Consultation response for

Windows and External Doors

Version 5.0

19.12.2024

Nordic Ecolabelling

Nordic Swan Ecolabelled Windows and External Doors – Consultation response
062/5.0, 19.12.2024

1 Summary

The criteria for "062 Windows and external doors" have been revised, and a new generation 5 of the criteria is established. The proposal for revised criteria has been sent for consultation to stakeholders in all the Nordic countries. The consultation was conducted in all the Nordic countries in the period 13th of June to 29th of August 2024. A total of 35 consultation comments were received.

Most comments were given to the following topics:

- PVC is not allowed as a primary material
- Thermal transmittance, O2
- The chemical requirements, O11-O15
- Emissions to air from wood impregnation, O16
- The circular economy requirements related to take-back systems, O19, and recycling of float glass, O20
- Warranty against wood rot, O23

PVC is not allowed as a primary material
Nordic Ecolabelling has received several consultation responses regarding that PVC should be allowed as a primary material in windows and doors. After the consultation, PVC is still not allowed as a primary material to be used. The responses did not bring any new decisive arguments for us to allow PVC as a primary material in this generation of the criteria.

Thermal transmittance
The far most consultation responses Nordic Ecolabelling received, were related to the thermal transmittance, the U-value. Most of the responses were related to that the U-values are too strict. After the consultation the U-values have been increased (made less strict) for wooden roof windows and for all types of windows/window doors in non-renewable material. The U-values for wooden façade window and wooden window doors are kept as before the consultation.

The chemical requirements
Nordic Ecolabelling received many responses regarding that the chemical requirements are too strict. After the consultation more exemptions have been included in the classification requirements, limit values have been changed for specific preservatives and more exemptions have been included in the list for prohibited substances. No consultation responses were received for the nanomaterial requirement.

Emissions to air from wood impregnation
Nordic Ecolabelling received several responses regarding the suggested requirement for emissions to air from solvent based wood impregnation (O16). The responses varied from feedback on too strict requirement level for VOC emissions, appropriate/good level, too easy level and that solvent based wood impregnation should not be allowed at all.

Nordic Ecolabelling will keep the limit for VOC emissions from solvent based wood impregnation/vacuum impregnation at 6 kg VOC per m^3 treated wood. The requirement has then been tightened compared to generation 4 of the criteria, and the Nordic Ecolabelling requirements for windows and doors, set stricter requirements for VOC-emissions than the legislation by two means:

- A broader area of application: The requirement must be fulfilled by all facilities using solvent-based technology and not just the larger plants under the scope of the EU Directive.
- Stricter limit value than the regulation: Total emissions of maximum 6 kg /m^3 treated wood compared to 11 kg/m^3 treated wood according to legislation i.e. nearly a reduction down to the half of the EU Directive limit

The circular economy requirements related to take-back systems and recycling of float glass

Nordic Ecolabelling received several responses regarding our suggested requirements for take-back system (O19) and recycling of float glass from the insulation glass producers (O20). The responses were related to challenges for implementation of separate take-back systems for each producer and difficulties for insulation glass producers sending glass spill directly back to float glass producers. The feedback is that a more feasible solution to both challenges is that producers contribute to establishment of and use of national waste systems for material recycling of windows and doors.

After the consultation, Nordic Ecolabelling has changed both requirement O19 and O20. Instead of a requirement regarding take-back systems, the requirement now is that the producers must take initiatives and/or actively support initiatives/partnering projects for establishment of a national waste collection system for material recycling of windows and doors if such national systems do not exist.

Nordic Ecolabelling has also changed the requirement O20 so that the insulation glass producers must use national systems for collection, sorting and transportation of float glass back to float glass producers if such national systems exist. If such national glass recycling waste systems do not exist, the glass waste/spill must as a minimum be collected and recycled to new glass i.e. to make glass packaging, insulation or fiberglass.

Warranty against wood rot

Nordic Ecolabelling received many responses regarding our suggested requirement for 20 years warranty time against wood rot for windows and window doors. The feedback is that 20 years warranty time against wood rot will give:

- Less focus from the customers on needed maintenance of the product
- Producers of surface treatment can today give a 10 years warranty for certain products, but it will not be possible to extend this warranty with 10 extra years to a 20 years warranty for certain surface treatment products
- It is difficult for the window and door producers to give a 20 years warranty time as they cannot control that the maintenance work is performed as required
- To meet a 20 years warranty time against wood rot, it might be necessary to use more expensive materials, treatments and production methods, which

again might give more expenses for both producers and consumers and then increased economic risk for the producers
- The real cause of rot damage is difficult to verify after 20 years

Nordic Ecolabelling will go back to the 10 years warranty against wood rot as in generation 4 of the criteria. This is based on the consultation response from stakeholders in all the Nordic countries.

2 About the consultation

The criteria for "062 Windows and external doors" have been revised, and a new generation 5 of the criteria is established. The proposal for revised criteria/generation 5 has been sent for consultation to stakeholders in all the Nordic countries. The consultation was conducted in all the Nordic countries in the period 13th of June to 29th of August 2024. A total of 35 consultation comments were received. There have also been arranged consultation meetings with stakeholders in Denmark, Finland, Norway and Sweden.

In this compilation, all comments are collected and answered by Nordic Ecolabelling. The purpose is, in addition to collecting all comments, to show how external comments have affected the requirements. Nordic Ecolabelling is grateful for all the answers that help us in our development and help us to ensure that the work with the criteria complies with the ISO 14024 standard.

3 Compilation of received responses

The consultation was sent to 337 stakeholders. In total, 35 off responded, of these, 8 responses came from Denmark, 7 off from Finland, 1 off from Island, 8 off from Norway and 11 off from Sweden.

The following stakeholders have sent their response to the consultation:

From Denmark
Danmarks Farve- og Limindustri
Dansk Industri
Dovista A/S
Miljøstyrelsen
Rehau
The Nordic PVC Network
Velux
VinduesIndustrien

From Finland
Federation of the Finnish Woodworking Industries
Lammin Ikkuna Oy
Pilkington Lahden Lasitehdas Oy
Skaala IFN Oy

Teknos
The Confederation of Finnish Construction Industries RT
The Finnish association of Flat Glass - Suomen Tasolasiyhdistys ry

From Island
Byko

From Norway
Consol AS
Gilje Tre AS
Glass og Fasadeforeningen
H-fasader AS
NorDan
Nordvestvinduet
Norske Trevarer
Schüco Norway AS

From Sweden
AkzoNobel Industrial Coatings AB
Bitus Lavia SIA
Boverket
Daloc AB
Elitfönster AB
Energimyndigheten
Hydro Building Systems AB
Sherwin Willims Sweden AB
Shueco Sweden AB
Shue
Svenska Fönster AB
Sveriges Kommuner och Regioner

4 Comments to the criteria, in detail

The various comments from the consultation parties have been inserted below and grouped in relation to the specific requirement numbers in the consultation draft of the criteria. Nordic Ecolabelling has given a response to the comments, whether they lead to any changes or not, and described if the requirement has been adjusted. This has been done collectively if there are several consultation bodies that have commented on the same theme.

Some of the consultation bodies have commented on several areas in the consultation draft, and comments are then divided by theme. Extensive consultation responses with several pages are included in an appendix with a short summary in the main part of the consultation report.

4.1 General comments

Boverket
Boverket avstår från att lämna synpunkter på det tekniska innehållet i de föreslagna kriterierna.
Vi måste dock upplysa om att den europeiska byggproduktförordningen anger att för byggprodukter som täcks av en harmoniserad standard ska CE-märkningen vara den enda märkningen som styrker produktens egenskaper i relation till de väsentliga egenskapskraven i förordningens bilaga I.

Samtliga harmoniserade byggproduktstandarder går att finna här: EUROPA – European Commission – Growth – Regulatory policy - SMCS

Dansk Industri
DI takker for muligheden for at komme med input til Svanemærkekriterier for vinduer og døre, og vi glæder os over, at kriterierne nu tages op til revision, hvilket der efter vores opfattelse er positivt, da der er et stort uforløst miljøpotentiale for vinduer i Norden. Samtidig er revisionen en mulighed for at fremme, at virksomheder, der investerer i bæredygtighed i deres produktion, også kan vinde offentlige udbud.

DI vil med vores bemærkninger opfordre til, at Svanemærket med reviderede kriterier for vinduer lever op til sin ambition om at udpege de miljømæssigt bedste produkter inden for en kategori. Vi finder det afgørende, at nye kriterier ikke risikerer at bidrage til at sænke miljøambitionerne i Danmark eller reducere forbrugernes udvalg af miljømærkede valgmuligheder på dette område. Vi indgår meget gerne i dialog med sekretariatet og nævnet om justeringsmuligheder.

Energimyndigheten
Energimyndigheten tillstyrker i huvudsak förslaget.
Energimyndigheten anser att förslaget till reviderade krav på fönster och dörrar är bra, då de fortsätter driva utvecklingen av dessa produkter mot en högre grad av energieffektivitet, cirkularitet och giftfrihet.

Glass og Fasadeforeningen
Aluminium og stål kan gjenvinnes uendelig. GF mener favoriseringen av fornybare materialer gjennom U-verdi-differensieringen (tabell 2) gir en uheldig konkurransevridning. Å utelukke PVC, som beviselig gjenvinnes og spiller en rolle i sirkulærøkonomien, blir med på å forsterke dette.
Skal Svanemerket fortsette å være et verktøy for virksomheter som tar miljø på alvor, og som ønsker å nå folk og bedrifter som også gjør det anbefaler GF en innretning der:

- det stilles strenge, enhetlige krav til produktenes isolasjonsevne (vinduer og dører), hvor
- gjenvinnbare materialer i vinduer og dører krediteres likt med fornybare materialer, men hvor
- forholdsmessig andel av post-consumer materialressurser i gjenvinnbare materialkomponenter er et krav

GF mener dette vil gjøre merkeordningen tidsriktig og fremtidsrettet, og inspirere nåværende og nye merkebærere til ytterligere investeringer i:

- produktutvikling
- bærekraftig ressursforvaltning
- gjenvinning og ombruk, og
- økt oppslutning om merkeordningen

Svenska Fönster AB
Som en av Sveriges största fönstertillverkare och den första aktören i branschen att erhålla Svanenmärkning på våra produkter, vill vi gärna bidra med våra synpunkter och rekommendationer till denna remiss.
Vår organisation har länge varit engagerad i hållbarhetsfrågor och vi ser miljömärkning som ett centralt verktyg för att minska byggsektorns miljöpåverkan. Vi anser att förslaget i helhet ligger i linje med dessa ambitioner, men vill belysa några områden som vi bedömer behöver justeras för att bättre uppfylla dagens hållbarhetskrav och skapa rättvisa förutsättningar för alla aktörer.

Sammanfattningsvis stödjer vi förslaget men anser att vissa justeringar är nödvändiga för att säkerställa att kriterierna är hållbara, rättvisa och praktiskt genomförbara för alla aktörer inom branschen.
Svenska Fönster ser fram emot en fortsatt dialog och tackar för möjligheten att bidra till denna process.

VinduesIndutrien
In the Danish Window Industry it has been standard to manufacture wooden windows and doors, cf. the treatment system 2ØKO, from heartwood that is naturally impregnated, and thus solely requires a surface protection against blue stain according to EN 152. This is more environmentally friendly than the standard product on the Nordic market.

In order to meet EN 152 for surface treatment, there are several products on the market which do not contain the dangerous and classified substance Propiconazole, which has been exempted from a ban in the revised criteria for wood, but not e.g. in insulation materials.

As the use of heartwood is more expensive than the use of impregnated sapwood, and if Danish manufacturers - for competitive reasons - were to produce windows according to the revised criteria, using vacuumimpregnation and the suggested limit for VOC substances and still using the fungicide Propiconazole, it would mean a deterioration of the environment - and not least of the working environment at the Danish window factories.

We believe that the Swan should set ambitious requirements regarding use of chemicals in wooden windows, especially in light of the fact that the same point was made when the current criteria were adopted, giving companies time to develop a more environmentally friendly practice.

In the view of VinduesIndustrien, the revision of the Nordic Swan Ecolabel criteria - as regards the Danish market – fails to meet the objectives to promote and develop the use of more environmentally friendly window and doors.

Nordic Ecolabelling's comments
Thank you for your input. Nordic Ecolabelling is grateful for all the answers that help us in our development and help us to ensure that the work with the criteria complies with the ISO 14024 standard, and to ensure that Nordic Swan Ecolabelled windows and doors have a low climate impact due to low energy losses through the windows and doors, strict requirements for the materials and chemicals used, good function and quality, long service life and contribution to circular economy.

Please see feedback for specific topics in this document under section 4.3 on PVC and the product group definition, under requirement O2 for feedback on U-value and under section 4.5.5 Emissions to air for feedback on VOC-emissions from vacuum impregnation.

4.2 Comments to the RPS-analysis

Schüco Norway AS

Råmateriale**:**
o Verdien av å benytte fornybare materialer vektlegges høyt.
o Vi savner verdien av å benytte materialer som relativt enkelt kan resirkuleres (i det uendelige uten tap av kvalitet). Vi mener dette vil være av vesentlig betydning for miljøet

End-of-Life:
o Service life er satt som viktig, men er dette vurdert med hensyn til materialvalg?
o Landfill or incineration by end-of-life instead of material recovery/recycling:
Her hevdes det at det er enklere og billigere å deponere gamle vinduer på fylling enn å resirkulere materialene. Dette er kanskje riktig for glass, men for karmene er dette i høy grad avhengig av materialet som er benyttet. Aluminium er så verdifullt som råmateriale at det absolutt er lønnsomt å resirkulere dette og det blir også gjort nesten uten unntak. Stål blir også i stor grad samlet inn og der det finnes ordninger for det gjelder dette også PVC.

Nordic Ecolabelling's comments
Nordic Ecolabelling has updated the RPS with information about recycling possibilities for aluminium and PVC.

Nordic Ecolabelling see the use of renewable material as a better alternative than the use of recycled metals/aluminium. This is due to the fact that the demand for and use of recycled aluminium, is increasing the demand for new aluminium which is resource- and energy-intensive to produce.

4.3 Comments to the definition of the product group

Daloc
Ytterdörrar med brandegenskaper ska CE-märkas både mot EN 14351-1 och EN 16034. Daloc ser ingen anledning att utesluta ytterdörrar med brandegenskaper från att kunna Svanenmärkas. Uppfylls kriterierna för Svanenmärkning borde det enbart vara positivt.

Förslag till text: A product which fulfil EN 14351-1 criteria's can also be combined with fire resisting and/or smoke control characteristics according to EN 16034.

Eftersom EN 14351-1 är en harmoniserad produktstandard beslutad av kommissionen bör det vara bättre att låta "scopet" i standarden styra vad som definieras som fönster/ytterdörrar än att göra egna tolkningar.

Dansk Industri
Plastvinduer bør kunne Svanemærkes
Plastvinduer har en række karakteristika, der gør dem til et miljømæssigt godt valg af vinduer: De har meget lang levetid, de skal ikke vedligeholdes, dvs. igen brug af kemikalier hos forbrugerne, og de kan genanvendes.

Samtidig er plastvinduer økonomisk tilgængelige i højere grad end aluminiums- og trævinduer, og i en tid, hvor der over alt i Europa er stor fokus på "affordable housing", har det stor betydning. Mens den danske markedsandel i dag er relativt lav, estimeret 5-7 pct., er behov for både nye boliger og renovering af eksisterende boliger stigende, og pris vil her tale for, at markedsandelen vil stige i de kommende år.

I lyset af ovenstående undrer vi os fra DI's side over, at man har valgt helt at udelukke PVC-vinduer. Argumentet er tilsyneladende, at der ikke har været interesse i den foregående periode. I Danmark skyldes det danske særregler om forbud mod bly i vindueslisterne, men nye EU-regler herfor åbner for, at vinduerne kan genanvendes i hele EU, inden for nogle bestemte grænser. Derfor er det vores vurdering, at danske virksomheder nu vil kunne leve op til ambitiøse nye krav fra Svanemærket.

Mht. argumentet om, at levetiden er lavere for plastvinduer, så er er det ikke noget, vi kan genkende. Tværtimod har plastvinduer en levetid på mindst 50 år. Samtidig sparer man miljøet for kemikalier fra vedligeholdelse, og vinduerne kan genanvendes mekanisk 8-10 gange. Der er et velfungerende tilbagetagningssystem i Danmark, WUPPI, som har eksisteret siden 1997.

Samlet er det således DI's vurdering, at det er en fejl at udelukke plastvinduer fra Svanemærket, både fra et forbrugersynspunkt og i et miljø- og klimaperspektiv.

Glass og Fasadeforeningen
PVC post-consumer materialressurser gjenvinnes i dag og inngår i nye PVC vinduer og dører. Så lenge disse produktene imøtekommer Svanemerkets krav til isolasjon kan ikke GF stille seg bak at PVC nå foreslås utelatt fra merkeordningen.

H-fasader
Oppsummering: Det blir opplyst i høringsdokumentet at det ikke har vært produsenter som til nå har søkt om å Svanemerke produktene sine, og at tilbakemeldinger tyder på at kravene pr i dag er for strenge. Dette blir brukt som et argument for rett og slett å utestenge PVC vindu og dører fra å kunne bli Svanemerket. I og med «listen har vært lagt høyt», og det så langt ikke har vært mulig å innfri alle kriteriene, er det logisk at produsentene foreløpig ikke har søkt. At PVC vindu og dører nå vil kunne bli utestengt vil kunne være direkte konkurransevridende, og er svært uheldig. H-fasader har arbeidet, og brukt mye tid og ressurser med målsetting om å nå kriteriene, og har stor fokus på bærekraft og

sirkulærøkonomi. Vi nærmer oss kriteriene både når det gjelder U-verdi, og vi samarbeider dessuten med profilleverandør for å klare å dokumentere at bly-innholdet i profilene ikke overstiger 100ppm. Viser også til en EU-forordning som nylig trådte i kraft (****). VI har allerede produksjon av produkter som har minst 30% gjenvunnet PVC. Svanemerket kategoriserer PVC som et ikke fornybart materiale, og det settes derfor høyere krav til U-verdi enn andre typer materialer. Samtidig har PVC som nevnt en rekke positive og unike egenskaper som vi mener ikke blir tilstrekkelig verdsatt opp mot andre materialer. Det å gå fra høye krav, som kan være vanskelige å innfri, til å kunne bli ekskludert er en betydelig forskjell, og vi anmoder derfor på det sterkeste at Svanemerket går tilbake til sine opprinnelige kriterier, og dermed muliggjør Svanemerking av PVC vindu og dører. Dette vil også kunne virke motiverende for oss produsenter og bransjen til å fortsette det gode og langsiktige miljøarbeidet som allerede har vært pågående gjennom mange år. Vi håper å kunne ta dialogen videre om noe er uklart, eller om dere trenger mer informasjon eller dokumentasjon, og vi ser fram til å høre fra dere.

Refer appendix 1 for full consultation response.

Miljøstyrelsen
PVC udelukkes: Miljøstyrelsen har, som led i den fælles politiske aftale om Kemiindsats 2018-2022 gennemført en række initiativer for at styrke indsatsen over for skadelige stoffer i PVC, og for at undersøge muligheder for substitution til andre materialetyper. Dette ud fra en betragtning om at PVC kan skabe forureningsproblemer, hvis det håndteres forkert som affald, og at PVC i nogle tilfælde kan være svært at genanvende pga. indhold af skadelige kemiske stoffer, som med årene er blevet forbudt at bruge i ny PVC eller som kun er tilladt i PVC i særlige tilfælde. Med baggrund i ovenstående anbefaler Miljøstyrelsen generelt, at man forsøger at anvende alternative materialer til PVC, hvor det er muligt herunder også i vinduer.

Miljøstyrelsen foreslår, at vinduer primært af aluminium, på samme måde som PVC, ikke må anvendes som primær materiale i karme og dørplader, grundet en høj miljøbelastning. Det fremgår, at vinduer af PVC og aluminium (uden træramme) umiddelbart har samme klimabelastning i et LCA perspektiv. Hvis aluminiumsvinduer tillades, kan vinduer af PVC ikke udelukkes med samme (del-)argument om høj klimabelastning.

Såfremt, Nordisk Miljømærkning inkluderer PVC materiale, der kan anvendes i svanemærkede vinduer, er det vigtigt, at vinduer af PVC i alle nordiske lande er omfattet af en effektiv indsamlingsordning, da det kan forventes at vinduer sælges over grænserne.

Miljøstyrelsen har forstået, at der kun er én indsamlingsordning i Norden og som er dansk, mens de øvrige nordiske lande ikke har indsamling af vinduer af hård PVC. Derfor må det formodes, at PVC vinduer i de øvrige lande vil ende i affaldsforbrændingsledet.

REHAU Industries SE & Co
We have recently been informed by the Window Association in DK (Vinduesindustrien) that there are certain efforts to exclude windows made from PVC from certification under the Swan Label.

According to our impression and level of knowledge, we, REHAU Industries Headquarter, view this with great concern because the PVC window is currently recognized as a sustainable, environmentally friendly component.

