Danish Indoor Climate Labelling

General Labelling Criteria

5th Edition, May 2007

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Introduction to 1st edition

A proposal for General Labelling Criteria has been prepared by the secretariat of the Danish Society of Indoor Climate in co-operation with the secretariat of the Norwegian Forum of Indoor Climate Labelling during the period October 1999 till January 2000.

The General Labelling Criteria has been submitted to hearing in Denmark and Norway in the period 4th April to 10th May 2000 to persons forming part of:

- The board of the Danish Society of Indoor Climate
- The board of Norwegian Forum of Indoor Climate Labelling
- The International Committee of The Indoor Climate Labelling
- The Labelling License Committee of the Danish Indoor Climate Labelling
- The Labelling License Committee of the Norwegian Indoor Climate Labelling
- Others (authorities, institutions, organisations, companies), which have participated in the start-up of the Indoor Climate Labelling, and other, who have shown interest in this subject

The board of the Norwegian Forum of Indoor Climate Labelling approved these General Labelling Criteria on 12th May 2000 and the board of the Danish Society of Indoor Climate approved the General Labelling Criteria on 14th June 2000.

This 1st edition of the General Labelling Criteria is valid, until a 2nd edition is available.

The structure of the criteria documents of the Indoor Climate Labelling comprises from the adoption of these labelling criteria the following:

- Testing and labelling criteria common for all product areas, which appear from the General Labelling Criteria and the standard test methods of The Indoor Climate Labelling
- Testing and labelling criteria for the individual product area, which appears from the forms (according to Appendix 1) with supplementary criteria for the specific product area

Introduction to 2nd edition

This 2nd edition of the General Labelling Criteria includes an updated list of reference and is, except for minor editorial changes, identical to the 1st edition.

This 2nd edition of the General Labelling Criteria is valid, until a 3rd edition is available.

Introduction to 3rd edition

This 3rd edition of the General Labelling Criteria includes a revised chapter 7.1. Furthermore the document has updated information about the organization in Norway.

This 3rd edition of the General Labelling Criteria is valid, until a 4th edition is available.

Introduction to 4th edition

This 4th edition of the General Labelling Criteria includes a revised test evaluation method described in chapter 7.1. This 4th edition of the General Labelling Criteria is valid, until a 5th edition is available.

Introduction to 5th edition

This 5th edition differs from the 4th edition only by minor editorial changes. This 5th edition of the General Labelling Criteria is valid, until a 6th edition is available.

Contents

1. Purpose and Scope

The general labelling criteria constitute together with the standard test methods of The Indoor Climate Labelling the general standard test and labelling criteria on all product areas, which together with the product specific labelling criteria should be fulfilled to obtain The Indoor Climate Label.

The criteria comprise the following:

- VOC-emission (chemical analysis and sensory evaluation)
- Release of particles, including fibres
- Indoor-related guidelines (cf. clauses 4.2 - 4.4)
- Other indoor-related properties (cf. clause 6.3)

The label issuing body decides which of the product specific labelling criteria a product is comprised by.

The indoor climate properties stated in the product labelling license (certificate) are defined as the properties a product is expected to have, when used in the finished building under given conditions and according to guidelines for projecting, installation and maintenance. The properties are measured from the time that the product is ready for delivery. To ensure agreement with practice and testing, requirements are stated in the test part of the criteria (cf. clause 6), so that testing takes place under conditions, which simulate the usual conditions, which might influence the emissions from products.

Requirements are also given for guidelines for use of the product, its projecting, installation, and for the operation, its cleaning and maintenance of the product in its service life.

The license can comprise a group of products, which do not mutually differ essentially in construction and/or selection of material, and which are not poorer what regards the indoor climate than a tested product (what regards properties forming part of The Indoor Climate Label for the product in question). Cf. definition of product group under clause 3 and the specific labelling criteria of the product area. A label issuing body shall then demand a satisfactory documentation stating that a product/a given component is identical to or better than a tested, labelled product, to which a license refers.

Specific requirements for a product area appear from the testing and labelling criteria for the product area in question.

2. Standards

The following standards and methods are applied as basis for determination of the testing and labelling criteria of a product:

- Danish Society of Indoor Climate (2005) Standard Test Method for Determination of the Indoor-Relevant Time-value by Chemical Analysis and Sensory Evaluation, 3. ed.
- Danish Society of Indoor Climate (1997) Standard Test Method for the Determination of Particle Emission from Building Products, 1. ed.

