



# Frequently asked questions on the use of rubber crumb in 3G artificial grass pitches

## BACKGROUND

This document is the result of a collaboration between the key stakeholders listed below to bring together a series of frequently asked questions (FAQs) regarding the use of rubber crumb in “third generation” (3G) artificial grass pitches.

The FAQs are provided for general information only and are based on information, research and material that is currently in the public domain.

The guidance will be kept continually under review by all members of the group and the FAQs updated as necessary. However, the FAQs are not intended to be comprehensive guidance replacing the need for specialist technical advisors.

You should seek specialist advice from suitably qualified and experienced professionals in relation to concerns about specific sites or projects.

Care has been taken over the accuracy of the content of this note but the Stakeholders cannot guarantee that the information is up to date or reflects all relevant legal requirements at the time of reading.

**Stakeholders:** DCMS, Defra, Sport England, The Football Association (The FA), Rugby Football League, Rugby Football Union (RFU), England Hockey, the Football Foundation, Sports and Play Construction Association (SAPCA) and the Institute of Groundsmanship (IOG).

**Updated June 2019**

## FREQUENTLY ASKED QUESTIONS

	Question	Response
1	What is a 3G pitch?	The term “3G” refers to third generation Artificial Grass Pitches (“AGPs”) that are specifically designed to meet the needs of football and rugby by more closely replicating the playing characteristics of natural turf than historic AGPs.
2	What are the different types of surfaces used on AGPs <sup>1</sup> ?	AGPs of differing characteristics are used for a range of sports such as hockey, football, rugby league and rugby union.  The surfaces range from short pile, more suitable for hockey to long pile which are suitable for football and (where fitted with the correct shockpad) are also suitable for playing rugby union and rugby league.
3	How does a 3G playing surface differ from other artificial grass surfaces?	A 3G pitch has a longer pile length than other forms of artificial grass. (Typical range 40mm to 65mm).  A 3G pitch usually has an infill material consisting of a mixture of sand and rubber crumb, rather than the sand or water used with other artificial grass pitches.
4	What is rubber crumb?	Rubber crumb is produced from used tyres, often referred to as end-of-life tyres (ELTs) that are processed and recycled into rubber crumb granules for use as infill.

<sup>1</sup> Artificial grass pitches (AGPs) are sometimes known as Synthetic Turf Pitches (STPs) or so called “Astro Turf” pitches. FIFA and The FA also use the term Football Turf Pitch (FTP)

	Question	Response
5	Why is rubber crumb used in most 3G surfaces?	<p>The rubber crumb helps replicate the playing characteristics of natural grass by:</p> <ul style="list-style-type: none"> <li>• supporting the artificial grass fibres, helping to keep the fibres upright;</li> <li>• providing a degree of shock absorption (for player comfort); and</li> </ul> <p>allowing the boot studs to penetrate the surface and gain traction yet, like natural soil, also allowing the foot to slide.</p>
6	What standards and legal framework are in place for the performance aspects of AGPs?	<p>British Standard BS EN 15330-1: defines the following Health and Safety playing characteristics:</p> <ol style="list-style-type: none"> <li>1. Player – surface interactions (hardness, grip, etc.);</li> <li>2. Ball – surface interactions (bounce height, roll distance, etc.);</li> <li>3. Material quality and longevity; and</li> <li>4. Build quality (e.g. levels, slope, etc....).</li> </ol> <p>The major sports have their own specific standards such as FIFA Quality Programme or World Rugby Regulation 22. The health and safety issues these standards guard against are similar to the British Standard, the main differences are linked to higher level performance for each sport.</p>
7	What standards and legal framework currently regulate the chemical composition of AGPs?	<p>Chemical composition from a health and safety perspective is regulated through comprehensive EU legislation, spearheaded by REACH (the <b>R</b>egistration, <b>E</b>valuation, <b>A</b>uthorisation and <b>R</b>estriction of <b>C</b>hemicals).</p> <p>REACH aims to ensure a high level of protection to human health and the environment REACH applies appropriate risk management measures to chemical substances. This is done by the four processes of REACH, namely the registration, evaluation, authorisation and restriction of chemicals.</p>