In this context, we would mainly like to refer to VinylPlus, the European PVC industry's initiative for sustainable development. The three main objectives of VinylPlus are to be mentioned here:

1. Circular Economy - Scaling up PVC Value Chain Circularity:

In line with the relevant EU policies, such as the Chemicals Strategy for Sustainability and the Circular Economy Action Plan under the European Green Deal, VinylPlus is leading the European PVC industry towards a circular economy, by improving the sustainability performance of PVC, boosting recycling and ensuring the safe and sustainable use of recyclates.

2. Decarbonization and Environmental Footprint Minimization: Advancing towards carbon neutrality and minimizing our environmental footprint.

3. Coalitions and Partnerships: Building global coalitions and partnering for the sustainable development goals

Attached you will find a current summary of the VinylPlus activities from May 2024. Referring to point one, it should definitely be emphasized that in 2023 the use of recyclet Window PVC was regulated within the legislative framework of an EU. (see attached REACH legislation) ECHA investigated on PVC and PVC additives from May 2022 to November 2023. VinylPlus contributed a large amount of data, studies, research and reviews, all based on solid technical and scientific foundations.

Doing so, for the benefit of the circular economy. This is not the only documentation that reprocessing of Window PVC is sustainable. PVC Windows with a recycling content up to 78% are actually state of the art!

Furthermore, we think that since no PVC(u) window fabricators have applied for the Swan Label according to the current criteria is it because the criteria are unattainable in practice, though only in theory.

The Nordic PVC Network
This document highlights five key points for why PVC windows should be eligible for the Nordic Swan label: the safety of PVC production, its long durability, maintenance-free nature, recyclability, and affordability. The document argues that the current criteria are inconsistent and calls for a reconsideration of PVC's exclusion, urging the Nordic Ecolabelling Board to include PVC based on its overall performance and its 20+ years of dedicated sustainable development.

Refer appendix 2 for full consultation response.

Schüco Norway AS
Under «Background to requirement 01» finnes teksten:
This is possible because the U-value is given for the reference size of the product

Under O2 henvises det til at at U-verdien skal beregnes for hele vinduer/dører i henhold til størrelsene angitt i EN 14351-1. Å finne entydige referansestørrelser I

EN 14351-1 er ikke lett, vi foreslår derfor at størrelsene defineres i dette dokumentet, f.eks. 1,23 x 1,48 for vinduer og 1,23 x 2,18 for dører.
(Dette er standardstørrelser uten +- toleranser hentet fra Tabell E.2 i EN 14351-1)

VELUX
There seems not to be any technical or environmental arguments related to the decision to exclude PVC as primary material from obtaining the Swan label. Materials should not per default be excluded, but it is fair to set requirements related to e.g. recycled content or to take back systems. We suggest to make it possible also to Swan label windows and external doors made with PVC as primary material under specific conditions.

Vinduesindustrien
PVC windows are a sustainable alternative to wooden windows and should be allowed. VinduesIndustrien does not believe that a ban in the criteria of the most widespread window material used in the EU (PVC) is the the best way to ensure consumers a choice of sustainable products. Instead, ambitious goals should be set that can lead to the development of PVC windows in a more sustainable direction.

PVC used as primary window material in the EU has a market share of over 60%. PVC is an extremely durable window material that requires minimal maintenance, does not rot and does not need to be painted. In Denmark, old PVC profiles are collected and recycled for new window profiles via the WUPPI scheme, which has existed for 25 years. The material can be reused several times for new window profiles and thus can have a total material lifetime of up to 300-400 years.

For PVC, Nordic Swan Ecolabel has decided to no longer allow this material as primary material in windows and door frames, casements and leaves. The decision is based on the following:

- no producers of PVC windows or doors have ecolabelled their products and fulfilled today's criteria

VinduesIndustrien can confirm that for many years, Danish manufacturers of PVC windows have shown an interest in joining the Nordic Swan Ecolabel scheme. Thus, due to a Danish delegated act which has banned lead in new window profiles, it has not been posible to fullfill the Nordic Swan Ecolabel’s demand for a high recycling percentage of old profiles in new ones. However, this has now been resolved with the new EU delegated act, which ensures that old profiles containing lead are to be recycled throughout the EU, with requirements for a maximum content of lead and a consumer label that ensures that millions of old profiles can stay in the recycle loop and can be reused in new profiles.

- the feedback from producers is that today's PVC requirements are too strict, especially regarding the limit value for the permitted content of lead in PVC.

It should be noted, that the ECHA and thus the EU Parliament have issued a definition of the use of PVC from the closed loop recycling rPVC after a 2-year investigation.

The legislation was coming into force at the 28th of May 2023:

Restriction for articles with a lead content of greater than 0,1 % by weight of the PVC material from 28th of November 2024 on: These articles shall not be placed on the market or used. Derogation for PVC articles containing recovered rigid PVC until the concentration of lead is lower than 1,5 % by weight of the recovered rigid PVC. The material with a maximum lead content of 1.5% must be completely covered with a layer of PVC or other material whose concentration is less than 0.1% or used in profiles and panels for in hidden spaces or cavities in buildings.

The actual legislation is considering, that a restriction of material with a content of less than 100 PPM (0,01%) is not practical and amounts to a ban on PVC recyclates in any form.

- as LCAs show that PVC compared with wood and aluminium is the material with shortest service lifetime and the largest environmental impact in most impact categories, Nordic Ecolabelling wanted to introduce even stricter PVC-requirements in this new generation.

VinduesIndustrien is unclear about the argument.

As the previous Danish “de-facto” ban preventing the reuse of old profiles has been resolved with the new EU delegated act, it is possible to fulfil the required ambitious targets as regards to reuse.

The work and documentation of VinylPlus and the EPPA have been recognized by the EU and classified as best practice. PVC profile recycling is a sophisticated process, based on technology developments that focus in particular on treatment of 40 year old post-consumer waste. The European system houses, which EPPA represents as an association, process PVC recyclate from old windows and production waste. In 2020 about 354.000 tons PVC1 of profile waste have been recycled and partly used for producing new window profiles.

In order to further enable the reuse of recycled PVC, the EU has passed a derogation at REACH and RoHS (see above).

Furthermore, the profiles must be labeld and treckable. Responsible profile extruders like REHAU already have solutions here (Window ID). Looking at the profile with a recycled core, there are already applications with a recycled content of 80% on the market. This means that up to 88% of the primary energy for the material can be saved. Even looking at the use phase, these windows are characterized by outstanding insulation and durability.

As the previous Danish “de-facto” ban preventing the reuse of old profiles has been resolved with the new EU delegated act, it is possible to fulfil the required ambitious targets as regards to reuse.

In Denmark, Build (a recognized Danish research institute) has set a lifespan for PVC windows (RSL) at 50 years. At the end of its useful life, the material can be collected and reused up to 8-10 times. The set-up with collection and recycling of old PVC windows is developing rapidly,and EPDs will probably develop significantly better values in a short time.

- As there seems to be no interest for ecolabelling of PVC windows and doors according to such new and stricter requirements, Nordic Ecolabelling has decided to not allow PVC as a primary material for production of windows and doors.

To exclude the material PVC is, in the view of VinduesIndustrien, not the right way to 'treat' a fully legal and by far the most widely used window material in the EU. Such a ban will be perceived as a political trade barrier introduced by some Nordic countries which are solely interested in marketing wood as a window material. VinduesIndustrien cannot recommend excluding PVC, but instead set high environmental requirements so that the material and window type are developed in a more sustainable direction. and live up to EU`s current efforts to operate sustainable in the construction sector and to reduce CO2.

Nordic Ecolabelling's comments
Response to Daloc
Nordic Ecolabelling agrees that external doors with fire resisting and/or smoke control characteristics can be Nordic Swan Ecolabelled as long as they are covered by EN 14351-1 and fulfil all Nordic Ecolabelling requirements. This contradiction has been removed from the product group definition.

At the same time, the list of examples of products that are not covered by the criteria (i.e. attic doors, hallway doors, doors to warm and cold storage rooms etc..) is removed since naming of different doors can differ in different countries and the list is thus confusing. As long as the requirements are fulfilled, and the door type is covered by EN 14351-1, an external door can be ecolabelled.

Response to Schüco Norway AS
On a general basis Nordic Ecolabelling prefer referring to standards instead of including the specific values/limits/numbers in our own documents due to the possibilities for changes/updates in the standards and following needs for update of our criteria.

Response on excluding PVC as a primary material in windows and doors
Nordic Ecolabelling has received many consultation responses and a lot of information about PVC as a primary material in windows and door frames, casements and leaves. We appreciate all input we have received from the stakeholders.

The feedback is that a lot of work is ongoing to improve PVC as a more sustainable material. Nordic Ecolabelling acknowledge this work and will follow the ongoing initiatives and projects closely. But based on the information we have received as per today on the environmental impact from the whole life cycle of PVC windows and doors, Nordic Ecolabelling has decided to not allow PVC as a primary material to be used in windows and doors in this generation of the criteria. Our main reasons for this are:

- *as LCAs show that PVC compared with wood and aluminium is the material with shortest service lifetime as it cannot be repaired and the largest environmental impact in most impact categories,*

- *Nordic Ecolabelling wanted to introduce stricter PVC-requirements in this new generation, but the feedback from producers is that today's PVC requirements are too strict, especially regarding the limit value for the permitted content of lead in recycled PVC*
- *Waste collection systems for material recycling of PVC is per today not established in the Nordic countries except from in Denmark so the PVC recycling rate is low in the Nordics*

4.4 Comments to the definitions table

Schüco Norway AS
Insulation glass: Pr i dag liten praktisk betydning, men hvorfor begrense til 2,3 eller 4-lags glass. Forslag: 2 eller flere lag

Nordic Ecolabelling's comments
The explanation of insulation glass says "typical" and not "limited to".

4.5 Comments to the individual requirements

4.5.1 Description of the product and the production

O1 Description of the product and the production

Dovista
The reference to Construction Products Regulation (EU/305/2011) will within a few years be replaced by an updated Construction Product Regulation. Make the reference neutral to current CPR and relevant version for harmonized Product Standard.

Nordic Ecolabelling's comments
Nordic Ecolabelling agree to the comment and will update the text in the requirement.

4.5.2 Energy requirements

There are many comments with different input to the energy requirements, especially regarding the requirement of thermal transmittance (U-value). Based on the consultation response and further market analysis some minor adjustments have been done after consultation. The required U-values for windows made from mainly non-renewable material have been slightly increased (i.e. made less strict). The required LT-value has been lowered back to the value used in generation 4. Adjustments have been made regarding external doors in the requirement for air permeability and climate test, to better reflect the real environment that doors are exposed to.

O2 Thermal transmittance

BITUS LATVIA SIA
The new U-value requirement necessitates a significantly more expensive manufacturing process for windows. Considering the relatively low cost of energy in Iceland, we believe it is not economically viable to invest in this type of window. The minimal benefits gained from complying with these stricter U-value standards do not justify the increased material and labor costs. As such, we view this requirement as an unnecessary waste of resources.

Byko
The new U-value requirement necessitates a significantly more expensive manufacturing process for windows. Considering the relatively low cost of energy in Iceland, we believe it is not economically viable to invest in this type of window. The minimal benefits gained from complying with these stricter U-value standards do not justify the increased material and labor costs. As such, we view this requirement as an unnecessary waste of resources.

Consol AS
Synes det er feil å fjerne krav om G verdi.
Det vil bety at det er umulig å beregne total G verdi med bruk av solskjerming

Dansk Industri
Energibalance bør indtænkes i Svanekriterierne
Energieffektivitet er et vigtigt aspekt af vinduer fra et forbrugerperspektiv så vel som et klima- og miljøperspektiv. Vinduer isolerer (u-værdi), men bidrager også til en bygnings opvarmning med den gratis energi fra solen som strømmer igennem et vindue når solen skinner (g-værdi). Dette omregnes til et energibalancetal (Eref).

Begrebet "energibalance" har været anvendt i Danmark som regulering af mindstekrav i Bygningsreglementet og Energimærkningsordningen og derfor som pejlemærker for producenternes udviklingsindsats siden 2010. Energibalance anbefales til regulering af vinduers termiske egenskaber af den europæiske vinduesorganisation EuroWindoor og er anvendt af EU-Kommissionen som et grundprincip ved udarbejdelse af et forslag om en europæisk energimærkningsordning. På den baggrund vil DI opfordre til, at dette begreb også indtænkes i Svanemærkekriterierne.

Dovista
The limit u-values will exclude many relevant windows from this label.
Wooden windows can be limited I U-value when the need for laminated or/and heavier glass dimensions are required.
- A limit of U=0,9 would be relevant in case heavier or laminated glass dimensions are required.

The U-value requirement on products "less than 20% non-renewable primary materials" will exclude the window platform primary sold for swan labelled building in Denmark.
- Change the Uw>0,74 W/m²K to be relevant for products treated with organic solvent-based vacuum treated wood.

Energimyndigheten
Vad avser förslaget att ta bort krav på solenergitransmittans (g-värde) så ingår det i det förslag till energimärkning som EU-kommissionen har arbetat med men nu pausat. Det är idag oklart om arbetet kommer återupptas, men så länge det inte är avgjort kan det vara bra att förhålla sig till förslagen.
Tanken med en kombination av krav på u- respektive g-värden är att bättre beskriva ett fönsters påverkan på energianvändningen i ett hus (där g-värdet avspeglar solinstrålningens betydelse), men ökar samtidigt komplexiteten då fönstrens orientering måste kopplas till g-värdet. Ett fönster med samma u- och g-värde kommer att ge olika prestanda om de placeras i norr eller söder.

Ett möjligt alternativ skulle kunna vara att behålla kravet på g-värdet samt koppla det till de kriterier för fönsterbyte som också är ute på remiss, som ett sätt att öka förståelsen hos beställare och leverantörer (installatörer) för hur val av fönster kan optimeras beroende på orientering.

Glass og Fasadeforeningen
God isolasjon
TEK 17 stiller krav om at bygninger skal prosjekteres og utføres slik at det tilrettelegges for forsvarlig energibruk. I kapittel 14 Energi, § 14-3. beskrives Minimumsnivå for energieffektivitet, herunder U-verdi - Vindu og dør inkludert karm/ramme [W/(m2 K)]
GF støtter gjerne et krav til isolasjon som innebærer lavere U-verdi enn TEK17's minimumsnivå, men er kritisk til differensiering mellom Facade window, Window door og Roof window. Skal det differensieres mener GF det bør begrenses til å skille mellom vertikal og skråstilt konstruksjon.
GF er også kritisk til at U-verdi benyttes som faktor for å kompensere for bundet energi. Tatt i betraktning variablene og potensialene i produktenes egenskaper og livssykklusperspektiver virker dette vilkårlig, og verken riktig eller hensiktsmessig. GF kan derfor ikke stille seg bak innretningen i tabell 2 under pkt. 3.4. og anbefaler at den erstattes med andre kriterier, for eksempel krav til andel av post-consumer materialressurser

Hydro Building Systems
Vår ståndpunkt är att kategorierna av "Product material" görs om så att aluminium av återvunnen post-consumer scrap har samma U-värdeskrav som trä.

Fler kategorier av "Product material" behövs utifrån att U-värdeskravet baseras på energiåtgången vid produktframställning inklusive materialframställning. Tittar vi på olika typer av aluminium är det en stor skillnad på energiåtgång vid framtagning. Att primär-aluminium med ett högre behov på energi vid framtagning likställs med återvunnen aluminium uppmuntrar inte till ett mer cirkulärt och hållbart materialval. Vid en jämförelse av göt-framställning mellan primär-aluminium och aluminium av återvunna profiler ser vi att det endast krävs 5% av energin för göt framställda av återvunna profiler. Till det vill vi se en skillnad på återvunnen aluminium uppdelad i pre-consumer och post-consumer scrap. Även här är skillnaden i klimatpåverkan stor och för att klimatbördan ska vara 0 behöver produkten först ha använts i en byggnad, sk post-consumer scrap.

Jämför vi EPDer för fönster med olika typer av aluminium och trä ser vi att klimatpåverkan mellan aluminium av post-consumer scrap (CIRCAL 75R (minst 75% återvunnen al)) och trä är liten. Möjligheten finns även på marknaden att välja

aluminium som består av 100% återvunnen post-consumer scrap (CIRCAL 100R (100% återvunnen al)) och då är skillnaden minimal.

Lammin Ikkuna Oy
Refer Table 2 Maximum U-values, W/m2K, additional references * and **:

Window or window door where the total weight of the product except the weight of the insulation glass consists of maximum 20 weight% non-renewable primary material…"

We propose a change to the text "of the insulation glass" would be replaced by "of the insulation glass and float glass"

As a basis, current window and door products consists of both insulation glass and float glass.

NorDan
I avseende förslaget på kriteriet
Vi anser att gränsen på 20% bör justeras alternativt omformuleras. NorDan anser att aluminiumbeklädda fönster skall likställas med träfönster. Detta då aluminiumbeklädnaden är en beprövad metod för väderskydd av utsatta trä delar för att förlänga produktens livslängd. Detta kan även ses via NorDans EPDer där ett aluminiumbeklätt fönster har ungefär 15% lägre klimatavtryck i A1-C4 än ett träfönster under en 50–60 års period inkluderat underhåll och utbyte. Detta på grund av träfönstrets kortare livslängd där ett helt fönsterbyte behövs under en 50–60 års period. För det aluminiumbeklädda fönstret räknas ett byte av glaskasseten in under perioden.
NorDan skulle vilja ha ett förtydligande om vad som klassas som "mindre delar"? I de föreslagna kriterierna är definitionen av mindre delar öppen för subjektiv tolkning.
Gränsen på icke förnybart material som är föreslagen för på 20% avspeglar inte materialandelarna för de olika produkterna som omfattas.
Vi ser idag att andelen icke förnybart material för aluminium beklädda produkter ligger inom nedan intervaller.

- Fönster: 16-25%
- Fönsterdörr: 20-28%

Användningen och andelen icke-förnybara material beror på vilken produkt som anges om det är ett fönster, en fönsterdörr, en skjutdörr eller en ytterdörr. Andelen icke-förnybart material är högre för skjutdörrar och fönsterdörrar än för fönster då trösklar, plattor och glidskenor ofta är i icke-förnybara material på grund av slitage. Andelen påverkas även av kundens val av funktion samt utförande för samma produktgrupp.

Materialgrupper som ex. stål som består av artiklar undantagna för mindre delar kan stå för en lika stor om inte större andel av produktens vikt än aluminiumbeklädnaden beroende på vilken produkt som avses.
Tillverkarna bör ta ansvar för hela produkten och ett rimligt krav bör då ställas på andelen förnybart material i produkten exkl. IGU utan undantaget för mindre delar. Detta minskar risken för subjektiv tolkning samt ställer krav på

produktsammansättning. Förslagsvis ställs riktvärdet på 60% förnybart material för grundprodukt i standardstorlek.

Krav på icke förnybara material som stål och aluminium kompletteras även av kraven i O7 och O8 vilket skärper kraven för dessa material grupper vid en halt av 30% resp. 20%.

Schüco Norway AS
Kommentar til tabellen:
Vinduets materiale burde ikke påvirke kravet til isoleringen. Dette er to ulike forhold som ikke er avhengig av hverandre og når man kjøper et svanemerket produkt bør man kunne forvente en viss ytelse uavhengig av materialet som brukes i rammene.Her skilles det mellom tre og ikke-fornybare materialer. De ikke-fornybare materialene er i svært høy grad resirkulerbare uten tap av egenskaper, mens det fornybare materialet tre ikke kan resirkuleres til tilsvarende produkter. Vi kan ikke se at dette forholdet hensyntas på noen måte.
Levetid er vanskelig å anslå, men de ikke-fornybare materialene vil i praksis kunne ha betydelig lengre levetid enn de fornybare, og dette uten vesentlig vedlikeholdsbehov i løpet av produktets levetid.

Vi foreslår at dette skillet fjernes og at U-verdikravet gjøres uavhengig av materialvalg.

Kommentar til grensen på 20 vektprosent ikke-fornybare materialer:
Vi stiller oss uforstående til hvorfor det ikke stilles krav til denne relativt store andelen av vinduets vekt når dette i hovedsak lages av fornybare materialer. Vi kan ikke se noen fornuftig begrunnelse for hvorfor det ikke stilles samme krav til de ikke-fornybare materialene i disse vinduene som i vinduer hvor det benyttes 100% ikke-fornybare materialer.Er begrunnelsen eventuelt at de ikke-fornybare 20% forbedrer treverkets levetid, er jo dette en «fordel» vinduene av ikke-fornybare materialer allerede har.

Forslag: Punktet om at det ikke stilles krav til de inntil 20% ikke-fornybare materialene på trevinduer fjernes. Her gjelder samme krav som for vinduer med mer enn 20 vektprosent ikke-fornybare materialer.

Schüco Sweden AB
Fönstrets material borde inte påverka kraven på dess isolering. Det är två olika frågor och därför borde det vara samma u-värdes krav på ett Svanenmärkt fönster oavsett material. Att blanda in materialval i ett kapitel som heter ”Thermal transmittance” är ologiskt.
Vi tycker inte att träfönster ska få vara sämre isolerade än fönster i exempelvis aluminium som lämpar sig mycket bra för återvinning med mycket låg miljöpåverkan, oändligt många gånger, utan försämring av sin kvalitet.

Livslängden för aluminiumfönster förväntas även vara 50 år enligt gällande EN-normer.

Förslag på ändring:
Ändra till samma U-värdes krav för träfönster som de för andra material. Alltså ha bara en rad med värden för alla material.

