About Nordic Ecolabelled

Installation and maintenance of fixed mats



Version 1.0

Background to ecolabelling
01 June 2016
Draft for consultation

Nordic Ecolabelling

Content

1	Summary	3
2	Basic facts about the criteria	3
2.1	Environmental impact of installation and maintenance of fixed mats	3
2.2	Products that can be ecolabelled	6
2.3	Version and validity of the criteria	6
3	The Nordic market	7
4	Other labels	8
5	About the criteria development	8
6	Justification of the requirements	8
6.1	Definition of the product group	8
6.2	Requirement area: description of the service	10
6.3	Requirement area: environment	10
6.4	Quality and regulatory requirements	15
7	Next version of the criteria	17

105 Installation and maintenance of fixed mats, version 1.0, 01 June 2016

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

Addresses

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

Denmark
Ecolabelling Denmark
Danish Standard Foundation
Göteborg Plads 1
DK-2150 Nordhavn
Tel: +45 72 300 450
info@ecolabel.dk
www.ecolabel.dk

Iceland
Ecolabelling Iceland
Umhverfisstofnun
Suðurlandsbraut 24
IS-108 Reykjavik
Tel: +354 5 91 20 00
ust@ust.is
www.svanurinn.is

This document may only be copied in its entirety and without any type of change. It may be quoted from provided that Nordic Ecolabelling is stated as the source.

Finland
Ecolabelling Finland
Box 489
FI-00101 Helsinki
Tel: +358 9 61 22 50 00
joutsen@ecolabel.fi
www.ecolabel.fi

Norway
Ecolabelling Norway
Henrik Ibsens gate 20
NO-0255 Oslo
Tel: +47 24 14 46 00
info@svanemerket.no
www.svanemerket.no

Sweden
Ecolabelling Sweden
Box 38114
SE-100 64 Stockholm
Tel: +46 8 55 55 24 00
info@svanen.se
www.svanen.se

1 Summary

Suppliers of the installation and maintenance of fixed mats or other forms of dirt prevention zones for entrances may apply for the Nordic Ecolabel.

What differentiates a Nordic Ecolabelled solution for fixed mats from a non-ecolabelled solution is that the Nordic Ecolabelled variant has a documented minimum effectiveness in stopping dirt and debris (surface dust level) for a long guarantee period. In addition, the solution includes reduced quantities of substances in the mats that are harmful to health and the environment, training of mat installers and training and follow-up of the cleaners who clean the mats, to ensure high performance throughout the lifetime of the mats.

The most common mats are made from a blend of polyamide, polyester, nitrile rubber, polyethylene terephthalate and, almost always, polyvinyl chloride. Nordic Ecolabelling excludes from the criteria any fixed mats that contain phthalates. Phthalates are used as plasticisers on the underside of the mats (backing), which is usually made of polyvinyl chloride.

The mats are specially designed to stop up to 80–90% of dirt and debris, on condition that the mats are maintained well (regular cleaning). A description will be given of systems and equipment for cleaning and of the handling of the dust and dirt once the cleaning has been carried out. It is essential that cleaning on site does not create new indoor air problems, and that the waste left with the customer is not hazardous waste. It is also important that the cleaning of the mats does not involve the use of chemicals that are harmful to health and the environment.

Vacuum cleaners (brush vacuums) are to be stored on the customer's premises for the cleaning staff to use.

When the mats are disposed of, it is important that the mats and any components/materials used to attach the mats to the floor are sorted at source for recycling. It is particularly important that valuable materials such as metals are separated out.

2 Basic facts about the criteria

2.1 Environmental impact of installation and maintenance of fixed mats

To gain an overview of the options Nordic Ecolabelling has in this area, two types of analysis have been conducted: an RPS analysis and a MECO analysis.

The RPS model – Relevance, Potential and Steerability – is a tool employed in the development of criteria for Nordic Ecolabelling in order to achieve the greatest possible environmental benefit for Nordic Ecolabelled goods and services in the Nordic market.

The key questions asked in an RPS analysis are:

- Relevance: Are there any environmental issues and how big are they?
- Potential: Can anything be done about the environmental issues?
- Steerability: Can Nordic Ecolabelling do anything about the environmental issues?

The relevance is judged based on what environmental issues exist for the product group or service in question, and how extensive they are. The environmental issues are assessed for the whole of the product's life cycle. To assist in assessing relevance, an analysis is performed in the following areas: Materials, Energy, Chemicals and Other characteristics (MECO). These analyses take a life cycle perspective, which means that the entire life of the product or service is assessed, to ensure that an improvement in one phase of production is not negatively offset by a deterioration in another phase.

