



## TEST REPORT

Toxicological analysis on infill material for artificial turf fields

Tests performed according to EN 71-3 standard and STC Environmental Guidelines

Report number **R17081CAN-B1**

Product **Superior Infill**

Client **Superior Rubber**  
Whitby, ON L1H 2H8, Canada

Date **March 03<sup>rd</sup>, 2017**

*This report contains 4 pages in total. Reproduction of this report is authorized only in its entire form. Results reported are valid only for the products tested. To declare the conformance (or not), the uncertainty of the results was not taken into account. Detailed results are available upon request.*


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**LABOSPORT CANADA**

5661, rue de Lanaudière, Suite 100, Montréal (Québec) H2G 3A5 CANADA  
contact@labosport.ca  
Tel. +1 514 277 9111 • Fax. +1 514 277 9112

**[www.labosport.com](http://www.labosport.com)**

## INFORMATION

Description	Elastomer granules			
Product name	Superior Infill			
Type of elastomer declared	SBR			
Color	Green			
Product name	CAN002477			
Date of reception	February 23 <sup>rd</sup> , 2017			
Date of tests	February / March 2017			
Temperature (°C)	Min	23	Max	23
Humidity (%)	Min	50	Max	50

## TEST PROGRAM

The analyzed elastomer granules were considered as toy-materials and compared the requirements of EN 71-3 Standard (*Safety of toys Part 3: Migration of certain elements - Material of Category III*) in accordance with the recommendations of the STC (*Synthetic Turf Council Environmental Guidelines – August 2015*). The EN 71-3 Standard specifies maximum migration limits for three categories of toy-materials that might be ingested. The limits for the migration of certain elements are expressed in milligrams per kilogram (dry weight) material and are detailed in the report. The purpose of these limit concentration values is to minimize children's exposure to the potentially toxic elements covered by EN 71-3.

Soluble elements are extracted from materials using conditions which simulate the contact with gastric juices for a period of time after swallowing. For heavy metals analysis, sampling preparation was carried out as per Norm EN 71-3 (*Polymers, Category 3*), while the recovery of the filtrate for ICP-Mass analysis was based on Norm ISO 17294-1 and 2. The concentrations of the soluble elements are determined quantitatively by two different methods, one for general elements (*Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Strontium, Tin, Zinc*) and another for Chromium (III) and Chromium (VI).

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## RESULTS

Element	Units	Test method	Results	EN 71-3 Requirements (Material of Category III)	Pass/Fail
Aluminium	mg/kg DRY WT	NF EN ISO 11885	2.5	< 70 000	Pass
Antimony	mg/kg DRY WT	NF EN ISO 11885	< 0.5	< 560	Pass
Arsenic	mg/kg DRY WT	NF EN ISO 11885	0.05	< 47	Pass
Barium	mg/kg DRY WT	NF EN ISO 11885	10	< 18 750	Pass
Boron	mg/kg DRY WT	NF EN ISO 17294-1 and 2	3	< 15 000	Pass
Cadmium	mg/kg DRY WT	NF EN ISO 11885	< 0.5	< 17	Pass
Cobalt	mg/kg DRY WT	NF EN ISO 11885	< 0.5	< 130	Pass
Copper	mg/kg DRY WT	NF EN ISO 11885	15.5	< 7 700	Pass
Lead	mg/kg DRY WT	NF EN ISO 11885	< 0.5	< 160	Pass
Manganese	mg/kg DRY WT	NF EN ISO 11885	2	< 15 000	Pass
Mercury	mg/kg DRY WT	NF EN 13506	0.036	< 94	Pass
Nickel	mg/kg DRY WT	NF EN ISO 11885	< 0.5	< 930	Pass
Selenium	mg/kg DRY WT	NF EN ISO 11885	0.1	< 460	Pass
Strontium	mg/kg DRY WT	NF EN ISO 17294-1 and 2	< 0.5	< 56 000	Pass
Tin	mg/kg DRY WT	NF EN ISO 17294-1 and 2	3.5	< 180 000	Pass
Zinc	mg/kg DRY WT	NF EN ISO 17294-1 and 2	190	< 46 000	Pass
Chromium Total	mg/kg DRY WT	NF EN ISO 11885	3.5	-	-
Chromium III	mg/kg DRY WT	NF T 90-043	3.5	< 460	Pass
Chromium VI	mg/kg DRY WT	NF T 90-043	< 0.004	< 0.2	Pass

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### CONCLUSION

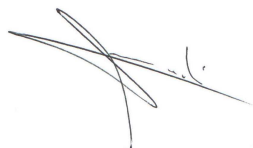
The toxicological analysis of infill material from sample **CAN002477** (*Superior Infill*) shows that heavy metals concentrations are in compliance with the requirements of **EN 71-3** standard (*Safety of toys Part 3: Migration of certain elements - Material of Category III*).

### DISCLAIMER

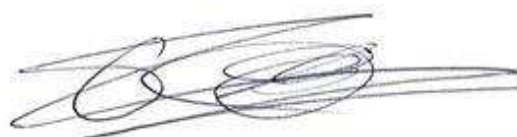
The present toxicology study is provided by LABOSPORT to SUPERIOR RUBBER AND MULCH for informational purposes only. Findings and conclusions are based on known and applicable standards and benchmarks at the time of publication; any inaccuracy or omission is not the responsibility of LABOSPORT.

No part of this document constitutes legal advice. Furthermore, LABOSPORT does not make any guarantees with respect to this study or its contents.

### REPORTED BY



Thomas Amadei, T.P.  
(Laboratory Manager) - Writer



Thierry Levy  
(General Manager) - Approver

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