

TEST REPORT

RAPPORT D'ESSAIS / INFORME DE ENSAYOS

**Test on infill materials / Essais sur matériaux de remplissage /
Materiales de relleno**

Test realized according to NF P90-112, EN 15330-1
Essais réalisés selon les normes NF P90-112, EN 15330-1
Ensayos según las normas NF P90-112, EN 15330-1

SUNFLEX EPDM RUBBER GRANULES TERRACOTTA RED SUNFLEX RECYCLING PVT. LTD.

Report / rapport n°R231690-G1

Date : 17/05/2024



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The results are valid only for the assessed sample / Les résultats concernant uniquement les objets soumis aux essais / Los resultados del presente informe se refieren exclusivamente a las muestras objeto de los ensayos.

SUMMARY / SOMMAIRE / INDICE

1 ■ IDENTIFICATION / IDENTIFICATION / IDENTIFICACION

1 ■ IDENTIFICATION / IDENTIFICATION / IDENTIFICACION

Information provided by the supplier / Caractéristiques fournies par le fabricant / Características comunicadas por el fabricante

Company Société Empresa	SUNFLEX RECYCLING PVT. LTD.
Address Adresse dirección	Plot N°274/4, Shital Estate, B/H Satyamev Complex, Opp. Gujarat High Court S.G. Highway, Sola, Ahmedabad - 380060
Commercial name Nom commercial Nombre del producto	SUNFLEX EPDM RUBBER GRANULES TERRACOTTA RED
Colour Couleur Color	Red / rouge / rojo
Nature Nature Naturaleza	EPDM

Specimen information / Information concernant l'échantillon / Datos sobre la muestra

Date of order Date de commande Fecha de pedido	05/10/2023
Specimen taken by Echantillons prélevés par Muestra tomada por	SUNFLEX RECYCLING PVT. LTD.
Date of reception Date de réception Fecha de recepción	05/10/2023
Receipt number Numéro de réception Número de recepción	035628
Date of tests Date des essais Fecha de ensayos	From/du 05/10/2023 to/au 15/05/2024

Parameter Elément Elemento	Unit Unité Unidad	Test method Méthode d'essai El método de ensayo	Result Résultat Resultado	NF P90-112 (2023)	FIFA	World Rugby	EN15330-1
Particle shape Forme / Forma	(-)	EN 14955	A2	v	v	v	v
Bulk density Densité / Densidad	(Mg/M ³ g/cm ³)	EN 1097-3	0,560 0,560 0,558 Moyenne : 0,560	v	v	v	v
Particle size Granulométrie / Granulometría							
d	(mm)	EN 933-1	1,600	≥ 0.5	v	v	v
D	(mm)	EN 933-1	3,150	≤ 3,15	v	v	v
Color Couleur / Color	(-)	visual	Red / rouge / rojo	v	v	v	-
Thermogravimetric Analysis TGA / Analyse thermogravimétrique ATG / Análisis Termogravimétrico ATG							
charge / charge / carga	(%)		50	-	v	v	-
organic / organique / orgánico	(%)		50	-	v	v	-
**Mass loss between beginning of second peak (around 400 °C) and 650°C / Perte de masse entre le début du second pic (autour de 400°C) et 650°C / Perdida de masa entre el inicio del segundo pico (aprox. 400 °C) y 650°C							
	(%)	ISO 9924-1	36,8	> 20	v	v	-