Relevance

In assessing the potential for environmental improvement, it is necessary to examine the traditional impacts associated with the installation and cleaning of mats in buildings. These are as follows:

- production, maintenance and disposal of the mats. MECO: materials (plastic, rubber), energy, chemicals (phthalates, flame retardants)
- transport of the mats to the customer and any return for cleaning/maintenance. MECO: energy
- the actual cleaning of the mats. MECO: chemicals, water consumption, energy consumption

Fixed mats (which stay in place for many years) do not require the same degree of transport as mats that are collected weekly for cleaning. Mats that are vacuumed do not require the same use of chemicals as mats that are washed in a mat laundry, but energy is required for the vacuum cleaners as well as materials, chemicals and energy for their manufacture. The waste from the vacuum cleaner is emptied into the customer's waste, while in a traditional mat laundry it becomes part of the general waste and the wastewater from the laundering process.

The scale of the environmental problems associated with installing, transporting and cleaning mats is indicated in the background document for the Nordic Ecolabelling of Textiles Services (which includes traditional mat laundering services). Textile services have a total turnover of more than NOK 8 billion in the Nordic region. It is not known what proportion of this relates to mat laundering.

Potential

Can anything be done about these environmental issues? The answer is clearly yes. The traditional mat laundering services that are Nordic Ecolabelled have already made major improvements in the areas of energy consumption, water consumption and chemical use. They have achieved this by investing in new production equipment with heat recovery/advanced dosing/water recycling functions and by switching to gentler chemicals. There are opportunities across the whole mat laundering business to make further advances by reducing the need for transport, leaving the mats in place for longer and by making the mats more eco-friendly (phasing out phthalates, using recycled raw materials, etc).

The cost of floor cleaning accounts for 40–60% of the total cleaning costs in public environments (assuming thorough, modern cleaning). 70–80% of this cost arises from street dirt that is trodden in via the entrances. Much of the dirt can be stopped, but not all. Only 20–30% of the floor soiling is due to the activities of the building's users[1].

Dirt and dust make indoor air quality poorer and can cause irritation of the airways, skin and eyes, and allergic reactions. It can also cause or exacerbate existing asthma and increase the incidence of other respiratory problems. Airborne dust particles that are breathed in or come into contact with the mucous membranes in the eyes are a particular issue. The problems are due to the content of the dust – allergens, irritants, chemical content – and to a lesser degree the amount of dust. A correlation has been shown between quantities of sedimentary dust on high surfaces and complaints such as headaches, regular colds, hoarseness and so on. Good cleaning helps to reduce the levels of dust that can be stirred up into the indoor air[2].

Use of fixed mats inside entrances to buildings of a certain size can significantly reduce the need for cleaning. Fully functional systems stop as much as 90% of dirt and water from entering the building. This creates less of a need for cleaning, a better indoor environment, less floor wear and lower maintenance requirements. Having dirt collecting mats is thus highly relevant for a building's maintenance and operation of its entrances, in terms of health and the environment. (See also section 6.1 for other measures that can be taken to prevent dirt indoors but that are not judged relevant for Nordic Ecolabelling.)

Steerability

Nordic Ecolabelling is already helping to steer the industry towards Nordic Ecolabelled traditional mat laundering services. This is the same mechanism that works for fixed mats: major purchasers in the private and public sector wish to use the most environmentally aware solutions. Hotel chains, cleaning firms, shopping centres, municipalities and county councils want to be able to choose green mat laundering services, and increasingly they also want an environmental guarantee for their fixed mats. From 2017, public purchasers across the Nordic region will be able to demand a specific ecolabel when purchasing goods and services. In other words, they may start requiring Nordic Ecolabelled mat laundering services (or equivalent ecolabels), and this offers a unique opportunity for Nordic Ecolabelled fixed mats to bring marketing and environmental benefits.

It is also worth noting that installing and maintaining fixed mats can save money. According to Steinar Nilsen of Norwegian research institute SINTEF Byggforsk, it could be possible to achieve savings of 10–15% on cleaning costs by installing dirt reducing mats at the entrance.

