

## LABORATORY PERFORMANCE REPORT

In accordance with

The contracted specification

**Sample Reference** Benli Recycling Group EPDM Granules

**Report Number** 18146/5368

**Report Status** Final

**Issue Date** 02/08/2018

**Client** Benli Recycling Group  
Organize Sanayi Bolgesi  
9/A Caddesi No: 12 Eskisehir  
Turkey

### FOREWORD

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4. \*Not all tests carried out are within our scope of ISO 17025 Accreditation.
5. Comments and opinions are out with the scope of our ISO 17025 Accreditation.



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1.0 INTRODUCTION

We refer to the sample of EPDM Granules delivered to our Laboratory by Benli Recycling Group.

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02/08/2018

**Checked By** Sean Ramsay  
Laboratory Director  
02/08/2018

Test Details	
Product Name	Benli Recycling Group EPDM Granules
Type	EPDM
Temperature Range	21.0 – 25.0 °C
Humidity Range	40 – 60 %

2.0 TEST DETAILS

The test specimens were prepared in accordance with the manufacturer’s instructions and the relevant specifications detailed in section 3.0 overleaf.



### 3.0 TESTING

- 3.1 Particle Size of Unbound Sub-bases – EN 933-1: 2012
- 3.2 Bulk Density of Infill Materials – EN 1097-3: 1998
- 3.3 Particle Shape of Infill Materials and Unbound Base Materials – EN 14955: 2005
- 3.4 \* Assessment of Synthetic Infill (TGA) – FIFA Test Method 11
- 3.5 \* Accelerated Weathering – FIFA Test Method 10 & Grayscale for Assessing Change in Colour EN 20105-A02: 1995
- 3.6 \* Accelerated Weathering EN 14836: 2005 & Grayscale for Assessing Change in Colour EN 20105-A02: 1995
- 3.7 \* Environmental Testing DIN 18035-7 including PH

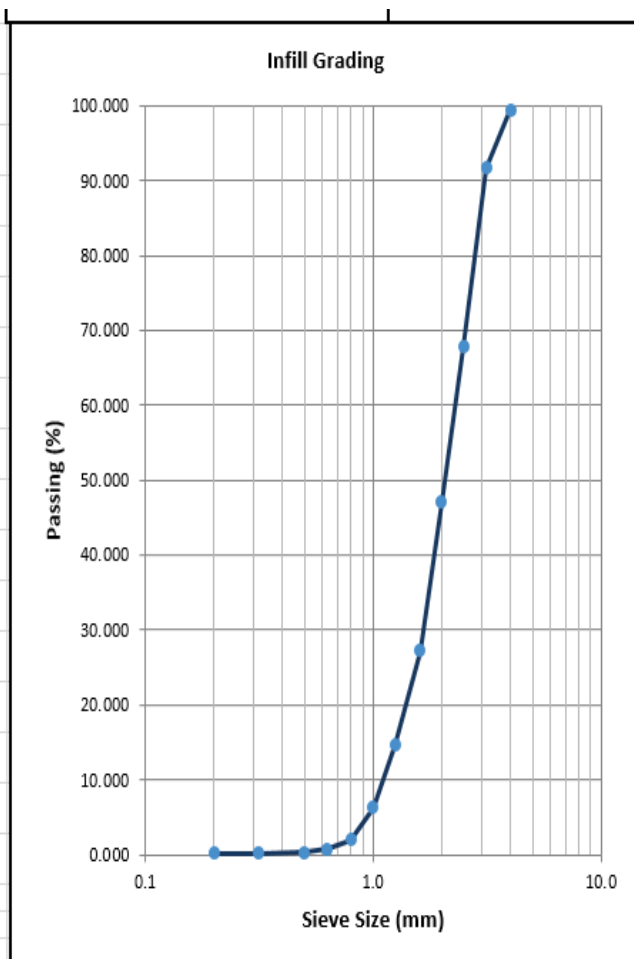
(\* note: these tests are out with our scope of ISO 17025 Accreditation).

