# 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**

Client
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*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 |

## REPORTED BY:


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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*