



GEV – Classification Criteria

**Requirements for Emission Controlled
Products for Wooden Floor Surface Treatments,
as well as Lacquers, Finishes and Oils for Mineral Floors and
Lacquers for Resilient Floor Coverings
and the Award of the EMICODE**

(Edition: 18.04.2018 – replaces: 04.10.2017)

Table of contents

1.	Objective	3
2.	Range of application and definitions	3
2.1	Products for wooden floor surface treatments	3
2.2	Lacquers, finishes and oils for mineral floorings	3
2.3	Lacquers for resilient floor coverings	3
2.4	Volatile organic solvents – DecoPaint Directive	3
2.5	Volatile organic compounds – terms for GEV	3
2.5.1	Volatile organic compounds – VOC	3
2.5.2	Semi-volatile organic compounds – SVOC	3
2.5.3	Very volatile organic compounds – VVOC	3
2.6	Emissions	3
2.7	Emissions controlled products	4
2.8	EMICODE	4
3.	Requirements for emissions controlled products for wooden floor surface treatments, lacquers, finishes and oils for mineral floors and lacquers for resilient floor coverings	4
3.1	General and substance-related requirements	4
3.1.1	Chemical laws	4
3.1.2	Restriction of chemicals	5
3.1.3	Occupational safety	6
3.2	Requirements on emissions	6
3.2.1	Volatile carcinogenic substances	6
3.2.2	Volatile and semi-volatile organic compounds	6
4.	Classification of products	7
4.1	Responsibility of the manufacturer	7
4.2	Testing	7
4.3	Licensing the EMICODE	7
4.3.1	Application for a licence	7
4.3.2	Awarding of the licence	7
4.4	Control checks	7
4.5	Authorised testing laboratories	8
5.	Accompanying documents	8
6.	Changes and adaptations	8

1. Objective

This document specifies criteria for an evaluation of surface treatment products for parquet, as well as lacquers, finishes and oils for mineral floors and lacquers for resilient floor coverings in conformance with BRCW 3¹ criteria on hygiene, health and the environment, and for a classification with respect to long-term emissions.

2. Range of application and definitions

2.1 Products for wooden floor surface treatments

Products for wooden floor surface treatments are water based coatings/lacquers, primers and oils for surface treatment of parquet floorings, and water based gap filler solutions for parquet. Products used for temporary cleaning and care products are not considered products for floor surface treatments within the frame of this definition.

2.2 Lacquers, finishes² and oils for mineral floorings³

Water based lacquers and finishes as well as oils are used for durable surface treatment of mineral floors (tiles, natural stone sheets, terrazzo floors, concrete floors and more). Products used for temporary finishing, cleaning and care products are not considered products for floor surface treatments within the frame of this definition.

2.3 Lacquers for resilient floor coverings³

Water based lacquers are used for surface treatment of resilient floor coverings. Products used for temporary finishing, cleaning and care products are not considered products for floor surface treatments within the frame of this definition.

2.4 Volatile organic solvents – DecoPaint Directive

European Directive 2004/42/EU limits the use of volatile organic compounds in certain paints and coatings. The term “volatile organic compound (VOC)” is defined by the Directive as a compound with an initial boiling point of maximum 250 °C at a standard air pressure of 1013 hPa.

2.5 Volatile organic compounds – terms for GEV

The definitions of EN 16516 apply to volatile organic compounds that can be emitted into indoor air during normal use.

2.5.1 Volatile organic compounds – VOC

Organic compounds that are detected in the interval of *n*-hexane (*n*-C₆) to *n*-hexadecane (*n*-C₁₆) under the conditions specified in the “GEV Testing Method”.

2.5.2 Semi-volatile organic compounds – SVOC

Organic compounds that are detected after *n*-hexadecane (> *n*-C₁₆) and before *n*-docosane (*n*-C₂₂) under the conditions specified in the “GEV Testing Method”.

2.5.3 Very volatile organic compounds – VVOC

Organic compounds that are detected before *n*-hexane (< *n*-C₆) under the conditions specified in the “GEV Testing Method”.

2.6 Emissions

Emissions are all volatile organic compounds that are released from products into the surrounding indoor air under normal conditions. The emissions behaviour is monitored in emissions test chambers.

¹ BRCW requirements No. 3 of the Construction Products Regulation EU 305/2011, Annex 1 No. 3b (Basic Requirements for Construction Work).

² No maintenance products.

³ Lacquers for synthetic resin floors (PUR and epoxy coatings) are not included.

2.7 Emissions controlled products

Emissions controlled products fulfil the requirements as specified in clause 3.1 and 3.2.