Skaala IFN Oy
We suggest a maximum U-value for a window door will be 0.95. The justification is to keep the cost of the product at a reasonable level. Costs are especially increased by increasing material thickness.

Svenska fönster AB
Förslaget har en god intention, men vi ser stora utmaningar och begränsningar som vi anser bör beaktas för att säkerställa att målen är tekniskt och ekonomiskt genomförbara.

1. Begränsat produktutbud och lång utvecklingsprocess

Tillgängligheten av Svanenmärkta fönster kan initialt bli begränsad, eftersom dagens produktutbud inte fullt ut kan möta de nya kraven. Utvecklingen går framåt men det tar tid att få fram nya produktplattformar som klarar de skärpta Uw-kraven, särskilt i kombination med funktionsglas. Nästa generation av fönster bör utformas så att möjligheten att uppnå låga Uw-värden även med funktionsglas säkerställs.

På den svenska marknaden finns i dagsläget heller ingen etablerad lösning för träfönster med ett Uw på 0,84 (åtminstone inte officiellt). Marknaden idag för högprestandafönster handlar till största del om trä/aluminiumprodukter. Detta innebär att möjligheten att erbjuda Svanenmärkta fönster av trä/aluminium kan bli begränsad.

2. Utvändig kondens

Ett sänkt Uw-värde ökar risken för utvändig kondens på glasytan, särskilt under hösten men även vintertid då vi har större väderomslag. Även om detta inte är ett tekniskt fel, kan det upplevas som störande för användarna eftersom kondens på morgonen kan blockera sikten ut.

Inget nytt fenomen, men det blir alltmer vanligt att man önskar ett kondensreducerande (Antifog-glas/Anti-condensation) på 3-glas fönster med lågt Uw. Även om denna beläggning inte påverkar Uw-värdet, minskar den ljustransmittansen (LT) med ca 5%, vilket kan påverka prestandan för funktionsglas negativt.

Det är viktigt att beakta att tillägg såsom kondensreducerande glas innebär en merkostnad, vilket kan göra Svanenmärkta fönster till ett dyrt alternativ om dessa tillval efterfrågas av kunden. Dessvärre upptäcker många kunder först i efterhand att de önskat denna funktion, vilket leder till missnöje med det initiala glasvalet. I samband med att kraven på Uw-värden skärps, blir det därför än mer angeläget att noggrant överväga dessa aspekter om man inte finner andra lösningar för att minska energiförluster genom produkten. Även alternativa lösningar, såsom brutna köldbryggor i bågar och karmar, medför dock ytterligare kostnader.

3. Funktionsglas och 3-glas fönster. Utmaningar med ändring från Uw 0,91 till 0,84

Skärpning av Uw-värdet ställer höga krav på förbättringar av fönsterlösningar, även utan användning av funktionsglas. Eftersom glaset utgör en betydande del av fönstret, är det oftast där justeringar görs för att nå de nya kraven. För fönster med funktionsglas blir dessa förbättringar dock än mer komplexa. Vi börjar närma oss

gränsen för vad som är möjligt att uppnå utan omfattande förändringar i hela produkten och flexibiliteten minskar avsevärt när glastjocklekarna varierar.
Det finns bättre energiglas men dom är något mörkare och påverkar LT värdet negativt. Därtill kan användning av mer isolerande glasdistanslister, såsom "superspacer", bidra till marginellt bättre värden. Det lägre Ug-värdet ökar dock risken för utvändig kondens, vilket kan vara estetiskt störande. Lösningar som antifog-glas kan minska denna risk, men dessa är också dyrare och påverkar LT-värdet.

4. Uw-värdet påverkas ofta vid val av funktionsglas

Detta då distanserna mellan glasen minskat med ökade glastjocklekar, samtidigt som den totala tjockleken på isolerrutan förblir oförändrad.
Nedan redogör vi för några exempel på hur detta kan påverka Uw-värdet:
Exempel för ett 48mm isolerglas

- Ex 1: Ett laminerat ljudglas utåt

Kortare avstånd mellan glasen: Då ändras avståndet från 18mm till 16mm i båda spalterna och därigenom försämras Ug med 0,05 enheter vilket ger en försämring på fönstret med 0,04 enheter
Grundare distanslister: En minskning med 2mm på distanserna påverkar det ca 0,01 enhet per distans på fönstrets Uw värde. vilket ger en försämring på fönstret med 0,02 enheter
Slutsats: Att minska båda avståndet mellan glasen från 18mm till 16mm = + 0,06 enheter på Uw.

- Ex 2: Solskyddsglas, enklare laminerat glas eller ett glas med lite bättre ljudreduktion. Solskyddsglasen är i dag är oftast 6mm tjocka och då behövs en tunnare distans.

Kortare avstånd mellan glasen:
För solskyddsglas, enklare laminerat glas eller glas med lite bättre ljudreduktion kan det räcka med att minska endast den ena distansen från 18mm till 16mm och därigenom försämras Ug med 0,03 enheter vilket ger en försämring på fönstret med 0,02 enheter
Grundare distanslister: En minskning med 2mm på en av distanserna påverkar det ca 0,01 enhet på fönstrets Uw värde vilket ger en försämring på fönstret med 0,01 enheter
Slutsats: Att minska ett avstånd mellan glasen från 18mm till 16mm = + 0,03 enheter på Uw.

- Exempel för kopplade fönster:

Kopplade fönster med 2+1 eller 3+1 glasning:
Nuvarande 2+1 glasade produkter med ett LT av 69% kommer sällan fram till Uw 0,84. För att komma lägre krävs bättre energiglas men dessa ger ett lägre LT-värde
Om man i stället väljer 3+1 glasning (fyra glas) hamnar man ofta Uw 0,84 och med ett LT ca 68%.

Om man dessutom adderar funktionskrav: Laminerat glas (fallrisk). Ljud reducerande glas. o.s.v. så har man bara 1% kvar till LT ≥ 67% vilket gör att kraven blir svåra att nå då dessa glas är tjockare mm. g-värdet hamnar som bäst strax under 0,5 vilket inte kan anses som solvärmereducerande glas. 3+1 glasade

produkter: Har ett högre CO2 avtryck då dessa har ett till glas i konstruktionen. Är tyngre / m2 vilket begränsar storleks utbudet. Alternativa lösningar med järnoxidfria glas för att höja LT någon enstaka % och därav kunna ha lite tjockare glas driver kostnaden uppåt och ger ett ytterligare högre CO2 avtryck.

Slutsats och rekommendationer
Sammantaget anser vi att förslaget om skärpta Uw-krav för Svanenmärkta fönster kräver en djupare analys av de tekniska och ekonomiska konsekvenserna. Vi rekommenderar att man beaktar ovanstående utmaningar och begränsningar, samt att man tar hänsyn till den ökade komplexiteten som uppstår vid användning av funktionsglas och strikta Uw-värden. Det är även viktigt att marknaden får tillräcklig tid och stöd för att utveckla nya lösningar som kan möta de skärpta kraven på ett hållbart och kostnadseffektivt sätt.

VELUX
The limit U-values for non-renewable material will de facto exclude many roof windows, as values this low typically will require the use of krypton which is not allowed in Swan labelled products. Requiring U=1,0 W/m²K is very ambitious and will require optimized construction and the use of 3-layer glazing. We do not support to make the U-value requirement dependent on the product material but suggest to set a limit on U=1,0 W/m²K for all roof windows.

Vinduesindustrien
Energy performance assessment should follow European standards.
We recommend that the Swan Nordic Ecolabel introduces a way of assessing the energy performance of windows (the energy balance), as already done in Denmark and as recommended by both EuroWindoor and the EU Commission.

In VinduesIndustrien, we recognize that a set of requirements for a reference window's U-value for wooden windows will now not be mixed up with impregnation methods. Likewise we do not recommend or understand the science behind the mixing of requirements, regarding wood and non-renewable materiales.
As a transparent building part in homes, windows have a heat loss (Uw), but in turn contribute with a significant heat gain (gw) during the heating season, when the sun is shining.

Since 2010, the Danish authorities have recognized this and have regulated the energy efficiency of the windows, both in the Building Regulations and by energy labeling A-G according to a so-called energy balance number Eref, where the influx of solar radiance calculated according to a reference house is included in the formula.

This is also a principle recommended by, among others, Eurowindoor (European trade association for stakeholders in the window industry) and by the EU Commission in relation to the investigation work for the establishment of a European energy labeling scheme A-G for windows, cf. the Eco-design directive.

The study “Heating energy savings in residential buildings due to window replacement” by Ingenieurbüro Prof. Dr. Hauser GmbH (IBH) shows that up to twice as much energy and CO2 can be saved via a regulation based on the energy balance principle, compared to if regulation is based solely on the window's U-value.

In VinduesIndustrien, we believe that it will be possible for a researcher to determine a correct formula for the energy balance (based on a reference house), even though we do have different climates and heating seasons within the Nordic countries.

The consequence of not introducing the energy balance is that windows and window types are not fairly compared and regulated, and that, for example, window types with wide frame/frame constructions are completely equated with windows with narrow frame/frame constructions that allow a greater influx of daylight and a greater influx of solar radiance for the benefit of heating the home during the heating season.

In VinduesIndustrien, we recommend that the scheme introduces the energy balance principle, and we shall be happy to participate in the development.

Nordic Ecolabelling's comments
Energy balance*: Several consultations responses have emphasized the importance of an energy balance model that takes into account both the thermal losses through a window (U-value) and the energy gain from solar radiance (g-value).*

An energy balance model/formula would be based on a reference building that is fictional, which means an actual building would look different and have a different energy balance. The actual energy balance of a window depends on the geographical location of the building and the direction (north, south, east, west) of the window. The Nordic Ecolabelling does not have steerability of where and in which building the windows are installed, thus the benefit of an energy balance requirement is limited.

Thus, a requirement for the energy balance of windows will not be implemented in the Nordic Ecolabelling criteria.

Required U-values:
Some consultation responses have emphasized that the required U-values is too strict. However, the thermal transmittance of a window is a very important parameter for the total environmental impact of a window, and Nordic Ecolabelling assess that the suggested values for wood and wood/alu façade windows and window doors are strict but possible for some producers to fulfil.

For wooden roof windows, and for products in non-renewable material Nordic Ecolabelling has decided to slightly increase the limit U-values, to better reflect the market. This adjustment is done based on consultation responses and a market analysis. Still, the values are very strict and only a small share of the market will reach them.

Different U-values for different material categories:
There are consultation responses that mean that windows made from post-consumer aluminium should meet the same requirement as wooden windows and that more material categories are needed (for example post-consumer and pre-conumer recycled material). Other responses express that there should not be any differentiation of U-values for different materials at all.

Nordic Ecolabelling mean that, from a life cycle perspective, it is important to differ between different materials in the use phase (U-value), due to the different embodied energies. However, Nordic Ecolabelling equates recycled aluminium with primary aluminium, even if the energy use in production is lower. This is due to the fact that the demand for and use of recycled aluminium, will lead to extraction of primary aluminium since there is not enough recycled aluminium in the market to meet the demand.

G-value:
The Nordic Ecolabelling requirement of g-value will not be reintroduced after consultation. However, the solar factor/g-value will be presented at the declaration of performance, which means there will not problem to calculate the total g-value with the use of sun screening.

O3 Daylight transmittance

Dovista
It is relevant to set recommendations for Light Transmittance for windows, but in cases where laminated, solar protection or noise reduction are required it can be impossible to comply with 67% light transmittance.

NorDan
NorDan ser att Lt värdet från tidigare version på 0,63 bör kvarstå. Detta då kravet på U-värde och ett skarpare krav på solljustransmittans kan påverka möjligheterna att möta andra produktkrav som ställs på produkten som säkerhet, ljudreduktion, termisk komfort.

Skaala IFN Oy
The minimum value for the daylight transmittance of the window structure is suggested to be 50%. The justification is that all properties that improve the energy efficiency of the window (coatings) affect the daylight transmittance value negatively. When such a structure still requires anti-fog to function, the daylight transmittance value further decreases.

Svenska fönster AB
Vi anser att kravet på ett ljustransmissionsvärde på minst 67% för isolerglas i fönster och dörrar behöver omprövas, särskilt med tanke på de praktiska utmaningar som detta medför för producenter och användare.

1. Kompromiss mellan ljustransmission och energieffektivitet

Ett LT-värde på 67% eller högre begränsar de tekniska möjligheterna att optimera andra viktiga parametrar såsom U-värde och g-värde. Detta kan leda till överhettning i byggnader, särskilt i söderlägen och därmed öka behovet av kylning, vilket i sin tur leder till högre energiförbrukning. Denna konflikt skapar en situation där man tvingas välja mellan optimal energieffektivitet och hög ljustransmittans, vilket vi inte anser vara en hållbar lösning.

2. Begränsad variation i glasprodukter:

De flesta isolerrutor som idag finns tillgängliga på marknaden med solskyddsglas och låga U-värden har ett LT-värde strax under 67%. Att kräva ett högre LT-värde

begränsar urvalet av tillgängliga produkter som kan möta andra viktiga krav, särskilt i projekt där solskydd och energieffektivitet prioriteras.
Vidare förvärras situationen när funktionsglas krävs, såsom laminerat glas för fallskydd, ljudreducerande glas eller inbrottsskyddande glas. I dessa fall ökar glastjockleken, vilket leder till en viss minskning av LT-värdet. Det blir därmed mycket svårt att kombinera funktionsglas med solskyddsglas i Svanenmärkta fönster om kravet på LT-värde är 67 %. Dessutom påverkas U-värdet negativt när distansen mellan glasen minskar med ökade glastjocklekar, vilket tvingar fram användning av mörkare energiglas som ytterligare sänker LT-värdet.
I kopplade konstruktioner (exempelvis 2+1 eller 3+1-glasade fönster) är det inte tekniskt möjligt att uppnå ett LT-värde på ≥67 % samtidigt som man reducerar solvärmeinsläppet eller använder funktionsglas. I de flesta projekt där dessa produkter används, såsom i Svanens Husportal, ställs för närvarande inga specifika krav på ingående produkter, utan fokus ligger på byggnadens totala prestanda.

3. Miljöpåverkan vid tillverkning:

För att nå ett LT-värde på 67% eller högre krävs ofta användning av glas med låg järnoxidhalt, såsom ”Non Iron”-glas. Produktionen av sådant glas medför högre energikostnader och ett ökat klimatavtryck på grund av de högre temperaturerna som krävs vid framställningen. Detta står i direkt konflikt med de hållbarhetsmål som Nordisk miljömärkning eftersträvar. Ett krav på 67% riskerar därför att öka CO2-utsläppen i tillverkningsprocessen, vilket underminerar de miljömässiga fördelarna med märkningen.

4. Anpassning till lokala förhållanden:

Kravet på 67% tar inte tillräcklig hänsyn till lokala klimat- och byggförhållanden. I nordeuropeiska länder kan hög ljustransmittans vara fördelaktig för att maximera dagsljusintaget, men i varmare klimatzoner kan detta leda till överhettning och ökade kylkostnader som följd.

Förslag till revidering
Vi föreslår att kravet för ljustransmittans justeras så att det möjliggör en mer flexibel tillämpning där producenter kan välja glasprodukter som bäst möter både dagsljusbehov och energikraven för specifika byggnader och klimatzoner. Detta skulle inte bara ge producenter större utrymme att utveckla innovativa lösningar utan också främja en bättre balans mellan energieffektivitet, miljöpåverkan och ljustransmission.

VELUX
It is relevant to set recommendations for Light Transmittance for windows, but in cases where laminated, solar protection or noise reduction are required it can be impossible to comply with 67% light transmittance. Laminated glass is almost always required for roof windows.

VinduesIndustrien
No comments on the determination of the LTg value of the pane. One should strive to also include information on the window's Ff (frame fraction) share so that a correct calculation can be made of the daylight (LTw).

Nordic Ecolabelling's comments
Nordic Ecolabelling agrees that a stricter requirement on light transmittance may affect the possibilities to meet other important demands such as safety, noise reduction etc. The Nordic Ecolabelling has decided to keep the requirement of daylight transmittance from the previous generation of criteria, i.e. a daylight transmittance requirement of 63%.

O4 Air permeability and climate testing

Daloc
Class 4, EN 12207, är den strängaste klassen, stryk "at least" i kravet nedan, ersätt med "strictest".

Många dörrtyper klarar Class 4 vid liksidigt klimat (sommartid). Men det viktiga ur energisynpunkt är att klara Class 4 under kalla delen av året, dvs då oliksidigt klimat föreligger. Ytterdörrar i nordiskt klimat utvärderas vid "climate d", -15 grader kalla sidan respektive 23 grader varma sidan (dörrar i ouppvärmda trapphus kan utvärderas i "climate c", +23/+3). Om dörren är otät vintertid påverkar det byggnadens energiförbrukning mer än vad ett lågt U-värde (oavsett värde) någonsin kan kompensera för.

Suggested change of requirement:
Windows, window doors and external doors must be tested pursuant to EN 1026 and fulfil the strictest Class 4 according to EN 12207 for air permeability under negative and positive pressure in combination with climate a and d test according to EN 1121. Climate d corresponds best to winter climate in Nordic countries (+23 C / -15 C)

Climate testing
The external doors must undergo differential climate (a/d) testing pursuant to standard EN 1121 and fulfil at least Class 2 according to EN 12219. Unless otherwise stated, a door of normal size is to be tested.

Dovista
A minimum of Class 4 is relevant, but it could be relevant to follow the limits set in "svensk energimärkning". Here the limit is class 4 with 1 m^3/ m^2 Hour.
The requirement must be supported by Declaration of Performance for the product.

VinduesIndustrien
Air permeability Class 4 is not sufficient for windows for new buildings with today's airtightness requirements for entire buildings. Thus, in the Danish quality scheme DVV, a stricter requirement is recommended. - The air passage at 100 Pa must not exceed 1 $m^3/h.m^2$.

Nordic Ecolabelling's comments
The requirement has been changed for external doors based on consultation comments. Doors are more exposed to the risk of deformation than windows, especially in cold climate. The requirement has been changed so that the air permeability shall be tested, in combination with climate testing, in order to ensure that the air permeability class is kept even when the door is exposed to different temperatures/climate.

Regarding windows, the Air permeability Class 4, the highest class in standard EN 14351-1, is kept. Class 4 allows air passage of 3 m³/h.m² at 100 Pa. There have been suggestions to make it even more strict by lowering the limit to 1 m³/m²h at 100 Pa, which is recommended for building projects in low energy classes by Dansk Vindues Verifikation. However, the Nordic Ecolabelling assess that Class 4 is a good minimum level for windows that could be placed in all types of buildings.

4.5.3 Material requirements

O5 Tree species with restricted use

Dovista
This point is to some point contradicting and must be written much clearer.
Propose:
- Wood must be of certified and EU DR compliant origin.
- Possible certification could be FSC or PEFC as mix70% or 100% material.
Given criteria in the hands of external NGO´s cannot be recommended.

Point O6 Traceability and certification of wood should be combined with point O5. EUDR and certification schemes like FSC and PEFC handles all relevant issues and support sustainable use of forest land. A CoC certification for manufactures and traders is always required to claim compliance to FASC and PEFC.

Svenska fönster AB
Vi accepterar förslaget men med vissa justeringar.

Sammanslagning av listor och tydligare formulering
Vi anser att kraven i nuvarande form är något otydligt formulerade. För att undvika missförstånd och säkerställa efterlevnad av reglerna föreslår vi att vissa formuleringar förtydligas, särskilt när det gäller kriterierna för när en trädart får användas, trots att den återfinns på lisorna.

Vi föreslår därför att de nuvarande listorna över förbjudna trädarter ersätts med en enda konsoliderad lista som samlar alla förbjudna trädarter. En samlad lista skulle underlätta förståelsen och tillämpningen av kraven. Alternativt kan ett tillägg göras där datum för den gällande versionen av listan tydligt anges - för att säkerställa att man arbetar med rätt information.

Certifiering genom FSC eller PEFC
Vi vill särskilt framhålla att produkter som är certifierade genom FSC eller PEFC bör godkännas utan ytterligare krav på spårbarhet och dokumentation. Dessa certifieringssystem är redan erkända och bör vara tillräckliga krav för att säkerställa hållbart skogsbruk och efterlevnad av relevanta miljökrav.

Dansk Industri
O5: DI beklager at der er indført en forbudsliste over uønskede træarter, som ikke tager hensyn til, at træarterne kan skaffes dokumenterede bæredygtige via anerkendte certificeringsordninger som FSC og PEFC. Listen modarbejder dermed en bæredygtig udvikling i de lande og de lokale skovområder, som har allermest brug

for indtægter fra disse træprodukter. Stik imod hensigten risikerer det at føre til ubæredygtig hugst, salg til opkøbere der ikke stiller krav og ultimativt konvertering af landarealet til landbrugsjord, da skoven ikke bringer lokalbefolkningen værdi fra det træ, der kan sælges fra skoven. DI opfordrer til, at der alene stilles krav om FSC og PEFC-certificeret træ i svanemærkede produkter, herunder for vinduer og yderdøre.

Miljøstyrelsen
Træarter, begrænsning, sporbarhed og certificering: Miljøstyrelsen bemærker, at Nordisk Miljømærkning ikke har fuld tillid til FSC's og PEFC's retningslinjer for bæredygtig skovdrift, når der føres en liste med træarter, der ikke tillades i Svanemærket (http://www.nordic-ecolabel.org/wood/).

