NATIONAL RESEARCH CENTRE
TAHRIR St. DOKKI, CAIRO, EGYPT
Central Unit For Analysis And
Scientifical Services (CUASS)
Material Test Lab.

المركز القومى للبحوث
الدقى . القاهرة . جمهورية مصر العربية
وحدة التحاليل والخدمات العلمية المركزية
معمل اختبار المواد

Test Report

Report No.	***MO1 3034 06 2021***
Client	***CHEMA FOAM Co.***
Authority & date	*Request Orders 2/6/2021*
Items Tested	***3 Samples of XPS blue foam thickness 50mm***
Results	*The detailed test results are given on the following pages of this report (9 pages) .*
Report Typist	**** Mis. Sara Abdel Reheam – Naglaa Mohamed - Noha Samir***
Test carried by	**** Mis . Fatma El – Zahraa Fikry***
	**** H.Eng. Ahmed Said***
	**** Chem. Amr El Shafey***
	**** Dr. Abou El Ftouh Abd El Hakem***
Authorized by	***Prof. Dr. Mostafa Zaki Mostafa***
	**** The Supervisor of ceramics, Polymer and Solid Matter Department.***
	**** Management Representative and Quality Assurance Manager.***
Issue date	*10/6/2021*
Condition of Test & Issue	*The test specimen was conditioned at 23 °C with a humidity of 60 % and the needed calibrations as well as balancing of the all used machines were always done*

٣٣٣٧١٦١٥_٣٣٣٧١٣٦٢ داخلي ١٨١٠ مباشر ٣٣٣٨٧٨٠٣ شارع التحرير - الدقى - القاهرة

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To / CHEMA FOAM Co.

Dear Sir.,

With correspondence to your request dated 2/6/2021 concerning the testing samples of XPS blue foam thickness 50mm , We would like to inform you that the all following needed tests were carried out which namely:-

1- Density Test according to ASTM D1622

2- Compressive strength at 10% deflection according to ASTM D1621

3- Flexural Strength Test according to ASTM C203

4- Water absorption test according to ASTM C272

5- Water vapor transmission test according to ASTM E96

6- Dimension Stability Test according to ASTM D696.

We would like to inform you that the all needed tests were carried out taking into consideration the following conditions :

1- In all mechanical properties GALDABINI – QUASAR 600 – Made In Italy Universal Testing Machine was used This type has a self calibration , zero adjusting and automatic balance , which are done daily before testing or during testing this testing instrument is accompanied by a highly reliable system for evaluating the mechanical properties .

2- On heating a Memmert West Germany oven was used .

3- Weighing Balance with tolerance + 0.0001 g was used in determining the weights .

4- Measuring drum of sensitivity ± 0.01mm was used for dimensions evaluation

5-The all used Machinery and the apparatus were calibrated periodically

The following tables are give the obtained results representing delivered from your company .

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(2/9-3034)

٣٣٣٧١٣٦٢_٣٣٣٧١٦١٥ ١٨١٠ مباشر ٣٣٣٨٧٨٠٣

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Density Test according to ASTM D1622

On a sample of XPS blue foam thickness 50mm Density 33 Kg/m^3

Delivered from CHEMA FOAM Co.

No.	*Density (Kg/m3)*	*The mean (Kg/m3)*	*Technical data (Kg/m3)*
1	*34.13*		
2	*34.44*		
3	*34.35*	*34.302*	*> 33*
4	*34.27*		
5	*34.32*		

Compressive strength at 10% deflection according to ASTM D1621

No.	*Compressive strength (Kpa)*	*The mean (Kpa)*	*Technical data (Kpa)*
1	*341.99*		
2	*343.13*		
3	*347.15*	*342.92*	*> 300*
4	*340.14*		
5	*342.19*		

Flexural strength Test according to ASTM C203

No.	*Flexural strength (Kpa)*	*The mean (Kpa)*
1	*523.11*	
2	*528.21*	
3	*532.17*	*526.382*
4	*527.11*	
5	*521.31*	

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Water absorption test according to ASTM C272

On a sample of XPS blue foam thickness 50mm Density 33 Kg/m^3

Delivered from CHEMA FOAM Co.

No.	*Volume change (%)*	*The mean (%)*	*Technical data (%)*
1	*0.197*		
2	*0.196*		
3	*0.203*	*0.2*	*< 1*
4	*0.201*		
5	*0.203*		

Water vapor Transmission test according to ASTM E96

- WVT at thickness 10mm = 0.66 g/h.m2.

Dimension stability Test according to ASTM D696

No.	*Volume change (%)*	*The mean (%)*
1	*0.169*	
2	*0.172*	*0.171*
	0.171	

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٣٣٣٧١٣٦٢-٣٣٣٧١٦١٥ داخلى ١٨١٠ مباشر ٣٣٣٨٧٨٠٣ شارع التحرير - الدقى - القاهرة

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معهد بحوث فيزيقيا المنشآت والعوامل البيئية المحيطة

ACCREDITED

Client Name: شركة كيما فوم

Testing Name: Thermal Conductivity **Delivery Date:** 02/06/2021

Supplier Code: BPI/H/CO.47 **Testing Date:** 06/06/2021

Sample Description: Chema Pro Density 32-36 Kg/m^3

Thermal Laboratory
Thermal Conductivity Test Report

Sample Name	Thickness (cm)	Density (Kg/m^3)	Thermal Conductivity (W/m.c)
Chema Pro Density 32-36 Kg/m^3	5	32	0.03

Remarks

- The test was conducted according to the standard specification ASTM C-518.
- The environmental test conditions: [temp. 24 ^{0}C & R.H. 55%].
- This result is only valid for the sample delivered to the Thermal Laboratory.
- These results are only valid for one year.

Head of Technical group

Mahmoud Mohamed

Dr.Eng. M.M. Abd El Razik

Manger of Institute

Prof. Dr. M. A. Hassan

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معهد بحوث فيزيقيا المنشآت والعوامل البيئية المحيطة

ACCREDITED

Client Name: شركة كيما فوم

Testing Name: Thermal Conductivity **Delivery Date:** 02/06/2021

Supplier Code: BPI/H/CO.46 **Testing Date:** 06/06/2021

Sample Description: Chema Pro Density 32-36 Kg/m^3

Thermal Laboratory
Calculate Thermal Resistance for Product

Sample Name	Thickness (cm)	Thermal Conductivity (W/m.°c)	Thermal Resistance (m^2.°c/w)
Chema Advanced Density 32-36 Kg/m^3	3	0.03	1
	4		1.33
	5		1.66
	7.5		2.5

Remarks

- This Calculate is only valid for the sample delivered to the Thermal Laboratory.
- These results are only valid for one year.

Head of Technical group

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This report was given to you representing only the results for the delivered samples of XPS blue foam thickness 50mm, delivered from CHEMA FOAM Co. . These results and conclusions were given to you without any responsibility on ***THE CERAMICS, POLYMERS AND SOLID MATTER DEP.*** *of* ***THE MATERIAL TEST LAB*** *in* ***THE NATIONAL RESEARCH CENTRE*** *for pick up the samples to be tested .*

These results up resent only the delivered sample and not any stored or produced quantities for any other purpose or project, Unauthorized reproduction of this report or copy of it by any way or for any target is prohibited .

Head of Director of The Board of Central Depertment for Scientifical Analysis and Tests
&
SUPERVISOR OF Material Test Lab

PROF.DR. MOSTAFA ZAKI MOSTAFA

(9/9-3034)