2.8 EMICODE

EMICODE is a registered mark of the GEV to classify and label emissions controlled products.

The term EMICODE is used to classify products with respect to their emissions, always in combination with the applicable emissions class according to 3.2.2 as follows:

EMICODE EC 1 ^{PLUS} :	„very low emission ^{PLUS} “ ⁴
EMICODE EC 1:	„very low emission“ ³
EMICODE EC 2:	„low emission“ ³

The EMICODE can be granted to products included the following groups:

- *Products for wooden floor surface treatments*
Water based parquet lacquers/coatings, water based parquet primers and joint fillers for parquet, Parquet oils
- *Water based lacquers and finishes and oils for mineral floorings*
- *Water based lacquers and primers for resilient floorings*

3. Requirements for emissions controlled products for wooden floor surface treatments, lacquers, finishes and oils for mineral floors and lacquers for resilient floor coverings

Construction products shall be safe in use. This includes that they must not be hazardous to the health of installers or users and shall have the lowest possible impact on the environment by emissions. For these reasons the following requirements are specified for emissions controlled products for wooden floor surface treatments, water based lacquers and finishes as well as oils for mineral floors, and water based lacquers for resilient floor coverings.

3.1 General and substance-related requirements

3.1.1 Chemical laws

All legal regulations with regard to production, labelling and packaging must be observed during manufacture of emissions controlled products for wooden floor surface treatments, water based lacquers and finishes as well as oils for mineral floors, and water based lacquers for resilient floor coverings.

A Safety Data Sheet according to local laws has to be issued for each emissions controlled product even if this is not legally required.

⁴ For usage of the supplemental label “R” (regulated) see clause 3.1.3.

3.1.2 Restriction of chemicals

Products that are assigned any of the toxicity categories 1 to 3 according to European chemical laws are excluded from the EMICODE. The following restrictions are based on the rules on assignment of CMR properties in the CLP Regulation (EC) 1272/2008⁵.

- No substances with any of the following properties must be used in EMICODE labelled products:
 - Substances that are identified as being of very high concern (REACH regulation (EC) 1906/2006 art. 57) and therefore are listed in the candidate list (REACH art. 59(1)), the so-called candidate list⁶. The most recent candidate list is relevant when applying for a licence. Additional listing of substances shall be adopted within 12 months after publication of the amended candidate list.
 - Substances that are labelled in a Safety Data Sheet with properties that can lead to inclusion in the candidate list (REACH art. 57) are treated in the same manner as substances already listed⁵
 - This includes e.g. substances with proven carcinogenic, reproduction toxic or teratogenic properties ("CMR substances" of categories 1A and 1B).
- Methyl ethyl ketone oxime (MEKO, Butanone oxime) and methyl isobutyl ketone oxime (MIBKO) as such or in mixtures, as well as Butanone oxime dissociating products, must not be used for the sake of occupational hygiene. Acetone oxime must not be used as of 31.12.2019. A specific test for these compounds therefore is not required.
- Products for wooden floor surface treatments, as well as water based lacquers, water based finishes and oils for mineral floors, and water based lacquers for resilient floor coverings must show a content of solvent as in clause 2.4 of maximum
 - 3 % w/w VOCs for category EMICODE EC 1^{PLUS}
 - 5 % w/w VOCs for category EMICODE EC 1 and
 - 8 % w/w VOCs for category EMICODE EC 2

after 01.07.2021.

The following w/w % limits apply until 01.07.2021:

- 5 % w/w VOCs for category EMICODE EC 1^{PLUS}
 - 8 w/w VOCs for category EMICODE EC 1 and
 - 8 w/w VOCs for category EMICODE EC 2
- GEV aims at a further reduction of solvent content, as far as technically feasible.

⁵ Deviating classification rules in other regions outside the EU are not considered.

⁶ Use of technical raw material can lead to contamination of up to 0.1 % each.

3.1.3 Occupational safety

The EMICODE label must be amended by the appendage “R” (regulated) for products that comply with the requirements under 3.1.1, 3.1.2 and 3.2, if they

- have to be labelled in accordance with the CLP regulation (EU) No. 1272/2008,
- or have to be labelled with risk phrases (e.g. H phrases),
- or that have to be labelled as hazardous preparations according to local law where the product is used, and therefore may require special measures for occupational safety (e.g. reactive resins, cement based products),
- or that will dissociate and release VVOC by chemical reaction (e.g. silane functional reactive resins).



3.2 Requirements on emissions

Products for wooden floor surface treatments, as well as water based lacquers, water based finishes and oils for mineral floors, and water based lacquers for resilient floor coverings, may contain so-called film building agents. These are organic compounds (VVOC, VOC or SVOC) that are released into indoor air partly during application, or during initial occupancy of the room.