Miljøstyrelsen kan bifalde behovet for, at Nordisk Miljømærkning som frivilligt mærke går længere end lovgivningen i begrænsningen af træarter, der kan anvendes. Alligevel bemærkes det, at når Svanemærket kan anvende FSC og PEFC til at definere og dokumentere bæredygtigt træ og skovdrift, så kunne man også vælge at have tillid til at lade FSC og PEFC definere, hvilke træarter, der kan opnå et certifikat fra de to organer.

Når Nordisk Miljømærkning alligevel vælger at begrænse feltet af træarter, så bør det til gengæld også ske med udgangspunkt i objektive kriterier, og her finder Miljøstyrelsen det problematisk, at Nordisk Miljømærkning vælger en fremgangsmåde alene baseret på The Rainforest Foundation

VELUX
This point is to some point contradicting and must be written much clearer.
Propose:
- Wood must be of certified and EUDR compliant origin.
- Possible certification could be FSC or PEFC as mix70% or 100% material.

Nordic Ecolabelling's comments
Nordic Ecolabelling thanks you for your comments. The requirement for restricted tree species were reviewed in 2019 and approved by the Nordic Ecolabelling board in 2020. The list of restricted tree species contains endangered tree species or species which potentially originate from Intact Forest Landscape (IFL). FSC and PEFC does not yet fully protect IFL forest and is therefore not accepted as an independent guarantee/documentation. The new 2020-requirement makes it possible to use tropical tree species on the list if certain requirements are met.

O6 Traceability and certification of wood

NorDan
Kravet på att virket skall vara FSC eller PEFC certifierat blir till stor del överflödig då EU:s avskogningsförordning träder i kraft vid årsskiftet. Via detta ställs krav på spårbarhet samt aktsamhets analys för allt trävirke.
Önskar att bagatell gränsen som fanns i tidligare version där komponenter/delar mindre än 10 viktprocent av den färdiga produkten inte omfattas av kravet på antingen FSC eller PEFC.

Detta då mindre detaljer kan levereras av mindre leverantörer som inte innehar FSC eller PEFC certifiering.

Nordic Ecolabelling's comments
Nordic Ecolabelling welcomes the upcoming EUDR legislation which aims to protect existing forests. FSC and PEFC forest management certification confirms that forest is being managed in a way that preserve biological biodiversity and benefits the lives of local people. The EUDR legislation will strengthen the wood traceability but not the forest management. Nordic Ecolabelling therefore still see a need for setting requirements for FSC and PEFC certified wood in Nordic Swan Ecolabelled products in the future. The availability of FSC/PEFC certified wood is today widespread and we do therefore not see the need for exempting wood from the requirement.

Nordic Ecolabelling understands the need for exemption for smaller wooden parts, and we have included the following exemption for the wood requirements O5 and O6: The wood requirements are not appliable for wooden plugs or other smaller wooden parts typically around 100g or less.

O7 Production of steel

Daloc

Tillåtandet av rostfritt stål i remiss 5.0 välkomnas av flera anledningar: - Rostfri tunnplåt med hög andel återvunnet material (>90%) finns tillgängligt på marknaden.
- Rostfri tunnplåt är ofta fullt ut återvinningsbart utan kvalitetsförsämring, vilket ger låg LCC.
- Rostfritt material har bättre hållbarhet för slitage och förlänger produktens totala livslängd.
- Rostfritt material har egenskaper som ger förutsättningar att nå övriga prestandakriterier.

Mer detaljerade vanlig tunnplåt (d.v.s. icke rostfri) välkomnas också, men kräver mer insikt i materialegenskaper, tillverkningsmetoder, marknadstillgänglighet och livscykelanalys.

En globalt hög och ökade efterfrågan på ordinarie stål överträffar tillgången på återvunnen råvara. Mängden återvunnet stål som finns tillgänglig idag är bara tillräcklig för att tillgodose cirka 30 % av den totala efterfrågan på stål. Detta kräver produktion av jungfruligt stål som i kombination med nedsmält återvunnet stål utgör de etablerade och utprövade plåtsorter som används till konstruktionsprodukter. Svanen har identifierat att nuvarande krav på 20% återvunnet material i vanligt stål uppnås av de flesta leverantörerna men en omedelbar justering till 70% är ett mycket stort steg. Notera även att vanlig plåt aldrig kan återvinnas fullt ut i slutet av sin livscykel, då slitage och korrosion kommer reducera mängden och degradera kvalitéten.

Ett gränsvärde på ≥70% återvunnet material anses endast var tillämpbart på rostfritt stål i nuläget och överskådlig framtid. Gällande rostfritt kan det med fördel uppjusteras ytterligare till > 90% och krav kan ställas på att materialet ska vara 100% återvinningsbart inom livscykeln.

För att förtydliga att rostfritt stål är tillåtet (vilket i remiss 5.0 endast hänvisas till genom borttagandet av förbudet i Version 4.16. och kommentarerna i ”Background to requirements O7 and O8”) skulle förslagsvis en skrivelse om att detta förordas kunna läggas till i kapitlet ”A) High proportion recycled” eller så skulle kapitlet kunna döpas om till ”A) Stainless Steel” och därmed endast vara gällande för materialtypen rostfritt stål, snarare än dess tillverkningsmetod.

För vanligt stål anses ett gränsvärde på ≥70% återvunnet material vara mycket svårt att uppnå och kan blir kontraintuitiv om inte fler aspekter beaktas enligt Dalocs kommentarer:
Kapitel **“B) Virgin steel production”** skulle förslagsvis kunna döpas om till **”B) Regular steel”** eller **”B) Non-Stainless steel”** alternativt ”**B) Low proportion recycled”,** då det fortsatt bör minst den andel återvunnet material som världsmarknadens stålleverantörer kan leverera idag.

Att fokusera primärt på gränsvärden för andel återvunnet material ger heller inte den hela bilden av klimatpåverkan. Att en Basic Oxygen Furnace (BOF) för jungfrulig ståltillverkning generar mer CO2-ekvivalenter per ton stål än en Electric Arc Furnace (EAF) som återsmälter skrot är vedertaget. Men den geografiska placeringen och ursprunget till energikällan för stålverken bör tas i beaktning i den totala LCC-beräkningen och valet av leverantör. Europeisk stålproduktion som är önskvärt för Svanen-märkta produkter tillverkade i Norden ur en transportmässig aspekt, kan exempelvis komma från produktion som antingen drivs med fossilfri kärnkraft eller smutsig kolkraft och får därmed stor varians i sitt totala klimatavtryck.

Framväxten av alternativa produktionsmetoder av stål som ska ge en nära noll utsläpp av CO2-ekvivalenter är mycket intressant för branschen, men efter flera försöka att få tag i den typen av material med de egenskaper som krävs för tillåta produktion och säkerställa övriga CE- och av Svanen kriteriegrundande egenskaper är slutsatsen att det inte är realistiskt till starten av 2025. Tillgängligheten av tunnplåt från dessa leverantörer är svår att påverka och deras fokus kan istället ligga på produkter för byggnadskonstruktioner och fordonsindustrier, såsom balk-profiler och armering, vilket har en större efterfrågan och ger större positiv effekt.

Det är viktigt att både vald underleverantör av stål och tillverkaren av den Svanmärkta produkten har en aktiv hållbarhetsstrategi med fokus på att minska energi, konsumtion och utsläpp av växthusgaser samt öka andelen återvunnet och återvinningsbart material överlag enligt de metoder som föreslås i Remissen, såsom Responsible Steel. Gränsvärdet på att endast ≥50 viktprocent bör vara enligt Responsible Steel-standarden bör dock övervägas, då det öppnar för att övriga 50% kan kringgå kriteriekrav, inklusive dess andel återvunnet material.

Slutligen bör även en ytterligare del av livscykeln som ytterdörr- och fönstertillverkare i hög grad kan påverka beaktas, nämligen den egna tillverkningens minimering av avfall såsom skrot och spillmaterial. När detta är oundvikligt, bör krav på att material återanvänds och återvinns gälla. Exempelvis ett optimerat plåtformat som ger hög andel spill kan påverka klimatet mer än ett material som har en marginellt lägre andel återvunnet men ger mindre spill.

Slutsatser Daloc:
Det är ofta en kombination av detaljer där vissa är tillverkade rostfritt och andra i vanligt stål som är optimalt för att uppnå egenskaper och lång livslängd på den kompletta produkten som ska Svanen-märkas vilket bör återspeglas i beräkningen av viktprocent och kriteriekraven.

Daloc ser positivt på att kraven för andelen återvunnet material i Svanen-märkta produkter uppjusteras från 20%, men anser att fokus bör vara ett gränsvärde för andelen återvunnet material i den färdigställda produktens helhet, snarande än endast på det ingående materialet och dess gränsvärden från leverantörer som kan fluktuera i hög grad mellan olika stålsorter.

Detta skulle kunna möjliggöra optimerade kombinationer av rostfritt stål (i exempelvis slitage- och värmeledande beståndsdelar) och vanligt stål (i andra detaljer) för skapa en balans mellan tillverkningskostnaden och egenskaperna som kan uppnå övriga Svanen-kriterier. Detta kan leda till att produkterna har en chans att konkurrera med icke Svanen-märkta produkter och därmed nå ut till fler konsumenter. Ett realistiskt gränsvärde är en ökning till ≥30% återvunnet, om man beräknar viktandelen återvunnet stål av den totala viktandelen stål i produkten*.

***** *En oklarhet i Remissen finns mellan de följande två stycken angående inkludering eller exkludering av mindre komponenter i den totala viktprocent beräkningen för produkten:*
Kapitel 3.5.2 Metals, punkt 3. Sidan 26:
”Smaller parts like hinges, handles, fittings, kick plates, lists etc. ***are excluded*** *from the weight%-calculation and the metal requirements are not appliable for these parts.”*
Background to requirements O7 and O8, andra stycket. Sidan 31:
“Smaller parts like hinges, handles, fittings, kick plates, lists etc that are part of the metal weight% for a window or door and ***must be included*** *in the weight%-calculation, do not need to comply with the metal requirements and no documentation is required for these parts.”*

Glass og Fasadeforeningen
GF stiller seg bak krav som fremmer materialgjenvinning.
På samme måte som glass, kan aluminium og stål resirkuleres uendelig uten å miste sine egenskaper. Materialene har lang holdbarhet med mindre behov for utskifting og vedlikehold enn for eksempel trekonstruksjoner. Over tid vil dette redusere behovet for å utvinne nye råmaterialer. Svanemerket må fremme gjenvinnbare materialer på linje med fornybare.

Miljøstyrelsen
Stålproduktion, stål, herunder genanvendt indhold: Miljøstyrelsen foreslår at der sættes informationskrav til fordelingen af pre- og post-consumer recycled steel. Ansøgerne skal levere denne data, som en del af ansøgning. Data for fordelingen af pre- og post-consumer recycled steel, som opsamles gennem ansøgningerne, vil kunne danne grundlag for fastsættelse af en maxværdi for indholdet af pre-consumer recycled steel i en senere revision, med det formål at reducere indholdet af pre-consumer, og i stedet øge mængden af post-consumer recycled steel.

Miljøstyrelsen foreslår at kravet til ”… sustainability strategy on reducing energy consumption and greenhouse gas emissions” fjernes da det vurderes at en god bæredygtighedsplan, ikke nødvendigvis sikrer en god miljøperformance.

Miljøstyrelsen foreslår, at producenten skal leve op til alle energieffektivitetstiltag, for den relevante teknologi, som er listet i appendiks 2. Dette skyldes at BAT-konklusionerne er udarbejdet på baggrund af en stor teknisk undersøgelse af branchens teknikker, og det er vurderet at virksomhederne kan anvende de valgte teknikker uden store økonomiske konsekvenser.

Miljøstyrelsen foreslår at ændre: "Signed agreement/declaration between the steel supplier and the manufacturer of the Nordic Swan Ecolabelled product stating that the requirement is met" til: "Signed declaration by the steel supplier stating the recycling rate with relevant assumptions and that it conforms with the requirement".

NorDan
NorDan skulle vilja ha ett förtydligande om vad som klassas som "mindre delar"? I de föreslagna kriterierna är definitionen av mindre delar öppen för subjektiv tolkning.

Schüco Norway AS
Stålvinduer er antakelig ikke så veldig aktuelle som svanemerkede vinduer, og vi har ikke hatt tid og anledning til å vurdere kravene nærmere, men å kreve minst 75 % resirkulert stål virker urealistisk høyt. Det jobbes også her for å øke andelen resirkulert materiale, men ut fra det vi vet uten å dykke lenger ned i materien, er at det er begrenset tilgang på brukt stål og en andel høyere enn 15-25% er vanskelig å oppnå i gjennomsnitt / uten å forfordele til øremerkede prosjekter (noe som ikke gir noen miljøgevinst totalt sett).

Nordic Ecolabelling's comments
Based on the input above and some further investigations, Nordic Ecolabelling has changed the following in the requirements:

- *The introduction text in the metal requirements in 3.5.2 about smaller parts (bullet point 3), has been modified to be more specific and in line with the intention that smaller parts does not need to be documented according to the metal requirements even if they should be included in the weight calculations.*
- *The requirement for recycled steel, option 1 (bullet point 1) has been changed from "agreement between the steel supplier and the manufacturer of the Nordic Swan Ecolabelled product" to "declaration from the steel supplier" as this is seen as a better wording.*
- *It is now defined in the definitions table that by using the wording "steel" both carbon steel and stainless steel is included. We do not differentiate between carbon steel and stainless steel in the requirements.*

Nordic Ecolabelling has received many comments to our general steel requirements applicable for several product groups. Here are our answers to these comments:

- *Nordic Ecolabelling acknowledges the importance of the difference between pre- and postconsumer recycled steel, and this topic has been discussed in the revision project group. Today, it is challenging to get specific documentation that distinguish between pre- and postconsumer recycled steel, and as it is also important to give window and door producers flexibility to achieve the*

ambition requirements, we will not differ between pre- and postconsumer recycled steel in this generation of the criteria. Nordic Ecolabelling will possibly differentiate between pre- and postconsumer recycled steel in the next generation.

- *Nordic Ecolabelling has looked into the possibility of having limits for recycled steel on a product level, but we concluded that it is too complicated to balance recycled material content on a product level. The producer of the final product does not have the information to document such requirements.*
- *Nordic Ecolabelling has concluded that it is not enough steel with Responsible Steel-certificate available to be more progressive than 50 weight% in this virgin steel requirement*
- *Nordic Ecolabelling will keep the limit 75 weight% recycled steel in this generation as this is the first time we have detailed requirements for carbon steel and stainless steel in this product group.*
- *Nordic Ecolabelling is aware of that transportation of steel might give increased environmental impact from steel production. Steel has a global supply chain network which might give elevated emissions from the transport. In practice most steel suppliers can order steel produced in Europe with reduced environmental impact.*
- *Nordic Ecolabelling wants to emphasize that as an alternative to 75% recycled steel, it is possible to use virgin steel and comply with strict environmental requirements. All virgin steel production uses in average ca. 20% recycled steel because of the quality of steel and production benefits. The reason to increase the limit to 75% recycled is because EAF (electric arc furnace) steel production always has a high content of recycled steel (=>75%). We have this 75% limit value because we allow a mix of pre- and postconsumer steel which is common for most EAF steel production plants. EAF production plants are available in Europe, and the world production of EAF steel is relatively increasing.*

O8 Production of aluminium

Dovista
To classify a window construction without including glass is not relevant. So modern window constructions use the Insulating Glass Unit (IGU) as the basis for the window. This means that casement and hardware is attached to the IGU and not the opposite.

It is a way to make the material use efficient and to keep the window construction minimalistic, but when glass is excluded from the bill of materials it gives a wrong impression of the product profile.

	kg in standard size (1230x1480)	kg in standard size (1230x1480)	kg in standard size (1230x2180)	kg in standard size (1230x1480)
Material	Top Guided Outward	Fixed Casement	Casement Door	Top Hung Fully Reversible
Pane	46,0	46,0	68,8	46,0
Timber	12,6	12,6	13,0	12,6
Paint	1,4	1,4	1,5	1,4
Aluminium	4,9	4,8	9,3	5,4
Plastics	2,6	2,8	3,9	2,8
Gasket	1,9	1,9	2,4	1,9
Steel	2,3	0,9	2,8	3,6
Sealant & Glue	0,2	0,2	0,3	0,2
	72,0	69,1	100,4	72,5
Share of alu	6,8%	6,9%	9,3%	7,5%

Propose: - Limit of content of aluminum to 10% including IGU.

Point O8: High proportion of recycled aluminum is only available in very small volumes. So, options for use of primary aluminum must be an option.

Hydro Building Systems
Vår ståndpunkt är att kravet på 75% återvunnen aluminium ska gälla post-consumer scrap. Det är först efter att produkten har använts i en byggnad som materialet inte utgör någon klimatpåverkan i kommande livscykler.

Genom att kravställa post-consumer scrap uppmuntrar man till ett cirkulärt flöde inom byggbranschen där gamla uttjänta produkter tas tillbaka och återvinns vilket är viktigt för att minska klimatpåverkan och minska materialutvinning.

Idag är tillgången på CIRCAL 75R god och standard för SAPA´s byggsystem. Den information som finns som bakgrund i remissen är gammal. 2023 användes 51.000 ton CIRCAL till byggsystem inom HBS globalt och kapaciteten kommer att utökas till att ligga runt 250.000-350.000 ton år 2030.

Miljöstyrelsen
Aluminiumsproduktion, aluminium, herunder genanvendt indhold: Miljøstyrelsen foreslår at der sættes informationskrav til fordelingen af pre- og post-consumer recycled aluminium. Ansøgerne skal levere denne data, som en del af ansøgning. Data for fordelingen af pre- og post-consumer recycled aluminium som opsamles gennem ansøgningerne, vil kunne danne

grundlag for fastsættelse af en maxværdi for indholdet af pre-consumer recycled aluminium i en senere revision, med det formål at reducere indholdet af pre-consumer, og i stedet øge mængden af post-consumer recycled aluminium.

Miljøstyrelsen foreslår at kravet til "... an active sustainability strategy focusing on reducing energy consumption and greenhouse gas emissions" fjernes, da det vurderes at en god bæredygtigheds plan, ikke nødvendigvis sikrer en god miljøperformance.

Miljøstyrelsen foreslår at ændre " .. signed agreement between the producer of aluminium/supplier of aluminium and the manufacturer of the Nordic Swan

Ecolabelled product stating that the requirement is met" til: "Signed declaration by the steel supplier stating the recycling rate with relevant assumptions and that it conforms with the requirement".

NorDan
NorDan skulle vilja ha ett förtydligande om vad som klassas som "mindre delar"? I de föreslagna kriterierna är definitionen av mindre delar öppen för subjektiv tolkning.

Schüco Norway AS
High proportion recycled
A minimum of 75% by weight of aluminium must be recycled.
Recycled aluminium is defined as both pre- and post-consumed, cf. definition in ISO 14021.
Dette er et krav som kan innfris av flere, både som beskrevet her bestående av både pre- and postconsumed scrap og med bare post-consumed scrap. Dette har neppe noen stor betydning for klodens miljø, i Europa blir mer eller mindre all tilgjengelig aluminium og kanskje spesielt preconsumed scrap, uansett samlet inn og resirkulert. Materialet er for verdifullt til å havne på en
fylling. Det å inkludere Pre-consumed scrap i 75%-kravet åpner i prinsippet opp for at man kan smelte om ny profiler for å nå målet, noe som selvfølgelig er uheldig. Det bør heller oppfordres til å redusere pre-consumed scrap-mengden så mye som mulig. Da er det bedre å heller senke kravet om 75% resirkulert materiale. Eventuelt kan et krav om en lav GWP-verdi være et alternativ til krav om andel resirkulert aluminium, noe som kan åpne for nye innovative løsninger for å nå disse verdiene.

Valid Hydro Circal certificate
Kommentar: Vi mener det er uheldig å blande et varemerke inn i regelverket for Svanemerking. Egne produktnavn som f.eks. dette kan endre sammensetning av innhold uten at Svanemerket blir informert eller kan påvirke dette, samtidig som det finnes andre leverandører som kan levere tilsvarende kvaliteter under andre navn og sertifikater. Fra oss (Schüco) kan vi levere vår sertifiserte kvalitet med tilsvarende egenskaper som har betegnelsen ULC (Ultra Low Carbon). Forslag: Varemerket Hydro Circal fjernes fra regelverket (Under Background to requirements O7 and O8 er det i teksten og kildehenvisningene også i stor grad henvist til Hydro og dette varemerket. Det finnes flere aktører med til dels litt andre innfallsvinkler enn Hydro som har både lignende produkter og også andre produkter som kanskje burde vært vurdert. Generell informasjon om aluminum kretsløp og andel resirkulert aluminium kan blant annet finnes her: https://alucycle.world-aluminium.org/public/global/index.html)

Schüco Sweden AB
Att blanda in varumärkesnamn i ett regelverk ifrågasätter vi starkt. De som använder Hydro circal kan även de lämna in en EPD som alla andra. Då Hydro bestämmer reglerna för Hydro Circal skulle de kunna ändra % återvunnet alumnium i Circal utan Svanens vetande/påverkansmöjlighet.

