

Classification of Finishing Materials '95

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Abstract

The purpose of the Classification of Finishing Materials '95 is to set emission requirements for the materials used in common living and work spaces to achieve good indoor air quality. The goal is to enhance the use and development of low-emitting materials.

The Classification of Finishing Materials has three categories, category M1 being the best and category M3 containing materials with highest emission rates and materials that are not tested. Because total emission and concentration in room air depend on the amount of used materials, the Classification gives guidelines for the use of various materials.

Category M1 is designated for natural materials, such as stone and glass, which we know to be safe in respect of emission and for materials that fulfil the following requirements:

- emission of TVOC is below 0.2 mg/m²h
- emission of formaldehyde is below 0.05 mg/m²h
- emission of ammonia is below 0.03 mg/m²h
- emission of carcinogenic compounds (due to IARC) is below 0.005 mg/m²h
- material is not odorous

Until December 1997 The Building Information Institute has classified 127 finishing materials. Several houses are being built, in which finishing materials have been selected according to the Classification of Finishing Materials.

Keywords: Indoor air, finishing materials, classification, emissions, odours

Introduction

In its meeting of 4 October 1995, the Board of Directors of The Building Information Institute, BII, established Committee TK 185 to study indoor air quality, construction works, and finishing material classifications. Committee TK 185 is responsible for maintaining and developing classifications for indoor air quality, construction works, and finishing materials based on procedures established in the Indoor Air Association Classification Bulletin No. 95. It is the committee's continuous responsibility, aside from determining to which class a material belongs based on the specifications provided, to reach decisions relating to detailed classification procedures such as testing frequency and the formulation of laboratory testing requirements. Additionally,

the Committee monitors the use of classification symbols in marketing and takes legal action to correct any possible abuses.

These instructions, approved by BII committee TK 185 in its meeting of 27 February 1996, describe the principles underlying emissions classification procedures.

Proof of Classification of Finishing Materials

Emission classifications are defined in Classification of Finishing Materials Bulletin - ML 95 (15 June 1995). Classification requires an approved testing report conducted according to required procedures.

Requirements for Finishing Materials

Category M1 is designated for emission tested materials whose emissions fulfill the following requirements:

- emission of TVOC is below 0.2 mg/m²h;
- emission of formaldehyde (H₂CO) is below 0.05 mg/m²h;
- emission of ammonia (NH₃) is below 0.03 mg/m²h;
- emission of carcinogenic compounds according to category 1 IARC classification is below 0.005 mg/m²h;
- the material is not odorous (dissatisfaction with the odor is below 15%)

Category M1 includes also natural materials which are known to be safe in respect of emissions:

- brick
- natural stone and marble
- ceramic tile
- glass
- metal surfaces
- board and log (Finnish wood) whose emissions as fresh, however, may be higher than those specified for materials of category M1.

Category M2 is designated for emission tested materials whose emissions fulfill the following requirements:

- emission of TVOC is below 0.4 mg/m²h;
- emission of formaldehyde (H₂CO) is below 0.125 mg/m²h;
- emission of ammonia (NH₃) is below 0.06 mg/m²h;
- emission of carcinogenic compounds according to category 1 IARC classification is below 0.005 mg/m²h;
- the material is not strongly odorous (dissatisfaction with the odor is below 30%)

Category M3 includes materials which do not have emission data or the emissions exceed the values specified for materials in category M2.

Application

Classifications of finishing materials are granted by BII. The application and its supporting documentation is to contain the product's function, trade names and the

Testing Procedure

Sample selection, analysis, and material emissions measurements shall be undertaken according to procedures specified in *European Data Base on Indoor Air Pollution Sources in Buildings. Protocol for testing of building materials*. Odour-related emission measurements shall be conducted according to *Odour Emission Measurement Instructions for Surface Materials*.

If Flec chambers are used in chemical testing, a control sample shall be simultaneously measured for ageing and odour-related evaluation in applicable chambers.

Products are tested for the following properties:

- total volatile organic compounds TVOC,
- formaldehyde H₂CO,
- ammonia NH₃,
- carcinogens and
- odours.

Selection of testing laboratory

Sample selection, analysis, and material emissions measurements shall be undertaken according to product group acceptance principles by an impartial and competent laboratory with quality assurance adhering to such standards as SFS-EN ISO 9003. Accredited laboratories may be recommended for use.

Product marking

When classification has been granted, products, packaging, product specifications, and instructions for use are marked with classification symbols M1, M2, or M3.

Additionally, product specifications shall specify any possible limitations for product use or application conditions that would serve to increase emission levels such as:

- application conditions, applicability.
- base requirements (moisture, temperature).
- preliminary treatment.
- operational safety.
- packaging.
- transportation (packaging).
- storage (storage conditions, i.e. packaged, wrapped in plastic).
- use and installation instructions.
- cleaning directions (detergent pH requirements).
- environmental protection and waste treatment.

Product marketing

Classification symbols may be used in advertising and marketing for specific products. Classification symbols may not be used in marketing to create the impression that an entire company or all of its products are classified.

Filing Appeals

Companies wishing to appeal decisions rendered by BII concerning user rights or their rejection may file an appeal in written form within **14** days from the date the decision was received to BII's representative, who will forward it to Committee TK 185 for adjudication.