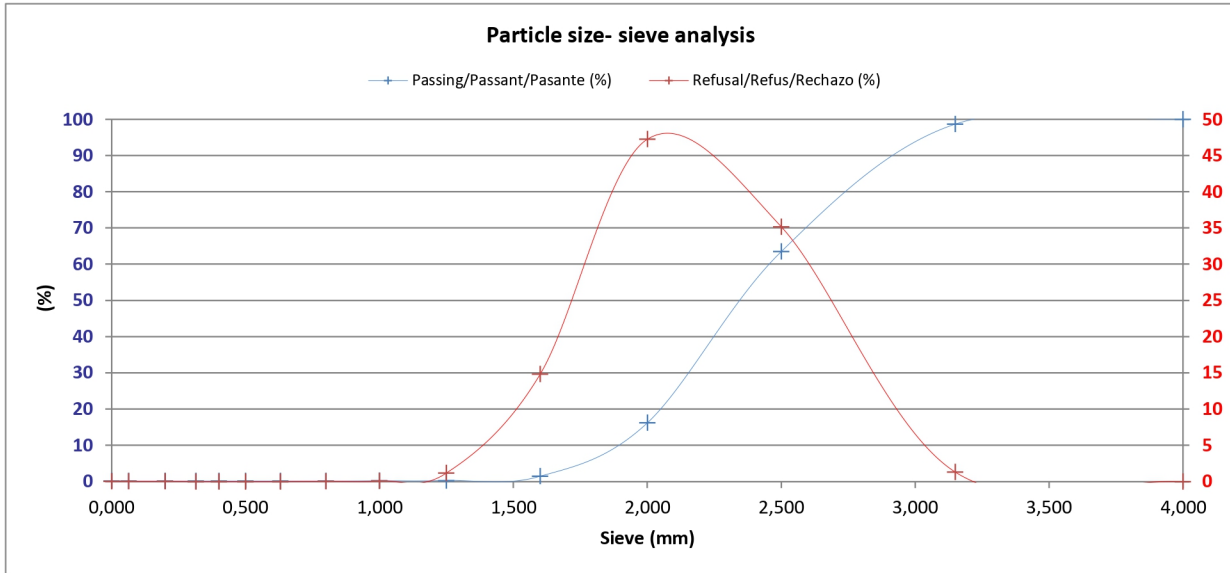
V : required for identification / demandé pour l'identification

** : 'elastomer content' as defined in FIFA manual / 'teneur en élastomère' telle que définie dans le règlement FIFA

Particle size d/D

Granulométrie / Granulometría

Sieve/Tamis/Cribas (mm)	0,000	0,063	0,200	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	2,000	2,500	3,150	4,000
Refusal/Refus/Rechazo(g)	202,6	202,6	202,5	202,5	202,5	202,5	202,5	202,5	202,4	202,3	199,9	169,9	74,0	2,65	0
Passing/Passant/Pasante (%)	0	0	0	0	0	0	0	0	0	0	1	16	64	99	100
Refusal/Refus/Rechazo (%)	0	0	0	0	0	0	0	0	0	1	15	47	35	1	0



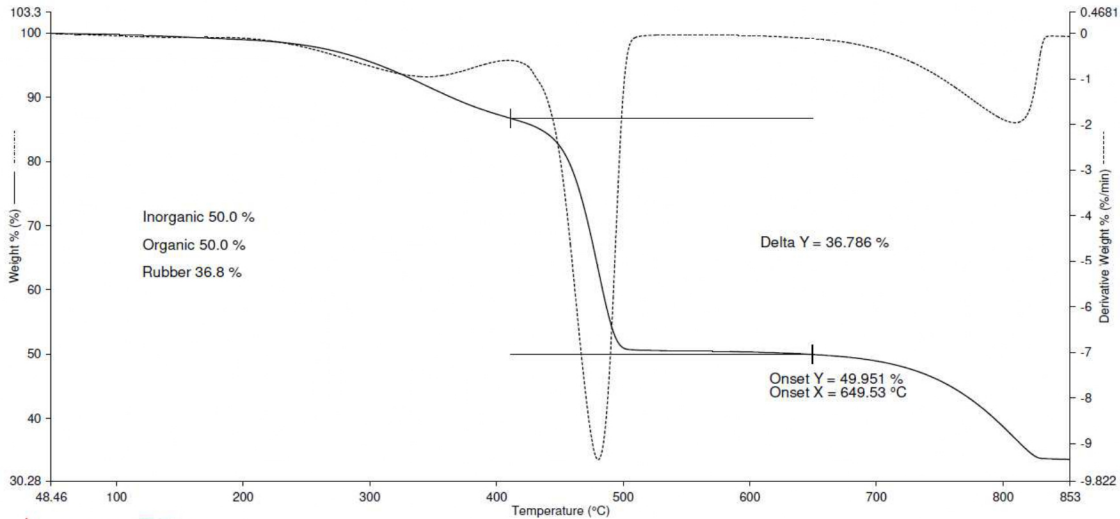
Definitions :

d : largest sieve / plus grand tamis <10%

D : smallest sieve / plus petit tamis >90%

Thermogravimetric Analysis TGA / Analyse thermogravimétrique ATG / Análisis Termogravimétrico ATG

