2 Non-approved classifications of ingoing substances in chemical products according to CLP Regulation 1272/2008.

Classification of ingoing substances CLP Regulation 1272/2008:		
Classification	Hazard class and category	Hazard code
Carcinogenicity	Carc. 1A or 1B	H350
	Carc. 2	H351
Germ cell mutagenicity	Muta. 1A or 1B	H340
	Muta. 2	H341
Reproductive toxicity	Repr. 1A or 1B	H360
	Repr. 2	H361
	Lact.	H362

The classifications in the table concern all classification variants. For example, H350 also covers classification H350i.

Exemptions:

- Glyoxal (CAS no 107-22-2) classified H341 \leq 100 ppm (0.01% by weight) in the final product if the pH value in the final product is higher than pH 8.
 - TiO₂ (CAS no 13463-67-7) classified H351 inhalation.
 - Trimethylolpropane (CAS no 77-99-6) self-classified H361 up to \leq 5000 ppm (0.5% by weight) in the final product.
 - Dibutyltin (DBT) compounds and dioctyltin (DOT) compounds in sealing products \leq 5000 ppm (0.5% by weight) in the final product.
 - Sebacate compounds \leq 5000 ppm (0.5% by weight) used as stabilizers and UV-protection in SMP-based sealants, joints and adhesives. Time-limited exemption that applies until 2025-12-30.
 - Finland: 4,4'-methylenediphenyl diisocyanate, isomers and homologues (CAS no. 9016-87-9) classified as Carc. 2; H351 in spray polyurethane foams used at construction site for sealing of windows and balcony doors when temperature is below 5 °C.
- Declaration from the manufacturer of the chemical product, in accordance with Appendix 6 in the criteria for New Buildings 089 generation 4.
- Safety data sheet in accordance with Annex II to REACH (Council Regulation (EC) no. 1907/2006) for all chemical products.

Background: CMR substances (Chemical products)

In addition to the requirement concerning the classification of the chemical products, it is also required that chemical products cannot contain substances that are carcinogenic, mutagenic or reprotoxic (CMR substances cat 1A and 1B). Nor may chemical products contain substances that are suspected to be carcinogenic, mutagenic or reprotoxic (category 2).

Substances that may cause cancer, change genetic material or interfere with reproduction are prioritised substances within the EU's chemical legislation, due to their inherently dangerous properties. It is therefore of central importance to considerably reduce, and in the long term move away entirely from, the use of CMR substances.

There are a few exemptions from the prohibited classifications of chemical products where the functionality requires substances for which unclassified alternatives are not available.

Preservatives in indoor paint and indoor varnish

Only preservatives compliant with PT 6 (in-can) and PT 7 (dry-film) according to Regulation (EU)528/2012 (The Biocidal Products Regulation) can be used.

The amount of preservative/combination of preservatives in indoor paint and indoor varnish is limited according to Table 3 and Table 4.

If the specific concentrations limit (SCL) is changed in accordance with CLP Regulation 1272/2008 Annex VI the limits below will also change accordingly.

For tinting systems, a worst-case calculation must be performed for the colour with most tinting paste and the base paint with highest content of preservative and isothiazolinone compounds.

Table 3 Concentration limits for preservatives totally

Product type	Preservatives total
Paints, varnishes, base paints with tinting paints etc. for indoor use.	900 ppm (0.09% w/w)
Wet room paint specifically	1600 ppm (0.16% w/w)

Table 4 Concentration limits for specific compounds

Preservatives	Concentration limit
Isothiazolinone compounds in total*	600 ppm (0.06% w/w)
BIT (CAS no. 2634-33-5)	500 ppm (0.05% w/w)
CIT/MIT (CAS no. 55965-84-9)	15 ppm (0.0015% w/w)
MIT (CAS no. 2682-20-4)	15 ppm (0.0015% w/w)
OIT (CAS no. 26530-20-1)	15 ppm (0.0015% w/w)

* Note that dithio-2,2'-bis-benzmethylamide (DTBMA) is to be included in the total amount of isothiazolinones.