3. Definitions, Symbols and Abbreviations

Materials for Completion
Materials necessary for the intended use of the product.

Product Group
A product group is a group of named products from a company, which documented:
- Do not mutually differentiate essentially in construction and/or selection of material
- Can be treated undifferentiated what regards the properties stated in the testing and labelling criteria
- Can be treated as one product what regards declaration, control and other requirements of the testing and labelling criteria

A product group can in excess of the products also comprise materials for completion. If materials for completion are usually prescribed by the supplier, they can be included in the licence.

Full-Scale Testing
Testing of product(s) in full scale. If more products form part (in the total construction) the testing should be carried out so that the individual products form part in the same relative area ratio as in the total product in full size.

Part Component Testing
Comparative testing of interchangeable parts e.g. auxiliary materials. Part component testing appears from clause C1.

4. Requirements for the Product

The supplier shall at request be able to present instructions and guidelines for handling, transport, storage, projecting, installation, cleaning and maintenance of the product. The guidelines shall be dated. The guidelines shall ensure that the product will not be impaired in time what regards the properties included in the Indoor Climate Label for the product in question considering the function, load, etc. at intended and normal use of the product, cf. clause 4.1.

Instructions and guidelines in projecting, installation and maintenance of the product shall be filed by the company for at least 5 years from the date that the production has ceased. The requirements for filing comprise all editions of the applied instructions and guidelines, which are referred to in the different product descriptions.

Specific requirements for a product area appear from test and labelling criteria for the product area in question.

4.1 Description and Application

The supplier shall in instructions, technical specifications and marketing materials etc. name or describe the product so unambiguously that it is impossible to confuse it with products with different indoor environment properties, and indoor climate labelled and not indoor climate labelled products.

The supplier shall describe the general field of application of a product and take care that the description is available for customer and end-user. The field of application should be stated in such a way that unintended impacts, which might influence the product are avoided. The description shall be changed, when the field of application is changed. In the event of doubt, also the areas should be described, in which it could not be guaranteed that the product and the maintenance of the product meet the requirements of the indoor climate labelling.

It should also be stated in the description, the requirements for a given application, including a.o. statement of materials for completion and the accessories to be applied and the requirements made to these.

4.2 Handling, Transport and Storage of a Product

The supplier shall for all indoor climate labelled products prepare guidelines, which describe the most essential requirements regarding handling, transport and storage at the place of building-in.

The products must not in transport and storage be exposed to conditions that will affect the indoor environment properties.

4.3 Projecting Guidelines

The supplier shall for all indoor climate labelled products prepare a projecting guideline, which describe essential minimum requirements according to the following:

It shall appear if use of the product implies use of materials, which are not covered by the labelling license and which could emit chemical compounds, and thereby result in changes of the time-value.

Requirements for the function, hygiene and comfort result in requirements for the products used. It should already in the projecting phase be clarified, which requirements are made to the product area and which considerations to take to special factors.

4.4 Guidelines for Installation, Application etc.

The supplier shall for all indoor climate labelled product groups prepare guidelines for installation, which describe the indoor-related methods and conditions at installation, application etc., which are of importance for the indoor environment.

4.5 Guidelines for Cleaning and Maintenance

The supplier shall for all indoor climate labelled products prepare guidelines, which describe the indoor-related requirements for cleaning and maintenance. The guidelines should as a minimum cover the following:

- Use, maintenance and finishing treatment including recommendation of methods, agents, equipment and frequency
- Cleaning including recommendation of method, agents and equipment

5. Requirements for Production and Production Conditions

Production data should be stated on the product or packaging.

6. Testing Methods

The emission of chemical compounds from the product and the release of particles and fibres should be determined according to the standards mentioned in paragraph 2 “Standards”.

Supplementary to the testing standards, it is in the following stated how the testing should be performed.

The manufacturer should in co-operation with a laboratory define the individual product groups and select product(s) for testing. It is solely the manufacturer who is responsible for definition of a product group.

Materials for completion forming part of the product or which is subjoining the product by the supplier is usually included in the sampling and testing.

From a test report it should clearly appear which product(s) are forming part of the testing.

Specific requirements for a product area and the possibility of part component testing appear from testing and labelling criteria for the product area in question.

