

IS PLAYING ON SYNTHETIC TURF SURFACES SAFE?

A TECHNICAL OVERVIEW FOR THE FOLLOWING STAKEHOLDERS

PARENTS COUNCILS SPORTING ORGANISATIONS

CONTEXT

Since the 1990s, artificial turf incorporated the use of long synthetic fibres infilled with rubber & sand granules.



PERCEIVED CONCERN

Is there a potential risk for human and environmental exposure resulting from the use of tire crumb rubber in playing fields and playgrounds?



POTENTIAL EXPOSURE ROUTE

- INGESTION
- INHALATION
- DERMAL ABSORPTION

WHAT DO STUDIES AROUND THE GLOBE CONCLUDE?

EPA SUMMARY 2016 EXTENSIVE LITERATURE REVIEW

100 studies Almost 300 topics Approx. 10 different sample types 12 countries

ECO EXPOSURE/RISK

Review points to the relative safety of crumb rubber fill playground and athletic field surfaces. Generally, these surfaces, though containing numerous elements potentially toxic to humans, do not provide the opportunity in ordinary circumstances for exposure at levels that are actually dangerous¹²

TOXICITY ASSESSMENT

On the basis of the knowledge that is currently available concerning health effects & exposure linked to the use of artificial turf playgrounds, we did not find a direct health risk for users¹¹

TOXICITY ASSESSMENT

On the basis of environmental monitoring, artificial turf football fields present no more exposure risks than the rest of the city¹⁰

HUMAN RISK

No indications were found between playing sports on synthetic turf fields with an infill of rubber granulate and the incidence of leukaemia and lymph node cancer⁹



HUMAN EXPOSURE

Adverse health effects are not likely for children and athletes exposed to recycled tire material found at playgrounds or athletic fields⁷

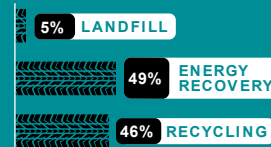
HUMAN RISK

Findings do not suggest that soccer players or goalkeepers in Washington are at an increased risk of cancer compared to the general population⁸

CURRENT SITUATION^{1, 2, 3}

5 million

Global demand on rubber infill: 500 million tires being recycled annually.



12-13,000 existing synthetic fields

1200-1500 installed each year



21,000 full-size pitches

72,000 mini pitches by 2020

“There is no reason to advise people against playing sports on synthetic turf containing recycled rubber granules as infill material.”

—European Chemicals Agency, 2017



WHERE TO FROM HERE?

Whilst risk assessment studies are needed to consider (e.g. repeated exposure), stakeholders can be assured that:

- no moratorium or ripping out of existing fields/pitches is required
- people can continue to play on / use synthetic turf surfaces

IT'S ALWAYS PRUDENT TO:

- use credible material sources for rubber infill
- If still concerned, consider alternate materials that are approved for use in field construction (potential alternate materials offered are EPDM, TPE and some organic materials)
- ventilate indoor facilities
- seek expert advice
- conduct project milestone/quality checks
- performance test the field/pitch

SOURCES:

- [1] European Tire & Rubber Manufacturers' Association (ETRMA) - 2015
- [2] Estimation based on figures by European Chemicals Agency (ECHA) - 2017
- [3] EPA Status Report (USA) - 2016
- [4] University of Guelph, Land Resource Science, Guelph, Ontario (Canada) - 1998
- [5] Windward Environmental, Seattle, WA (USA) - 2008
- [6] California Office of Environmental Health Hazard Assessment (USA) - 2010
- [7] California Office of Environmental Health Hazard Assessment (USA) - 2007
- [8] Washington State Department of Health (USA) - 2017
- [9] Dutch National Institute for Public Health and the Environment (RIVM) (The Netherlands) - 2017
- [10] Department of Public Health and Microbiology, University of Torino (Italy) - 2013
- [11] Institute for Environmental Research, Yonsei University College of Medicine, Seoul (Korea) 2012
- [12] University of California, Berkeley (USA) - 2010

This review and infographic was commissioned by the International Association for Sports Surface Science (ISSS) and conducted by Chemneera. The ISSS located in Switzerland is an association of technical experts involved in the investigation, development and testing of sports surfaces. Chemneera are strategy and sports technology advisers helping communities, companies and people to select the right technology to improve life.

