

## TEST REPORT

### Laboratory tests on an infill material for artificial turf system

Tests performed according to EN 71-3, DIN 18035-7 and US EPA 8270 standards

**Report Number** R19027CAN-A2

**Product** PLAY - SAFE 65 – EPDM  
Fleck Manufacturing

**Client** Henry Fleck  
Fleck Manufacturing

**Date** September 26<sup>th</sup>, 2019

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## INFORMATION

Product description	Infill material for artificial turf system			
Product name	PLAY - SAFE 65 – EPDM			
Sample number	US002229			
Date of reception	March 18 <sup>th</sup> , 2019			
Date of tests	March to May 2019			
Temperature (°C)	MIN	22	MAX	24
Humidity (%)	MIN	49	MAX	51

## RESULTS

### Toxicological analysis of Heavy Metals – DIN 18035-7 (*lixiviation*):

Parameters	Units	Test method	Results	Requirements	Pass/Fail
Lead	mg/L	DIN 18035-7	< 0.01	< 0.025	Pass
Cadmium	mg/L	DIN 18035-7	< 0.001	< 0.005	Pass
Total Chromium	mg/L	DIN 18035-7	< 0.01	< 0.05	Pass
Tin	mg/L	DIN 18035-7	< 0.01	< 0.040	Pass
Chromium VI	mg/L	DIN 18035-7	< 0.008	< 0.008	Pass
Mercury	mg/L	DIN 18035-7	< 0.1	< 1	Pass
Zinc	mg/L	DIN 18035-7	0.65	< 0.5	Fail
COD	mg/L	DIN 18035-7	39.9	< 50	Pass

### Toxicological analysis of Heavy Metals – EN 71-3 (*migration*):

Element	Units	Test method	Results	Requirements (Material of Category III)	Pass/Fail
Aluminium	mg/kg DW	EN 71-3	25	< 70 000	Pass
Antimony	mg/kg DW	EN 71-3	< 0.5	< 560	Pass
Arsenic	mg/kg DW	EN 71-3	< 0.5	< 47	Pass
Barium	mg/kg DW	EN 71-3	< 0.5	< 18 750	Pass
Boron	mg/kg DW	EN 71-3	< 0.5	< 15 000	Pass
Cadmium	mg/kg DW	EN 71-3	< 0.5	< 17	Pass
Cobalt	mg/kg DW	EN 71-3	< 0.5	< 130	Pass
Copper	mg/kg DW	EN 71-3	< 0.5	< 7 700	Pass
Lead	mg/kg DW	EN 71-3	< 0.65	< 160	Pass
Manganese	mg/kg DW	EN 71-3	< 0.5	< 15 000	Pass
Mercury	mg/kg DW	EN 71-3	< 0.005	< 94	Pass
Nickel	mg/kg DW	EN 71-3	< 0.5	< 930	Pass
Selenium	mg/kg DW	EN 71-3	< 0.5	< 460	Pass
Strontium	mg/kg DW	EN 71-3	< 0.5	< 56 000	Pass
Tin	mg/kg DW	EN 71-3	< 0.5	< 180 000	Pass
Zinc	mg/kg DW	EN 71-3	1235	< 46 000	Pass
Chromium III	mg/kg DW	EN 71-3	< 0.5	< 460	Pass
Chromium VI	mg/kg DW	EN 71-3	< 0.2	< 0.2	Pass

## Toxicological analysis of PAH:

Element	Units	Test method	Results
Benzo (a) pyrene	mg/kg DW	US EPA 8270	< 0.2
Benzo (e) pyrene	mg/kg DW	US EPA 8270	0.39
Benzo (a) anthracene	mg/kg DW	US EPA 8270	< 0.2
Chrysene	mg/kg DW	US EPA 8270	< 0.2
Benzo (j+b) fluoranthene	mg/kg DW	US EPA 8270	< 0.2
Benzo (k) fluoranthene	mg/kg DW	US EPA 8270	< 0.2
Dibenzo (a,) anthracene	mg/kg DW	US EPA 8270	< 0.2
Indeno (1,2,3-cd) pyrene	mg/kg DW	US EPA 8270	< 0.2
Benzo (ghi) perylene	mg/kg DW	US EPA 8270	1.92
Naphtalene	mg/kg DW	US EPA 8270	< 0.2
Acenaphtene	mg/kg DW	US EPA 8270	< 0.2
Acenaphtylene	mg/kg DW	US EPA 8270	< 0.2
Anthracene	mg/kg DW	US EPA 8270	< 0.2
Fluoranthene	mg/kg DW	US EPA 8270	1.43
Fluorene	mg/kg DW	US EPA 8270	< 0.2
Phenanthrene	mg/kg DW	US EPA 8270	1.14
Pyrene	mg/kg DW	US EPA 8270	7.50
<b>Total of 17 PAHs</b>			<b>&lt; 14.78</b>

## Toxicological analysis of Phthalates:

Element	Units	Test method	Results
Di-methyl-phthalate	mg/kg DW	DIN 18035-7	< 1
Di-ethyl-phthalate	mg/kg DW	DIN 18035-7	< 1
Benzyl-benzoate	mg/kg DW	DIN 18035-7	< 1
Di-iso-butyl-phthalate	mg/kg DW	DIN 18035-7	< 1
Di-n-butyl-phthalate	mg/kg DW	DIN 18035-7	< 1
Bis-(2-methoxy-ethyl)-phthalate	mg/kg DW	DIN 18035-7	< 1
Benzyl-butyl-phthalate	mg/kg DW	DIN 18035-7	< 1
Bis-(2-ethyl-hexyl)-phthalate	mg/kg DW	DIN 18035-7	< 1
Di-n-octyl-phthalate	mg/kg DW	DIN 18035-7	< 1
Di-iso-nonyl-phthalate	mg/kg DW	DIN 18035-7	< 5
Di-iso-decyl-phthalate	mg/kg DW	DIN 18035-7	< 5

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