6.1 Emission

The emission of a product is determined by using two methods: An objective method (chemical analysis) to assess risk and nuisances (mucous membrane irritation) and a subjective method (sensory evaluation) to assess the comfort effect (odour), see figure 1.

Chemical analysis is carried out to determine whether undesirable compounds are present in the emission. Compounds considered to be undesirable and therefore not permitted in the emission are compounds that can be carcinogenic[1]. Formaldehyde is excluded from this requirement. The chemical analysis is simultaneously used to control that no compounds are present in concentrations which might have an irritation effect on mucous membranes in eyes and upper airways.

The sensory evaluation is carried out to determine whether the product emits odours to such an extent that the comfort is impaired.

6.1.1 Sampling and Test Specimens

The supplier picks samples of products directly from the production or stock. Samples shall be representative of the entire production, the production time and the product group.

The samples are immediately packed after sampling in the same way as the products are normally packed prior to shipment.

At sampling the following is recorded:
- Manufacturer
- Production date
- Packing date
- Product name
- Name of the person responsible for sampling
- Number and size of samples
- Packaging
- Other production data
- Possibly, description of part-components including applied amounts and reference to the company's documentation in detail on sub-supplier, type no. etc.
- Possibly, relevant observations, which might influence the test result

The dimensions of the test specimen for chemical and sensory testing are agreed with the test laboratory considering:
- Dimensions of the product in full size
- Surface area of the product in contact with the room air

[1] According to the International Agency for Research on Cancer (IARC, WHO): "Overall Evaluations of Carcinogenicity to Humans, Group 1: Carcinogenic to humans"

- Material load at chamber testing

Information, which should be given to the test laboratory in connection with the testing, is stated in the Standard Test Method. Formula information etc. can be given as supplementary information to the laboratory.

6.1.2 Preparation and Conditioning

The test material is transported to the test laboratory in its usual packaging and at the shortest transport time possible according to practice. The test laboratory controls that the packaging is intact. If the original packaging is not air and diffusion tight at receipt at the test laboratory, the packaging is removed and the test material is repacked airtight, e.g. in aluminium foil.

If the test specimens are not prepared immediately before testing, they are stored in air and diffusion tight aluminium foil or emission free plastic at normal room temperature. The testing is initiated within 14 days after receipt at the test laboratory.

It should be ensured that the test specimen reflect the products as they are sold by the producer. Surfaces normally screened should be covered prior to testing. This applies to surfaces that are not in contact with circulating room air.

6.1.3 Pre-Examination

Head-space analysis (static or dynamic) can be carried out as informative pre-screening prior to initiation of the proper testing. In case a head-space analysis has not been carried out, this should clearly appear from the test report.

Selection criteria for the programme of analysis shall appear from the test report.

6.1.4 Test Chamber

Climate chamber testing is carried out by chemical analysis and sensory evaluation of the emission, cf. the Standard Test Method. The standard test conditions are used.

6.1.5 Chemical Analysis

Analysis is carried out minimum at 2 times[#]. According to EN 13419-1 and -2 minimum 72 hours and 28 days should as a principal rule be included.

The analyses are carried out until the emission rate converted into concentration in the standard room is below half the threshold value for irritation (IT) for all individual compounds. In connection with measurements in excess of 28 days and including minimum 4 measuring points, modelling of the emission rate can be applied.

If the emission rate converted into concentration in the standard room is below half the threshold value for irritation for all individual substances within 10 days, it is acceptable that the testing is discontinued after 10 days on condition that:

- Analyses have been carried out for minimum 2 times
- No substances indicate an increasing emission rate

6.1.6 Sensory Evaluation

The sensory evaluation is carried out at the latest when the emission rate for all individual substances converted into concentration in the standard room is below half the threshold value for irritation.

At the sensory evaluation the same area specific volume flow is used as in the standard room.

The threshold for an acceptable air quality is:
- Acceptability > 0 (0 = just acceptable)
- Odour intensity < 2 (2 = moderate odour)

in case nothing else appears from the product specific criteria.

6.1.7 Evaluation of the Result

The measured climate chamber concentration is converted to concentration in a standard room. The evaluation is based on the surface area of the product in contact with the room air, cf. the standard test method. In case the load does not appear from the standard room example, the load is determined on basis of the smallest room, in which the product usually is used. Documentation for the calculations made should be presented.

