



**TSE DENEY ve KALİBRASYON MERKEZİ BAŞKANLIĞI**  
**Yapı Malzemeleri ve Kimya Laboratuvar Grup Başkanlığı (Gebze)**  
**Yapı Malzemeleri Laboratuvarı Gebze Müdürlüğü**

Adres:TSE Gebze Kampüsü Cumhuriyet Mahallesi 2258 Sokak No:10 Çayırova Tren İstasyonu Yanı Gebze/ KOCAELİ  
 Tel:+90 (262) 723 14 57 Fax: +90 (262) 723 16 15 E-posta:ymlab@tse.org.tr Web:www.tse.org.tr

*HEADSHIP OF TSE TEST and CALIBRATION CENTER  
 CONSTRUCTION MATERIALS LABORATORY (GEBZE)*

Address:TSE Gebze Kampüsü Cumhuriyet Mahallesi 2258 Sokak No:10 Çayırova Tren İstasyonu Yanı Gebze/ KOCAELİ  
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251807

04-15

**MUAYENE VE DENEY RAPORU**  
**TEST REPORT**

<b>Deneysel Talep Eden</b> (Adı, Adresi, Şehir vb.)	: NEVRA İNŞ.YAPI TEKNOLOJİLERİ SAN.VE TİC.LTD.ŞTİ.
<i>Customer (Name, Address, City etc.)</i>	(NEVRA İNŞ.YAPI TEKNOLOJİLERİ SAN.VE TİC.LTD.ŞTİ.: BAĞDAT CAD.ÇOLAKOĞLU İŞ MERKEZİ NO:458/22 34846 MALTEPE/İSTANBUL --İSTANBUL)
<b>Deneysel Talep Tarihi/No</b> <i>Order Date / No</i>	: 12.03.2015 / 126426
<b>Numunenin Tanımı</b> (Cins, Marka, Tip, Tür, Model vb.)	: MAGNEZYUM LEVHA, , , , , , 21,00 adet
<i>Sample Description (Type, Mark, Model etc.)</i>	MAGNESIUM BOARD,,,,,21,00 item
<b>Numune Kabul Tarihi</b> <i>Test Item Receipt Date</i>	: 09.03.2015
	<i>Samples were taken by the customer</i>
<b>Deneysel Yapıldığı Tarih</b> <i>Date of Test</i>	: 09.03.2015 - 08.04.2015
<b>Uygulanan Standard / Metod</b> <i>Applied Standard/Method</i>	: TS EN 12467:2013-04 Düz levhalar - Elyaf takviyeli çimento kullanılarak imal edilmiş - Mamul özellikleri ve deney metotları+A1:2007-03+A2:2007-03 <i>TS EN 12467:2013-04 Fibre-cement flat sheets - Product specifications and test methods+A1:2007-03+A2:2007-03</i>
<b>Raporun Sayfa Sayısı</b> <i>Number of pages of the report</i>	: 3
<b>Açıklamalar</b> <i>Remarks</i>	:

Yukarıda tanımlanan numune için laboratuvarımızda yapılan muayene ve deneylerden elde edilen sonuçlar müteakip sayfalarda verilmiştir.

*The testing and/or measurement results are given on the following pages which are part of this report.*

Bu rapor özel deney talebine istinaden düzenlenmiş olup, Standartlara Uygunluk Belgesi niteliğinde değildir. Partiyi temsil etmez, ayrıca ilan, reklam ve ihalelerde uygunluk belgesi niteliğinde kullanılamaz.

*This test report was prepared upon customer's request, can not be used as certificate of conformity to standards, does not represent a batch and can not be used as conformity document for advertisements and procurements .*

Mühür Tarih  
Seal Date



Deneysel Sorumlusu  
Person in charge of tests

İlker MEHMET KALAYCI  
Tekniker

Kontrol Eden  
Reviewer

Ahmet Onder ELİRİ  
Teknik Şef (Vekaleten)

Onaylayan  
Approved by

Ahmet Onder ELİRİ  
Teknik Şef V.

*Bu rapor, laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.*

*Bu rapor, sadece deney yapılan numune için geçerlidir ve "Ürün Belgesi" yerine geçmez.*

*This test report shall not be reproduced other than in full except with the written permission of the laboratory. Test reports without signature and seal are not valid.*

*This test report represents only tested sample(s), and shall not be used as Product Certificate*

LAB-D-FR-36/15.08.2014-0

1 / 3



TSE DENey VE KALIBRASYON MERKEZİ BAŞKANLIđI YAPI MALZEMELERİ LABORATUVARI  
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251807 /04-15

**MUAYENE - DENEY SONUÇLARI TEST RESULTS**

**TS EN12467Nisan 2013 Fibre-cement flat sheets - Product specification and test methods**

5.4.2 Apparent density		
Required	Obtained	Result
The manufacturer shall specify in his literature the minimum apparent density for each category and each class of sheet. When tested in accordance with the method specified in 7.3.1, the density shall be not less than this value.	Firm declaration: <u>mass per unit volume</u> (g/cm <sup>3</sup> ) 0,71	—

