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# ISOBOARD® ND

## DETERMINATION of CELL GAS COMPOSITION

<b>Date of Test:</b>	<b>26 June 2008</b>	
<b>Registration Number:</b>	<b>9817</b>	
<b>Test Report Numbers:</b>	<b>Q.2 - 08 - 12</b>	<b>Page 2</b>
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Determination of the cell gas composition of rigid insulation foam  
Test report: Q.2-08-12

**Applicant:** ISOFOAM Insulating Materials Plants W.L.L.  
P.O.Box : 23053, Safat, 13091 Kuwait

**Material Identification:** „Sample no. 1“  
Extruded polystyrene foam board with skins on both sides  
Colour: blue  
Sample size: 200 mm x 200 mm x 50 mm  
Foam density: 33.7 kg/m<sup>3</sup>  
Order reference: 180/GM/08-II83

**Sampling:** Sent by applicant in June 2008.  
Registration no.: 9817 on 26.06.2008.  
Tests are made on 26.06.2008

**Procedure:**

Five cell gas samples were taken with a gas tight syringe about 20 mm under the surface from the specimen under a helium flow.

With the gas chromatograph the relative cell gas composition of the cell gas sample was determined by comparing the retention times and measuring the peak areas.

Literature: S. Lohmeyer, G. Müller: "Bestimmung der Porengasmenge und -zusammensetzung in Polyurethanschäumen", Kältetechnik - Klimatisierung, 22. Jahrgang, Heft 3 (1970), S. 291 – 295.

**Results:**

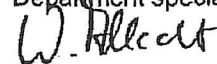
Sample no.	Cell gas composition in volume-%			
	Air (N <sub>2</sub> + O <sub>2</sub> )	CO <sub>2</sub>	HFC 134a	HFC 152a
1	20	<1	11	69
2	21	<1	15	64
3	18	<1	15	67
4	19	<1	12	69
5	23	<1	11	66
mean	approx. 20	<1	approx. 13	approx. 67

The accuracy of the described method: approx. 5 volume-%.  
Only peaks with a fraction of not less than 0.5 volume-% were determined.

**Remarks:**

The measured values are only valid for the time of measurement.

Gräfelfing, 26th. June 2008  
Department specialist

  
Dipl.-Ing. (FH) W. Albrecht



Tester

  
A. Bergler

The written consent of the Institute is required for any publication concerning the content of this report and for the publication of the part of the report.

Determination of the cell gas composition of rigid insulation foam  
Test report: Q.2-08-13

Applicant: ISOFOAM Insulating Materials Plants W.L.L.  
P.O.Box : 23053, Safat, 13091 Kuwait

Material Identification: „Sample no. 2“  
Extruded polystyrene foam board with skins on both sides  
Colour: blue  
Sample size: 200 mm x 200 mm x 50 mm  
Foam density: 33.7 kg/m<sup>3</sup>  
Order reference: 180/GM/08-II83

Sampling: Sent by applicant in June 2008.  
Registration no.: 9817 on 26.06.2008.  
Tests are made on 26.06.2008.

Procedure:

Five cell gas samples were taken with a gas tight syringe about 20 mm under the surface from the specimen under a helium flow.

With the gas chromatograph the relative cell gas composition of the cell gas sample was determined by comparing the retention times and measuring the peak areas.

Literature: S. Lohmeyer, G. Müller: "Bestimmung der Porengasmenge und -zusammensetzung in Polyurethanschäumen", Kältetechnik - Klimatisierung, 22. Jahrgang, Heft 3 (1970), S. 291 - 295.

Results:


Sample no.	Cell gas composition in volume-%			
	Air (N <sub>2</sub> + O <sub>2</sub> )	CO <sub>2</sub>	HFC 134a	HFC 152a
1	19	<1	11	70
2	17	<1	16	67
3	22	<1	10	67
4	22	<1	12	66
5	18	<1	12	70
mean	approx. 20	<1	approx. 12	approx. 68

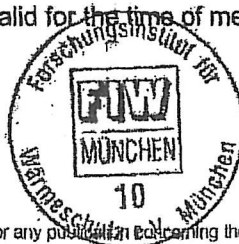
The accuracy of the described method: approx. 5 volume-%.  
Only peaks with a fraction of not less than 0.5 volume-% were determined.

Remarks:

The measured values are only valid for the time of measurement.

Gräfelfing, 26th. June 2008  
Department specialist

  
Dipl.-Ing. (FH) W. Albrecht



Tester

  
A. Bergler

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Determination of the cell gas composition of rigid insulation foam  
Test report: Q.2-08-14

**Applicant:** ISOFOAM Insulating Materials Plants W.L.L.  
P.O.Box : 23053, Safat, 13091 Kuwait

**Material Identification:** „Sample no. 3“  
Extruded polystyrene foam board with skins on both sides  
Colour: blue  
Sample size: 200 mm x 200 mm x 50 mm  
Foam density: 34.0 kg/m<sup>3</sup>  
Order reference: 180/GM/08-II83

**Sampling:** Sent by applicant in June 2008.  
Registration no.: 9817 on 26.06.2008.  
Tests are made on 26.06.2008.

**Procedure:**

Five cell gas samples were taken with a gas tight syringe about 20 mm under the surface from the specimen under a helium flow.

With the gas chromatograph the relative cell gas composition of the cell gas sample was determined by comparing the retention times and measuring the peak areas.

Literature: S. Lohmeyer, G. Müller: "Bestimmung der Porengasmenge und -zusammensetzung in Polyurethanschäumen", Kältetechnik - Klimatisierung, 22. Jahrgang, Heft 3 (1970), S. 291 - 295.

**Results:**


Sample no.	Cell gas composition in volume-%			
	Air (N <sub>2</sub> + O <sub>2</sub> )	CO <sub>2</sub>	HFC 134a	HFC 152a
1	20	<1	14	67
2	21	2	13	63
3	20	<1	16	64
4	20	<1	15	65
5	16	1	13	70
mean	approx. 19	<1	approx. 14	approx. 66

The accuracy of the described method: approx. 5 volume-%.  
Only peaks with a fraction of not less than 0.5 volume-% were determined.

**Remarks:**

The measured values are only valid for the time of measurement.

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