The question has been raised as to whether mould/fungi form in the mats. This question was put to the supplier Renholdssoner, which gave the following response:

[1] Quotation from presentation by S.K. Nielsen, SINTEF Byggforsk
[2] Norwegian Asthma and Allergy Association

“Properly functioning mats are specially designed to stop as much dirt and moisture as possible from being transported into public, work and play areas. Renholdssoner’s system is also recommended by the Norwegian Asthma and Allergy Association (NAAF), because it helps to improve quality of life for people with respiratory conditions. As regards mildew/mould/fungi, we have the following to say. There are more than 14,000 installations of Renholdssoner mat systems, with NAAF having spent eight years ensuring that the Renholdssoner system works for up to 60 months. Renholdssoner mat systems are replaced after max 60 months and no mould growth has ever been noted. This is because of the maintenance systems that are used on a daily basis.”

What differentiates a Nordic Ecolabelled solution for fixed mats from a non-ecolabelled solution is that the Nordic Ecolabelled variant has a documented minimum effectiveness in stopping dust and dirt (surface dust levels). In addition, the solution includes cleaning of the mats, reduced quantities of substances in the mats that are harmful to health and the environment, a guaranteed service life, training of mat installers and, last but not least, training and follow-up of the cleaners who clean the mats.

2.2 Products that can be ecolabelled

Suppliers of the installation and maintenance of fixed mats or other forms of dirt prevention zones for entrances may apply for the Nordic Ecolabel. The most widespread mat solution in the Nordic region is currently the rental of loose mats that are collected, replaced with clean ones and laundered. This type of service may be marketed with the Nordic Ecolabel through the criteria for Textiles Services.

Since the solution where fixed mats are rented, and where the service includes installation, training and maintenance, cannot be Nordic Ecolabelled under the Textiles Services criteria, the decision has been taken to draw up separate criteria for this service.

The service comprises installation, maintenance, and training of cleaning staff. The mats are cleaned by the building’s personnel with special vacuum cleaners with filters to ensure a good indoor environment, and the dirt removed from the mats is emptied into the general waste of the place where the mats are fitted. Quality mats are guaranteed to work for three years, but are claimed to work for many more years in practice.

2.3 Version and validity of the criteria

This is the first version of the criteria for Installation and maintenance of fixed mats. The plan is for the criteria to be adopted over the course of early autumn 2016, with a proposed validity period of three years, since changes occur relatively rapidly in this industry.

3 The Nordic market

The market is entirely a market for professional purchasers.

Fixed mats are best suited to entrances of a size that ensures the users move at least three metres (9–12 steps) on the mat, to ensure that dirt and debris is removed from footwear. This type of mat is ideal for shopping centres, offices, municipal buildings and other commercial premises. The mat systems are much less suitable for kiosks, small shops and simple filling stations, as these are too small. In addition, the use of mats in buildings where dust is generated in production (typical industrial operations) will probably not be able to be marketed as Nordic Ecolabelled, since in such cases it is difficult to document a sufficiently high improvement in the levels of dirt (dust and debris).

The traditional mat service in the Nordic region, for all types of customers, is the laying of loose mats in smaller sizes. These lie for a week or two before they are collected and transported to a professional laundry for washing/cleaning. Clean mats are put down at the customer's premises when the dirty mats are collected. Nordic Ecolabelling can help to ensure that all solutions for the laying and maintenance of mats have the same competitive opportunities in the Nordic region.

In Norway there were 25 tenders for this service over the course of 2012–2015, but none prior to that.

The Nordic region has several companies that supply fixed mat solutions, but with highly varied levels of follow-up. The biggest global players in the delivery of mats are Forbo with their Coral mats and 3M with their mats in the Nomad range. In the Nordic region, Duri Fagprofil supplies a range of mats called Entre Miljø.

There are several companies that supply mats in conventional and alternative variants.

There are also alliances/partnerships with cleaning firms, where their cleaners are responsible for cleaning the mats. Centres of expertise in Norway are the National Institute of Technology, Mycoteam, Arkservice, SINTEF and NAAF.

It is worth noting that the mats used most commonly to a ceratin degree is made from the same materials as the mats use in traditional matte laundering services. Both fixed mats and other mats contain substances that are harmful to health and the environment. One supplier has now phased out the environmentally harmful phthalates. Other suppliers have mat options that make partial use of recycled plastic and rubber. We have chosen only to set requirements concerning one aspect of substances that are harmful to health and environment, phthalates, as our focus in the first version of the criteria is on the primary function of the mats, which is to stop dirt and dust, and cleaning of the mats with minimal environmental impact. This is also the focus of Nordic Ecolabelling for traditional mat solutions.

4 Other labels

There are opportunities for ecolabelling at business level, such as ISO14001/EMAS and Miljøfyrtårn. In addition, some companies use climate labelling (labelling of carbon neutrality). There is no ecolabel or environmental certification that has been specially developed for the installation and maintenance of fixed mats, with requirements that are relevant to this particular industry.

