REPORT

Issued by an Accredited Testing Laboratory

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Date	Reference	Page
2023-09-21	O100785-1207978	1 (2)

Yildiz Entegre Agac San ve Tic A.S.
Burhan OSB Mah 8
Cad no 8 Akdeniz Mersin
33100 Mersin
Turkiet

Formaldehyde emission, IOS-MAT-0181/EN 16516

Assignment

Determination of the formaldehyde emission after 28 days according to EN 16516:2017 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.

Test specimen

A sample of 18 mm MDF board, two boards, each 50 x 50 cm. The boards were packed in cardboard and delivered to RISE on August 11, 2023.

Sample information:

Manufacturer:	YILDIZ ENTEGRE AĞAÇ SAN. VE TIC. A.Ş.
Thickness:	18 mm
Production date:	2023-07-17

The test specimen represents MDF Board Product type 1: MDF 5,6 – 39 mm

Method

The test was started on August 14 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^{2}h

Place of testing:	Chemistry and Applied Mechanics, Brinellgatan 4, Borås

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Testing
ISO/IEC 17025

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The sampling of formaldehyde was carried out on September 11 with DNPH samplers. Sampled volume was 25 – 33 litres. The determination was performed according to ISO 16000-3:2022, which means analysis on a liquid chromatograph with absorbance detector. Measurement uncertainty is estimated to 36 % (rel). Quantification limit is estimated to 0.06 µg/DNPH sampler.

The analyses were performed on September 15, 2023

Results

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

Sample	Formaldehyde (ppm)		Formaldehyde mean value (ppm)
MDF board 18 mm, production date 2023-07-17	0.099	0.098	**0.098**

The formaldehyde concentration in the empty chamber (background-level) was 0.003 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:

Board type	Test method	Limit	Test result	Pass/Fail
Flat dry process fibreboard	EN 16516 according to German criteria	0.10 ppm	**0.098 ppm**	**Pass**

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

Performed by

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Fredrik Solhage

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Verification

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