



**TOXICOLOGY
POLYCYCLIC AROMATIC HYDROCARBON (PAH) ANALYSIS**

SAFE CRUMB 0.8-2.5MM

CLIENT	Mathe Group (Pty) Ltd
CLIENT ADDRESS	11 Buckman Boulevard, Hammarisdale, KwaZulu Natal, 3699, South Africa
CLIENT CONTACT	Dr Mehran Zarrebini (CEO)

REPORT NUMBER	LSUK.22-0161-A1	
REPORT STATUS	Final	
VERSION NUMBER & DATE	1.0	30/03/2022
REPORTED BY		David Rigby Technical Director
APPROVED BY		Professor David James Managing Director

SUMMARY OF REPORT / FINDINGS	<p>In accordance with REACH Regulation Annex XVII Entry 50, PAH analysis has been carried out on test specimen(s) of performance infill used in the sports and play sector.</p> <p>The test specimen(s) submitted met the requirements of REACH Regulation Annex XVII Entry 50 when tested under laboratory conditions on the 19/03/2022.</p>
------------------------------	---

SCOPE OF TESTING / PROJECT	<p>REACH is a regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals.</p> <p>Annex XVII of the REACH regulation contains a list of restrictions of certain hazardous substances, mixtures and articles for their marketing and use on the European market. A restriction can apply to any substance on its own, in a mixture or in an article, including those that do not require registration. The list is often known as REACH restricted substances list or simply as REACH Annex XVII.</p> <p>The placing on the market for supply to the general public of articles containing polycyclic aromatic hydrocarbons (PAHs) are restricted by entry 50 of Annex XVII to REACH Regulation (EC) No 1907/2006, paragraphs 5 and 6. Although classified as a “mixture”, it states that granules or mulches used as an infill material in synthetic turf pitches, in loose form on playgrounds or in sport applications (for example on golf courses, athletic arenas, horse arena footings, nature trails or shooting ranges) placed on the market for supply to the general public will contravene the restriction if they contain more than 20mg/kg (0.002% by weight) in total of the EU-8 carcinogenic PAHs.</p> <p>The test specimen(s) submitted have been analysed for these EU-8 carcinogenic PAHs in accordance with REACH Annex XVII Entry 50.</p>
----------------------------	--

TEST PROCEDURE / STANDARDS	<p>REACH Regulation – Annex XVII – Entry 50</p> <p>Commission Regulation (EU) 2021/1199 of 20 July 2021</p> <p>US EPA 8270 – Semi-volatile organic compounds by gas chromatography/mass spectrometry (GC/MS)</p> <p>EN ISO/IEC 17025 – General requirements for the competence of testing and calibration laboratories</p> <p>For dated references, only the edition cited applies. For undated references, the latest edition at the date of test of the referenced document (including any amendments) applies.</p>
----------------------------	---

PRODUCT (DETAILS / DESCRIPTION)	<p>Premium granulated rubber infill referred to as “Safe Crumb 0.8-2.5mm”.</p> <p>This information was supplied by the client.</p>
---------------------------------	--

TEST RESULTS		EU-8 PAH ANALYSIS		
Safe Crumb 0.8-2.5mm				
Element	Requirement	Measured result	Total result	Pass / Fail
Benzo[a]pyrene (BaP)	≤ 20mg/kg (0.002%)	1.8mg/kg	< 17.06mg/kg	Pass
Dibenzo[a,h]anthracene (DBAhA)		0.66mg/kg		
Benzo[e]pyrene (BeP)		3mg/kg		
Benzo[a]anthracene (BaA)		3.9mg/kg		
Chrysene (CHR)		6mg/kg		
Benzo[b]fluoranthene (BbFA)		1.5mg/kg		
Benzo[j]fluoranthene (BjFA)				
Benzo[k]fluoranthene (BkFA)		< 0.2mg/kg		

DISCUSSION	<p>Based on current regulations granules or mulches used as an infill material in synthetic turf pitches, in loose form on playgrounds or in sport applications are currently classified as a “mixture” by REACH Regulation (EC) No 1907/2006. Entry 50 of Annex XVII has been updated in accordance with Commission Regulation (EU) 2021/1199 of 20 July 2021 to include infill materials. It states that any infill materials should conform to the following concentration limits:</p> <p>Less than or equal to 20mg/kg (0.002% by weight) of the sum of all listed PAHs.</p> <p>For reference products classified as “articles” shall not be placed on the market for supply to the general public, if any of their rubber or plastic components that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity, under normal or reasonably foreseeable conditions of use, contain more than 1 mg/kg (0.0001% by weight of this component) of any of the listed PAHs.</p>
------------	---

CONCLUSIONS	<p>The test specimen(s) submitted met the requirements of REACH Regulation Annex XVII Entry 50 when tested under laboratory conditions.</p> <p>The compliance requirement limit(s) applied and reported make no allowance for measurement uncertainty.</p> <p>The results relate only to the test specimen(s) received and tested.</p>
-------------	--

DISCLAIMER	<p>Results mentioned in this report are only valid for the materials sample as they are defined in the present document. Labosport and SYPAC have not verified the sampling location(s) and therefore do not assume any liability or responsibility to the user or other third party, for the accuracy, completeness or representativeness of the sample analysed. Any party who makes use of any part of this report (a “User”) does so at its own risk and shall indemnify Labosport, SYPAC and their officers, directors, servants, consultants and agents against all claims, proceedings, actions, damages, costs, expenses and any other liabilities for loss or damage to any property, or injury or death to any person that may be made against or incurred by Labosport or SYPAC arising out of or in connection with such users use of this report.</p>
------------	--