

S.C. Yildiz Entegre Romania S.A.
Mustafa Korkmaz
OARJE-ARGES str Yildiz nr: 1
117545 ARGES
ROMANIA

Formaldehyde emission - Audit sample quarter 2 - 2019

Commission

Quarterly Audit Tests according to EPA 40 CFR TSCA Title VI § 770.10 and California Code of Regulations, sections 93120-93120.12.

Test object

One audit samples of MDF board, approximately 1 x 1 m, packed in plastic foil.

The material was denoted: **- Yildiz Romania, 19 mm MDF, Q2-2019
prod 2019-05-23, provt 2019-06-04, RP**

The sample arrived at RISE on June 10, 2019.

Methods

The determinations of formaldehyde emission were carried out according to ASTM D 6007-14 (Standard Test Method for Determining Formaldehyde Concentration in Air from Wood Products Using a Small Scale Chamber) modified regarding conditioning time to correspond to ASTM E 1333-14 (Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber).

Nine specimens were cut out from the material. All edges were sealed with paraffin wax. The specimens were conditioned for six days at 24 ± 3 °C and 50 ± 5 % RH during June 11 – 18, 2019. The specimens were then placed three and three in chambers, standard face and back configuration.

Chamber conditions:

Chamber volume, V:	0.03 m ³
Temperature:	25 ± 1.0 °C
Relative humidity:	50 ± 4 % RH
Air change rate/loading ratio, N/L:	1.91 m/h
Loading ratio, L:	0.78 m ² /m ³
Air change rate, N:	1.5 h ⁻¹
Exposed area, A:	0.0234 m ²

The sampling of formaldehyde was carried out after 16-20 hours with DNPH samplers. Sampled volume was 46 – 47 litres. The determination was according to ISO 16000-3, accredited as RISE Method 2302, which means analysis on a liquid chromatograph with

RISE Research Institutes of Sweden AB

Postal address	Office location	Phone / Fax / E-mail
Box 857 SE-501 15 BORÅS Sweden	Brinellgatan 4 SE-504 62 BORÅS	+46 10 516 50 00 +46 33 13 55 02 info@ri.se

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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 June 20, 2019.

Results

The results of the determination of formaldehyde emission:

Sample	Formaldehyde (ppm)			Formaldehyde mean value (ppm)
Yildiz Romania, 19 mm MDF, Q2-2019 prod 2019-05-23, provt 2019-06-04, RP	0.071	0.071	0.071	0.071

Background of formaldehyde in the conditioning room was 0.002 ppm. Background of formaldehyde in the empty chamber was 0.0009 ppm which is subtracted.

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 results relate only to the items tested.

Conclusion

The samples comply with the emission standard for MDF Board (0.11 ppm).

RISE Research Institutes of Sweden AB Chemistry and Materials - Chemistry

Performed by

Examined by

Ulrika Johansson

Marcus Vestergren