6.2 Release of Fibres and Particles

According to need the release of particles and fibres requirements can be included on an individual product area provided that suitable, generally accepted standard test methods exist on the product area in question. Release of particles from ceiling products is determined according to Standard Test Method for the Determination of Particle Emission from Building Products, cf. 2 “Standards”. The same method can be used for examination of release of particles from other plane products, e.g. wall boards.

As a supplement to the standard test method it is stated in the following clauses, how testing should be performed.

Specific requirements for a product area appear from the testing and labelling criteria for the product area in question.

6.2.1 Sampling and Test Specimens

The supplier picks samples of products directly from the production or stock. The samples should be representative of the production, the production time and the product group.

The samples should be packed like the products are normally packed prior to shipment.

At sampling the following is recorded:
- Manufacturer
- Production date
- Packing date
- Product name
- Name of the person responsible for sampling
- Number of samples and size
- Packaging
- Relevant observations, if any, which might influence the test result

The dimensions of the test specimen should be agreed with the test laboratory considering:
- The use of the product
- Assembly system
- Size of the climate chamber and possible, other limitations

6.2.2 Preparation and Conditioning

The test material is transported to the test laboratory in usual packaging.

The test procedure is initiated at the latest 30 days after the date on which the product at the earliest can be released for delivery. Prior to start of testing the test specimens are conditioned at 23 ± 2°C and 50 ± 5% relative humidity for min. 24 hours.

The test specimens are placed/assembled corresponding to the assembly prescribed by the supplier, which corresponds to practice, so that the test results reflect the conditions in practice what regards e.g. number of joints.

The test specimens should as far as possible retain the original shape of the products. If the test specimens are shaped, the edges should be treated according to the instructions of the supplier.

6.2.3 Test Chamber

Testing is carried out in a chamber as described in the standard test method. The standard test conditions are used.

6.2.4 Analysis and Calculation of Result

The analyses are carried out by the gravimetric method (weighing). Calculation of the release of particles and fibres given as mg/m^2 is carried out according to the standard test method.

The label issuing body evaluates, whether it is possible to transfer test results regarding one assembly system to another assembly system. The evaluation takes place on basis of a recommendation by the supplier.

6.2.5 Evaluation of Result

The result is stated in three classes:
- Low particle emission
- Medium particle emission
- High particle emission

Basis and limits for classification appear from the testing and labelling criteria for the product area in question.

6.3 Other Indoor-Related Properties

Other indoor-related properties can be included on an individual product area, if needed provided that generally accepted test methods exist. Properties, requirements and conditions appear from the form for the product area in question.

7. Declaration Values

Only a product group with an indoor-relevant time-value lower than or equal to the maximum accepted time-value for the product area in question can be given a labelling license.

A license is valid one year at a time and can be renewed on the same testing basis up to 4 times.

7.1 Declaration of Emission of Chemical Compounds

On basis of the results from the emission measurements the declared indoor-relevant time-value is determined following the below guidelines (see figure 1).

The declared time-value is composed of the higher of the following:
- The time-value determined by chemical analysis
- The time-value determined by sensory evaluation

The declared time-value should be rounded up to whole 10 days.

7.2 Declaration of Release of Particles and Fibres

On basis of the measurement of release of fibres and particles and knowledge of the product, production and assembly variations the release of fibres and particles from the product group can be declared. Only a product group with a release below the maximum threshold for release of fibres and particles on the product area can obtain a labelling license.

7.3 Other Indoor-Related Properties

Requirements for indoor-related properties in excess of chemical emission and release of particles on a product area appear from the testing and labelling criteria for the product area in question.

8. Assurance of Conformity

8.1. The Supplier's Evaluation

The supplier is solely responsible for compliance according to the marketing legislation.

The supplier should prepare procedures for the internal production control, which should include criteria for surveillance of the declared indoor-climate properties including procedure for random sampling. The production control should be documented.

The supplier can enter a 3rd party control agreement.

8.2 Evaluation at Product Changes

Product changes, production and product conditions, which might influence the indoor-relevant time-value of the product, should be reported to the label issuing body before the changed product is released for sale.

The report on product changes should include a description of the change, and how it is expected to influence the indoor-relevant time-value.

Within a month after the receipt of the report the label issuing body should evaluate the supplier's submission and inform the supplier of the result. If the submission is rejected, the product must not be sold as indoor-climate labelled from the time of the information hereof.

