TECHNICAL REPORT

Toxicological Analysis of performance infill for synthetic turf fields according to *EN 71-3* standard – Safety of toys Part 3: Migration of certain elements. Lower Canada College.

Report Number **R14525CAN-B1**

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Date **November 5th 2014**

This report contains 3 pages in total.

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SUMMARY

Toxicology test according to **EN 71-3** - ***Safety of toys Part 3: Migration of certain elements (Material of Category III)*** has been carried out on rubber sample collected at Lower Canada College synthetic turf field.

Abstract:

The EN 71-3 standard specifies maximum migration limits for three categories of (toy) materials. The limits for the migration of certain elements are expressed in milligrams per kilogram material and are detailed in the report. The purpose of the limits is to minimise children's exposure to certain potentially toxic elements. The EN 71-3 concerns all toys and materials that might be ingested.

Soluble elements are extracted from materials using conditions which simulate the material remaining in contact with gastric juices for a period of time after swallowing. The concentrations of the soluble elements are determined quantitatively by two different methods:

1. Method for determining general elements: Aluminium, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Strontium, Tin and Zinc;
2. Method for determining Chromium (III) and Chromium (VI);

DESCRIPTION OF THE PRODUCT

Description of the product tested	PERFORMANCE INFILL FOR SYNTHETIC TURF FIELDS
Name of the product	SBR RUBBER – AMBIENT GROUND
Manufacturer	NOT SUBMITTED
Site	LOWER CANADA COLLEGE, MONTREAL, QC
Sample number	CAN0001465
Date of the tests	NOVEMBER 2014

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IDENTIFICATION OF RUBBER SAMPLE CAN0001465

Parameter	Test method	Results	Product Declaration	Variation	Requirements	Pass/Fail
Size (mm)	EN933	0.8 – 2.5	0.5 – 2.0	-1 %	**≤±20%**	**Pass**
Shape	prEN14955	Angular	Angular	Similar shape	Similar shape	**Pass**
Density (g/cm^3)	EN 1097	0.49	0.47	4 %	**≤±15%**	**Pass**
TGA %org.	TGA	64.8	63.2	3 %	**≤±15%**	**Pass**
TGA %inorg.	TGA	35.2	36.8	-4 %	**≤±15%**	**Pass**

TOXICOLOGICAL ANALYSIS CAN0001465

Element	Units	Test method	Results	Requirements Category III	Pass/Fail
Aluminium	mg/kg MS	*NF EN ISO 11885*	**45.3**	70 000	**Pass**
Antimony	mg/kg MS	*NF EN ISO 11885*	**n.d.***	560	**Pass**
Arsenic	mg/kg MS	*NF EN ISO 11885*	**n.d.***	47	**Pass**
Barium	mg/kg MS	*NF EN ISO 11885*	**3.43**	18 750	**Pass**
Boron	mg/kg MS	*NF EN ISO 17294-1 et 2*	**2.30**	15 000	**Pass**
Cadmium	mg/kg MS	*NF EN ISO 17294-1 et 2*	**n.d.***	17	**Pass**
Cobalt	mg/kg MS	*NF EN ISO 11885*	**1.06**	130	**Pass**
Copper	mg/kg MS	*NF EN ISO 11885*	**4.73**	7 700	**Pass**
Lead	mg/kg MS	*NF EN ISO 11885*	**n.d.***	160	**Pass**
Manganese	mg/kg MS	*NF EN ISO 11885*	**7.66**	15 000	**Pass**
Mercury	mg/kg MS	*NF EN ISO 17294-1 et 2*	**n.d.***	94	**Pass**
Nickel	mg/kg MS	*NF EN ISO 11885*	**2.11**	930	**Pass**
Selenium	mg/kg MS	*NF EN ISO 11885*	**n.d.***	460	**Pass**
Strontium	mg/kg MS	*NF EN ISO 17294-1 et 2*	**1.23**	56 000	**Pass**
Tin	mg/kg MS	*NF EN ISO 11885*	**n.d.***	180 000	**Pass**
Zinc	mg/kg MS	*NF EN ISO 11885*	**532**	46 000	**Pass**
Chromium III	mg/kg MS	*NF T 90-043*	**n.d.***	460	**Pass**
Chromium VI	mg/kg MS	*NF T 90-043*	**n.d.****	0.2	**Pass**

**Not detectable – substance could not be detected, the detection limit for the used test method is <0.5mg/kg MS*

*** Not detectable – substance could not be detected, the detection limit for the used test method is <0.2mg/kg MS*