### 4.0 TEST RESULTS

Detailed test results are given overleaf in tabular format.

**4.1 PARTICLE SIZE, LOOSE BULK DENSITY & PARTICLE SHAPE**

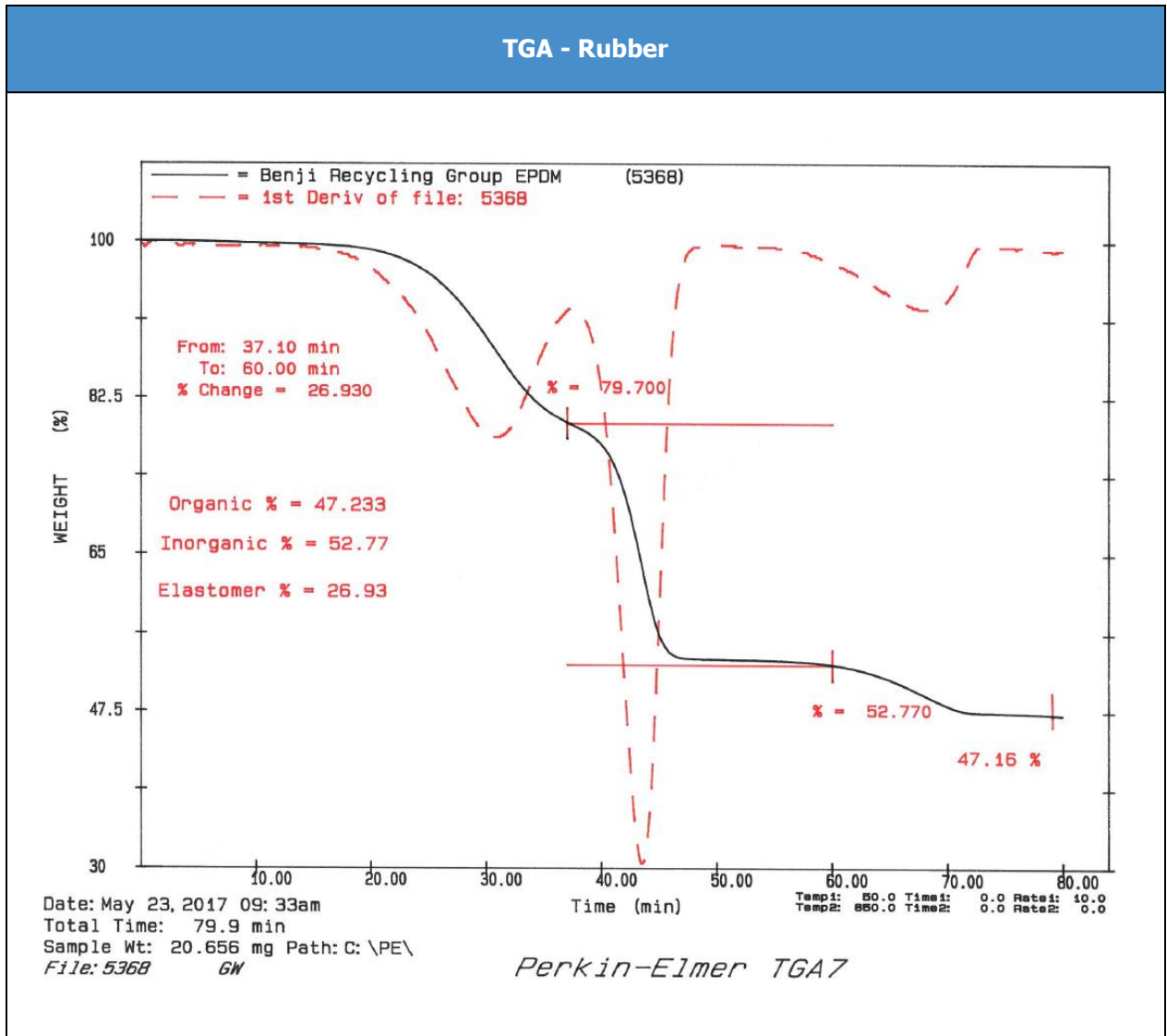
Characteristic	Result
Particle Size	1.0 – 3.35 mm
Particle Shape	A2
Bulk Density	0.509 g/cm <sup>3</sup>
Colour	Black