Data Collected:	10/10/2023 15:33:20	231690: 035628 (4033-02).t6d
Operator ID:	LGO	Weight % (%): Steps: 1-3
Sample ID:	231690	231690: 035628 (4033-02).t6d
Sample Weight:	66.840 mg	Derivative Weight % (%/min) (Smoothed): Steps: 1-3
Initial Purge Gas:	Argon	
Comment:	PerkinElmer TGA4000 - Serial number 522A2092805 - calibration : alumel / perkalloy / iron	



10/10/2023 15:41:21

1) Hold for 1.0 min at 50.00°C	3) Hold for 1.0 min at 850.00°C
2) Heat from 50.00°C to 850.00°C at 10.00°C/min	

SYNTHESIS / SYNTHÈSE / SÍNTESIS

1. Identification / identification / identificación

Tests Essais / Pruebas	Requirements Exigences / Exigencias	Conformity Conformité / Cumplimiento
Identification Identification Identificación	NF P 90-112 (2023)	Pass / conforme / cumple

Date : 17/05/2024



APPROBATEUR
Steve BAZEILLE
Responsable Laboratoire



REDACTEUR
Anaïs LANGEVIN
Technicienne Laboratoire

TEST REPORT

RAPPORT D'ESSAIS / INFORME DE ENSAYOS

**Test on infill materials / Essais sur matériaux de remplissage /
Materiales de relleno**

Test realized according to NF P90-112, EN 15330-1, NF EN 71-3 standards and FIFA, WORLD RUGBY handbooks
Essais réalisés selon les normes NF P90-112, EN 15330-1, NF EN 71-3 et les référentiels FIFA, WORLD RUGBY
Ensayos según las normas NF P90-112, EN 15330-1, NF EN 71-3 y los referenciales FIFA, WORLD RUGBY

SUNFLEX EPDM RUBBER GRANULES TERRACOTTA RED SUNFLEX RECYCLING PVT. LTD.

Report / rapport n°R231690-D1

Date : 24/11/2023



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SUMMARY / SOMMAIRE / INDICE

1 ■ IDENTIFICATION / IDENTIFICATION / IDENTIFICACION

2 ■ TOXICOLOGY AND ENVIRONNEMENT / TOXICOLOGIE ET ENVIRONNEMENT/ TOXICOLOGIA Y MEDIOAMBIANTE

2.1 Analysis of heavy metals after leading / Analyse des métaux lourds après lixiviation / Análisis de metales pesados después de la lixiviación

2.2 EOX

2.3 Analysis of heavy metals / Analyse des métaux lourds / Análisis de metales pesados

SYNTHESIS / SYNTHESE / SÍNTESIS

1 ■ IDENTIFICATION / IDENTIFICATION / IDENTIFICACION

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Date of tests Date des essais Fecha de ensayos	From/du 05/10/2023 to/au 30/10/2023

2 ■ TOXICOLOGY AND ENVIRONNEMENT / TOXICOLOGIE ET ENVIRONNEMENT / TOXICOLOGIA Y MEDIOAMBIANTE

2.1 Analysis of heavy metals after leading / Analyse des métaux lourds après lixiviation / Análisis de metales pesados después de la lixiviación

NF P 90-112 (2023): The first eluate after leading without bubbling (24 hours) is analyzed. If the tests on the analysis of zinc and COD are not consistent (respectively between 0.5 and 1 mg/l and between 50 and 100 mg/l), the second eluate after leading without bubbling (48 hours) is analyzed. Leading test method : EN 12457-4. / Le premier éluat après lixiviation sans barbotage (24 heures) est analysé. Si les essais concernant l'analyse du Zinc et du COD ne sont pas conformes (respectivement compris entre 0.5 et 1 mg/l et compris entre 50 et 100 mg/l), le second éluat après lixiviation sans barbotage (48 heures) est analysé. Méthode d'essais pour la lixiviation : EN 12457-4.