5 About the criteria development

Purpose of the criteria development

The crucial point is to be able to document a reduction in the amount of dirt that enters the premises when using the solution in question. Relevant requirements that will be set are: documented reduction in surface dust levels (amount of dirt that enters the premises), the system for cleaning the mats, the length of time the mats remain in place, and the training of mat installers[3] and cleaning staff.

About this criteria development

The criteria have been developed jointly by Nordic Ecolabelling's Criteria Group, product development manager Karen Dahl Jensen and responsible project manager Tormod Lien of the Norwegian secretariat.

6 Justification of the requirements

This chapter presents proposals for the new requirements, and explains the background to the requirements and the chosen requirement levels. The appendices referred to are those that appear in the criteria document "Nordic Ecolabelling of Installation and maintenance of fixed mats".

6.1 Definition of the product group

Suppliers of the installation and maintenance of fixed mats or other forms of dirt prevention zones for entrances may apply for the Nordic Ecolabel.

It is required that licensees supply equipment to clean the mats and provide the necessary training to the staff who actually do the work at the customer's premises, as well as training the mat installers.

Rental of loose mats that are collected, replaced with clean mats and laundered cannot be licensed under these criteria. A licence for this type of service can be sought via Nordic Ecolabelling's Criteria for Textiles Services.

An assessment was made concerning inclusion of other services in this product group. Senior researcher Steinar K. Nilsen of SINTEF Byggforsk in Norway has presented various solutions for reducing the need for cleaning, plus measures to

[3] One of the service providers supplies "mat installers" with specialist training. Cleaners are taught how to clean the fixed mats. The firm also offers advice, insurance and customer service, amongst other things.

improve cleaning efficiency, in his presentation: "Funksjonelle og tiltalende inngangspartier" (Functional and attractive entrances). The presentation can be ordered in Norwegian from SINTEF Byggforsk.

Many of these measures are actions that the building owner must take and they are based on Norwegian conditions. "The cost of floor cleaning accounts for 40–60% of the total cleaning costs in public environments (assuming thorough, modern cleaning). 70–80% of this cost arises from street dirt that is trodden in via the entrances. Much of the dirt can be stopped, but not all. Only 20–30% of the floor soiling is due to the activities of the building's users." [4]

The measures that Nilsen prescribes in Norway (and that expectedly is relevant for all Nordic countries) are as follows;

Measures outside the entrance

- Underfloor heating is recommended to avoid ploughing, gritting and salting near the entrance
- Drain and tap (frostproof) for rinsing
- Screening against rain/snow, a roof over the last 3 metres is recommended
- Storage space for cleaning equipment

Measures at the entrance

- Dirt collection zones
- Scraper grate outside
- Scraper mats in vestibule
- Absorbent mats inside
- Each zone minimum 2 metres long
- Vestibule should serve as an airlock
- It must be possible to set automatic doors in an open/closed position

Measures inside

- Easy-clean flooring
- Wall-mounted sanitation equipment and cupboard/shelves
- Remove thresholds
- Remove skirting along the walls
- Glass in internal walls

Of the measures described, we feel that the installation and maintenance of dirt collection zones is the only one that may be covered by a Nordic Ecolabel. The other measures are technical installations and one-off actions, and are thus not services that one can deliver and have Nordic Ecolabelled. Maintenance of zones is a service that is carried out over time and can be given the Nordic Ecolabel.

[4] Quotation from the presentation (S.K. Nielsen, SINTEF Byggforsk)

6.2 Requirement area: description of the service

O1 Description of the product/service

Describe the service and how it meets the definition of what can carry the Nordic Ecolabel.

✉ Description in accordance with the above.

The Nordic Ecolabel will apply to the whole service and the whole service must thus be described. The purpose of this is to ensure that licence applicants actually have a service provision that goes with the installation of the mats plus maintenance and control of disposal, as required in the criteria.

6.3 Requirement area: environment

O2 Quantifying of sedimentary dust (surface dust level)

It must be documented that the fixed mats ensure a surface dust level[5] for the premises of:

- maximum 5.0% surface dust on difficult to reach surfaces
- maximum 1.5% surface dust on easily accessible surfaces of fixtures and fittings
- maximum 3.0% surface dust on easily accessible hard flooring
- For surfaces that are close to people (such as floors in nursery schools) the requirement level is maximum 1% surface dust on easily accessible surfaces

Measurements are to be taken before and after installation of fixed mats, and measurements are to be taken immediately before cleaning.