Förslag på ändring:
Stryk "valid Hydro Circal certificate" från möjliga verifieringssätt.
Om ni väljer att ha kvar denna punkt skulle Schüco vilja att även vårt aluminium med minst 75% andel återvunnet läggs till listan på verifieringsmöjligheter. Det

heter Schuco ULC, Ultra Low Carb. Alltså lägga till som en punkt på listan med ”Valid Schüco ULC certificate” (EPD finns bifogat).

Nordic Ecolabelling's comments
Based on the input above and some further investigations, Nordic Ecolabelling has changed the following in the requirements:

- *Data about Hydro Circal has been updated in the background text.*
- *The requirement for recycled aluminium, option 1 (bullet point 1) has been changed from “agreement between the aluminium supplier and the manufacturer of the Nordic Swan Ecolabelled product” to “declaration from the aluminium supplier” as this is seen as a better wording.*
- *The introduction text in the metal requirements in 3.5.2 about smaller parts (bullet point 3), has been modified to be more specific and in line with the intention that smaller parts does not need to be documented according to the metal requirements even if they should be included in the weight calculations.*

Nordic Ecolabelling has received several comments to our general aluminium requirements applicable for several product groups. Here are our answers to these comments:

- *Nordic Ecolabelling acknowledge the importance of the difference between pre- and postconsumer recycled aluminium, and this topic has been discussed in the revision project group. Today, it is challenging to get specific documentation that distinguish between pre- and postconsumer recycled aluminium, and as it is also important to give window and door producers flexibility to achieve the ambition requirements, we will not differ between pre- and postconsumer recycled aluminium in this generation of the criteria. Nordic Ecolabelling will possibly differentiate between pre- and postconsumer recycled aluminium in the next generation.*
- *Nordic Ecolabelling acknowledge the comment about removing the brand Hydro Circal from the criteria and will see if we can include alternative documentation requirement on the same level in future requirements, but per today we have not seen other aluminium producers having the same level of standard i.e. full traceability to all production plants.*

Nordic Ecolabelling has also received a comment regarding excluding the glass from the weight%-calculations for a window. Nordic Ecolabelling emphasize that we want to have all materials also glass listed in the bill of material, but for the calculations for when metal requirements will apply, we want glass to be excluded from the weight%-calculations as the glass-weight might affect the calculations so that the metal requirements will not be applicable at all.

O9 Excluded substances in insulation materials

Dovista
Limits of 0.01% for SVHC as mentioned in Point O9 is very difficult to document, because the upstream supply chain is set up with reference to REACH limits. We cannot support this kind of requirement but will always comply to REACH.

Svenska fönster AB
Vi anser att detta krav, även om det har goda intentioner, är oproportionerligt strikt och medför betydande tekniska och ekonomiska utmaningar för producenter. Vi ser att nuvarande gränsvärde på 0,1% behålls.

1. Harmonisering med etablerade standarder och praxis
Att behålla gränsen 0,1% ligger i linje med gällande bestämmelser i REACH-förordningen och andra vanliga märkningar inom byggbranschen. Genom att behålla gränsvärdet på 0,1% säkerställs att kravställningen är i harmoni med existerande regler, vilket också underlättar för företag att följa en enhetlig standard i hela EU.

2. Tekniska och praktiska utmaningar
Att spåra och redovisa halter av SVHC-ämnen på en så låg nivå som 0,01% är komplicerat. För att uppfylla ett sådant krav skulle kontinuerliga och kostsamma analyser krävas, vilket för många företag, särskilt små och medelstora aktörer skulle innebära en orimlig börda. Vidare kan det finnas utmaningar med att på ett tillförlitligt sätt kvantifiera så låga halter av SVHC-ämnen.

Att begära in denna dokumentation skulle medföra en orimlig administrativ börda för producenter, då det kan innebära ett stort antal underleverantörer och flera led i produktionskedjan som behöver följas upp.

Förslag till revidering
Vi ser positivt på att minska förekomsten av farliga ämnen i byggmaterial men menar dock att gränsvärdet för ingående SVHC-ämnen fortsatt bör ligga på 0,1% för att bättre harmoniera med nuvarande regelverk och kriterier i motsvarande produktmärkningar.

VinduesIndustrien
It is not consistent, for example, to ban substances, e.g. classified as carcinogenic, mutagenic, or toxic for reproduction (CMR) Category 1A or 1B in insulation materials, and then to allow them to be used in large quantities (Propiconazole) in vacuum-impregnated wood, whenother alternative solutions are available on the market for wooden windows.

In Denmark, for example, there is System 2ØKO, with the use of heartwood that is naturally impregnated and where a surface treatment that meets EN 152 against blue stain in the surface is sufficient. Surface treatments against blue stain completely without the use of Propiconazole are already available on the market.

VELUX
We acknowledge the aim to have requirements which go beyond legal requirement also when it comes to chemicals. However limits of 0.01% for SVHC as mentioned in Point O9 is very difficult to document, because the complex upstream supply chain

for windows and external doors is set up with reference to REACH limits, and therefore solid documentation on lower limits will not be available. We can therefore not support this kind of requirement but will always comply to REACH.

Nordic Ecolabelling's comments
Nordic Ecolabelling will keep the limit of 0.01 weight% for ingoing substances in insulation materials to be aligned with the requirements applicable for insulation materials used in other Nordic Swan Ecolabelled construction products.

Nordic Ecolabelling strives to always exclude substances classified as carcinogenic, mutagenic or toxic for reproduction (CMR). But due to time needed for substitution/development and testing of new alternative substances, Nordic Ecolabelling will in some cases have excemptions for specific substances like propiconazole. The exemption is only granted as long as propiconazole is approved for use as wood preservative according to the Biocides Regulation EU 528/2012.

4.5.4 Chemical requirements

Akzo Nobel Industrial Coatings ABs
Undantag för Butylhydroxitoluen (BHT) cas 128-37-0 måste införas i sektion O14 på samma sätt som i kriteriedokumentet för Färger och Lacker 096 i punkt O12; Butylhydroxitoluen (BHT, CAS. nr 128-37-0) är undantaget kravet upp till 100 ppm i slutprodukten. Det är inte logiskt att BHT är godkänt i färg som säljs till konsumenter och samtidigt förbjudet i industriprodukter.

Då undantaget för CMR kat.2 <0,5% har tagits bort i sektion O12 önskar vi att man istället inkluderar ett undantag för flyktiga aromatiska föreningar (VAH) upp till 1 %, vilket är samma undantag som finns i t.ex. kriteriedokumentet för Möbler och inredningar 031.

BITUS LATVIA SIA
Chapter O11 – Classification of chemical products Chapter O12 – Classification of ingoing substances Chapter O13 – Preservatives Chapter O14 – Prohibited substances Chapter O21 – Durability of exposed wood parts Our painting system is tested and used more than 20 years period, and it is very good, we in general almost never received claims about paint issues and wood rot. And it would be disaster if we will not be able to use it after new criteria changes. Because there is not such a good other alternative. At least we don’t know better or equal painting system than ours.

Daloc:
Det är nödvändigt att det finns ett undantag för MDI-baserade polyuretanlimmer (PUR), då det idag inte finns några alternativ till användningen av PUR-limmer. Men då bör även en av de modernaste typen av acceleratorer som idag används i PUR-lim läggas med på undantagslistan. I annat fall kan inte PUR-limmer användas och kommer utesluta ett flertal produkter. Därför föreslår vi att ett undantag för dioktyltenndilaurat görs.

Vidare ser vi att det bör göras ett undantag för ämnen som bildas i reaktioner och endast finns under tillverkningsprocessen, i de fall då denna processen sker i en sluten miljö där personal ej kommer i kontakt med de bildade ämnen och där utgående luft filtreras innan den släpps ut.

Vårat förslag är därför att undantagen under kapitel O12 kompletteras med följande:
• Adhesive containing dioctyltin dilaurate (CAS No. 3648-18-8) classified as H360D. For these chemical products, up to 0.3% by weight (3000 ppm) of free dioctyltin dilaurate is permitted.
• H361 classified substances that are created as a reaction in hardening of paints. Given that the substances no longer exists on the product when process is finished and that the process takes place in an controlled and closed environment that workers are not exposed to.

Danmarks Farve- og Limindustri
Vi har desuden et par kommentarer at knytte til O13 Preservatives, mest af alt for at få afklaret, hvad der egentlig menes.

Der er som bekendt generelt udfordringer med rådproblemer under opbevaring af de vandfortyndbare produkterne med de begrænsninger, der er i udvalget af aktivstoffer, der findes i dag. Grænserne, der er foreslået i tabel 5, er ambitiøse, men acceptable - og teknisk opnåelige med den bemærkning, at vi nærmer os den absolutte laveste grænser for hvad man kan nøjes med i forhold til konservering – både in can (PT6) og konservering af malingsfilmen (PT7).

Men vi finder sætningen under tabel 5 noget forvirrende.
*Wood preservatives used as impregnation agents are exempted from this requirement. Wood preservatives used in surface treatment like paint and oil, are not exempted from this requirement.

I henviser i Background to requirement O13 til kriterierne for udemøbler. Her benyttes en anden sætning end ovenstående, som bedre illustrer, hvad det handler om:
“Wood preservatives are exempted from the requirement concerning preservatives. In this context, wood preservative means an impregnation agent or primer that makes the wood resistant to fungal attack/rot. Paint and oil that may be applied after priming or impregnation are not exempt from this requirement.”

Vi synes, I skal benytte den sætning i stedet, da termen ”Wood preservatives” ifølge BPR bruges om PT8 produkterne, dvs. produkter godkendt til beskyttelse af træprodukter ved at bekæmpe organismer, der ødelægger eller skæmmer træet – og ikke om produkter, der ”blot” er tilsat et konserveringsmiddel, der beskytter malingsfilmen (PT7).

Det er relevant for IPBC, som både er godkendt til brug i PT7 og PT8 og som er et meget vigtigt aktivstof, da udbuddet af virksomme aktivstoffer i lighed in can konserveringsmidlerne (PT6) er meget begrænsede.

Dovista
The exemption given for Propiconazole must also be given to IPBC, because IPBC must likely have the same classification in the near future.

Miljøstyrelsen
O12: Klassificering af kemiske stoffer:
Bemærk at propiconazol opfylder kriterierne for hormonforstyrrende egenskaber for mennesker og miljø under BPR (svarende til fareklasserne ED HH 1 og ED ENV 1). Hvis propiconazol skal tillades i produkterne, så bør det fremgå at der også dispenseres fra denne egenskab og ikke kun Repr 1B klassificeringen.

O13: Konserveringsmidler: Det er ikke klart, hvordan grænseværdierne i tabel 5 er udledt. Miljøstyrelsen bemærker, at der i lighed med CMIT/MIT også for MBIT og MIT er fastsat en specifik koncentrationsgrænse (SCL) på 0,0015 % ift. klassificering som Skin Sens 1A (H317). For BIT er der fastsat en SCL på 0,036%. For CIT i produkttype 6 er der i Biocidproduktkomiteens (BPC) udtalelse foreslået en tilsvarende SCL.

Miljøstyrelsen bemærker, at der også er andre godkendte konserveringsmidler, som ikke fremgår af listen. Kriteriedokumentet bør klargøre, hvorfor der for nogle konserveringsmidler er fastsat grænseværdier, men ikke for andre.

Miljøstyrelsen bemærker, at det som minimum bør fremgå af kriteriedokumentet, at konserveringsmidlerne skal være godkendte eller under vurdering for at kunne indgå i produkterne.

O14: Udelukkede kemiske stoffer: Bemærk at D4, D5 og D6 ikke kun fremgår af Kandidatlisten, som angivet i baggrundsteksten til O14, men også er begrænset via REACH forordningens bilag XVII, indgang 70, således at disse stoffer ikke må markedsføres efter den 6. juni 2026 som bestanddel i andre stoffer eller i blandinger i en koncentration på 0,1 vægtprocent (1000 ppm) eller derover. Restriktionen rummer en række undtagelser og højere grænseværdier. Som udgangspunkt er Miljømærkning Danmarks kriterier til indhold af D4, D5 og D6 i kemiske produkter, der anvendes i produktionen af vinduer således ikke mere restriktive end lovgivningen. Nordisk Miljømærkning bør derfor gøre mere rede for at undtagelser og højere grænseværdier ikke gælder i Svanemærkets kriterier for vinduer.

Miljøstyrelsen arbejder sammen med fem andre EU medlemslande på en anvendelsesbegrænsning af alle PFAS under REACH-forordningen og derfor støtter vi Miljømærkning Danmarks krav vedr. indhold af PFAS.

NorDan
O12: Ställer oss frågande hur ett kategoriskt förbud mot CMR kategori 2 ämnen kommer påverka utbudet av tillgängliga produkter för branschen. Av erfarenheter kan vi se att kemikalier kan innehålla halter av ämnen klassade som CMR kategori 2 ämnen.

O14: DINP phftalate var tidigare undantagen för PUR fogmassor med anledning till att det används vanligt som mjukgörare i polyuretanfogmassa i glaskasseten. Vi ser fortfarande att DINP är vanligt förekommer i tätningen av glaskasseten och anser att undantaget bör kvarstå.

Sherwin-Williams Sweden AB
O13: The exemption for impregnation is not clear. It is better defined in criteria document “Outdoor furniture”. Please update the sentence for no misunderstanding in the future.

O15: BHT (CAS:128-37-0) is still under investigation for being endocrine disruptive. Banding this inhibitor would affect many UV curing products as some of the key raw materials often contains BHT as an inhibitor. An inhibitor hinders the raw material to spontaneously polymerize in the can which means that the raw material can be stored. There are no equivalent substitutes on the market as it is under investigation and not been confirmed as endocrine disruptive. Please add the same exemption for BHT as there is in criteria document “Furniture and Fitments” and “Floor coverings”.

In addition, Propiconazole, D4, D5 and D6 are all listed in ED list I-III. Please add exemption for these substances as there are other exemption for use of these substances in other requirements.

Svenska fönster AB
O11 Classification of ingoing substances
Gällande undantaget för propiconazol (CAS 60207-90-1) föreslår vi att även IPBC (CAS 55406-53-6) bör adderas till undantaget då det är högst sannolikt att det kommer att klassificeras under samma villkor som propiconazol inom de närmaste åren.

1.Riskhantering och miljöskydd
Med tanke på att Svanen redan ställer hårda krav på hantering och användning av kemikalier, inklusive dokumentationskrav och begränsningar i koncentrationer så anser vi att inkluderingen av IPBC ej medför någon signifikant risk för hälsa eller miljö.

2.Propiconazol & IPBC
Det finns starka indikationer på att IPBC kan komma att genomgå liknande omklassificeringar som propiconazol och det finns listat i ECHAs databas över biocider som är under utvärdering.

Förslag till revidering
Sammanfattningsvis anser vi att inkluderingen av IPBC är en nödvändig åtgärd för att säkerställa att Svanenmärkta produkter fortsätter att uppfylla höga kvalitets- och hållbarhetskrav, samtidigt som tillgången på effektiva skyddsmedel bevaras.

Teknos
O12: We ‘Accept the Proposal with the following comments’: The introduction of a ban on Category 2 carcinogens and also the inclusion of all the new hazard classes recently introduced unilaterally by the EU authorities into the CLP legislation (i.e. not in agreement or in conjunction with the UN GHS authorities) is understandable and at present is achievable, with the noted exemptions (especially the one for Trimethylolpropane (Repro cat 2) used in the surface treatment of Titanium Dioxide, and for TiO2 (Carcinogen Cat 2, pending court case conclusion) separately). However,we would urge considerable caution regarding this
4 (4) approach as the new hazard classes start to become a regular feature in both self- and harmonized classifications of substances. It is quite possible that in the future an existing essential substance used in our paints and coatings for window and door protection could be proposed or even classified as e.g. a class 2 Endocrine Disruptor for Human Health or for the Environment. This is especially concerning as the criteria and guidance on ED category 2s is confusing and not

clear-cut, so could potentially become a topic of controversy. There would then need to be further discussions and applications for additional exemptions to allow continued use of paint and coating materials that would still meet the durability and performance requirements for the finished article and system. In addition, we therefore kindly suggest that the Nordic Swan Ecolabel authorities may like to rethink or postpone the inclusion of category 2 EDs in the criteria / table 4, until at least the reality of future Endocrine Disruptor classifications is better understood.

O13: We 'Oppose the Proposal because of the following': We fully understand the need to control and minimize the content of preservatives in our paints. The proposed new limit values stated in O13 are very ambitious but we believe that these are technically achievable for our paints and coatings. However, it should be noted that we are now reaching the absolute limits for preservative content – if these limit values were reduced any further then there would be a significant risk of product failure during manufacture, storage and / or application, resulting in an inferior-performing product that would no longer meet the market requirements or be fit-for-use. Inadequately protected paints may pose a significant health risk. We are concerned that the proposal includes the following text:

**Wood preservatives used as impregnation agents are exempted from this requirement. Wood preservatives used in surface treatment like paint and oil, are not exempted from this requirement.*

This confuses and conflicts with the basic approach taken under the BPR legislation, where Product Type 8 approved products include both impregnation and surface treatment products such as paints and oils. We would kindly ask the authorities to reconsider splitting out impregnation agents from the other product types. Where possible, ecolabelling should be aligned with EU legislation covering these products, i.e. BPR categorization and rules. This also of course links with the above-mentioned warranty topic – as the levels of film-protecting preservatives such as IPBC are reduced, so the risk of wood rot developing increases. IPBC is an essential preservative for our business sector now, and comprehensive efforts are currently underway to demonstrate that there are no technical replacements to this important substance. Likewise, isothiazolinones are an essential component for all waterbased mixtures, to ensure proper protection against contamination 'in-can'.

VELUX

The exemption given for Propiconazole must also be given to IPBC, because IPBC most likely will have the same classification in the near future.
We agree that the use of PFASs should eventually be prohibited but it will be a huge task for the entire industry not least because the substance potentially can be in many different components. We would suggest to change the requirement into requiring the applicant to document a plan for substituting PFASs.

VinduesIndustrien

O11 Classification of chemical products
Propiconazole is classified as carcinogenic, mutagenic, or toxic for reproduction (CMR) Category 1A or 1B and is exempt from the list.
In Denmark, it is standard to produce wooden windows according to the treatment system "System 2ØKO". By this system, it is required to use heartwood and a surface

treatment, fulfilling the requirement as specified in EN 152 against blue stain. There are several surface treatments without Propiconazole available on the market.

O12 Classification of ingoing substances
Same answer as in O11. The use of e.g. Propiconazole should not be allowed when more environmentally friendly alternatives are availble, such as the Danish System 2ØKO windows -without vacuum impregnation (VOC) and the use of Propiconazole.

O13 Preservatives
It is not consistent to allow impregnating agents which are classified as carcinogenic, mutagenic, or toxic for reproduction (CMR) Category 1A or 1B in order to prohibit or for example limit the consumption of e.g. IPBC which is "only" used to prevent surface disruptions (blue stain) and which does not have the same hazardous classification. The fixed limit value of 4,500 ppm (0.45% by weight) is set too low compared to the solutions available on the market. We recommend a limit value of at least (0.6 by weight).

O14 Prohibited substances
The Nordic Swan Ecolabel allows vacuum impregnation using large amounts of VOC of 6 kg/m3 treated wood, and using the fungicide Propiconazole which is classified as carcinogenic, mutagenic, or toxic for reproduction (CMR) Category 1A or 1B against rot and blue stain. We see a significant risk of employees being exposed to VCs and Propiconazole in the process and in the subsequent work.

O15 Nanomaterials
It is difficult for the window manufacturers to obtain the required documentation, as knowledge about the use of nanomaterials often 'lies many stages away' in the chain of materials.

Nordic Ecolabelling's comments
Nordic Ecolabelling is grateful for all input we have received related to the suggestion for chemical requirements for windows and doors. Based on the input and some further investigations, Nordic Ecolabelling has changed the following:

- *An exemption is included in O11 Classification of chemical products for classification H372, H400 and H410 for iodopropynyl butylcarbamate (IPBC, CAS No. 55406-53-6) used as wood preservative.*
- *An exemption is included in O12 for adhesive containing dioctyltin dilaurate (CAS No. 3648-18-8) classified as H360. For these chemical products, up to 0.3% by weight (3000 ppm) of free dioctyltin dilaurate is permitted.*
- *An exemption is included in O12 for Volatile aromatic hydrocarbons (VAH) in* the chemical product as an impurity *at a level of up to 1% by weight.*
- *The limit value for IPBC used as a preservative in chemical products, is increased from 4500ppm to 6000ppm in O13.*
- *The limit value for MIT used as a preservative in chemical products, is decreased from 100ppm to 15 ppm in O13 as both CMIT/MIT and MIT have specific concentration limit (SCL) on 15ppm.*
- *The wording used in the table in O13 Preservatives, is changed to make it clearer which preservatives that are exempted from the requirement.*
- *ED-list I in O14 and O9: Propiconazole (CAS No. 60207-90-1) used as wood preservative is exempted.*

- *ED-list II in O14: Butylated hydroxytoluene (BHT, CAS. no 128-37-0) is exempted up to 100 ppm in the final product.*
- *An exemption is made for diisononyl phthalate (DINP) used in polyurethane filler/sealant in O14 and O9.*

Nordic Ecolabelling has not changed the following:

- *The ED-classifications for ingoing substances as we already prohibit the substances on the ED-lists.*
- *Included more preservatives to the limitation list for specific preservatives in O13 as this list of preservatives is based on our knowledge about preservatives normally used in the products in question.*
- *The requirements for the prohibited substances D4, D5 and D6. The document referred to, REACH appendix 17, entrance 70, is applicable for cosmetics.*

4.5.5 Emissions to air

Dansk Industri
Den danske vinduesbranche har i en årrække sammen med andre gode kræfter arbejdet på at producere holdbare trævinduer på en måde, der udgør en så lille belastning for miljø og arbejdsvilkår som muligt. Det er således lykkedes i Danmark helt at udfase brugen af vakuumimprægnering uden at gå på kompromis med holdbarheden. Nogle producenter opnår det med de såkaldte 2ØKO-systemer, hvor der er høj andel af kerneved i træet (min. 90 %), og som er behandlet med miljøvenlige vandige malingssystemer.

