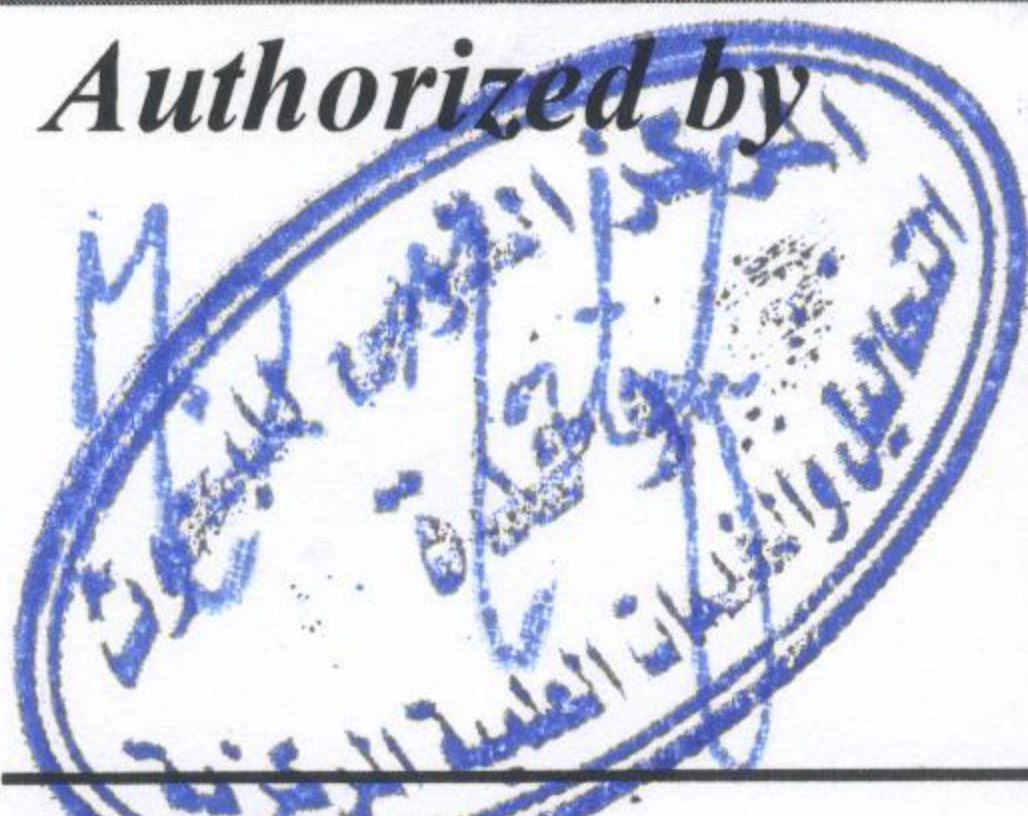




Test Report

Report No.	MO1 1965 06 2023
Client	I E S Innovative engineering solutions
Authority & date	Request Orders 18/6/2023
Items Tested	<u>Elastoseal PU</u>
Results	The detailed test results are given on the following pages of this report (6 pages) .
Report Typist	<ul style="list-style-type: none"> * Mis. Naglaa Mohamed-Sara Abdel Reheam Noha Samir * Mis . Fatma El Zahraa Fikry * Mis . Noha Samir - Sara Abd Elraheam * H.Eng. Ahmed Said * Chem. Amr El Shafey
Test carried by	
Authorized by	
	
Issue date	
Condition of Test & Issue	26/7/2023
	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 .





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

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



To / I E S Innovative engineering solutions

Dear Sir.,

With correspondence to your request dated 18/6/2023 concerning the testing On a sample of Elastoseal PU , We would like to inform you that the all following needed tests were carried out which namely :-

- 1- Tensile strength and elongation according to ASTM D412
- 2- Shore hardness test according to ASTM C661
- 3- Flow rheological test according to ASTM C639
- 4- Tack free time test according to ASTM C679
- 5- Adhesion in peel test according to ASTM C794
- 6- Adhesion and cohesion under cycle movement according to ASTM C719
- 7- Accelerated Weathering resistance test according to ASTM C793

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 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- Weighing Balance with tolerance ± 0.0001 g was used in determining the weights .
- 3- Measuring drum of sensitivity ± 0.01 mm was used for dimensions evaluation .
- 4- Izod Impact Tester CS- 137
- 5- Accelerated weathering tester model QUV/se made in USA .
- 6- The all used Machinery and the apparatus were calibrated periodically by NIST-America members and ABD-EGYPT.

The following data give the obtained results representing the sample delivered from your company.