Directory

BII maintains and publishes a directory of currently valid classified products and holders of user rights.

Table 1. Directory of 127 classified products.

Category MI

31 Concrete products

Suomen Siporex Oy

Siporex tempered aerated
concrete

36 Building boards

Gyproc Oy

Gyproc extra-hard indoor
decorative panel GEK 13 O/N
Gyproc normal indoor decorative
panel GN 13 O/N
Gyproc renovation panel GN 6 0
Gyptone Acoustics panel, unpainted
Gyptone Acoustics panel, painted

Knauf-Kipso Oy

Danogips Acoustics panel,
unpainted
Danogips Acoustics panel, painted
Knauf- Kipso extra-hard indoor
decorative panel KEK
Knauf-Kipso normal indoor
decorative panel KN
Knauf-Kipso renovation panel KS

Hackman Sisustus Oy

Hovi roof sheet
Kartano roof sheet

Hackman Sisustus Oy

Ritilä roof sheet
Tupa roof sheet
Juutti wall sheet
Jäkälä wall sheet
Leija wall sheet
Naava wall sheet
Piennar wall sheet
Raitti wall sheet

Rohdin wall sheet

Säde wall sheet

Tuohi wall sheet

Saturnus wall sheet

Jupiter wall sheet

Hovi tongued and grooved
roof sheet

Isover Oy

AKUSTO-Classic
AKUSTO-Fantasy
AKUSTO-Symphony
AKUSTO-Melody
AKUSTO-Twist
AKUSTO-Jazz

Partek Paroc Oy Ab

Fjord acustical sheet

Schauman Wood Oy

WISA-Birch birch plywood
WISA-Spruce pine plywood
WISA-Form birch plywood,
surface of phenol

Suomen Kuitulevy Oy

Huokoleij ona
Leij ona-Kovalevy, hard board,
painted
Leij ona-Seinälevy, wall sheet
Runkoleij ona

37 Insulation Products

SPU-Systems Oy

SPU-thermal insulation product

53 Flooring

Tarkett Oy

Standard Plus
Optima

Eminent
Eminent 4,0
Granit Antistatic
Optima 4,0
SuperNova
Forbo Oy
 Artoleum
 Colorex
 Marmoleum 2.0
 Marmoleum 2.5
 Marmoleum Foam
 Multistep
 Novilon
 Onyx
 Prisma
 Scandilon
 Smaragd Aqua
 Smaragd Classic
 Smaragd Nature
 Smaragd Plus
 Smaragd Relief
 Surestep
Paloheimo Parquets Oy
 Lamella Tammi Parquet
Centennial Oy
 ARC 791 V surface of
 quartz composition
Upofloor Oy
 Estrad
 Estrad Antistaat
 Estrad dB
 Estrad Grip
 Estrad Ohmi
 Estrad Plano
 Domostep
 Finntile
 Hovi
 Remppa
 Upostep 20
54 Wall finishes
Decocoat ky
 Decocoat natural fibrous
 surfacing
Sandudd Oy
 Sandudd wall paper
 Otto wall paper

Borastapeter AB
 Moment wall paper
55 Plaster, rendering
Tikkurila Paints Oy
 Prestonit K
 Prestonit T
Optiroc Oy
 Gyproc screed
 Gypsum plaster
 Vetonit ground plaster L
 Vetonit surface plaster LR
 Vetonit tile plaster
 Vetonit
 Vetonit VH
Basok Oy
 Breplasta F
 Breplasta J
 Breplasta S
 Breplasta LF ja LF+
 Breplasta LG
 Breplasta LGS
 Breplasta SR
**56 skirtings, profiles,
tapes, glues**
Kiilto Oy
 Kiilto wall and floor
 glue M 1000
58 Paints and varnishes
Tikkurila Paints Oy
 Novaplast 20
 Siro 20
 Novaplast 2
 Siro Grund
 Remontti-Ässä
 Dickursby väggfärg
 akrylat 20
 Valtti Ace
 Eko-Joker
 Novaplast 7
 Siro 7
 Siro dim plus
 Assaplast 2
 Assaplast 7
Teknos Winter Oy
 Alcyd infill
 Biora 3 roof paint

Biora 7 wall paint
Remontti-Biora 20
renovation paint
Ekora 3 ground paint
Ekora 7 indoor paint
Ekora 12 indoor paint
Ekora 20 renovation paint
Mestari renovation paint

Natura varnish
Tela 3 ground and
ceiling paint
Tela 7 wall paint
Tela 20 renovation paint
Kiilto Oy
UNO-parquet varnish

Category M2

No classified products

Category M3

Category M3 includes materials which do not have emission data or the emissions exceed the values specified for materials in category M2.

References

1. Classification of Finishing Materials. General Instructions. The Building Information Institute. 27 February 1996.
2. European Data Base on Indoor Air Pollution Sources in Buildings. Protocol for testing of building materials. Version 1.0, November 28, 1995.
3. Indoor Air Quality, Construction Works, and Classification of Finishing Materials. Interior Climate Association, 15 June, 1995.
4. Nordtest, Building Materials: Emission of Volatile Compounds - Field and Laboratory Emission Cell, Draft Nordtest Method 93-1 O-1 3.
5. Odour Emission Measurement Instructions for Finishing Materials. February 27, 1995. University of Technology, HVAC laboratory, 1996.