	Question	Response
		<p>The European Chemicals Agency (ECHA) has primary responsibility for REACH. Within the UK, the Department for Environment, Food &amp; Rural Affairs (Defra) leads on policy connected to REACH while the Health &amp; Safety Executive (HSE) has day-to-day responsibility as the UK's REACH Competent Authority.</p>
8	<p>How does REACH currently apply to rubber crumb and what does it say?</p>	<p>The main focus of REACH is on the individual chemicals that are produced and placed on the EU market rather than manufactured objects.</p> <p>Rubber crumb can contain a group of substances called polycyclic-aromatic hydrocarbons (PAHs), which are present in some of the ingredients used in the manufacture of rubber tyres. These are the substances that underlie the concerns that have been expressed.</p> <p>PAHs are controlled (restricted) under REACH in the following cases:</p> <ul style="list-style-type: none"> <li>• supply to the general public as substances or <b>in mixtures</b>;</li> <li>• manufacture and placing on the market of tyres; and</li> <li>• manufacture and placing on the market of <b>consumer articles</b>, with a particular emphasis on toys, childcare items and items that could be mouthed by children.</li> </ul> <p>In each case the restriction is expressed as a “concentration limit” which must not be exceeded. The concentration limits include safety factors” in order to minimise risk to the user.</p>
9	<p>What is the significance of the rubber crumb granules used in 3G pitches being defined as a mixture rather than a (consumer) article under the REACH regulations?</p>	<p>The European Commission decided that the rubber crumb used in 3G pitches is a chemical mixture rather than a consumer article.</p> <p>The concentration limit for PAHs in articles is a stricter requirement than the limit for substances and mixtures.</p>

	Question	Response
		<p>ECHA has recommended that it will consider changes to the REACH Regulation to <b>ensure</b> that rubber granules are only supplied with very low concentrations of PAHs and other substances.</p>
10	<p>What did the European Commission ask ECHA to consider in their 2017 report and why?</p>	<p>As a response to public concern regarding the safety of rubber crumb, the European Commission asked ECHA to consider whether there is any remaining health risk posed by the substances in recycled rubber granules used as infill on AGPs (including 3G pitches) and to determine whether any further restriction is needed.</p> <p>ECHA asked EU countries to provide any research or information that they had on the use of rubber crumb in 3G pitches, so that it could be taken into account in their assessment.</p> <p>ECHA published their report on 28 February 2017 and concluded that <i>“ECHA has found no reason to advise people against playing sports on synthetic turf containing recycled rubber granules as infill material”</i>.</p> <p>ECHA also advised that their evaluation was <i>“...consistent with the results of several other recent studies, such as the investigations of RIVM in the Netherlands and those of the State of Washington in the US.”</i></p> <p>ECHA also pledged to undertake further research which has subsequently been completed, see FAQ 20-21.</p>
11	<p>What are Sport England and other key national sports organisations doing to control the safety of pitches?</p>	<p>Sport England and key national sports organisations are committed to the highest level of safety and will, where appropriate, assist with implementation of the ECHA recommendations.</p> <p>Sport England, The FA, RFU, Rugby Football League, England Hockey and the Football Foundation adhere to the current standards set by the EU legislative framework and will adhere to any new standards resulting from the ECHA report.</p>

	Question	Response
		<p>Sport England, The FA, RFU, Rugby Football League and the Football Foundation have also been working closely with the Sports and Play Construction Association (“SAPCA”), the UK trade body for the sports pitch industry. SAPCA have developed a new industry wide infill testing protocol for manufacturers of artificial grass pitches and contractors installing pitches Protocol for Performance Infills for Synthetic Turf (see FAQ 15).</p> <p>Sport England, The FA, RFU, Rugby Football League, England Hockey and the Football Foundation will require evidence that any AGP that they fund will meet the new SAPCA protocol and that AGPs will be constructed in accordance with the requirements of all relevant laws on chemical composition and the performance requirements of the relevant governing body and European performance standards.</p>
12	How do you know that the rubber crumb supplied from tyres manufactured after 2010 will meet the more stringent requirements?	The regulations for tyres came into force in 2010. Since then pitches have had to comply with specific concentration limits for PAHs. The Environment Agency is one of the bodies responsible for enforcing the regulations and its analysis and enforcement work shows a high level of compliance.
13	What has happened since ECHA’s report was published in February 2017?	<p>The Government continues to work with the scientific experts in the HSE as well as ECHA and the European Commission to ensure that it remains at the forefront of research and is ready to implement the appropriate safety legislation in this country.</p> <p>Defra, HSE, DCMS, Sport England and the other key stakeholders are working together, where appropriate, to deliver the ECHA recommendations and are also working with Public Health England to disseminate ECHA’s recommended guidance regarding basic hygiene measures to pitch owners and users (see FAQ 22). (see: <a href="http://www.groundsmanship.co.uk/sportshygiene">www.groundsmanship.co.uk/sportshygiene</a>)</p>