Declaration from the manufacturer of the chemical product, in accordance with Appendix 6 in the criteria for New Buildings 089 generation 4.

Preservatives in other chemical products intended for indoor use

Only preservatives compliant with PT 6 (in-can) and PT 7 (dry-film) according to Regulation (EU)528/2012 (The Biocidal Products Regulation) can be used.

The amount of preservative/combination of preservatives in other chemical products for indoor use is limited according to Table 5.

If the specific concentrations limit (SCL) is changed in accordance with CLP Regulation 1272/2008 Annex VI the limits below will also change accordingly.

Table 5 Concentration limits for preservatives in other chemical products for indoor use.

Preservatives	Concentration limit
Isothiazolinone compounds in total*	600 ppm (0.06%w/w)
BIT (CAS no. 2634-33-5)	500 ppm (0.05% w/w)
CIT/MIT (CAS no. 55965-84-9)	15 ppm (0.0015% w/w)
MIT (CAS no. 2682-20-4)	15 ppm (0.0015% w/w)
OIT (CAS no. 26530-20-1)	15 ppm (0.0015% w/w)
IPBC (CAS no. 55406-53-6)	2000 ppm (0.2% w/w)
Bronopol (CAS no. 52-51-7)	500 ppm (0.05% w/w)

* Note that dithio-2,2'-bis-benzmethylamide (DTBMA) is to be included in the total amount of isothiazolinones.

- Declaration from the manufacturer of the chemical product, in accordance with Appendix 6 in the criteria for New Buildings 089 generation 4.

Background: Preservatives in indoor paint and varnish, and other chemical products intended for indoor use

The requirement and the levels for highest permitted preservatives are partly harmonised with equivalent requirements in the criteria for Nordic Swan Ecolabel indoor paints and varnishes and for products for indoor use in the criteria for Nordic Swan Ecolabel chemical building products respectively. Levels for the highest permitted concentrations of the respective preservatives are partly the same as those that apply to Nordic Swan Ecolabel indoor paints and varnished. For all other chemical products for indoor use, the levels are the same as for Nordic Swan Ecolabel fillers, which is considered reasonable for a Nordic Swan Ecolabel building.

Updates for total preservatives and total isothiazolinone compounds in indoor paint and indoor varnish have been updated to 900 ppm and 600 ppm respectively, in accordance with corresponding updates for Nordic Swan Ecolabel indoor paints and varnishes.

Prohibited substances (Chemical products)

The following substances must not be an ingoing substance in chemical products used in the installation:

- Substances categorised as Substances of Very High Concern (SVHC) and included on the EU Candidate List.
- Substances evaluated by the EU to be persistent, bioaccumulative, and toxic (PBT) or very persistent and very bioaccumulative (vPvB), in accordance with the criteria in Annex XIII of REACH.
- Endocrine disruptors: Substances on the EU member state initiative "Endocrine Disruptor Lists", List I, II and III, see the following links.
 - <https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu>
 - <https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption>
 - <https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities>

A substance that is transferred to one of the corresponding sublists called "Substances no longer on list", and no longer appears on any of Lists I–III, is no longer excluded. The exception is those substances on sublist II which were evaluated under a regulation or directive that does not 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 in sublist II.

In addition, the following individual substances and substance groups are prohibited or restricted. There may be an overlap between the substances listed below and substances categorised above.

- Short-chain chlorinated paraffins (C10-C13) and medium-chain chlorinated paraffins (C14-C17).
- Perfluoroalkyl and polyfluoroalkyl substances (PFASs)
- Alkylphenols, alkylphenol ethoxylates (APEO) and other alkylphenol derivates (APD).
- Brominated flame retardants.
- Phthalates (Esters of phthalic acid (orthophthalic acid / phthalic acid /1,2-benzene dicarboxylic acid).
- Bisphenol A (CAS no. 80-05-7), bisphenol S (CAS no. 80-09-1) and bisphenol F(CAS no. 620-92-8).
- The heavy metals lead, cadmium, arsenic, chromium (VI), mercury and their compounds.
- Volatile aromatic hydrocarbons (VAH) >1% by weight.
- Organotin compounds.