Parameter Elément Elemento	Unit Unité Unidad	Test method Méthode d'essai El método de ensayo	Result Résultat Resultado	NF P 90-112 (2023)
Lead Pb Plomb / Plomo	mg/l		< 0,001	≤ 0.025
Cadmium Cd Cadmio	mg/l		< 0,001	≤ 0.005
Chromium total Cr Chrome total / Cromo total	mg/l	NF EN ISO 11885	< 0,001	≤ 0.050
Tin Sn Etain / Estaño	mg/l		< 0,002	≤ 0.040
Zinc Zn Zinc / Cinc	mg/l		Eluat 24H: 0,12 Eluat 48H: -	≤ 0.5
Dissolved organic carbone DOC Carbone Organique Dissous	mg/l	NF EN 1484	Eluat 24H: 155 Eluat 48H: -	≤ 50
Chromium hexavalent Cr Chrome hexavalent / Cromo hexavalente	mg/l	NF T90-043 DIN 38405-24	< 0,008	≤ 0.008
Mercury Hg Mercure / Mercurio	mg/l	NF EN 13506 DIN 12846	< 0,000015	≤ 0.0010

2.2 EOX

Parameter Elément Elemento	Unit Unité Unidad	Test method Méthode d'essai El método de ensayo	Result Résultat Resultado	NF P 90-112 (2023)
Extractable Organic Halides EOX Organo-halogénés extractibles EOX Extraíbles Orgánica Halogenuros EOX	mg/kg	DIN 38414-17	40	≤ 100

2.3 Analysis of heavy metals / Analyse des métaux lourds / Análisis de metales pesados

The EN 71-3 standard specifies the maximum migration limits for toy materials. The migration limits of the elements are expressed in milligrams per kilogram of toy material. The limits taken into account are those of category III (polymers). These limits are intended to limit as much as possible the exposure of children to certain potentially toxic elements.

La norme EN 71-3 spécifie des limites de migration maximales applicables à des matériaux-jouet. Les limites de migration des éléments sont exprimées en milligrammes par kilogramme matériau-jouet. Les limites prises en compte sont celle de la catégorie III (polymères). Ces limites visent à limiter autant que possible l'exposition des enfants à certains éléments potentiellement toxiques.

Parameter Elément Elemento	Unit Unité Unidad	Test method Méthode d'essai El método de ensayo	Result Résultat Resultado	NF EN 71-3 (cat III)
Aluminium	mg/kg MS	ICP	1,5	< 28 130
Antimony	mg/kg MS	ICP	< 0,05	< 560
Arsenic	mg/kg MS	ICP	< 0,05	< 47
Barium	mg/kg MS	ICP	4,5	< 18 750
Boron	mg/kg MS	ICP	< 0,5	< 15 000
Cadmium	mg/kg MS	ICP	< 0,05	< 17
Chromium total	mg/kg MS	ICP	< 0,1	-
Chromium III	mg/kg MS NF EN ISO 11885	ICP	< 0,1	< 460
Chromium VI	mg/kg MS NF T 90-043	ICP	< 0,053	< 0.053
Cobalt	mg/kg MS	ICP	< 0,05	< 130
Copper	mg/kg MS	ICP	0,35	< 7 700
Lead	mg/kg MS	ICP	0,15	< 23
Manganese	mg/kg MS	ICP	2,8	< 15 000
Mercury	mg/kg MS NF EN ISO 17852	ICP	0,0013	< 94
Nickel	mg/kg MS	ICP	< 0,1	< 930
Selenium	mg/kg MS	ICP	< 0,1	< 460
Strontium	mg/kg MS	ICP	2,55	< 56 000
Tin	mg/kg MS	ICP	< 0,1	< 180 000
Organic Tin ⁽¹⁾	mg/kg MS	ICP	NR	< 12
Zinc	mg/kg MS	ICP	92	< 46 000

(1) NR : Non réalisé

SYNTHESIS / SYNTHÈSE / SÍNTESIS

Toxicology and environment / Toxicologie et environnement / Toxicología y medioambiente