In cases where the surface dust level before installing the mats is already lower than the requirements, a minimum of 0.5% improvement in surface dust levels (e.g. at a level of 2.5% surface dust before mat installation, the value must fall to a maximum of 2% surface dust). If the surface dust level is 1.5% or less, no further improvement is required. The measurements are to be conducted in what are expected to be the most heavily exposed building types (such as nurseries or schools).

The measurements are to be taken with a laser-based measuring instrument that uses the gel-tape method, for example a “BM Dust Detector" or equivalent. The measurement points must give a representative picture of the rooms in the particular premises.

The measurements are to be taken as described in Nordic industry standards for cleaning and in line with INSTA 800 version 2010.

✉ Documentation showing that the measurements have been carried out, and that the requirement is fulfilled at a minimum of five measuring points in both the rooms selected, is to be submitted at the time of application. This must include a plan showing which points were measured.

[5] INSTA 800 level 4.

✉ The licensee's procedures, showing that equivalent measurements are taken annually and in line with the above requirement.

🔑 In the event of an on-site inspection, Nordic Ecolabelling will want to see test results signed by the customer, showing that the requirement concerning surface dust levels and procedures has been fulfilled in a minimum of two nurseries or schools.

Background

The mats must be fitted properly and followed up with a cleaning regime in order to ensure good collection of dust and dirt. Tests show that people have to walk 9-12 steps in order to stop up to 90% of dust, dirt and moisture. This means that the mats have to be laid correctly. The Nordic cleaning industry has drawn up joint "standards" for cleaning, based on surface dust on various surfaces where dust collects. These "standards" are based on studies conducted in office buildings for adults.

INSTA 800 states different values for surface dust percentages on different surfaces depending on the quality level (1–5). Our proposal recommends quality level 4. There is a differentiation here between difficult to reach surfaces and easily accessible surfaces. The standard is basically intended as quality assurance of the ongoing cleaning carried out or when handing over a new building. The standard therefore recommends that sampling is conducted shortly after cleaning. When measuring the effect of fixed mats however, it is not relevant to measure after cleaning, but just before cleaning, as the mats are supposed to reduce the need for cleaning.

The measurements are to be taken with a laser-based measuring instrument that uses the gel-tape method, for example a "BM Dust Detector" or equivalent. The measurements are to be taken as described in Nordic industry standards for cleaning and in line with INSTA 800 version 2010[6]. INSTA 800 is primarily aimed at those who work on cleaning on a daily basis. It can also be used as information for users of cleaning services, and others who may have use of this information. The standard is the result of a collaboration between the Nordic countries of Denmark, Sweden and Norway, and is based on an EU standard. Representatives of employers, cleaning firms, employers' organisations, employees' organisations and user groups have been involved in developing the Nordic standard. NS INSTA 800 is the only publicly approved standard for measuring cleaning quality, and it applies across the whole Nordic region.

The measurements are to be taken by a representative of the licensee together with the customer, who will sign that the tests have been carried out correctly. A plan showing which points were measured must also be included.

A company that applies for a Nordic Ecolabel must guarantee that, on average, the customer's surfaces do not exceed the limits set for different types of area. It is up to the applicant to make sure that procedures for the cleaning of mats ensure a sufficiently low level of surface dust over time.

[6] Source: The Norwegian Union of Municipal and General Employees' Quick guide to INSTA 800.

The key point is that the firm that fits the mats must be able to document low surface dust, irrespective of the cleaning frequency.

Practical measurement methods

The measurements are to be taken by pressing a crystal clear tape onto the surface so that dust deposits transfer to the tape and can be analysed using a BM Dust Detector. This scans the tape using image processing software, which calculates the % of surface dust[7].

The measurements are calibrated against the values in INSTA 800. The baseline taken is INSTA 800's values for surface dust percentages at quality level 4 (usually used for schools and nurseries).

Easily accessible surfaces (EA) are defined as visible and immediately clear horizontal surfaces of fixtures and fittings that are not close to people. These surfaces are usually covered by the daily cleaning regime for the premises. Sampling from floors that are polished is not recommended, as the wax polish can attach to the tape and give an inaccurately high value. Discretion should be exercised when sampling, as it is always possible to find areas where dust has gathered.

Difficult to reach surfaces are defined as bookshelves, high cupboards or similar horizontal surfaces that are above around 1.5–2 m high. These surfaces are not usually covered by the daily cleaning regime for the premises.

