REPORT

issued by an Accredited Testing Laboratory

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Formaldehyde emission, IOS-MAT-0181/EN 16516

Assignment

Determination of the formaldehyde emission after 28 days according to EN 16516 in order to fulfil the requirements set out in IOS-MAT-0181 "Formaldehyde requirements of wood-based materials comprised in the German Prohibition of Chemical Ordinance", section 1.4.2 Flat dry process fibreboard, excluding those used for flooring with maximum thickness 8 mm.

Test specimen

Three boards of 18 mm MDF board, each approximately 1000 x 1000 mm. The boards were packed together in plastic foil and arrived at RISE on August 29, 2019. The board in the middle was used for the testing.

Sample information:

Manufacturer:	S.C Yildiz Entegre Romania S.A.
MDF Board:	18 mm
Production date:	2019.08.10

The test specimen represents MDF Board Product type 1: MDF 5.7 - 40 mm.

Method

The test was started on August 30 by unpacking the sample.
Two specimens of 300 x 400 mm were cut out from the sample. The edges were partly sealed with aluminium tape leaving 0.36 m unsealed (1.5 m/m^2). The specimens were conditioned outside the testing chamber in a room with controlled climate conditions of 23 ± 2 °C and 50 ± 5 % RH. The specimens were placed in the test chamber three days before the emission test.

Test conditions in the chamber:

Chamber volume:	0.266 m^3
Temperature:	23 ± 1 °C
Relative Humidity:	50 ± 3 % RH
Air exchange rate:	0.5 h^{-1}
Air velocity at specimen surface:	0.1 – 0.3 m/s
Area of sample:	0.48 m^2
Area specific air flow rate:	0.28 m^3/m^2h

The sampling of formaldehyde was carried out on September 27 with DNPH samplers. Sampled volume was 33 – 49 litres. The determination was according to ISO 16000-3, accredited as RISE Method 2302, which means analysis on a liquid chromatograph with

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absorbance detector. Measurement uncertainty is estimated to 30 % (rel). Quantification limit is estimated to 0.06 µg/DNPH sampler.

The analyses were performed on October 3, 2019.

Results

The presented results are the determined steady-state concentration (ppm) in the emission chamber:

Sample	Formaldehyde (ppm)		Formaldehyde mean value (ppm)
18 mm MDF Board Production date 2019.08.10	0.068	0.069	**0.068**

The formaldehyde concentration in the empty chamber (background-level) was 0.001 ppm which is subtracted.

The results relate only to the items tested.

Evaluation of the test results

Decision rule: When comparing the measured results and requirement level, the average value of the measured results has been compared with the requirement level. No account is taken to the measurement uncertainty.

The result is compared with the requirements of IOS-MAT-0181 “Formaldehyde requirements of wood-based materials comprised in the German Prohibition of Chemical Ordinance”, section 1.4.2 Flat dry process fibreboard, excluding those used for flooring with maximum thickness 8 mm:

Board type	Test method	Limit	Test result	Pass/Fail
Flat dry process fibreboard, all	EN 16516 according to German criteria	0.1 ppm	**0.068 ppm**	**Pass**

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