



Kingspan Insulation Ltd.
Pembroke, Leominster

Herefordshire HR6 9LA
GB

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Your reference

Your message dated

Our reference
Mey

Braunschweig,
28 February 2008

Test report No. B 741 / 2008

Customer:

Kingspan Insulation Ltd.
Pembroke, Leominster

Herefordshire HR6 9LA
GB

Receipt of sample:

28 January 2008

WKI-ID-No.:

237/08

Start of test:

7 February 2008

Objective of the test:


Determination of formaldehyde release

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This test report comprises 3 pages and 1 figure.

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The test results exclusively refer to the objects of the test.
The test material was used up.

EC Notified 0765	Testing, Supervising and Certifying Body authorized by the Principal Authority for Supervision of Construction
 DAP-PL-2071.00	Testing laboratory authorised by DAP Deutsches Akkreditierungssystem Prüfwesen GmbH according to DIN EN ISO/IEC 17025. The authorisation covers the test methods listed in the certificate.

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1. Task and test material

The Fraunhofer-Institut für Holzforschung, Wilhelm-Klauditz-Institut (WKI), was entrusted by Messrs. Kingspan Insulation Ltd. in Herefordshire HR6 9LA (GB) with the determination of the formaldehyde emission value of a phenolic insulation sample named "Kingspan Phenolic 33 mm - sample with exposed edges & perforated facer one side".

As requested the test was carried out according to the German "Bundesgesundheitsblatt" No. 34, 10 (1991), page 488 - 489, to fulfill the requirements of the German Chemikalien-Verbotsverordnung - ChemVerbotsV-, annex § 1, para 3, in relation with the publication of the Federal Health Office in the journal "Bundesgesundheitsblatt" No. 34, issue October 1991 (p. 487 – 489) regarding wood based materials. The test material was chosen, marked and sent for testing to the WKI by the client.

2. Execution of the test

As to the determination of the formaldehyde emission potential one sample with the dimensions of 100 cm x 50 cm x thickness and a total surface of 1.0 m² capable of emission was positioned in a closed chamber with a volume of 1 m³.

During the test the temperature was kept at 23°C ± 0.5 K, the relative humidity of the air was kept at 45 ± 3 % and the air exchange rate was adjusted to 1.0 h⁻¹. Therefore, the relationship between air exchange level and room load was 1.

The formaldehyde concentration in the chamber was measured twice a day until the equilibrium concentration was reached. To this end a gas quantity of at least 0.12 m³ each was taken from the ambient air using gas sampling equipment and led through gas washing bottles filled with absorption liquid. The absorbed formaldehyde was determined photometrically and/or fluorimetrically according to the acetylacetone method.



The test climatic and analytical test conditions correspond to DIN EN 717-1:2005-01. The requirements published in the Federal Health Bulletin 34, 10 (1991), p. 488 - 489, regarding the fulfilment of the Regulation on the Prohibition of Chemicals - ChemVerbotsV -, appendix to § 1, section 3, are also fulfilled.

3. Test result

For the tested phenolic insulation sample of Messrs. Kingspan Insulation Ltd. in Herefordshire HR6 9LA (GB) named with "Kingspan Phenolic 33 mm - sample with exposed edges & perforated facer one side" as tested as described in Ch. 2 a formaldehyde concentration of 0.07 ppm was determined in the 1 m³ chamber (test period: 435 hours – see figure – 1 ppm \triangleq 1.24 mg HCHO/m³ air at 23°C and 1013 hPa).

Referring to the requirements of the German Prohibition Regulation for Chemical Products a limit value of 0.1 ppm formaldehyde has to be adhered to for wood based materials, tested by using the chamber method.

We draw the attention to the fact that the effected test was made as a material parameter and not as a classifying test.

Bettina Meyer
Official in charge

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Head of Testing, Supervision and
Certifying Body

Enclosure to test report No. B 741 / 2008
dated 28 February 2008

Quality Assessment

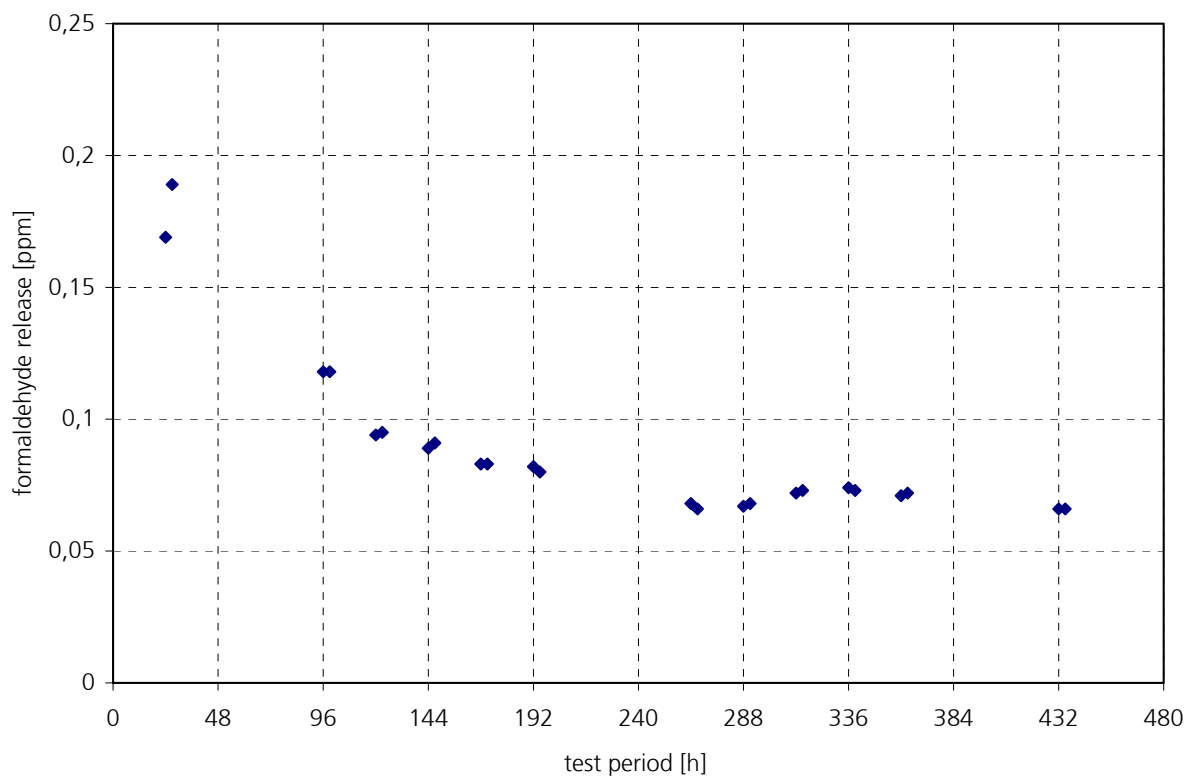


Figure: Determination of formaldehyde release using a 1 m³ chamber of a phenolic insulation sample named "Kingspan Phenolic 33 mm - sample with exposed edges & perforated facer one side" of Messrs. Kingspan Insulation Ltd. in Herefordshire HR6 9LA (GB)