Test results On a sample of Elastoseal PU

Delivered from I E S Innovative engineering solutions

1- Tensile strength and elongation according to ASTM D412

No.	Tensile strength (N/mm ²)	Elongation (%)
1	0.336	593.7
2	0.321	582.1
3	0.333	600.1
4	0.345	607.4
5	0.352	592.9
Mean	0.337	595.24

2- Shore hardness test according to ASTM C661

No.	Hardness (Shore A)	Mean
1	26	26
2	27	
3	26	
4	26	
5	26	

3- Flow rheological test according to ASTM C639



Vertical sag (mm)	Horizontal sag (mm)
1.3	0





Test results On a sample of Elastoseal PU

Delivered from I E S Innovative engineering solutions

4- Tack free time test according to ASTM C679

Temp. (°C)	RH (%)	Time (hr)
23	50	3

5- Adhesion in peel test according to ASTM C794

No.	Substrate		
	Concrete (N)	Glass (N)	Aluminum (N)
1	39.1	26.1	28.1
2	43.7	27.1	29.1
3	44.1	25.6	28.5
Mean	42.3	26.3	28.57

6- Adhesion and cohesion under cycle movement

according to ASTM C719

No.	Movement (%)	Substrate		
		Concrete	Glass	Aluminum
Loss in bond area (CM²)				
1	25	3.71	6.21	6.01
2		3.82	6.88	5.87
3		3.67	6.94	5.62
Mean		3.73	6.68	5.83





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معمل اختبار المواد



Test results On a sample of Elastoseal PU

Delivered from I E S Innovative engineering solutions

7- Accelerated Weathering resistance test according to ASTM C793

<i>Exposure time</i> (h)	<i>Exposure temp.</i> (°C)	<i>Light source</i>	<i>Irradiance</i> (w/m ²)	<i>Observation</i>
250	60	313nm UV-B	0.71	No crack was observation





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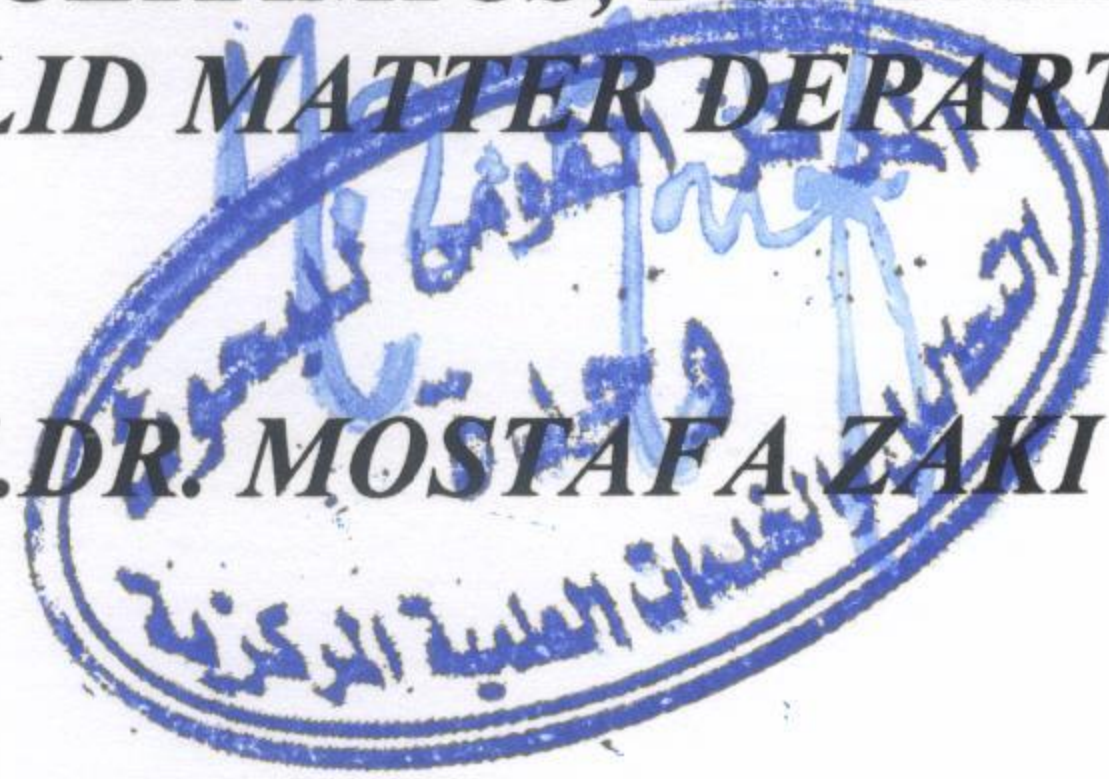
This report was given to you representing only the results for the testing sample of Elastoseal PU , Delivered from I E S Innovative engineering solutions , These results and conclusions were given to you without any responsibility on THE CERAMICS, POLYMERS AND SOLID MATTER DEP. of THE MATERIAL TEST LAB in THE NATIONAL RESEARCH CENTRE for pick up the samples to be tested .

**Head of Director of The Board of Central Department
for Scientifical Analysis and Tests**

&

**SUPERVISOR
OF CERAMICS, POLYMER AND
SOLID MATTER DEPARTMENT**

PROF.DR. MOSTAFA ZAKI MOSTAFA



شارع التحرير - الدقى - القاهرة

داخلي ١٨١٠ مباشر ٣٣٣٨٧٨٠٣
١٤٢٤ وفاكس

٣٣٣٧١٦١٥ - ٣٣٣٧١٣٦٢
٣٧٦٠٧٥٤١ - ٣٣٣٥٥١٩٢



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