	Question	Response
14	Are AGPs constructed before 2010 or from pre- 2010 end-of-life tyres safe?	<p>The recent ECHA study found “no reason to advise people against playing sports on synthetic turf containing recycled rubber granules as infill material”.</p> <p>ECHA advised that their evaluation was “...consistent with the results of several other recent studies, such as the investigations of RIVM in the Netherlands and those of the State of Washington in the US.”</p>
15	What is SAPCA’s “Quality Control Protocol for Sports Performance Infill” and how does it relate to synthetic turf (“the SAPCA Protocol”)?	<p>The SAPCA Protocol is an industry wide infill testing protocol for manufacturers of AGPs and contractors installing pitches. The SAPCA Protocol was launched in June 2019, it aims to ensure that all performance infill materials (including rubber crumb) used on AGPs are provided by suppliers that regularly test the materials at the point of source/production. This voluntary industry infill testing protocol will provide minimum requirements that go above and beyond what is currently required for rubber crumb under European regulation using a new standardised infill testing protocol. <b>All SAPCA members will be expected to follow this protocol from August 2019.</b></p> <p>The SAPCA Protocol is already working towards PAHs 20.0/1,000 mgs which is in line with the anticipated ECHA’s recommended new threshold.</p> <p><a href="https://sapca.org.uk/guide/performance-infills-for-3g-surfaces/">https://sapca.org.uk/guide/performance-infills-for-3g-surfaces/</a></p>
16	What about pitches <b>not funded</b> by Sport England, The FA, RFL, RFU and the Football Foundation? Will they be safe to play on?	<p>All organisations looking to build or maintain a 3G pitch must be confident of their supply chain in terms of compliance with the legislation.</p> <p>Sport England and the sport governing bodies<sup>2</sup> all support the SAPCA Protocol and <b>strongly recommend that pitch owners specify and use rubber crumb from SAPCA accredited suppliers (see FAQ 15).</b></p>

<sup>2</sup> The Football Association, Rugby Football Union, England Hockey, Rugby Football League

	Question	Response
17	How will Sport England, The FA, RFU, RFL and the FF ensure that incorrectly sourced rubber crumb is not supplied to newly constructed pitches?	<p>Sport England, The FA, RFU and the Football Foundation are all party to an AGP framework and through its administration require evidence that the rubber crumb supplied and installed meets the REACH requirements.</p> <p>They have also worked closely with SAPCA to voluntarily apply higher standards for rubber crumb supplied by the industry, <b>the AGP framework contractors must also comply with the SAPCA Protocol</b> – thus ensuring the quality of pitches.</p> <p>Non-funded organisations installing or maintaining pitches must be confident of their supply chain so as not to fall foul of the legal requirements regulated by Defra and HSE. <b>The Stakeholders strongly recommend that pitch owners use SAPCA accredited suppliers (see FAQ 15).</b></p>
18	Why is the situation in Holland different?	<p>We know there has been public concern in Holland about the safety of pitches after it was reported that a number of clubs had decided either to temporarily close their pitches or replace the rubber crumb with an alternative infill.</p> <p>However new research released in December 2016 from the Dutch National Institute for Public Health and the Environment indicates that the health risk of playing sports on 3G pitches is “virtually negligible”.</p> <p>ECHA backed this research after its EU-wide study published in February 2017 found no reason to advise people against playing sport on 3G pitches with rubber crumb. ECHA also advised that their evaluation was “...consistent with the results of several other recent studies, such as the investigations of Dutch National Institute for Public Health and the Environment in the Netherlands and those of the State of Washington in the US”.</p>

	Question	Response
19	Are 3G pitches safe to play on and maintain?	<p>ECHA recently carried out an exhaustive EU-wide study and has found no reason to advise people against playing sport on 3G pitches with rubber crumb. This advice is based on ECHA's evaluation that there is "a very low level of concern" from exposure to substances found in the granules.</p> <p>We are confident that 3G pitches in this country are suitable for use given that the concentration limits in the EU's regulations are set to minimise any risk to the users. In addition, ECHA reported on the 28 February 2017 that it had "<i>...found no reason to advise against playing sports on synthetic turf containing recycled rubber granules as infill material</i>".</p> <p>The regulations for tyres came into force in 2010. The Environment Agency is one of the bodies responsible for enforcing the regulations in this country and its analysis and enforcement work shows a high level of compliance.</p>
20	What was the conclusion of the ECHA report on the possible health risks of recycled rubber granules used as infill in AGPs?	<p>ECHA reported on the 28 February 2017 that it had "<i>...found no reason to advise against playing sports on synthetic turf containing recycled rubber granules as infill material</i>".</p> <p>In addition, ECHA made <a href="#">several recommendations</a> to ensure that any remaining concerns were eliminated (see FAQ 22).</p>
21	What further research is being undertaken by ECHA and when will it conclude?	<p>ECHA have recently concluded a fundamental review of the current standards as well as carrying out very detailed research.</p> <p>ECHA have now considered the responses to the public consultation and it is anticipated that new threshold will soon be announced with an anticipated transition period until it is enforceable by 2022.</p> <p>Further details of ECHA's research is available at:  <a href="https://echa.europa.eu/-/recycled-rubber-infill-causes-a-very-low-level-of-concern">https://echa.europa.eu/-/recycled-rubber-infill-causes-a-very-low-level-of-concern</a></p>