Exemptions:

- Primers and adhesives for outdoor use may contain up to 20% by weight of VAH.
- Dibutyltin (DBT) compounds and dioctyltin (DOT) compounds in sealing products \leq 5000 ppm (0.5% by weight) in the final product.
- ☒ Declaration from the manufacturer of the chemical product, in accordance with Appendix 6 in the criteria for New Buildings 089 generation 4.
- ☒ Safety data sheet in accordance with Annex II to REACH (Council Regulation (EC) no. 1907/2006) for all chemical products.

Background: Prohibited substances (Chemical products)

Several harmful substances are banned in products used for Nordic Swan Ecolabelled Window replacement. This is to ensure a minimum impact on both health and environment but also to ensure the best possible potential in future reuse of building products.

The Candidate List identifies substances of very high concern which fulfil the criteria in article 57 of the REACH Regulation (EC 1907/2006). The list includes carcinogenic; mutagenic; and reprotoxic substances (CMR, categories 1A and 1B in accordance with the CLP Regulation); and PBT (persistent, bioaccumulative and toxic) and vPvB (very persistent and very bioaccumulative) substances (as defined in REACH Annex XIII). In addition, two more substance groups are included if they are of equivalent level of concern (ELoC) as the ones previously mentioned. These are endocrine disruptors and substances which are environmentally hazardous without fulfilling the requirements for PBT or vPvB. Based on these adverse characteristics, Nordic Ecolabelling prohibits substances on the Candidate List. This means that we act ahead of the legislation and ban the substances before they are subject to authorisation and restriction in accordance with REACH.

PBT and vPvB are abbreviations for substances that are persistent, bioaccumulative and toxic, and very persistent and very bioaccumulative, respectively, in accordance with REACH Annex XIII. This means that they are not biodegradable and that they accumulate in living organisms. Based on these adverse characteristics they pose a threat to the environment and human health. They are prohibited in all Nordic Swan Ecolabel products/Services.

Endocrine disruptors (EDs) are chemicals that alter the functioning of the endocrine (hormone) system and consequently cause adverse health effects. The term potential EDs is used for chemicals with properties that make them suspected to be EDs. The hormone system regulates many vital processes in living organisms and when normal signalling is disturbed, adverse effects may result. EDs raise high concern for their risk of causing serious negative impact on the environment as well as on human health specifically. Special concern is raised for effects on reproduction and development and about possible links to increases in public health diseases. While effects in wildlife populations have been confirmed, evidence is pointing to effects also in humans.

Per- and polyfluoroalkyl substances (PFAS) are used in many types of products due to their water and dirt repellent properties. These compounds constitute a group of substances that have highly problematic intrinsic hazardous properties.

They are extremely persistent and accumulate in the body. They are spread all over the globe, from the large oceans to the Arctic, and are found in e.g. wild birds and fish and their eggs. Also, shorter chain compounds (2–6 carbon atoms) have been discovered in nature. The substances in this group are suspected to be endocrine disruptors, carcinogenic and to have a negative impact on the human immune system. PFOA, APFO (ammoniumpentadecafluorooctanoate) and certain fluoro acids are included in the Candidate List due to being reprotoxic, as well as having PBT properties.

The non-ionic APEO group of surfactants are produced in large volumes and their uses lead to widespread release to the aquatic environment. APEOs are highly toxic to aquatic organisms and degrade to more environmentally persistent compounds (APDs). Ethoxylated nonylphenol and several other alkylphenols are included in the Candidate List due to endocrine disrupting properties.

Flame retardants are suspected of contributing to a number of unwanted health effects. Several of the substances are suspected of causing birth defects, cancer, and endocrine disrupting effects. Many of them are on the EU candidate list under REACH.

Many brominated flame retardants are persistent and bio accumulative chemicals that can now be found dispersed in nature. The focus on phasing out brominated flame retardants has led to the use of alternatives such as phosphorus and nitrogen-based flame retardants.