Dirt and dust make indoor air quality poorer and can cause irritation of the airways, skin and eyes, and allergic reactions. It can also cause or exacerbate existing asthma and increase the incidence of other respiratory problems. Airborne dust particles that are breathed in or come into contact with the mucous membranes in the eyes are a particular issue. The problems are due to the content of the dust – allergens, irritants, chemical content – and to a lesser degree the amount of dust. A correlation has been shown between quantities of sedimentary dust on high surfaces and complaints such as headaches, regular colds, hoarseness and so on. Good cleaning helps to reduce the levels of dust that can be stirred up into the indoor air[8].

How great is the improvement in the indoor environment?

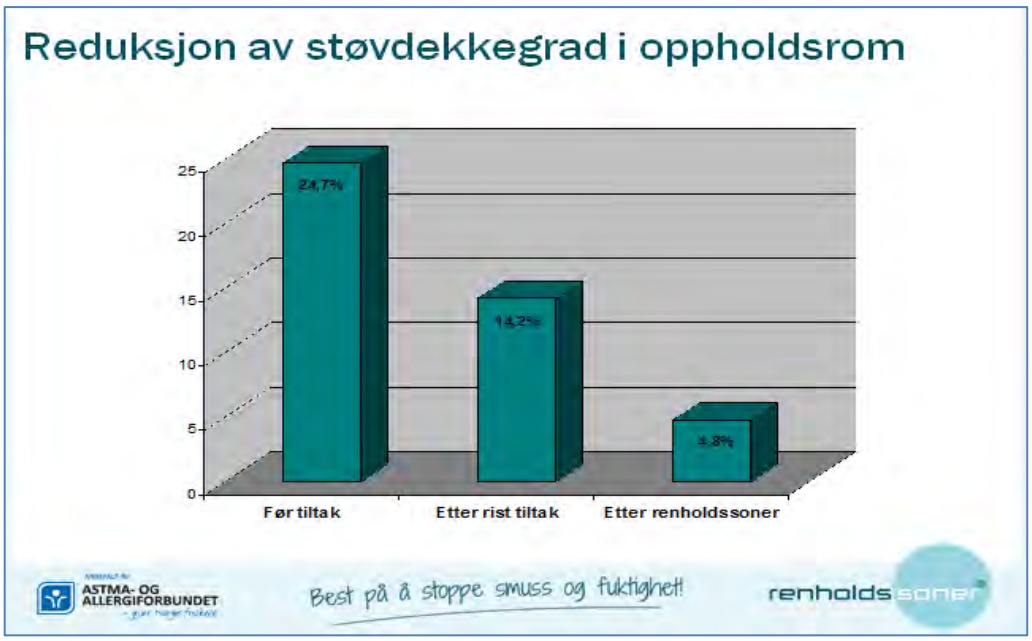
Renholdssoner has had its solution tested in several locations, but among the largest is the test in the City of Bergen. This was conducted at 12 schools over 12 months. Below is a simple summary of the results, giving dust reduction

[7] The BM Dust Detector is a portable laser-based measuring instrument that uses the gel-tape method. It is used by a number of Nordic consultants, cleaning firms and research institutions. It has proven a useful tool in areas such as quality control, cleaning regime planning, method development and indoor environment studies. The instrument was developed by Denmark's National Research Centre for the Working Environment, in collaboration with the Nordic cleaning industry and with support from the Nordic Industrial Fund. As a follow-up to the project, joint Nordic industry standards for cleaning quality were drawn up in 1992. Laser light is passed through the gel-tape. The scattering of light is a function of the amount of dust on the tape and the result can be read as a percentage of surface dust, stating how much of the surface is covered with dust.

[8] Mycoteam/Norwegian Asthma and Allergy Association in the report "Vurderingskriterier Inneklima" (Assessment Criteria Indoor Climate)

percentages from before measures, through to the introduction of a grate and then with the Renholdssoner system. More details can be found in the Norwegian report, which can be ordered from Nordic Ecolabelling:

Table 1



O3 Mat cleaning

When giving training, the licensee must instruct those carrying out the cleaning so they do not use chemicals in the daily cleaning/maintenance of the fixed mats. The mats are to be cleaned where they lie. The licensee must deliver specialist equipment for the cleaning of the mats (for example brush vacuum cleaners) to the customer's premises.

✉ Description of the system and equipment for cleaning, showing that chemicals are not used.