Fra DI's side mener vi derfor ikke, at vakuumimprægnering bør være en mulighed, hvis man vil svanemærke vinduer. Vi er klar over, at det er ambitiøst, og vi støtter generelt, at industrien skal have tid til at omstille sig, så det er realistisk, at en god fjerdedel af markedet kan opnå certificeringen. Men allerede i forbindelse med den seneste revision af Svanemærkekriterierne for vinduer for ca. 5 år siden, havde DI samme bemærkning, og der har således været rigeligt med tid til at omstille sig. I Danmark er der i dag ingen, der vakuumimprægnerer vinduer.

Det bemærkes, at vi i stigende grad ser Svanemærket brugt i udbud, hvilket er en udvikling, vi glæder os over i DI. Men når det gælder vinduer medfører det paradoksalt nok, at man ikke får det miljø-mæssigt og arbejdsmiljømæssigt mest skånsomme produkt, når man vælger Svanemærkede vinduer i dag. Det er en betydelig besparelse at hente at bruge træ af splintved (den yderste del af træstammen, modsat kernetræ) og behandle det kemisk (vakuumimprægnering) for at leve op til holdbarhedskravene. Når den anvendte kemi tillades i Svanemærket, vil denne type vinduer derfor ofte vinde de offentlige udbud. På bekostning af miljø og arbejdsmiljø.

Dovista
To accept Solvent-based vacuum treatment is by no means in line with the purpose of supporting the healthy working environment. The solvent-based vacuum treatment will result in exposure of work force to VOC and dissolved biocides in the air of the manufacturing site. This option must be excluded.

Miljøstyrelsen
Emissioner fra imprægnering af træ: Bemærker, at kravet er skrappere end EU-lovgivningen (IED direktivet). Miljøstyrelsen anerkender og støtter Svanemærkets krav til VOC emission er skærpet med ⅓ fra 9 kg VOC per m^3 til 6 kg VOC per m^3 og således næsten dobbelt så skrapt som lovgivningen (11 kg VOC pr m^3).

NorDan
NorDan anser att dagens krav på 9kgVOC/m3 bör fortsätta gälla. Dagens krav är striktare ställt än EU:s krav på träimpregnering vilket ligger på 11kg/m3.
Det är NorDans övertygelse att en lång livslängd hos produkterna är av största vikt för att minska produkternas totala klimatpåverkan och skapa hållbara produkter som fokuserar mer än på tillverkningsstadiet. Vi kan även se att impregneringen inte påverkar emissionerna av TVOC från färdig produkt till inomhusluften då produkterna emitterar mindre än 0,3mg/m3 TVOC utifrån tester.
Vi har en lång erfarenhet av vakuumimpregnering och vi har idag ingen känd incident av röta i impregnerad splintved. För närvarande finns det inget kommersiellt gångbart system för impregnering som kategoriskt kan hävda sig vara lika bra som vakuumimpregnering.
Även om kärnved är mer motståndskraftig mot röta, är den inte immun mot röta. Det finns svamparter som trivs på kärnved. Här tillkommer även problematiken att säkerställa den nödvändigt höga andelen kärnved som krävs.
Utifrån arbetet med livscykelanalyser kan vi även se att impregneringen inte är den primära bidraget till hela produktens påverkan. För impregnering av ett fönster förbrukas som exempel betydligt mindre impregneringsvätska än produktens övriga ytbehandling men har dokumenterat positiva effekter på produktens kvalité och hållbarhet oavsett produktens placering i eller miljön rund byggnaden.
Skulle ett krav införas på 6kgVOC/m3 kommer det innebära krav på betydande investeringar i anläggningen för att separering/rening av VOC. En lösning kommer behövas projekteras för resp. anläggning utifrån dess givna förutsättningar och där tidsaspekten från projektering till driftsättning av anläggning är ca3 år i liknande fall. Här ser vi att 1 års övergångsperiod är helt orimligt för att få anläggningarna projekterade och driftsatta för resp. anläggning.

Svenska Fönster AB
Vi stödjer förslaget angående sänkta VOC-utsläpp från vakuumimpregnering men menar att det bör sänkas ytterligare.

Hälsorisker kopplade till exponering av VOC
Det är välkänt att reducerade nivåer av VOC i produkter och byggmaterial är avgörande för att minimera hälsorisker. Exponering av för höga nivåer VOC kan orsaka irritation i ögon, näsa och hals samt vid långvarig exponering även skada lever, njurar och centrala nervsystemet. Trots att vakuumimpregnering sker i ett slutet system, sker fortfarande en avdunstning av biocider under acklimatiseringsprocessen. Detta anser vi skapar en otillfredsställande arbetsmiljö för arbetstagare att vistas i.

Miljöeffekter
Ur ett miljöperspektiv bidrar VOC till bildningen av marknära ozon och smog, vilka båda är betydande orsaker till luftföroreningar med negativa konsekvenser för både hälsa och miljö. Att minska VOC-utsläppen är därmed en nyckelfaktor för att förbättra luftkvaliteten.

Förslag till revidering
Svanenmärkningen förknippas för de allra flesta medborgare med produkter som är miljövänliga. Vår hållning är att en Svanenprodukt inte borde innehålla någon mätbar VOC-nivå överhuvudtaget. Om ett gränsvärde för utsläpp ska införas, bör det fastställas till högst 3 kg VOC per m^3, då branschföreningen menar att detta är ett värde som modern teknologi ska klara av.

VELUX
To accept Solvent-based vacuum treatment is by no means in line with the purpose of supporting the healthy working environment. The solvent-based vacuum treatment will result in exposure of work force to VOC and dissolved biocides in the air of the manufacturing site. This option must be excluded.

VinduesIndustrien
The structure is not relevant in Denmark, as vacuum impregnation has been completely phased out (- and has been since 2010).

In Denmark, it has become completely standard, for climate-exposed surfaces of the wooden window, to use heartwood, that has been impregnated by nature.

If, for competitive reasons, Danish producers want to start using vacuum-impregnated wood again, and follow the stricter criteria of 6 kg/m^3 treated wood, this will mean a significant additional emission of VOC substances (millions of kg/VOC) - and thus, a massive setback for the environment in Denmark.

An ambitious reduced requirement that is equivalent to the emissions when using surface treatment for system 2OKO should be set.

Nordic Ecolabelling's comments
Nordic Ecolabelling will keep the limit for VOC emissions from solvent based wood impregnation/vacuum impregnation at 6 kg VOC per m^3 treated wood.

The requirement has then been tightened compared to generation 4 of the criteria, and the Nordic Ecolabelling requirements for windows and doors, set stricter requirements for VOC-emissions than the legislation by two means:

- *A broader area of application: The requirement must be fulfilled by all facilities using solvent-based technology and not just the larger plants under the scope of the EU Directive.*
- *Stricter limit value than the regulation: Total emissions of maximum 6 kg /m^3 treated wood compared to 11 kg/m^3 treated wood according to legislation i.e. nearly a reduction down to the half of the EU Directive limit.*

The limit value is set as total emissions per m^3 treated wood. Total emissions are the sum of emissions in the waste gases and fugitive emissions. To reach the limit set in Nordic Ecolabelling criteria, 6 kg per m^3 treated wood, and still have sufficient wood protection according to the NTR B-class, technology for cleaning of waste gases must be installed.

The Nordic Ecolabelling does not want to exclude any specific wood preservation technology but set strict requirements for vacuum impregnation. The reasons are:

- *VOC emissions are only one environmental impact among many from window and door production. Several LCA studies indicate that heat loss during the usage phase is the most important environmental impact over the course of the life cycle.*
- *The Nordic Ecolabelling's screening of the market has shown that windows where the vacuum impregnation technology is used, generally has a long warranty time, which is an indication of a long durability of the products.*
- *Vacuum impregnation is an effective and proven technology for sapwood.*
- *Heartwood is a good option, but during Nordic Ecolabelling's dialogue with manufacturers it has been clear that there are challenges with the availability of heartwood. Therefore, well protected sapwood is needed on the market to meet the demand of wooden windows.*

4.5.6 Circular economy requirements

BITUS LATVIA SIA
O19: We also find it unreasonable to place the responsibility of disposal on the manufacturer. If the manufacturer is required to handle the disposal of windows and doors, this effectively makes them a contractor, which could lead to conflicts on-site, especially concerning timing and logistical considerations. We believe it would be more effective for the manufacturer to provide clear and efficient guidelines for dismantling the product. And existing window and door owner - himself establish make agreements with certified third parties for the disposal of such waste. But would be nice to hear from your side how do you imagine to take back old windows or doors? We are sure that this is not possible. If in this country is missing guide lines how to propertly dismantle the products or where they need to put glass, hardware parts etc.… Then this problem must be solved by the state itself first not by producer… But what will happen in countries where all guidelines is created from government side? Here must be some exceptions, that you need to tell in which countries this is really needed.. For example in Iceland and Sweden everything is all right from government side with guidelines.. But we can not imagine how this could be possible.. Customer need to collect all old units on pallets, they need to pack them very well for transportation.. That means they need to buy pallets, for this job.. Standard EURO pallets will not fit because usually windows are bigger then pallets.. We are making pallets for windows by ourselves for each window.. And on the pallets we are collecting similar windows with similar sizes, because otherwise will be impossible to pack them well.. All this will be a very big job and planning.. We are sure that more easier and with less costs for costumers will be to throw them out.. because to sending them back to us for example they will cost at least 10 times more expensive to put them only on pallets. Then next one, they will need to order a container and forklift truck and send them back to our factory. I don't know a precise costs but one container sending to Latvia cost approx. 4000-5000 Euros.

Byko
O19: We also find it unreasonable to place the responsibility of disposal on the manufacturer. If the manufacturer is required to handle the disposal of windows and doors, this effectively makes them a contractor, which could lead to conflicts on-site, especially concerning timing and logistical considerations. We believe it would be more effective for the manufacturer to provide clear and efficient guidelines for

dismantling the product and to establish agreements with certified third parties for the disposal of such waste.

The Finnish association of Flat Glass

O20: How could it be assumed that the insulation glass manufacturer knows/can assure that the collected material loss will end up to the float glass manufacturer? This is impossible. It is likely that the clear glass types will end up in the float glass factory, but the colored ones (for example, grey, mirror-like) and laminated glass will not. They are not good enough as a chip for a float glass factory.
In general, for the glass to be suitable for a float glass factory, the quality must be excellent and the size 0-50 mm, which means that the glass must be crushed in a glass recycling company and separate possible impurities, such as pieces of metal. The loads will be delivered in bulk, on ships of 3500-4200 tons, to European factories. Again, a glass recycling company is needed to collect a suitable batch together, and in addition, loading and storage only work when quality is surveyed (clean asphalt, sanding with glass sand in winter, buckets for wheel loaders and used shovels of a certain type of steel, no metal scrap is allowed to be carried on ships during the last two transports, and no grain after the glass batch, etc.).
Sometimes a batch of glass does not meet the criteria/requirements and must be delivered from the glass recycler to other glass industries such as to the production of glass wool, foam glass or packaging glass. The quality standards for these are not as strict as in float glass production. And if the glass recycler does not get an annual contract with the float glass factory, then they will deliver the chip somewhere else. According to the criteria proposal the recycler would be obliged to deliver the chip of certain customers to the float glass factory. How would this be verified.
How can it be assumed that the glass would always go back from the insulation glass factory to the production of float glass?
In practice, this would mean that the recycler's glass types Extra Float I and II and their glass pallets would be found in the yard of the insulation glass factory. These can be made into new float glass. But types: laminated and colored (float glass I and II) do not end up in the manufacture of float glass.
Solution: The glass must be recycled into new glass, primarily float glass and secondarily into other solutions such as packaging glass, glass wool or foam glass.
OR: The insulation glass factory must collect the glass types suitable for production of float glass separately and to deliver them as clean as possible for recycling so that they can be made into new float glass. Other glass types can be recycled into at least new glass.

Lammin Ikkuna Oy

O20: Glass waste from the window factory can be recycled, for example, as raw material for glass packaging and glass wool. According to the proposal the insulation glass manufacturer should recycle the manufacturing waste glass back to the manufacturer to produce new float glass. Now, it seems that if the proposal as it is will be accepted and all the requirements must be met, it is impossible for the glass processed in Finland to meet the requirements of the criteria. The requirement of waste glass for window and door manufacturer is ok. Applying the same requirement for insulation glass manufacturers in Finland would appear to be beneficial from an environmental point of view and, when looking at the whole, at least it is now the only possibility. In our view, the requirement might limit competition, but meeting the requirement might also increase emissions when evaluating the whole process.

Miljøstyrelsen
O18: Adskillelse: Miljøstyrelsen foreslår, at der tilføjes krav til reparation og vedligehold, eksempelvis en beskrivelse af hvilke kritiske komponenter, der skal kunne adskilles fra resten af produktet og udskiftes, samt evt. noget beskrivelse af hvordan de må være sat sammen, f.eks. lim med mere, og med hvilke værktøjer, de skal kunne adskilles med. Der kan evt. drages inspiration fra Ecodesign produktretsakter, og relevante standarder (f.eks. EN 45554).

O19: Genanvendelse af vinduer/døre og retursystem: I dokumentet står: There is not a requirement for how the manufacturer uses the collected products e.g., remanufacture into new equivalent products or other types of products.

Miljøstyrelsen: Det giver næppe mening, at indsamle gamle vinduer og døre, hvis der som minimum ikke er en forventning om, at det genbruges eller genanvendes. MST foreslår, at der tilføjes krav om genbrug eller genanvendelse af indsamlede vinduer, herunder som minimum adskillelse og sortering af hovedmaterialer (træ, aluminium/metal, rudeglas) med henblik på korrekt og sikker genanvendelse af disse materialer.

Miljøstyrelsen foreslår at fjerne muligheden for at producenten kan godkendes ved blot at være i en proces samt test fase. Hvis man alligevel vil bibeholde muligheden for at være i en testfase, foreslås det som et alternativ, at producenten som en del af godkendelsesprocessen skal beskrive, hvornår testfasen er færdig, hvilket gerne skal være inden for kort tid, og at fortsat licens er afhængig af at en returordning er oprettet (senest et år efter). I dette tilfælde bør man overveje, hvordan man vil sikre at take-back ordningen rent faktisk implementeres efter testfasen.

NorDan
O20: Flertalet glastillverkare har inte nödvändig utrustning för att ta tillbaka sammansatta glaskasseter och rengöra dessa från föroreningar. Lämpligt är att ställa kravet att materialet skall gå för materialåtervinning då flera typer av glas inte kan återvinnas eller kräver ytterligare behandling för att separera ut glaset.

Nordvestvinduet
O19: Nordvestvinduet støtter Svanemerkets mål om å fremme bærekraftige løsninger og redusere avfall gjennom resirkulering og tilbaketaking av produkter som vinduer og dører. Vi ser viktigheten av å etablere systemer for å håndtere gamle, brukte vinduer og dører på en miljøvennlig måte. Imidlertid ønsker vi å dele noen utfordringer knyttet til dette kravet, spesielt med tanke på mangelen på nasjonale ordninger.

1. Manglende nasjonale avfallsordninger:
Som kjent, er det foreløpig ingen etablerte nasjonale systemer for innsamling og resirkulering av vinduer og dører i Norge. Dette skaper en betydelig utfordring for produsenter som Nordvestvinduet, da vi ikke har et standardisert rammeverk å forholde oss til. Dette gjør det vanskelig å utvikle en fullskala løsning som er bærekraftig, både praktisk og økonomisk, uten støtte fra en nasjonal eller regional infrastruktur.

2. Pilotprosjekt for resirkulering:
Vi har imidlertid allerede tatt initiativ til å utforske mulighetene for resirkulering gjennom et pilotprosjekt, hvor vi skal levere noen brukte vinduer til en lokal

gjenvinningsstasjon for å undersøke mulighetene for å etablere en resirkuleringsordning. Dette prosjektet ville gi oss verdifull innsikt, men vi er fortsatt i en tidlig fase, og det gjenstår å se hvordan dette kan skaleres opp til en mer omfattende løsning. Vi mener at samarbeid med lokale myndigheter og nasjonale aktører vil være avgjørende for å lykkes med å etablere et bærekraftig system.

3. Behov for samarbeid og utvikling av nasjonale ordninger:
For at en slik krav om tilbaketaking og resirkulering av vinduer skal være gjennomførbart, er det nødvendig å utvikle nasjonale avfallssystemer som kan støtte produsenter i denne prosessen. Vi oppfordrer derfor Svanemerket til å arbeide sammen med industrien, myndigheter og andre relevante aktører for å utvikle en nasjonal ramme som gjør det mulig for produsenter å oppfylle dette kravet på en måte som er både økonomisk og miljømessig bærekraftig.

4. Forslag til fleksibilitet i kravet:
Vi foreslår også at det gis en viss fleksibilitet for de som allerede er i gang med prosjekter og tester, slik at de kan utvikle sine systemer i samarbeid med relevante aktører. Dette vil gi produsenter tid til å utforske og gjennomføre løsninger som fungerer i praksis, samtidig som vi alle jobber mot det samme målet om å redusere avfall og fremme sirkulær økonomi.

Pilkington Lahden Lasitehdas Oy
O20: I became worried about the planned change regarding the glass refiners. Currently, "glass waste", i.e. pint, circulates largely through Suomen Uusioaines or other recycling operators for various uses, such as raw material for float glass, the wool or bottle industry, or foam glass. We, as a glass manufacturer, have also studied the possibility of taking pints back to our factories, and some of this is already being done in the vicinity of the factories. In Finland, logistics are more difficult and costs play a larger role than in the areas near float factories. I have understood that, for example, Uusioaines delivers pint by ship to float factories in Europe, and this is probably a better option in terms of both costs and the environment than combined road and ship transport in boxes, containers or pallets. Of course, we will continue research and development work in order to get clean glass raw material from our customers back to our factories, but for now this is not an everyday thing for us.

Glass processing factories also generate other than clean glass waste, e.g. defective insulating glass and laminated glass, from which the glass must be separated before reuse. This processing is probably best done locally in the country of origin in order to minimize the transportation of unusable parts. At the same time, it must also be ensured that all impurities and foreign substances are removed from the glass cullet in the process. The manufacture of float glass is a delicate process and even small residues of e.g. certain metals can cause a loss of production for days or even weeks. This is also why recycling glass back into float glass is not quite a simple matter in addition to the points mentioned above. Part of the further processing is more economical and probably more environmentally friendly to recycle, for example, as raw material for the wool industry or for other industries that use glass, where the criteria are not as strict as ours in glass manufacturing. The optical properties of the glass and e.g. the color are under constant review and e.g. colored glass cannot be mixed with the manufacture of clear float glass, which adds to the recycling challenge.

As a glass manufacturer, we are as interested as possible in recycling the pint back into our own production and, as I said, we are doing development work for this issue. However, the process is not yet completely complete. I also don't want the use of the Swan label to become impossible for window and door factories due to the glass recycling requirement, which may never be realized 100%, at least for all further processing. In my opinion, this point in the new guidelines should still be reviewed and perhaps reformulated.

Schüco Norway AS
O18: For å gjøre dette kriteriet mer konkret, finnes det en globalt anerkjent standard for produkter som er designet for et sirkulært kretsløp. Den kalles Cradle to Cradle https://c2ccertified.org/the-standard Forslag: C2C-sertifisering (Cradle-to-Cradle) (min bronse) legges inn som et kriterium for å tilfredsstille i hvert fall deler at dette punktet.

Schüco Sweden AB
O18: För att få detta kriterium mindre godtyckligt finns en globalt erkänd standard för produkter som är designade för ett cirkulärt kretslopp.
Den heter Cradle to Cradle https://c2ccertified.org/the-standard

Förslag på ändring:
Vi föreslår att Cradle to Cradle certifiering blir ett krav för Svanenmärkta fönster och dörrar. Med bedömning på minst bronsnivå.

VinduesIndustrien
O20: It should be investigated whether the recycling of building glass for the production of the insulation material glass wool in Denmark would be more sustainable than requiring the glass to be transported to Germany or Poland for recycling for building glass.

Nordic Ecolabelling's comments

O18
Nordic Ecolabelling agrees that repair and maintenance of windows and doors are important to extend the products lifetime. We therefore require a description of recommended maintenance in the customer information, and we require that the products material/parts can be separated for the possibility of repair and refurbishment like a change of the insulation glass.