A number of phthalates are identified as endocrine disruptors and some of them are classified as reprotoxic. For these reasons several phthalates are included in the Candidate list. Based on their hazardous properties' phthalates pose a threat to the environment and human health and there is a ban on this group of substances.

Bisphenol A, CAS No. 80-05-7, is used as a monomer in, inter alia, the following relevant areas and products: Various plastic and epoxy mixes, various building parts, paint, varnish, glue (binding agents, hardeners) and polyol in the production of polyurethane. Bisphenol A can be released into the environment from the production process. Bisphenol A (BPA) is on the Candidate List of substances that may have serious effects on human health and the environment, and the goal is to eliminate emissions by 2020. BPA is identified as damaging to the eyes, irritating to the respiratory tract, skin sensitizing and may also affect reproductive performance. The substance may be endocrine disrupting and is toxic to aquatic organisms. Bisphenol F and S can be used as substitutes for bisphenol A. A screening programme conducted to determine the occurrence of environmental toxins in surface water, sediment and biota in Norway found bisphenols A, F and S in the samples that were taken. These are substances with the same properties as bisphenol A26.

Nordic Ecolabelling restricts heavy metals because they are toxic to humans and other organisms, both on land and in the aquatic environment. Mercury, cadmium and lead are toxic to the human nervous system, kidneys and other organs, and the metals can accumulate in living organisms. Chromium (VI) is classified as very toxic, CMR and harmful to the environment.

Volatile aromatic hydrocarbons (VAH) are volatile organic compounds where one or more benzene rings are contained within the molecule, e.g. toluene, benzene, and xylene. VAHs are very stable and have a specific impact on the environment and human health, including damage to DNA²⁸. Exposure to these products should be minimised. For this reason, no more than 1% by weight is permitted in the chemical product.

Organotin compounds mainly originated from antifouling paints, but more commonly used as catalysts in industrial production, stabilizers, biocides, and surface disinfectants. Organotin compounds are harmful and toxic to the aquatic organisms at low concentration and have been linked to adverse effects in humans, such as reproductive toxicity and therefore many of these compounds are listed as substances of very high concern.

An exemption is given for the use of naphtha-based primers and adhesives classified H411 for outdoor use (containing up to 20% by weight of VAH). This is needed to ensure proper attachment. No alternatives have been found.

Dibutyltin (DBT) compounds and dioctyltin (DOT) compounds is allowed in sealing products ≤ 5000 ppm (0.5% by weight) in the final product as no alternatives are currently available.

Nanoparticles in chemical products

Nanomaterials/-particles (see Definitions) must not be added or be present in chemical products. Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01) (see Definitions).

The following are exempted from the requirement:

- Pigments*
- Naturally occurring inorganic fillers**
- Synthetic amorphous silica***
- Ground Calcium Carbonate (GCC) and precipitated Calcium Carbonate (PCC)
- Polymer dispersions

** This exemption does not apply to pigments added for other purposes than imparting colour. Nano-titanium dioxide is not considered to be a pigment and is therefore not exempted from the requirement.*

*** This exemption applies to fillers covered by Annex V, item 7 of REACH.*

**** This applies to unmodified synthetic amorphous silica. Chemically modified colloidal silica can be included in the products if the silica particles form aggregates in the final product. Any surface treatment of nanoparticles must fulfil requirement for Classification of chemical products and requirement Prohibited substances.*

- Declaration from the manufacturer of the chemical product, in accordance with Appendix 6 in the criteria for New Buildings 089 generation 4.

Background: Nanoparticles in chemical products

There is still uncertainty related to how nanoparticles affect health and the environment.²⁷ Nordic Ecolabelling wishes to take a restrictive approach to the use of nanoparticles and the requirement is based on the environmental consequences when nanoparticles are released to the surroundings (indoor environment or the surrounding environment, seen over the entire life cycle). The requirement concerns chemical products that are used for Nordic Swan Ecolabelled Window replacement and is in line with equivalent requirements concerning Nordic Swan Ecolabel chemical building products.

The definition of nanomaterials follows the European Commission's definition of nanoparticles²⁸, see Definitions.