To limit these so-called emissions, the following specifications apply to emissions controlled products:

3.2.1 Volatile carcinogenic substances

A test shall show that emissions of the sum of all volatile carcinogenic organic substances of cat. 1A and 1B does not exceed $10 \mu\text{g}/\text{m}^3$ after 3 days and the emissions of any such individual VOC does not exceed $1 \mu\text{g}/\text{m}^3$ after 28 days. Testing shall be performed according to the separate document “GEV Testing Method”.

In addition to the above, product emissions after 3 days are limited as follows:

- formaldehyde (cat. 1B) and acetaldehyde (cat. 2), each must not be above $50 \mu\text{g}/\text{m}^3$,
- Sum of formaldehyde and acetaldehyde must not be above 0,05 ppm.

3.2.2 Volatile and semi-volatile organic compounds

Determination of volatile organic compounds that might be releases from a product during a longer period is performed as specified in the “GEV Testing Method”. Classification of a product is done on the basis of the results of that test.

Emissions are evaluated after 28 days.

Emissions controlled products must not exceed these maximum emissions levels:

EMICODE	after 28 days TVOC / TSVOC [$\mu\text{g}/\text{m}^3$]
EC 1 ^{PLUS}	≤ 100 thereof max. 40 SVOC
EC 1	≤ 150 thereof max. 50 SVOC
EC 2	≤ 400 thereof max. 100 SVOC

The label supplement with a final letter “R” (e.g. EMICODE EC 1 R) for products that fulfil the specification in clause 3.1.3 and that therefore may require measures for ensuring occupational safety during application.



In addition, products labelled with EMICODE EC1^{PLUS} must comply with the LCI-values and the R-value of the most recent AgBB evaluation scheme after 28 days, and with an upper limit value of 40 µg/m³ for the sum of non-assessable VOCs (VOCs without LCI-value and non-identified VOCs). Results for acetic acid cannot be determined with the GEV testing method in a quantitative manner according to EN 161516⁷.

Compliance is given as well if all limit values for a 28 days test are respected at an earlier point in time than after 28 days, but not earlier than after 10 days, provided that there was not observed any increase of emissions compared with the results after 3 days.

4. Classification of products

4.1 Responsibility of the manufacturer

The manufacturer performs the evaluation of whether and which of the before-mentioned specifications are fulfilled by a product in his own responsibility. This concerns especially any changes in recipe that may lead to a re-classification of products.

4.2 Testing

Testing to determine product emissions shall be carried out by a laboratory holding an accreditation in accordance with ISO 17025 that includes the GEV Testing Method.

Documentation of the test results is performed according to the manufacturer's own internal system.

4.3 Licensing the EMICODE

4.3.1 Application for a licence

A formal and justified application for a licence to use the EMICODE label can be sent to the GEV if the relevant product meets the specifications of clause 3. A special form is available from the GEV and shall be used for the application.

4.3.2 Awarding of the licence

After the licence is granted the product may be labelled with the EMICODE. The word EMICODE shall only be shown in combination with the correct emission class. Only the GEV document “*Awarding of licence for the use of EMICODE*” may be used for showing compliance of a product with the GEV Specifications and Classification Criteria.

4.4 Control checks

The GEV reserves the right to examine the correct classification of any licensed product. GEV follows advice from third parties on incorrect classifications and punishes these according to the sanctions that are specified in the GEV statutes.

For this purpose GEV uses one or several independent experts who check compliance with the specifications in clause 3. An evaluation of substances as in 3.2.1 and 3.2.3 must be performed only using the analytical procedures described in the “GEV Testing Method” by a testing laboratory ISO 17025 accredited for that type of testing.

If the manufacturer doubts the control test results he may request a repetition of the test with the same control sample at his own cost.

⁷ According to the experience of the GEV, the LCI-value of acetic acid always is respected clearly.

4.5 Authorised testing laboratories

The Technical Council of the GEV decides on which testing laboratories are accepted for testing in cases of dispute and for control testing. The basic requirement is an accreditation of the chamber testing and of the involved analytical method according to ISO 17025.

Participation in round robin tests that are open to any laboratory to show their performance gives additional indication of qualification to the Technical Council. GEV will provide an updated list of authorized testing laboratories.

5. Accompanying documents

- GEV Constitution
- GEV Testing Method
- Form Sheets: “Application for Licence” and “Awarding of Licence”

6. Changes and adaptations

The Technical Council of the GEV is responsible for setting specifications and classification criteria. Documentation and adaptation of changes is the responsibility of the GEV.