O19
Nordic Ecolabelling will adjust this requirement according to the consultation responses. According to the responses it is difficult for window and door producers alone to establish a take-back system without cooperation with other producers/industry organisations and/or national regulations/systems/authority support. Stakeholders state the importance of cooperation between industry, industry organisations, waste companies and authorities to establish such systems to increase material recycling from windows and doors by end-of life. Nordic Ecolabelling will adjust the requirement to: where no national waste collection systems for windows and doors are established, the producer must take initiatives and/or actively support initiatives for establishment of such a national waste collection system.

O20
Nordic Ecolabelling will adjust this requirement according to the consultation responses. Nordic Ecolabelling agrees that it is a better solution to sort and transport the float glass spill by the use of a national glass recycling waste company. The best quality float glass which is possible to be reused for float glass production, can then be collected and sorted nationally and then transported united to float glass producers in Europe. We have rewritten the text in the requirement so that we will require that insulation glass producers make use of such national glass recycling waste systems when such national systems are available. If such national systems are not available, the glass spill from the insulation glass producers, must be sent for material recycling to be used as glass in for instance packaging, insulation etc.

4.5.7 Durability and functional requirements

BITUS LATVIA SIA
O23: From our experience we thought that to increase warranty for window wood rot from 10 years to 20 years will make a worser situation from customer side. For wood windows you always need to take attention every year. Each year costumers need to look at the windows – look at the window surface - they need to check if there are some visual cracks or defects which could appear after different weather conditions, defects also could appear from customers, for example some hits in product surface.. And these are things that costumers need to look at.. Also they need to reoil hardware etc.. In real life only some % of customers are doing that.. At the moment we have warranty 10 years, we think that this is better because they will know that warranty is only 10 years and if on the product will appear some defect, they will inform us about that or they will fix it by themselves - if that will be them fault.. But if warranty is 20 years, then customers will not look at that or will not repair that or they will not make attention on that at all… And for example after 18 years they will send us claim that there is a big wood rot for example.. And when we will analyze why product looks like that then it will be not possible to understand the reason.. But the reason could be a costumer fault etc.. You better should include a point that the costumers need to check products each year and inform the producers if they see something obvious on surface.. A good window and door producers will always help to solve a problems to our customers, not all producers are doing that, but this is very important to us and we always help… And when we are receiving something sooner then for us and also for our customer is easier to solve any problem.. From our side we can offer 20 year warranty for wood rot.. But we don't think that this will make a better situation.. After this change the situation will be worser from costumer side - costumer attitude toward the product will be worser.

O24: In this chapter is the same comments like in chapter O19, because there is mentioned same old window take-back system.. We hope that these concerns will be taken into account during the review process.

The Confederation of Finnish Construction Industries RT
O21: The criteria proposal refers to the standards incorrectly. I suggest that you check the standard references in their entirety. For example, standard EN 113 has been overturned and replace by standards EN 133-1, EN 133-2 and EN 133-3.

Danmarks Farve- og Limindustri
O23: Vi kan konstatere, at Svanemærket ønsker at forlænge den eksisterende garantiperiode (against wood rot) fra 10 år til 20 år.

Vi er naturligvis enige i, at et Svanemærket produkt skal have en god kvalitet, og god holdbarhed. Men vores medlemmer finder det ikke realistisk at fordoble garantiperioden mod råd i træet fra 10 til 20 år!

Der er mange faktorer, der spiller ind i forhold til holdbarhed af en behandlet vinduesramme eller dør. Producenter af overfladebehandlinger kan i dag give 10 års garanti for visse produkter. Når man kan gøre dette, baserer det sig på meget omfattende og tidskrævende interne test (accelererede test og udendørs eksponeringstests) og erfaringer fra kunder, men det vil ikke være muligt bare at forlænge garantien med ekstra 10 år til en 20-årig levetid for en overfladebehandling.

Her er der flere faktorer, der spiller ind, som designet af vinduet/døren, underlaget (f.eks. kvaliteten af træet og limningen af træet), forkert installation, herunder defekt tætning, der kan resultere i vandlækager, manglende vedligeholdelse og overholdelse af malingsspecifikationer generelt mm. Og der findes ingen standarder for træbeskyttelseseffektivitet, som kan korrelere testresultater til et bestemt antal år, såsom en 20-års garanti mod råd.

Vi mener derfor, at dette er helt uacceptabelt forslag og bør revurderes.

Dansk Industri
O23: Svanemærket bør ikke forlænge den eksisterende garantiperiode (against wood rot) fra 10 til 20 år. Vi er naturligvis enige i, at et Svanemærket produkt skal have en god kvalitet og god holdbarhed. Men producenterne af overfladebehandling finder det ikke realistisk at fordoble garantiperioden mod råd i træet fra 10 til 20 år.

Der er mange faktorer, der spiller ind i forhold til holdbarhed af en behandlet trædør eller vinduesramme. Producenter af overfladebehandlinger kan i dag give 10 års garanti for visse produkter. Når man kan gøre dette, baserer det sig på meget omfattende og tidskrævende interne test (accelererede test og udendørs eksponeringstests) og felt-/kundeoplevelse, men det vil ikke være muligt at forlænge garantien til en 20-årig levetid for overfladebehandlingen. Her er der flere faktorer, der spiller ind, som designet af vinduet/døren, underlaget (f.eks. kvaliteten af træet og limningen af træet), forkert installation, herunder defekt tætning, der kan resultere i vandlækager, manglende vedligeholdelse og overholdelse af malingsspecifikationer generelt mm.

Der findes ingen standarder for træbeskyttelseseffektivitet, som kan korrelere testresultater til et bestemt antal år, såsom en 20-års garanti mod råd. Vi mener, derfor at dette punkt bør revurderes.

Dovista
O23: The requirement of warranty for 20 years against wood rot will most likely be based on a pseudo warranty. Meaning that the end-user cannot perform maintenance by themselves but must pay the manufacturer to perform maintenance very year. The lack of reference in EN standards makes it difficult to document for the manufacturer.

Propose:
- Warranty for wood rot should be 10 years under specific conditions.

Federation of the Finnish Woodworking Industries
O23: The warranty of 20 years against wood rot is not unjustified for the window/door producer. The durability of the product is highly dependent on how it is placed in the building, so the decisive factor is designer. Windows/doors' durability can be prolonged by good design – and on the other hand designer can put them in a place where they are exposed to unlimited weather/water/sun without protection of roof, eaves or other means.

Glass og Fasadeforeningen
O23: Garanti er en forutsetning for å bli sertifisert for Svanemerket. GF registrerer at det kreves 10 års garanti uten at det kommer klart frem hva det garanteres for eller imot. Og 20 år mot treråte. Gjelder garantibetingelsene (omfang og forbehold) likt for merkebærerne? Og hva innebærer garantistillelsen?
GF fraråder på generelt grunnlag å gi garantier utover hva som til enhver tid er nedfelt i den gjeldende kjøps- og avtalelovgivningen.

Miljøstyrelsen
O21 and O23: Miljøstyrelsen støtter skærpede krav til holdbarhed og garanti.

Nordvestvinduet
O23:
1. Naturlige begrensninger ved tre som materiale:
Tre er et naturlig og organisk materiale som er utsatt for biologisk nedbrytning, spesielt i fuktige miljøer. Til tross for moderne behandlinger og overflatebehandlinger, er tre aldri fullstendig immun mot råteskader. Selv med de beste forebyggende tiltakene kan treverk i løpet av 20 år utvikle råte, spesielt under uforutsigbare og skiftende klimaforhold.

2. Variasjon i klimatiske forhold:
Norges varierte klima med betydelige forskjeller i temperatur, nedbør og fuktighet skaper utfordringer for holdbarheten til trevinduer. I kystområder og andre fuktige miljøer er risikoen for råteskader betydelig høyere enn i tørre innlandsklima. Det å innføre en universell 20-års garanti mot råte på tvers av alle slike klimatiske forhold kan være urealistisk, selv for vinduer laget av de mest motstandsdyktige treslagene.

3. Avhengighet av regelmessig vedlikehold:
Langsiktig beskyttelse mot råteskader forutsetter at vinduene vedlikeholdes regelmessig, inkludert overflatebehandling og inspeksjon for å oppdage tidlige tegn på skade. I praksis varierer nivået av vedlikehold sterkt blant forbrukere, og manglende vedlikehold kan dramatisk øke risikoen for råteskader. Dette gjør det svært utfordrende for produsenter å stå inne for en 20-års garanti mot råte, da de ikke kan kontrollere hvorvidt vedlikeholdsarbeid blir utført korrekt og regelmessig.

4. Økonomiske konsekvenser og risiko:
En 20-års garanti mot råteskader vil pålegge produsentene en betydelig økonomisk risiko. For å møte dette kravet kan det være nødvendig å bruke dyrere materialer, behandlinger og produksjonsmetoder, noe som kan føre til økte kostnader for både produsenter og forbrukere. Dette kan også bidra til å redusere konkurranseevnen for

trevinduer sammenlignet med produkter laget av andre materialer, som f.eks aluminium, som er mindre utsatt for råteskader.

5. Forslag til alternativ tilnærming:
Vi foreslår at man vurderer en garanti med kortere varighet, eller en garanti som er betinget av dokumentert vedlikehold fra forbrukerens side. Alternativt kan man se på en differensiert garanti avhengig av de klimatiske forholdene og treslagets naturlige motstandskraft. Dette vil gi en mer realistisk tilnærming og sikre at både produsenter og forbrukere har en forståelig og håndterbar garantiordning.

Schüco Sweden AB
O22: Då Svanen är en miljömärkning för varor och tjänster gällande miljö-, klimat- och hälsokrav borde den inte ställa krav på slagregnstäthet (Water tightness). Slagregnstäthet har i vår mening inte med dessa områden att göra utan det kravet sätts av andra instanser beroende på dörrens placering. Då en dörr sitter väderskyddad under ett entrétak, vilket är mycket vanligt, är behovet av slagregnstäthet obefintligt. Då kan det istället ha negativ miljöpåverkan att använda en dörr med slagregnstäthets klass 9A, då det för att uppnå det kravet kräver extra material i form av exempelvis ytterligare tätningar.

Lufttäthetskravet bör dock vara kvar då det är en egenskap som påverkar byggnadens energibalansberäkning , uppvärmnings- och kylbehov.

Förslag på ändring: Stryk kravet på slagregnstäthet från Svanens kriterier.

Skaala IFN Oy
O23: In other respects, the warranty terms are ok, but the 20-year warranty against wood rot is seen too long. The real cause of rot damage is difficult to verify after 20 years. In addition, it would be necessary to specify the delivery the conditions of the warranty: Does a possible warranty cover e.g. delivery of only a new part or product without installation.

Svenska Fönster AB
O23: Vi motsätter oss förslaget att införa ett garantikrav på 20 år mot röta enligt de föreslagna kriterierna i O23

1. Nuvarande garantivillkor

Svenska Fönster lämnar idag en 10-årig garanti på de produkter vi tillverkar. Denna garanti täcker allt som krävs och förväntas av ett fönster – att det stänger ute väder och vind, att isolerglaset håller tätt, bibehållen kvalitet på trävirket samt funktionaliteten i öppning och stängning. Om någon av dessa funktioner skulle brista inom garantitiden, åtar vi oss att reparera produkten eller vid behov ersätta den med en ny. Garantin täcker dessutom normala kostnader för montage och hjälpmedel som kan behövas vid utbyten.

2. Vikten av tydliga och meningsfulla garantier

Vi anser att en garanti ska innehålla en utfästelse som verkligen kan betyda något för köparen. Det är viktigt att garantin inte urholkas genom alltför många frånskrivningar. Detta risker att garantin i praktiken blir värdelös.
Vi kan se att kollegor i vår bransch inkluderar olika förbehåll i sina fönstergarantier som minskar köparens möjligheter att åberopa garantin. Exempel på sådana förbehåll kan vara att:

- Garantin lämnas endast på delar av sortimentet

- Garanti lämnas endast på vit kulör
- Garantin omfattar inte lyfthjälpmedel, färdigställande av fönsteranslutningar etc.
- Garantin gäller inte om produkten reparerats eller justerats av annan än fönstertillverkaren

3. Risk för förvirring på marknaden

Svenska Fönster menar att vi riskerar att förvirra marknaden om det görs garantiutfästelser på konsumentprodukter som i praktiken inte är värda något. En tävling på marknaden vilken som lämnar längst garantier, menar vi inte är seriös, så länge garantierna inte är värda något för köparen.

Kommentar:
Vi menar att en 10-årig garanti är mer realistisk och detta skulle säkerställa att garantin har en praktisk betydelse och att den inte urholkas av orimliga krav på underhåll eller andra förbehåll som gör den svår att utnyttja. En garantitid är heller inget bevis på en produkts livslängd.
Vid 20-års garantikrav:
Om Svanenmärkta produkter ska omfattas av en 20-årig garanti behöver Svanen precisera vilka kriterier som ska uppfyllas av köparen för att garantin ska gälla.

Teknos
O23: We 'Oppose the Proposal because of the following': Extending the existing period of warranty (against wood rot) from 10 years to 20 years is, in our opinion, neither realistic nor completely feasible. We ask for this proposal to be reconsidered in light of the following comments.

There are multiple factors relating to the long-term durability and performance of a coated wooden door or window frame to the possible deterioration of a window or door due to wood rot, many of these being beyond the control of the manufacturer of the paint and of the finished article. Manufacturers of paints and coatings can give assurances relating to 10-year warranties for certain products, based on extensive in-house testing (accelerated testing and actual outdoor exposure) and field / customer experience, however it is not possible to assure a 20-year lifetime
for our paints and coatings. Factors include, but are not limited to (please note especially our comment in bold under (iii)):

(i) Design and substrate issues.
Inadequate Design: A poorly designed window may lack the structural integrity needed to withstand environmental stresses such as wind, rain, and temperature fluctuations. This can lead to premature deterioration.
Improper Substrate: Using low quality substrate or incompatible materials for the window frame or surrounding structure can compromise the window's stability and longevity. The substrate must be strong enough to support the window and resist environmental factors.
Impact of Proper Gluing: Proper gluing is critical for the structural integrity and durability of the window. It ensures that all parts of the window are securely bonded, reducing the likelihood of 2 (4) component separation under stress. Poor gluing can lead to gaps, weakened joints, and ultimately, window failure.

(ii) Incorrect installation
Improper Alignment: If the window is not properly aligned during installation, it can cause uneven stress distribution, leading to cracks or gaps that allow air and water infiltration.
Faulty Sealing: Inadequate sealing can result in water leaks, which may cause rot, mold growth, and damage to both the window and the surrounding structure.
Insufficient Support: Without proper support, the window may sag or become misaligned over time, increasing the risk of breakage, and reducing its functional lifespan.

(iii) Non-compliance with Paint Specifications
Inappropriate Paint: Using paint that is not tested and specified for window materials can lead to poor adhesion, peeling, and inadequate protection against moisture and UV radiation. There are no such wood preservative efficacy standards which can correlate test results to a specific number of years, such as a 20-year warranty against wood rot without maintenance.
Incorrect Application: Failure to follow recommended application techniques, such as application rates and the number of coats or drying times, can compromise the paint's protective qualities, exposing the window to environmental damage.

(iv) Lack of Maintenance
Neglected Cleaning: Accumulation of dirt, debris, and pollutants can cause abrasions on the glass and frame, weakening the materials over time.
Ignored Repairs: Small cracks or defects, if not promptly repaired, can expand and lead to significant damage, including complete window failure.
Weather Damage: Without regular maintenance, weather-induced wear and tear can accelerate the degradation of the window components, leading to failure.

(v) Consequences of Window Failure
Structural Compromise: The window may lose its ability to support its own weight or withstand external pressures, leading to collapse or significant deformation.
Energy Inefficiency: Gaps, cracks, and poor sealing can result in substantial energy loss, increasing heating and cooling costs.
Water Damage: Leaks can cause extensive water damage to the interior of the building, leading to mold growth, rot, and further structural issues.
Safety Hazards: Broken or poorly functioning windows can pose safety risks, including the danger of broken glass and compromised security against intruders.

Conclusion
To ensure the longevity and performance of windows, it is crucial to adhere to good practices in design, choose appropriate substrates, follow correct installation procedures, comply with paint 3 (4) specifications, and maintain regular upkeep. Neglecting any of these aspects can significantly increase the risk of window failure, leading to costly repairs and potential safety hazards.

VELUX
O23: We question the requirement of having 20 years warranty against wood rot. It must be foreseen that such a long warranty period will only be applicable if the customer is paying the manufacturer to perform maintenance every year or the customer can document in other ways that the maintenance requirements have been fulfilled. This will be an extra economic burden for the customers. As there are not any known problems in the market with durability of windows when system

requirements for superficial treatment of wooden windows and external doors are met, it seems as a unnecessary new requirement to add to the technical specifications.

VinduesIndustrien
O23: Demanding that the manufacturer provide a 20-year guarantee against rot is not, in VinduesIndustrien's opinion, a requirement that belongs under the auspices of the Nordic Swan Ecolabel.

Basically, a good quality wooden window with regular maintenance should last for at least 40- 50 years. Requiring that the manufacturer must provide a 20-year warranty against rot seems to simply undermine the scheme's credibility. Who should decide when, if any, rot has occurred, and whether it is due to lack of maintenance, or whether there has been an error in wood quality or surface treatment - and who is liable for the warranty if the manufacturer closes down or goes bankrupt?

In our experience, the faults and defects in a window occur within the first 1-3 years, and it is important that the warranty provisions are specified and that the warranty for the consumer is reinsured with a recognized insurance company in the event that a manufacturer does not want to or is unable to replace an element.

Nordic Ecolabelling's comments

O21
The comment from The Confederation of Finnish Construction Industries RT refers to En 133-1, 133-2, and 133-3. Nordic Ecolabelling has again check valid standards, and think the comment actually mean EN 113-1, 113-2, and 113-3 since EN 113 has been overtuned by those. The criteria refer to EN 113-1 which is valid, but the background text to the requirement O21 wrongly referred to EN 113. This has been updated.

O22
Nordic Ecolabelling will keep the requirement for water tightness in "O22 Functional requirements", despite comments that it should not be part of an ecolabel's criteria. Nordic Swan Ecolabel is an environmental label, but it should also ensure high quality and performance. The requirement to water tightness was also indirectly found in the previous criteria, generation 4, through the requirement O21 regarding national standards (SFDK, NVDK, DVV etc..).

If a door is supposed to be placed under overhangs/protection, the standard EN12208 specifies a specific method for shielded products. I.e. the requirements are not the same for unshielded and shielded products.

O23
Nordic Ecolabelling will go back to the 10 years warranty against wood rot as in generation 4 of the criteria. This is based on the consultation response from stakeholders in all the Nordic countries.

Some of the arguments in disfavor of a warranty of 20 years against wood rot are:

- *Less focus from the customers on needed maintenance of the product.*

- *Producers of surface treatment can today give a 10 years warranty for certain products, but it will not be possible to extend this warranty with 10 extra years to a 20 years warranty for certain surface treatment products.*
- *It is difficult for the window and door producers to give a 20 years warranty time as they cannot control that the maintenance work is performed as required.*
- *To meet a 20 years warranty time against wood rot, it might be necessary to use more expensive materials, treatments and production methods, which again might give more expenses for both producers and consumers and then increased economic risk for the producers.*
- *The real cause of rot damage is difficult to verify after 20 years.*

O24
Nordic Ecolabelling has based on the consultation responses changed the requirement by removing the text about take-back system established by the window/door producer to a requirement for taking initiatives and/or actively support initiatives/partnering projects for establishment of national waste collection system for windows and doors.

4.5.8 Licence maintenance

No consultation responses have been received for the requirements related to licence maintenance.

5 Discussion and conclusion

A total of 35 consultation comments were received. All consultation responses have been reviewed, and further investigations/work has been done based on the input from the consultation. No requirements have been removed, but Nordic Ecolabelling has made changes to several requirements and made adjustments in the requirement text or the background text for some requirements.

Most comments were given to the following topics:

- PVC is not allowed as a primary material
- Thermal transmittance, O2
- The chemical requirements, O11-O15
- Emissions to air from wood impregnation, O16
- The circular economy requirements related to take-back systems, O19, and recycling of float glass, O20
- Warranty against wood rot, O23

PVC is not allowed as a primary material
Nordic Ecolabelling has received several consultation responses regarding that PVC should be allowed as a primary material in windows and doors. After the consultation, PVC is still not allowed as a primary material to be used. The responses did not bring any new decisive arguments for us to allow PVC as a primary material in this generation of the criteria.

Thermal transmittance, O2
The far most consultation responses Nordic Ecolabelling received, were related to the thermal transmittance, the U-value. Most of the responses were related to that the U-values are too strict. After the consultation the U-values have been increased (made less strict) for wooden roof windows and for all types of windows and for window doors in non-renewable material. The U-values for wooden façade window and wooden window doors are kept as before the consultation.

The chemical requirements, O11-O15
Nordic Ecolabelling received many responses regarding that the chemical requirements are too strict. After the consultation more exemptions have been included in the classification requirements, limit values have been changed for specific preservatives and more exemptions have been included in the list for prohibited substances. No consultation responses were received for the nanomaterial requirement.