In order that the service component of the ongoing mat maintenance does not result in increased vehicle use, the cleaning equipment, normally vacuum cleaners (brush vacuums), should be stored on the customer's premises, to be used by the cleaning staff there. The vacuum cleaner (brush vacuum) in question is a high-power vacuum cleaner equipped with double vacuum motors and a powerful brush head with its own motor, which is able to go further down (beat) into the pile (surface of the mat) to pick up more dirt and dust. There have been many tests comparing the effectiveness of ordinary vacuum cleaners against these specialist vacuum cleaners (brush vacuums) and these show that the brush vacuum is up to 70% more effective, with the same level of emissions. Brush vacuums are also more robust and can handle more dust, sand and debris. Nordic Ecolabelling will require training in the use of these brush vacuums during the rental period (see O8).

O4 Phthalates in mats

There must be no phthalates in the mats.

☒ Product data sheet/safety data sheet with detailed list of constituent substances.

☒ Declaration from the manufacturer of the mat stating that it does not contain any phthalates (see Appendix 1).

The most common mats are made from a blend of polyamide, polyester, nitrile rubber, polyethylene terephthalate and, almost always, polyvinyl chloride. These are to a certain degree the same types of materials that our licence holders for Textile Services use in their mats.

Several suppliers incorporate recycled materials into their mats. The mats that many companies use go by the name of Coral mats, and these comprise a polyamide pile, a polyester tuft base and a polyvinyl chloride (vinyl) backing. PVC tends to contain plasticisers such as phthalates. Here is a content specification for a typical Coral mat from Forbo:

Table 2

Pile material	100% regenerated Econyl® polyamide
Tuft base	Non-woven polyester
Backing	EVERFORT vinyl

When it comes to the availability of phthalate free mats, there are three major mat manufacturers in Europe: Forbo, Zeno and Mercuri International. It is possible to obtain phthalate free mats today, but mats with phthalates remain very common.

We have reviewed Nordic Ecolabelling's Criteria for Floor Coverings (generation 6) and it is our conclusion that it would be too strict for this generation of the service criteria to require the same environmental performance for all the constituent products.

We thus only exclude fixed mats that contain phthalates. Phthalates are used as a plasticiser on the underside of the mats (the backing), which is often made from polyvinyl chloride. Here is the argument for excluding phthalates, as set out in the background document for the Nordic Ecolabelling of Floor Coverings (generation 6) from 2014:

The short-chain phthalates DEHP, DBP, DIBP and BBP are suspected of being toxic for reproduction, and within the EU they are classified as Substances of Very High Concern (SVHC). In several cases, they are classified as CMR substances and are associated with various restrictions. Over a recent 10-year period, the use of low molecular phthalates fell from 40% in 2001 to 10% in 2009. Other plasticisers such as DINP have almost entirely replaced DEHP, which has been the most criticised plasticiser for a long period. High molecular phthalates are also subject to restrictions, including a general ban in toys or more specifically in toys and childcare products that may be placed in the mouth. Overall, the focus is on the risk that phthalates are endocrine disruptors. In a recently published report, the World Health Organisation (WHO) stated70: "Several of the most common diseases continue to rise in the world, and researchers now present new evidence that there is a link between endocrine disrupting chemicals and some of these diseases. Today, several hundred substances available on the market have been identified as endocrine disruptors, but most have not yet been studied."

O5 Guaranteed period in place

It must be documented that the fixed mats will, on average, remain in place on the customer's premises for a minimum of 3 years.

✉ Copy of the contract template for customers, stating how long the mats are intended to remain in place.

Use of the mats for the maximum lifetime brings lower consumption of resources and less of an environmental impact. It is claimed by Renholdssoner that quality mats can remain in place for more than 3 years before they need to be removed or replaced with new mats. We therefore challenge the industry on this.

O6 Disposal of used/worn mats

Metal components are to be separated from other materials and sent for recycling when the mats are taken up. This must take place before any incineration or other destruction of the mats. The other mat material must not be sent to landfill.

✉ Description of how disposal takes place and who carries it out.

✉ Declaration from the licensee that metal components are separated out and sent for recycling when the mats are taken up.

It is important that the mats and any components/materials used to attach the mats to the floor are sorted at source for recycling. It is particularly important that valuable materials such as metals are separated out. To our knowledge, at the time of writing there is no recycling system for this type of mat. It is the licensee's responsibility to ensure that the mats are not, under any circumstances, sent to landfill.