8.3. Evaluation by the Label Issuing Body

The label issuing body supervises the licenses and can at its own request perform an unannounced spot-checking of the compliance with the declaration and reports. The spot-checking of

the documentation and product properties can be carried out with the supplier or on the market. The supplier covers the expenses for this spot-checking, if the requirements are not met.

The label issuing body prepares min. once a year a public list of indoor climate labelled products.

9. Supplier's References to Indoor Climate Labelling

The requirements appear from the procedure of the Indoor Climate Labelling.

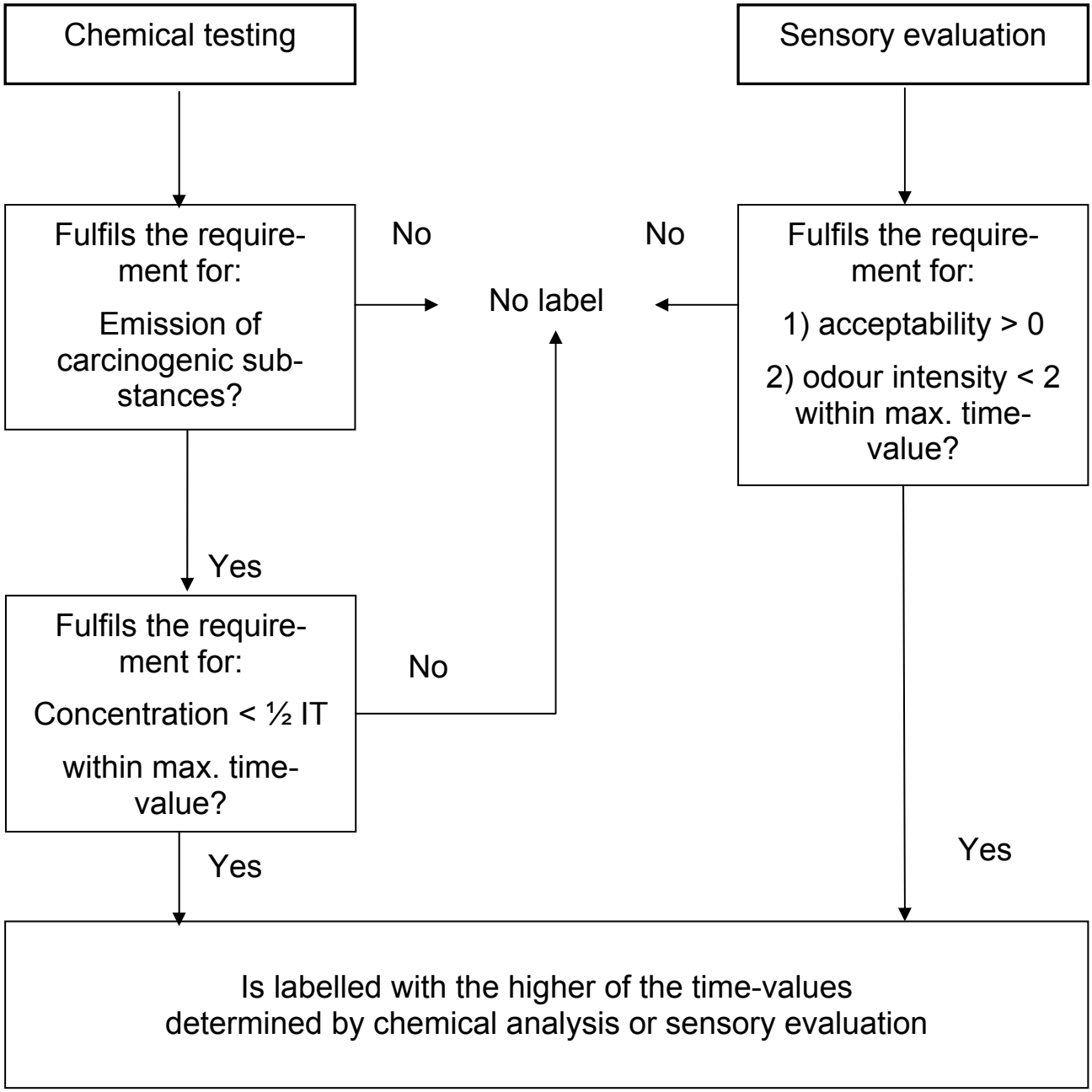

Figure 1 Schematic diagram for the declaration of a time-value. IT: Threshold value for irritation of mucous membranes.