Emissions to air from wood impregnation, O16
Nordic Ecolabelling received several responses regarding our suggested requirement for emissions to air from solvent based wood impregnation. The responses varied from feedback on too strict requirement level for VOC emissions, appropriate/good level, too easy level and that solvent based wood impregnation should not be allowed at all.

Nordic Ecolabelling will keep the limit for VOC emissions from solvent based wood impregnation/vacuum impregnation at 6 kg VOC per m^3 treated wood. The requirement has then been tightened compared to generation 4 of the criteria, and the Nordic Ecolabelling requirements for windows and doors, set stricter requirements for VOC-emissions than the legislation by two means:

- A broader area of application: The requirement must be fulfilled by all facilities using solvent-based technology and not just the larger plants under the scope of the EU Directive.
- Stricter limit value than the regulation: Total emissions of maximum 6 kg /m^3 treated wood compared to 11 kg/m^3 treated wood according to legislation i.e. nearly a reduction down to the half of the EU Directive limit.

The circular economy requirements related to take-back systems, O19, and recycling of float glass, O20
Nordic Ecolabelling received several responses regarding our suggested requirements for take-back system (O19) and recycling of float glass from the insulation glass producers (O20). The responses were related to challenges for implementation of separate take-back systems for each producer and difficulties for insulation glass producers sending glass spill directly back to float glass producers. The feedback is that a more feasible solution to both challenges is that producers contribute to establishment of and use of national waste systems for material recycling of windows and doors.

After the consultation Nordic Ecolabelling has changed both requirement O19 and O20. Instead of a requirement regarding take-back systems, the requirement now is that the producers must take initiatives and/or actively support

initiatives/partnering projects for establishment of a national waste collection system for material recycling of windows and doors if such national systems do not exits.

Nordic Ecolabelling has also changed the requirement O20 so that the insulation glass producers must use national systems for collection, sorting and transportation of float glass back to float glass producers if such national systems exist. If such national glass recycling waste systems do not exist, the glass waste/spill must as a minimum be collected and recycled to new glass i.e. to make glass packaging, insulation or fiberglass.

Warranty against wood rot, O23
Nordic Ecolabelling received many responses regarding our suggested requirement for 20 years warranty time against wood rot for windows and window doors. The feedback is that 20 years warranty time against wood rot will give:

- Less focus from the customers on needed maintenance of the product.
- Producers of surface treatment can today give a 10 years warranty for certain products, but it will not be possible to extend this warranty with 10 extra years to a 20 years warranty for certain surface treatment products.
- It is difficult for the window and door producers to give a 20 years warranty time as they cannot control that the maintenance work is performed as required.
- To meet a 20 years warranty time against wood rot, it might be necessary to use more expensive materials, treatments and production methods, which again might give more expenses for both producers and consumers and then increased economic risk for the producers.
- The real cause of rot damage is difficult to verify after 20 years.

Nordic Ecolabelling will go back to the 10 years warranty against wood rot as in generation 4 of the criteria. This is based on the consultation response from stakeholders in all the Nordic countries.

Appendix 1 Consultation Response from H-fasader AS

Høringssvar H-fasader; Reviderte miljøkrav til vindu og ytterdører

Innledning
Vi har notert oss at Svanemerket har etablert seg som en viktig miljømerking også i byggebransjen, og har derfor over tid hatt et ønske om å kunne Svane-merke våre produkter. H-fasader har over lengre tid arbeidet med dette som en målsetting. Det oppleves derfor som urimelig og direkte konkurransevridende at det nå foreslås at PVC vinduer og -dører ikke skal kunne Svanemerkes.

Kort om H-fasader
H-fasader produserer blant annet vindu og dører i PVC. Vårt mest solgte PVC-produkt er H-vinduet+, som er et toppsvingvindu i PVC. Våre produkter er utviklet og designet for det norske/nordiske klimaet. Vi har produsert og levert PVC vinduer/-dører til det norske markedet siden 1989, og har nylig også etablert oss i Sverige. Vårt fokus har hele tiden vært å kunne produsere og selge kvalitetsprodukter med lang levetid, som er mest mulig vedlikeholdsfrie, er resirkulerbare og dermed miljøvennlige.

PVC-ens egenskaper
PVC har en rekke positive og unike egenskaper som gjør at vi mener det bør være mulig å kunne Svanemerke disse produktene.

- **PVC er resirkulerbart**

PVC vindu og -dører har helt unike egenskaper når det gjelder resirkulering. En PVC-profil kan resirkuleres hele 7 ganger uten at kvaliteten forringes, og kan dermed brukes til nye vindu og dører i mange runder. Etter dette kan PVC-en fremdeles resirkuleres, og brukes i andre typer PVC produkter. Ved å bruke mer resirkulert PVC i produksjonen vil miljøpåvirkningen ytterligere reduseres. Våre nyeste produkt har nå en sirkuleringsgrad på over 30% (*.) H-fasader har en periode arbeidet for å utvikle en returordning for PVC vinduer, blant annet i samarbeid med Norsk Gjenvinning. Vårt første pilotprosjekt, vil gjennomføres høsten 2024. Målsettingen er å gjøre ordningen landsdekkende, og at både profiler, glass og komponenter skal resirkuleres. Vi ser for oss at vi sammen med resten av bransjen skal kunne klare å etablere gode løsninger innen rimelig tid. På kontinentet har tilsvarende ordninger eksistert i en årrekke gjennom organisasjoner som Rewindo/VinylPlus.

- **PVC har lang levetid - i all slags vær, og krever minimalt med vedlikehold**

PVC vindu har svært lang levetid, minst 50 år (**). PVC er spesielt egnet for vårt fuktige og værharde klima. PVC råtner ikke og tåler kjemisk korrosjon, slag og slitasje. PVC har heller ikke utfordringer med sopp. PVC er en giftfri og inert polymer. Materialet er en samfunnsnyttig ressurs som har vært i bruk i mer enn et halvt århundre. Det er også verdens mest gjennomforskede og gjennomtestede plastmateriale. Det samsvarer med alle internasjonale HMS-standarder i alle produkter og på alle aktuelle bruksområder (***). Produktene trenger minimalt med vedlikehold utenom vanlig vask og smøring av eventuelle bevegelige deler. Produktene krever hverken maling eller skraping, og man unngår dermed skadelige stoffer som finnes i maling og lakk både under produksjon, og senere i forhold til

vedlikehold. Dessuten slipper man kjemikalier i forbindelse med rengjøring av pensler/ruller etc ved maling av vinduer/dører.

• PVC har gode isolerende egenskaper
Produktene har god U-verdi, og står ikke tilbake for produkter av andre typer materialer.

• PVC er et konkurransedyktig valg for forbruker
I forhold til andre produkter vil PVC vindu og dører være et prisgunstig valg for forbruker ved kjøp, og ikke minst over tid på grunn av minimalt behov for vedlikehold.

Oppsummering
Det blir opplyst i høringsdokumentet at det ikke har vært produsenter som til nå har søkt om å Svanemerke produktene sine, og at tilbakemeldinger tyder på at kravene pr i dag er for strenge. Dette blir brukt som et argument for rett og slett å utestenge PVC vindu og dører fra å kunne bli Svanemerket. I og med «listen har vært lagt høyt», og det så langt ikke har vært mulig å innfri alle kriteriene, er det logisk at produsentene foreløpig ikke har søkt. At PVC vindu og dører nå vil kunne bli utestengt vil kunne være direkte konkurransevridende, og er svært uheldig.
H-fasader har arbeidet, og brukt mye tid og ressurser med målsetting om å nå kriteriene, og har stort fokus på bærekraft og sirkulærøkonomi. Vi nærmer oss kriteriene både når det gjelder U-verdi, og vi samarbeider dessuten med profilleverandør for å klare å dokumentere at bly-innholdet i profilene ikke overstiger 100ppm. Viser også til en EU-forordning som nylig trådte i kraft (****). VI har allerede produksjon av produkter som har minst 30% gjenvunnet PVC. Svanemerket kategoriserer PVC som et ikke fornybart materiale, og det settes derfor høyere krav til U-verdi enn andre typer materialer. Samtidig har PVC som nevnt en rekke positive og unike egenskaper som vi mener ikke blir tilstrekkelig verdsatt opp mot andre materialer. Det å gå fra høye krav, som kan være vanskelige å innfri, til å kunne bli ekskludert er en betydelig forskjell, og vi anmoder derfor på det sterkeste at Svanemerket går tilbake til sine opprinnelige kriterier, og dermed muliggjør Svanemerking av PVC vindu og dører. Dette vil også kunne virke motiverende for oss produsenter og bransjen til å fortsette det gode og langsiktige miljøarbeidet som allerede har vært pågående gjennom mange år.Vi håper å kunne ta dialogen videre om noe er uklart, eller om dere trenger mer informasjon eller dokumentasjon,
og vi ser fram til å høre fra dere.

Med vennlig hilsen
H-fasader AS

Appendix 2 Consultation Response from the Nordic PVC Network

PVC and the Nordic Swan: Challenging the Bias Towards Aluminum and Timber

Introduction
This document highlights five key points for why PVC windows should be eligible for the Nordic Swan label: the safety of PVC production, its long durability, maintenance-free nature, recyclability, and affordability. The document argues that the current criteria are inconsistent and calls for a reconsideration of PVC's exclusion, urging the Nordic Ecolabelling Board to include PVC based on its overall performance and its 20+ years of dedicated sustainable development.

1. Safe PVC production, challenges with timber and aluminium
When comparing the production of the materials typically used for windows, including timber, PVC and aluminium, EU sources emphasize that the production of PVC is generally considered to be unproblematic in terms of environmental impact. Contrary to this, there are significant challenges associated with the production of both timber and aluminium windows, which can both achieve the Swan label.

The EU's Chemicals Agency ECHA has found in a major PVC investigation for the EU Commission from November 2023 that European PVC production is safe under current regulations and operating conditions.[1]

Vacuum impregnation, which is allowed in Swan-labelled timber windows to prevent rot, often involves the use of organic solvents which can release volatile organic compounds (VOCs). These pose a risk to the environment and human health.[2]

According to the EU Commission and recent peer-reviewed journal articles, aluminium production has a high carbon footprint. It is estimated that aluminium production is responsible for 1-2% of global greenhouse gas emissions due to the massive amounts of thermal energy involved in refining. Aluminium is also causing significant environmental pollution through the extraction of raw materials. Aluminium is known to be toxic to freshwater organisms, making its disposal potentially harmful to the environment. While much of the aluminium produced is still in use, primary aluminium production keeps increasing, with China as leading producer.[3]

It seems perplexing that PVC windows, whose production has been documented as low-risk and environmentally safe, are not eligible for the Swan label. Meanwhile, timber windows treated with harmful impregnation and aluminium windows, despite the significant environmental and climate challenges associated with their production, can achieve this certification. This raises questions about the fairness of the current labelling system.

[1] https://echa.europa.eu/documents/10162/17233/rest_pvc_investigation_report_en.pdf
[2] https://eur-lex.europa.eu/EN/legal-content/summary/reducing-the-emissions-of-volatile-organic-compounds-vocs.html
[3] https://op.europa.eu/s/zLEc p.226 https://doi.org/10.1007/s11367-023-02257-8

2. Long durability in all kinds of weather
The main reason for choosing PVC windows is the very long durability of at least 50 years, which is the reference in Environmental Product Declarations (EPDs). The long service life has been documented by Aalborg University, among others.[4]

PVC windows remain unchanged, even under the strong influence of wind and weather, which among other things makes them ideal for coastal climates, which cover a good 30% of the EU. PVC windows do not discolour and retain their appearance and structural integrity over time. PVC is dimensionally stable, which prevents moisture from penetrating. In contrast, aluminium can corrode in salty air. Timber is not dimensionally stable, which can cause cracks to appear, where moisture can penetrate, with rot and fungus as a result.

It seems perplexing that PVC windows, which third-parties verify have a service life on par with alternative windows, and do not require maintenance during use, are not eligible for the Swan label. Meanwhile, the Swan promotes windows which require frequent maintenance that may involve uncontrollable risks for health and environment (see below).

3. Maintenance-free PVC versus frequent painting
PVC windows require minimal maintenance compared to timber and aluminium windows. Unlike timber, which needs to be painted regularly, and aluminium, which needs to be repainted because the powder coating dulls over time, PVC windows remain maintenance-free.
Paint and varnish often contain harmful substances such as formaldehyde and isocyanates, as well as organic solvents that lead to the release of VOCs to the indoor climate and can absorbed through the lungs or skin, leading to acute or chronic health effects.

Acute effects include headaches, dizziness, fatigue, and intoxication after inhaling fumes, along with irritation of the eyes, nose, and throat. Skin contact can cause eczema. Chronic effects develop after prolonged exposure, primarily affecting painters and craftsmen who were historically exposed to high concentrations. The solvents damage the brain and nervous system, resulting in memory loss, nervousness, irritability, and potentially psychological changes.[5]

Common preservatives in paint include formaldehyde-releasing agents and isothiazolinones, both effective but also allergenic. In recent years, attention has focused on isothiazolinones.According to the Danish Consumer Council, the substance methylisothiazolinone (MI) is present in most water-based paints and is allowed in eco-labelled paints.[6]

A 2012 study by the Danish Allergy Research Center analysed 19 water-based paints purchased in Denmark. All contained methylisothiazolinone (MI), with some also containing methylchloroisothiazolinone (MCI) and benzisothiazolinone (BIT). MI concentrations in some paints exceeded the limits allowed in cosmetics. Even paints

[4] https://www.epddanmark.dk/media/h0vjs0oz/md-22126-da.pdf
https://vbn.aau.dk/ws/portalfles/portal/465276076/BUILD_Levetidstabel_version_2021.pdf
[5] https://www.bolius.dk/sundhedsskadelig-maling-18709
[6] https://taenk.dk/kemi/plejeprodukter-og-kosmetik/mi-saadan-undgaar-du-det-allergifremkaldende-stof

labelled with environmental certifications like the EU Ecolabel and the Nordic Swan had similar MI concentrations as non-certified paints.[7]

A 2015 European study found MI in 93% of paints and BIT in 96%, with high concentrations of MI not listed on labels or safety sheets. Environmental labels did not correlate with lower MI levels. In rooms with freshly painted walls, MI can be detected in the air for at least 42 days, MCI is also measurable, while BIT evaporates less. This explains why some individuals develop MI allergies after being in freshly painted rooms, with symptoms like eczema, asthma, or hay fever persisting long after painting. Painters are particularly at risk, with a study from Gentofte Hospital in Denmark showing 27% of painters tested had an MI allergy. Once sensitised, they may also react to other isothiazolinones, potentially ending their careers as painters.[8] Further, Asthma-Allergy Denmark reports a significant increase in allergies in the general population due to MI.[9] According to the Danish Consumer Council, MI-free paints are available, however they may contain other harmful isothiazolinones.[10]

Further, cleaning brushes often involves the use of harmful chemicals such as turpentine or cellulose thinner.[11] In addition to the risks for professional and DIY painters, as well as residents, research has shown that paint is the largest source of microplastics entering the maritime environment.[12]

It seems perplexing that PVC windows, which emit no substances during their service life, contribute to a safer working environment and a healthier indoor climate, are not eligible for the Swan label. Meanwhile, other types of windows which involve risks that cannot be controlled, can easily receive this certification.

4. Unique recyclability and existing collection schemes

PVC windows can be mechanically recycled multiple times and new windows can contain up to 70% recycled material. By including recycled PVC in production, the environmental impact can be further reduced, as it reduces the need to produce new PVC plastic. Already today, waste from the window manufacturers is included in the production of new window profiles, and since 1997 manufacturers of rigid PVC building products in Denmark have collected end-of-life PVC windows through the WUPPI scheme. In other EU countries, recycling rates are up to 90%.[13]

A recently adopted EU regulation ensures that recycled material with up to 1.5% lead can be used as the inner core in window profiles with minimal risk to people and the environment. The regulation is based on several years of thorough risk assessments. In 2026, a closed circuit will be introduced for windows, which will increase circularity.[14]

[7] https://www.videncenterforallergi.dk/produkter/maling/
[8] https://www.videncenterforallergi.dk/produkter/maling/
[9] https://www.bolius.dk/sundhedsskadelig-maling-18709
[10] https://taenk.dk/kemi/bolig-og-fritid/maling-saadan-vaelger-du-den-sikreste
[11] https://www.bolius.dk/sundhedsskadelig-maling-18709
[12] https://www.forbes.com/sites/jamiehailstone/2022/02/09/paint-is-the-largest-source-of-microplastics-in-the-ocean-study-fnds/
[13] https://www.bkv-gmbh.de/news-reader-4/rewindo-again-more-pvc-waste-windows-recycled-in-germany.html
[14] https://pvc.dk/2023/05/04/eu-forordning-bly/

In contrast, while timber from windows is in principle recyclable, there are so many barriers for successful recycling that the timber is often incinerated, contributing to carbon emissions. First, the timber may have been exposed to moisture and mechanical stress, affecting its strength. Careful sorting into different strength classes is necessary before it can be repurposed for new construction products. Second, timber may contain hazardous substances, such as oil-based paints, further complicating recycling.[15] Aluminium is easily recyclable, yet small impurities may be introduced during each recycling cycle, which may affect its quality over time. The presence of paint may also pose a barrier for effective recycling.

It seems perplexing that PVC windows, which are ft for the circular economy and in some countries have nearly 100% recycling rates, are not eligible for the Swan label. Meanwhile, recycling challenges exist for Swan-labelled timber and aluminium windows.

5. PVC windows are the most affordable option

PVC windows are the most cost-effective option available. Firstly, their initial purchase price is considerably lower than that of timber windows and significantly more affordable than aluminium windows:

Another significant economic benefit of PVC windows is the minimal maintenance costs, as mentioned above. PVC windows do not require any painting or varnishing, unlike timber windows, which must be regularly treated to protect against rot and fungus. Timber windows not only require expenses for paint and varnish, but also for materials such as brushes and possible labour. In addition, there may be a need to erect scaffolding, which further increases the cost of maintaining timber windows. Aluminium windows may also require expensive powder coating maintenance during their service life.

The low price of PVC helps to keep the costs of new construction and renovation down, which is crucial for affordable housing.

It seems perplexing that PVC windows, which have the lowest total cost of ownership and thus most effectively supports the economic and social pillars of sustainability, are not eligible for the Swan label.

Concluding remarks

As is hopefully evident from the above, PVC is probably the least harmful choice for health and environment when it comes to windows and doors. Based on this, Nordic Ecolabelling is encouraged to reconsider whether the decision to exclude PVC is in line with the Swan's purpose, namely to promote the best environmental choices. The Swan's latest argument against environmental labelling of PVC, namely the alleged lack of interest from manufacturers, is, in our view, highly problematic. Because some current manufacturers have not found it appropriate to apply, this should not preclude manufacturers from applying in the future.
As more and more builders make demands for Swan-labelled products, window manufacturers would naturally like to be able to supply Swan-labelled products. If the exclusion of PVC windows is maintained, it will thus have market-distorting

[15] https://www.danskskovforening.dk/skoven/danmark-spilder-stort-potentiale-for-at-genbruge-trae/

effects, because producers will be denied access to the market on questionable environmental grounds.

Further, part of the Swan's purpose is to show manufacturers what measures they must take to improve the environmental profile of their products. The Swan label must therefore create incentives. By depriving PVC producers of the opportunity to obtain the Nordic Ecolabel, a potential incentive to invest in environmental improvements is removed.

What is worse, based on the above, one cannot rule out environmental burden shifting, which the Swan seeks to avoid as a matter of principle.[16] This means that if the exclusion of PVC is maintained, other and perhaps more serious environmental problems may arise. After all, the Swan cannot ensure that the maintenance of Swan-labelled timber windows takes place with Swan-labelled products, nor that paints do not end up in the maritime environment as microplastics. Added to this is the environmentally harmful vacuum impregnation of the wood in the Swan-labelled windows, a process which is not even necessary to produce a functional timber window.

In conclusion, it is worth asking when will PVC be considered on a level playing field with other materials? Today's PVC is fundamentally different from the PVC that was produced, used, recycled and finally disposed of 25 years ago. This is due to the systematic transformation of an entire value chain, which has been carried out by the European PVC industry's extensive sustainable development commitment VinylPlus, which is unique within plastics and has required large investments. VinylPlus is recognised by the UN as a role model for how an industry can initiate a sustainable development process.[17]
Already today, PVC windows carrying the VinylPlus® Product Label are recognised in BREEAM and are promoted along Type 1 eco-labels such as the Swan in the official guide for green public procurement in Belgium.[18]

It is our hope that the Nordic Ecolabelling Board will enter a constructive process of setting up criteria that can include PVC as a material for windows and doors, and the PVC industry will of course make itself available with the necessary data.

Signatories – The Nordic PVC Network:
PVC Information Council Denmark, https://pvc.dk
PVC Forum Norway, https://pvc-forum.no/
PVC Forum Sweden, https://www.ikem.se/pvc-forum/
Finnish Plastics Industries Federation, https://www.plastics.f/eng/

[16] https://www.nordic-swan-ecolabel.org/nordic-ecolabelling/criteria-development/environmental-burden-shifting/
[17] https://www.vinylplus.eu/about-us/what-they-say-about-us/
[18] https://www.vinylplus.eu/news/vinylplus-product-label-frst-sustainability-scheme-dedicated-to-plastics-recognised-in-breeam/