6.4 Quality and regulatory requirements

Quality and regulatory requirements are general requirements that are always included in Nordic Ecolabelling's product criteria. The purpose of these is to ensure that fundamental quality assurance and applicable environmental requirements from the authorities are dealt with appropriately. They also ensure compliance with Nordic Ecolabelling's requirements for the product throughout the period of validity of the licence.

A couple of requirements specific to this product group have also been added, since quality management tools are a key aspect of maintaining high environmental relevance for the performance of the service.

O7 Training for mat installers

It must be documented that mat installers have completed a course on mat installation.

All newly employed mat installers are to be sent on a course in mat installation within 6 months of their employment, unless they have similar training from a previous job.

✉ Description of the course content

✉ Documentation from the licence applicant's quality management system showing that all mat installers have completed a course in mat installation. In addition, the

quality management system must ensure that all newly employed mat installers attend such a course within 6 months of their employment, unless they have similar training from a previous job.

O8 Training for cleaners

It is important that the mats are laid correctly, otherwise they will come loose and help to create rather than solve environmental and indoor environment problems. Companies provide “mat installers” with specialist training in this. The mats are guaranteed to work for three years, but are claimed to work for many more years in practice. The quality requirements must reflect this. This is the criterium:

The licensee must conduct training for the cleaners in the buildings where the mats are installed, and such training must include how the mats are to be cleaned, how the waste is to be handled and how the filters for the vacuum cleaners are replaced. Cleaners are to be given a course in how the mats are laid, before the mat installation is completed.

The licensee must have a written agreement with the customer that new cleaners in a building will also receive training in how to clean the mats before they start work.

As a minimum, the following points are to be addressed on the course:

- Correct use of the machine
- The various functions of the machine
- How to replace bags, filters and brushes
- Ergonomics, correct working position
- Demonstration of how to use the machine on the dirt prevention zone
- The function guarantee, what to do if any faults occur
- Waste handling
- Run-through of the manual that accompanies the machine

✉ Description of course content.

It is extremely important that the cleaners are taught to clean the mats regularly and correctly, to ensure that the mats maintain their high dirt collecting effect. Cleaners may be employed by the customer or by a cleaning agency.

The cleaners are to receive training with every installation, either from the seller or the mat installer. Organisation and responsibility

O9 Organisation and responsibility

An organisational chart must be drawn up. Responsibility and competence for key functions must be defined. The chart is to clearly set out who has responsibility for the Nordic Ecolabel licence, marketing, training, purchasing and finance, and who is the contact person for Nordic Ecolabelling.

✉ Copy of the organisational chart.

O10 Documentation

The licensee must retain a copy of the documentation that is submitted with the application, or maintain equivalent information in Nordic Ecolabelling’s electronic system, for as long as the Nordic Ecolabel licence remains valid. All documents relating to the licence must be kept readily available by the licensee. This includes documents on internal checks and measurement reports, for example. The contact person for Nordic Ecolabelling is responsible for ensuring that the documentation is kept up to date and accessible.

🔑 Checked on site as necessary.

O11 Changes and non-conformities

Nordic Ecolabelling must be notified of and approve any planned product and marketing changes that affect the Nordic Ecolabelling requirements, before such changes are made. Unforeseen non-conformities that affect the Nordic Ecolabelling requirements must be reported to Nordic Ecolabelling.

✉ Copy of procedures in the environmental management system.

O12 Training

All employees of the licensee and mat installers/cleaners who are involved in daily operations must be familiar with the Nordic Ecolabel's requirements, in order to ensure compliance with these.

Employees of the licensee must receive ongoing orientation on general environmental issues and on the specific environmental issues associated with their field of work.

A list showing who takes part in the training is to be drawn up. Contractors are to take part in the supplier's training or show documentation that they have undergone equivalent training.

✉ Copy of procedures in the environmental management system.

O13 Customer information

Customers must be informed about the fact that they are using a Nordic Ecolabelled mat service and what that entails.

✉ Copy of procedures in the environmental management system describing how the customers are informed.

O14 Laws and regulations

The licensee must ensure compliance with the applicable legislation on the working environment, external environment, economy, hygiene and health. The company must not be subject to any form of negative ruling by the authorities that has not been corrected before the deadline given by the supervisory authority. Failure to comply with this requirement may result in Nordic Ecolabelling revoking the licence.

✉ Signed application form.

7 Next version of the criteria

When next reviewing the criteria, consideration will be given to setting new requirements/expanding the current requirements to include the following environmental aspects:

- Constituent substances in the mats
- Energy consumption of the brush vacuums
- Recycled materials in the mats
- Handling/cleaning of dirt and dust from vacuum cleaner bag