	Question	Response
		The Stakeholders continue to monitor this research and will consider and act on recommendations.
22	How are DEFRA, PHE, Sport England, other national sports agencies and industry responding to the recommendations of ECHA's 2017 report and subsequent research?	<p>The Stakeholders have undertaken a thorough review of the ECHA report and continue to work in partnership to address the report's recommendations.</p> <p>However, some of the actions are subject to the outcome of the current public consultation which will inform new thresholds and testing regimes.</p> <p>The Action Plan below provides a high-level summary of the work that is underway.</p>

### ECHA<sup>3</sup> Recommendations – Summary of Stakeholder Action Plan in England (June 2019)

	ECHA Recommendation	Action
1.	Consider changes to the REACH Regulation to ensure that rubber granules are only supplied with very low concentrations of PAHs and other relevant hazardous substances	<p>ECHA have recently concluded a fundamental review of the current standards as well as carrying out very detailed research. ECHA invited public comments on its recommended new concentration thresholds. Public consultation closed on 16 November 2018. It is anticipated that any subsequent changes to regulations will be made mandatory by 2022.</p> <p>Further details of ECHA's research is available at: <a href="https://echa.europa.eu/-/recycled-rubber-infill-causes-a-very-low-level-of-concern">https://echa.europa.eu/-/recycled-rubber-infill-causes-a-very-low-level-of-concern</a></p> <p>Once any new research, guidance or regulations are published by ECHA and CEN the Stakeholders, including SAPCA will, if necessary, update their procurement, infill and pitch registration requirements etc</p>

<sup>3</sup> ECHA: European Chemical Agency

	<b>ECHA Recommendation</b>	<b>Action</b>
2.	Owners and operators of existing (outdoor and indoor) fields should measure the concentrations of PAHs and other substances in the rubber granules used in their fields and make this information available to interested parties in an understandable manner.	<p><b>NGB Pitch registration:</b> The FA, RFU and RFL are currently reviewing their pitch registration requirements to incorporate the new SAPCA infill testing protocol (see Action 3 below). This will provide reassurance to pitch users that the pitch infill is in line with ECHA’s anticipated recommended new threshold of PAHs 20.0/1,000 mgs.</p> <p><b>Pitches not included within NGB pitch registration systems:</b> For pitches not covered by the governing body pitch registration systems pitch owners and operators will be able to test the infill material in their pitches against the SAPCA Protocol.</p>
3.	Producers of rubber granules and their interest organisations should develop guidance to help all manufacturers and importers of (recycled) rubber infill test their material.	SAPCA have developed a Protocol for Performance Infills for Synthetic Turf for manufacturers and importers of performance infill used on 3G pitches. This was soft launched in June 2019 ahead of becoming <b>mandatory for SAPCA members in August 2019.</b>
4.	European sports and football associations and clubs should work with the relevant producers to ensure that information related to the safety of rubber granules in synthetic turf is communicated in a manner understandable to the players and the public.	<p>The Stakeholders published the series of frequently asked questions above.</p> <p>To provide the necessary reassurance Stakeholders are proposing to use the NGB pitch registration processes and the SAPCA Protocol to confirm that the rubber crumb used on any 3G meets a standard above the minimum required by legislation (as per Action 2 above)</p>
5.	Owners and operators of existing indoor fields with rubber granule infills should ensure adequate ventilation	Guidance on the ventilation of existing indoor facilities where rubber crumb is used in 3G pitches is currently under review by DCLG (Building Regulations)
6.	<p>In addition, ECHA recommends that:</p> <p>Players using the synthetic pitches should take basic hygiene measures after playing on artificial turf containing recycled rubber granules.</p>	<p>The Stakeholders are keen to put appropriate measures in place in a balanced and measured way which reflects the very low level of risk.</p> <p>In response to the recommendations of ECHA’s 2017 report that users of artificial pitches containing rubber granules should take the same basic hygiene measures when playing on those surfaces, such as washing their hands and any cuts incurred, as they would when playing sport on grass or any other surfaces. the</p>



ECHA Recommendation	Action
	<p>Stakeholders have collaborated with Public Health England and the National Centre for Sports &amp; Exercise Medicine to produce sports hygiene messaging information continue to disseminate it through their networks.</p> <p>(see: <a href="http://www.groundsmanhip.co.uk/sportshygiene">www.groundsmanhip.co.uk/sportshygiene</a>)</p>

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