

Testing | Monitoring | Certification

E1 hEN Certification

To meet the special requirements of the European harmonized standards and increased expectations of the wood-based materials industry, Fraunhofer WKI offers its own certification program E1 hEN. Currently this certification fulfills the requirements of the standards EN 13986 and EN 14041 and can be extended to other harmonized European standards.

E1 hEN aims to ensure

- Compliance with the permitted formaldehyde limit values for products entering the market
- Application of factory production control (fpc)

Qualifying laboratory testing

The material must comply with formaldehyde emission requirements of $\leq 0.124 \text{ mg/m}^3$ as well as the limit value of the method selected for fpc. The chamber method according to EN 717-1 is specified as the reference method.

The fpc-method can be selected by the manufacturer; however, the harmonized European

standards specify fpc-methods and their limit values for the products – see table 1.

Before starting the certification, a correlation using quality control limit (QCL) calculation has to be established between results of the chamber test according to EN 717-1 conducted by Fraunhofer WKI and the results of the fpc chosen by the manufacturer.

If the calculated QCL is below the normative limit values, the QCL is considered to be the limit value of the fpc. In case the QCL is higher than the normative limit values, the limit values of the harmonized European standard has to be applied.

At the manufacturer's option, a thickness range is defined for the product to be certified. This can be extended at any time by additional qualification tests according to EN 717-1.

Conditions in the manufacturing plant

Main requirements:

- Qualification test (to confirm compliance with the reference method),
- Establishment of a factory quality control system, in accordance with the requirements of harmonized standards with appropriated data recording.

Quality control facilities and personnel

- Calibration of instruments and equipment according to European specifications
- Regular training of personnel employed for quality control
- Management of a complaints system in accordance with European standards (see ISO 9001)
- Management of a training system in accordance with European standards (see ISO 9001)
- Documentation of quality control and archiving for at least ten years

Installation of the test method for self-monitoring

The following test methods are approved for self-monitoring:

- Reference method
 - Chamber test according to DIN EN 717-1
- Derived test procedures
 - Perforator method ISO 12460-5
 - Gas analysis method ISO 12460-3
 - Other methods, in case a suitable correlation to the reference method can be demonstrated (QCL calculation) (QCL-Berechnung)

Certification

The product can be certified and thus prove conformity with the contents of the respective harmonized European standard, if

- the limits of the reference method EN 717-1 and the selected fpc-method are met,
- the requirement passed during the initial inspection.

Supervision

Periodic monitoring is required after obtaining certification. These inspections are carried out every six months and serve to document compliance with all requirements as well as to maintain the certification.

The following contents are to be checked by one of our inspectors on site:

- Documentation of self-monitoring (factory production control)
- Quality assurance system (manual)
- Selection of material samples for testing under the existing contract for conformity assessment
- Verification of the method for self-monitoring with regard to formaldehyde (laboratory)
- Checking of the employees who are involved in the quality control

Table 1: Overview of the requirements of the certification program E1 hEN for products according to EN 13986 and EN 14041*

Wood-based materials	Limit value Reference procedure EN 717-1	Supervision	Testing	Certification	Attestation	Limit value fpc-method ^{1,2}
EN 13986						
Particle board OSB	≤ 0,124 mg/m³	biannual on site	biannual EN 717-1	Certificate	biannual	QCL up to max. ≤ 6,5 mg/100g ³ ≤ 8,0 mg/100g ⁴
Fiberboards						QCL up to max. ≤ 7,0 mg/100g ³ ≤ 8,0 mg/100g ⁴
Plywood, solid wood, LVL	≤ 0,124 mg/m³	biannual on site	biannual EN 717-1	Certificate	biannual	QCL up to max. ≤ 3,5 mg/m²h ³ ≤ 5,0 mg/m²h ⁵
Coated products						
EN 14041						
Floor coverings	≤ 0,124 mg/m³	biannual on site	biannual EN 717-1	Certificate	biannual	QCL up to max. ≤ 3,5 mg/m²h ³ ≤ 5,0 mg/m²h ⁵

¹ Other fpc-methods than those listed in each case can be selected, provided that a QCL calculation is possible.

² Calculation of a product-specific limit value – QCL.

³ Moving half-yearly average.

⁴ Single value.

⁵ Limit value for plywood, solid wood, laminated veneer lumber and flooring in the first 72 hours after production.

Note:

At 23 °C and 1013 hPa following relationship exists for formaldehyde:

1 ppm (parts per million) = 1.24 mg/m³

1 mg/m³ = 0.81 ppm

* *Extensions to other harmonized standards possible.*

Further information

Fraunhofer WKI:

<https://www.wki.fraunhofer.de>

Quality Assessment:

<https://www.wki.fraunhofer.de/en/departments/qa/profile.html>

Testing | Monitoring | Certification:

<https://www.wki.fraunhofer.de/en/departments/qa/profile.html>

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