The requirement means that newer nanomaterials produced with the intention of containing nanoparticles must not be used. Examples of such nanoparticles are fullerenes, carbon nanotubes, nanosilver, nanocopper and nano-titanium dioxide.

Excluded substances in construction products, construction goods and materials

The requirement applies to the following product categories:

1. Sealing products, including membranes, tape and sealing collars on walls, foundation, and roofing, which are not classified as chemical products.
2. Thermal, acoustic and technical insulation.
3. Interior and exterior building panels. Does not include panels of solid wood, laminated timber, veneer, OSB, plywood, MDF/HDF, chipboard, HPL, CPL and compact laminates.
4. Wood plastic composite (WPC)
5. Plastic coverings for floors, ceilings, and walls for interior use.

In the construction products and materials mentioned above, the following substances must not be an ingoing substance in the product. Ingoing substance means all substances in the construction product that are present in concentrations higher than 100 ppm (0.010 w%, 100 mg/kg).

- Substances on the REACH Candidate list of SVHC
- Substances evaluated by the EU to be persistent, bioaccumulative, and toxic (PBT) or very persistent and very bioaccumulative (vPvB), in accordance with the criteria in Annex XIII of REACH.
- Substances classified as carcinogenic, mutagenic, or toxic for reproduction (CMR) Category 1A or 1B.

²⁷ European Council, Recommendation 2017 (2013), Provisional version, Nanotechnology: balancing benefits and risks to public health and the environment. Available on page: (21/5-13).

²⁸ COMMISSION RECOMMENDATION of 18 October 2011 on the definition of nanomaterial (2011/696/EU).

- Endocrine disruptors: Substances on the EU member state initiative "Endocrine Disruptor Lists", List I, II and III, see the following links.
 - <https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu>
 - <https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption>
 - <https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities>

A substance that is transferred to one of the corresponding sublists called "Substances no longer on list" and no longer appears on any of Lists I–III, is no longer excluded. The exception is those substances on sublist II that were evaluated under a regulation or directive that does not 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 in sublist III. In addition, the following individual substances and substance groups are prohibited or restricted. There may be an overlap between the substances listed below and substances categorised above.

- Short-chain chlorinated paraffins (C10-C13) and medium-chain chlorinated paraffins (C14-C17).
- Perfluoroalkyl and polyfluoroalkyl substances (PFASs)
- Alkylphenols, alkylphenol ethoxylates (APEO) and other alkylphenol derivatives (APD).
- Brominated flame retardants.
- Phthalates (Esters of phthalic acid (orthophthalic acid / phthalic acid /1,2-benzene dicarboxylic acid).
- The heavy metals lead, cadmium, arsenic, chromium (VI), mercury and their compounds.
- Bisphenol A (CAS no. 80-05-7), bisphenol S (CAS no. 80-09-1) and bisphenol F(CAS no. 620-92-8).
- Boric acid, sodium perborate, perboric acid, sodium borate (borax) and any other boron compounds classed as carcinogenic, mutagenic or reprotoxic in category 1A/1B/2/Lact.
- Organotin compounds.
- Declaration from the manufacturer of the construction product, construction goods or construction material in accordance with Appendix 8 in the criteria for New Buildings 089 generation 4.
- Construction product declaration or corresponding if available for the product.

Background: Excluded substances in construction products, construction goods and materials

The requirement comprises two parts. First comes a description of which construction products are included, i.e., those for which the chemical content

must be verified. The purpose is to focus on the most important construction supplies and thereby the material within the vapour barrier (moisture barrier), supplemented with known problematic material outside the vapour barrier. The second part of the requirement concerns a list of the substances/groups of substances that may not be contained in these construction supplies in quantities of 100 ppm or more.

The list is based on the general principles from Nordic Swan Ecolabelling regarding undesirable compounds in combination with corresponding requirements for other Nordic Swan Ecolabelled construction products. A few exemptions are made when deemed necessary for the quality and technical performance of the product.

For further detailed information on the specific substances and list regulated see the background text for Prohibited substances for chemical products.