REPORT

Issued by an Accredited Testing Laboratory

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Reference: O100152-1150404-2

Yildiz Entegre Agac San ve Tic.A.S.
Akhisar Organize Sanayi Bölgesi 3.
Cadde No:17 Akhisar/Manisa
TÜRKİYE

Formaldehyde emission, IOS-MAT-0181/EN 16516

Assignment

Determination of the formaldehyde emission after 28 days according to EN 16516:2017/A1 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 1.4.1 Flat particleboard.

Test specimen

A sample of 16 mm particleboard, two board approximately 100 x 100 cm. The boards were packed in plastic foil and delivered to RISE on October 7, 2022.

Sample information:

Manufacturer:	Yildiz Entegre Agac San ve Tic.A.S.
Thickness:	16 mm
Production date:	2022-05-20

Method

The test was started on October 10 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/specimen unsealed (1.5 m/m^2). The specimens were conditioned outside the testing chamber in a separate conditioning container (with air velocity of approx. 0.2 m/s) in a room with controlled climate conditions of 23 ± 2 ºC and 50 ± 5 % RH. The specimens were then 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 ºC
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 November 7 with DNPH samplers. Sampled volume was 23 – 31 litres. The determination was performed according to ISO 16000-3:2022, which means analysis on a liquid chromatograph with absorbance detector. Measurement

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uncertainty is estimated to 36 % (rel). Quantification limit is estimated to 0.06 µg/DNPH sampler.

The analyses were performed on November 11, 2022

Results

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

Sample	Formaldehyde (ppm)		Formaldehyde mean value (ppm)
Particleboard 16 mm, Produced 2022-05-20	0.056	0.057	**0.057**

The formaldehyde concentration in the empty chamber (background-level) was 0.002 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 1.4.1 Flat particleboard:

Board type	Test method	Limit	Test result	Pass/Fail
Flat particleboard	EN 16516 according to German criteria	0.10 ppm	**0.057 ppm**	**Pass**

RISE Research Institutes of Sweden AB
Chemistry and Applied Mechanics - Chemical Product Safety

Performed by

Ulrika Johansson

Examined by

Marcus Gjertz

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Verification

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Document

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