Tests Essais / Pruebas	Requirements Exigences / Exigencias	Conformity Conformité / Cumplimiento
Analysis of heavy metals after leading Analyse des métaux lourds après lixiviation Análisis de metales pesados después de la lixiviación	NF P 90-112 (2023)	Fail / non conforme / no cumple
Extractable Organic Halides EOX Organo-halogénés extractibles EOX / Extraíbles Orgánica Halogenuros EOX	NF P 90-112 (2023)	Pass / conforme / cumple
Analysis of heavy metals risks by ingestion Analyse des métaux lourds risques par ingestion Análisis de metales pesados riesgo de ingestión	NF EN 71-3 (cat III)	Pass / conforme / cumple for the tests carried out / pour les essais réalisés

Date : 24/11/2023



APPROBATEUR
Steve BAZEILLE
Responsable Laboratoire



REDACTEUR
Anaïs LANGEVIN
Technicienne Laboratoire

October 8, 2024

TEST REPORT

PN 176592
Credit Card Payment

Chemical/Analytical Services

Prepared For:

Milind Patel
Sunflex Recycling Pvt Ltd
Plot No. 274/4, Shital Estate, B/H Satamev Complex, Opp Gujarat High Court, S.G.
Highway, Sola, Ahmedabad 380060
IND

Prepared By:

T. Dusty Samples /sm
T. Dusty Samples
Manager, Chemical Services

Approved By:

Ana C. Barbur
Ana C. Barbur
Vice President, Chemical Services



An A2LA ISO 17025 Accredited Testing Laboratory-
Certificate Numbers 255-01, 255-02, 255-03 and 255-04
ISO 9001-2015 Registered

ISO 9001:2015
Registered

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October 8, 2024
Milind Patel
Sunflex Recycling Pvt Ltd

Page 2 of 4
PN 176592

SUBJECT: Analytical testing on sample(s) submitted by customer.

RECEIVED: Two (2) Intact Bags of Red EPDM Rubber Granules ID as Sample - A & Sample - B.

Decision Rule 1 (unless noted below)

Test Location: All testing performed at our Gilchrist Road location unless otherwise noted

RESULTS

TOTAL CARBON; LECO METHOD

Sample was combusted in an oxygen atmosphere where the carbon oxidized to CO₂ gas. The gas was measured by an infrared cell and the results calculated by the microprocessor.

TABLE 1: TOTAL CARBON; LECO METHOD
Summary of Carbon Percent

<u>SAMPLE</u>	<u>TOTAL CARBON, %</u>
Sample A	33.1
Sample B	32.8

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NOTE: The Mark ^ is used to designate non-accredited test methods in the body of the report and that any opinions or interpretations for these results for these non-accredited tests are outside the scope of this organization's accreditation.



Two (2) Intact Bags of Red EPDM Rubber Granules ID as Sample - A & Sample - B

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Decision Rules

Rule 1. This is the way test results have traditionally been reported by ARDL. If ARDL runs a test for you that has pass/fail requirements, ARDL will report the values observed and then state "Pass" or "Fail", based on those values only. By default, ARDL will apply this rule to all Category I tests and those tests which are not on ARDL's Scope of Accreditation.

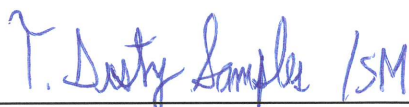
Rule 2. This rule takes into account the calculated measurement uncertainty of test results generated. Every test and piece of test equipment has an inherent amount of measurement uncertainty associated with it. Rule 2 establishes "Guard Bands" where the measurement uncertainty value is added to the Minimum Passing requirement and is subtracted from the Maximum Passing requirement. The Pass/Fail requirements thus become tighter and customers may be more "Certain" of their Pass/Fail result.

Rule 3. This rule also takes into account measurement uncertainty but does not set up guard bands. Rule 3 may be used when values are reported, but there is no Pass/Fail requirement called out in the test specification. Rule 3 simply states that the measurement uncertainty is reported to the customer, along with the testing result generated, and the customer decides if the results are suitable for their purposes.

Report Revision Log

<u>Date</u>	<u>Report Revision</u>	<u>Description</u>
10-8-24	New	

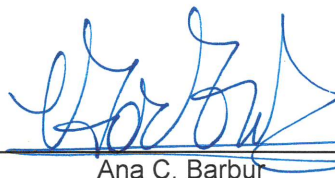
Prepared By:


T. Dusty Samples

Manager, Chemical Services

TDS/ACB/LL

Approved By:


Ana C. Barbur

Vice President, Chemical Services

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