Sieve Size (mm)	Passing (%)
4.000	99.4
3.350	91.6
2.500	67.8
2.000	47.1
1.600	27.2
1.250	14.7
1.000	6.2
0.800	2.0
0.630	0.7
0.500	0.2
0.315	0.2
0.200	0.2
Passing to base tray	0.2





4.2 ASSESSMENT OF SYNTHETIC INFILL (TGA) – FIFA TEST METHOD 11\*



**4.3 ACCELERATED WEATHERING – FIFA Test Method 10 & GRAYSCALE FOR ASSESSING CHANGE IN COLOUR EN 20105-A02: 1995\***

A representative sample is exposed to artificial weathering by means of fluorescent UV-A 340nm lamps for a period of approximately 5000 hours including cycling until an exposure of  $9600 \pm 125$  kJ is reached. The resulting changes in properties are then observed and recorded, the details of which can be seen below:



<b>UVA (340 nm) ageing</b>			
<b>Characteristic</b>	<b>Units</b>	<b>Test Method</b>	<b>Result</b>
Colour change (Greyscale)	-	EN 20105-A02	5
Visual change in composition	-	-	No Change

<b>Sample Pictures</b>	
<b>Pre-Exposure</b>	<b>After UVA (340 nm) 5000 Hours Exposure</b>
	

**4.4 ACCELERATED WEATHERING EN 14836: 2005 & GRAYSCALE FOR ASSESSING CHANGE IN COLOUR EN 20105-A02: 1995\***

A representative sample is exposed to artificial weathering by means of fluorescent UV-B 313nm lamps for a period of approximately 3000 hours including cycling until an exposure of 4896± 125 kJ is reached. The resulting changes in properties are then observed and recorded, the details of which can be seen below:

<b>UVB (313 nm) ageing</b>			
<b>Characteristic</b>	<b>Units</b>	<b>Test Method</b>	<b>Result</b>
Colour change (Greyscale)	-	EN 20105-A02	5
Visual change in composition	-	-	No Change

<b>Sample Pictures</b>	
<b>Pre-Exposure</b>	<b>After UVB (313 nm) 3000 Hours Exposure</b>
	

**4.5 DIN 18035-7 CHEMICAL ANALYSIS and pH ANALYSIS\***

A representative sample was sent to a specialist chemical lab for DIN 18035-7 chemical analysis and pH analysis. The results below are extracted from report number L 175/0718-1.

Parameter	Method	Result	Unit	Limit Value	Quantification Limit
Dry Matter	DIN ISO 11465*	99.8	%	-	0.10
EOX	DIN 38414-S17*	9.29	mg/kg DM	100	1.00
pH-Value	DIN EN ISO 10523-C5*	8.9	-	-	0.10
DOC 24h	BS EN 1484*	27.7	mg/L	50.0	1.00
DOC 48h	BS EN 1484*	20.3	mg/L	50.0	0.20
Lead	BS EN ISO 11885*	< 0.003	mg/L	0.025	0.003
Cadmium	BS EN ISO 11885*	< 0.002	mg/L	0.005	0.002
Chromium	BS EN ISO 11885*	< 0.002	mg/L	0.050	0.002
Chromium (VI)	DIN 38405-D24*	< 0.010	mg/L	0.008	0.010
Mercury	BS EN ISO 12846*	0.00004	mg/L	0.001	0.00003
Tin	BS EN ISO 11885*	< 0.002	mg/L	0.040	0.002
Zinc	BS EN ISO 11885*	0.0208	mg/L	0.500	0.002

**End of Report**