Required			
5.4.3 Moisture movement			
The manufacturer's literature shall state the percentage value of linear sheet moisture movement measured when the sheet is exposed to a relative humidity change from 30 % to 90 %. The stated value shall be determined in accordance with 7.3.7 using the test method given in Annex C.			
Firm declaration :  Test Condition : 23°C and 30% relative humidity 23°C and 90% relative humidity Sample dimensions:300mmx75 mm	Obtained		Result
	Sample No	Linear Moisture Movement (Lm, %)	
	1-1	0,15	—
	1-2	0,15	
	2-1	0,05	
	2-2	0,11	
	3-1	0,11	
	3-2	0,11	
	4-1	0,14	
	4-2	0,11	
	5-1	0,08	
	5-2	0,12	

LAB-D-FR-36 / 15.08.2014-0





MUAYENE - DENEN SONUÇLARI TEST RESULTS

5.4.4 Mechanical characteristics – Bending strength (MOR) – Modulus of elasticity (MOE)																																																							
Required		Obtained																																																					
<p>When tested as specified in 7.3.2, the minimum modulus of rupture of the sheets, expressed in megapascals, shall be as specified in Table 6. The MOR shall be the average of the values obtained from testing the samples in both directions.</p> <p>The manufacturer shall specify the characteristic value for mechanical strength. Characteristic values of bending strength are based on statistical data on results of tests in ambient conditions. The statistical interpretation of test results is based on the procedure prescribed in EN 1990:2002, Eurocode — Basis of structural design, Table D.1, <math>V_x</math>, unknown).</p> <p>If a correlation has been established (see Annex B) between the MOR from production control and the MOR from products as delivered, the k-value of <math>V_{x,known}</math> can be used. The minimum modulus of rupture of the sheets in the weaker direction shall be not less than 70 % of the specified value in Table 6 for the average of the two directions. This requirement does not apply to textured sheets.</p> <p>The modulus of elasticity of the sheets, expressed in Giga- or Megapascals, shall be specified on test results of tests in ambient conditions. The MOE shall be the average of the values obtained from testing the sampling in both directions with indication of the standard deviation.</p> <p>It is up to the manufacturer to determine the MOE for information purposes, i.e. with type testing.</p>		<p>Conditioning: Wet Conditions</p> <p>Firm declaration: Category __, Class __ Characteristic Bending Strength: __ MPa Modulus of Elasticity: -</p>																																																					
<table border="1"> <thead> <tr> <th colspan="2">min. MOR in the wet condition</th> <th colspan="2">min. MOR in the ambient laboratory conditions</th> </tr> <tr> <th>Classes</th> <th>Mpa</th> <th>Classes</th> <th>Mpa</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>4</td> <td>1</td> <td>4</td> </tr> <tr> <td>2</td> <td>7</td> <td>2</td> <td>7</td> </tr> <tr> <td>3</td> <td>13</td> <td>3</td> <td>10</td> </tr> <tr> <td>4</td> <td>18</td> <td>4</td> <td>16</td> </tr> <tr> <td>5</td> <td>24</td> <td>5</td> <td>22</td> </tr> </tbody> </table>		min. MOR in the wet condition		min. MOR in the ambient laboratory conditions		Classes	Mpa	Classes	Mpa	1	4	1	4	2	7	2	7	3	13	3	10	4	18	4	16	5	24	5	22	<table border="1"> <thead> <tr> <th>Sample No</th> <th>MOR (MPa)</th> <th>MOE (MPa)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>10,2</td> <td>1463</td> </tr> <tr> <td>2</td> <td>10,2</td> <td>1226</td> </tr> <tr> <td>3</td> <td>10,2</td> <td>1568</td> </tr> <tr> <td>4</td> <td>12,1</td> <td>1500</td> </tr> <tr> <td>5</td> <td>10,9</td> <td>1535</td> </tr> <tr> <td>The Average</td> <td>10,7</td> <td>1458</td> </tr> <tr> <td>Characteristic Bending Resistance:</td> <td></td> <td>9</td> </tr> </tbody> </table>		Sample No	MOR (MPa)	MOE (MPa)	1	10,2	1463	2	10,2	1226	3	10,2	1568	4	12,1	1500	5	10,9	1535	The Average	10,7	1458	Characteristic Bending Resistance:		9
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5.4.5 Water impermeability																																																							
Required		Obtained																																																					
<p>When the plates are subjected to the experiment, although traces of moisture should not occur in the plate bottom face absolutely water droplets.</p>		<p>Water droplets were not formed.</p>																																																					
Result		—																																																					

LAB-D-FR-36 / 15.08.2014-0

