EUROPEAN TYRE & RUBBER manufacturers' association

INFORMATION NOTE

Brussels, 4 April 2016

Crumb rubber from End of Life Tyres

A Sustainable Secondary Raw Material

Since 1996, more than 36 million tonnes of End of Life Tyres (ELTs) have been collected throughout Europe and recovered as a substitute for fuel or virgin raw materials. This has led to nearly eliminating landfilling (less than 5%[1]). This is largely the result of industry proactive initiative over the last 20 years in supporting R&D programmes towards sustainable recycling routes.

As a consequence of on-going work by ECHA (the European Chemicals Agency) on the development of interpretation guidelines for the application of a REACH restriction on some Poly Aromatic Hydrocarbons (PAHs) in consumer articles (Entry 50.5 of Annex XVII), Member States were asked in November 2015 to clarify their views on the scope of that restriction. Since PAHs are unavoidably present as impurities in certain raw materials used in tyre manufacturing, they are present in very limited quantities and therefore in ELT-derived crumb rubber.

In the CARACAL[2] meeting of March 2016, the European Commission shared their interpretation on the scope of the restriction and confirmed that ELT-derived crumb rubber is a **mixture and therefore falls out of the scope of Entry 50.5 of Annex XVII.**

Irrespective of the classification as mixture or article, several scientific studies based on proper risk assessment have shown that the presence of PAH impurities in **crumb rubber poses no threat to human health.**

ETRMA is well aware of concerns raised recently in the US about potential risks from the use of ELT crumb rubber in synthetic turf pitches. ETRMA and its members will be closely following the studies conducted by California authorities and a newly launched study to be conducted at the federal level in the US (announced on 12 February 2016 by the Obama administration).

ELT is an important resource for society which should be valorised towards a sustainable circular economy. Therefore ETRMA welcomes the announcement by the EU Commission that ECHA will be mandated to prepare a REACH Annex XV dossier for evaluating whether specific restrictions are needed. ETRMA is committed to contribute to this risk assessment.

[1] *ETRMA statistics on End-of-Life Tyres*
[2] *Competent Authorities for REACH and CLP (CARACAL)*

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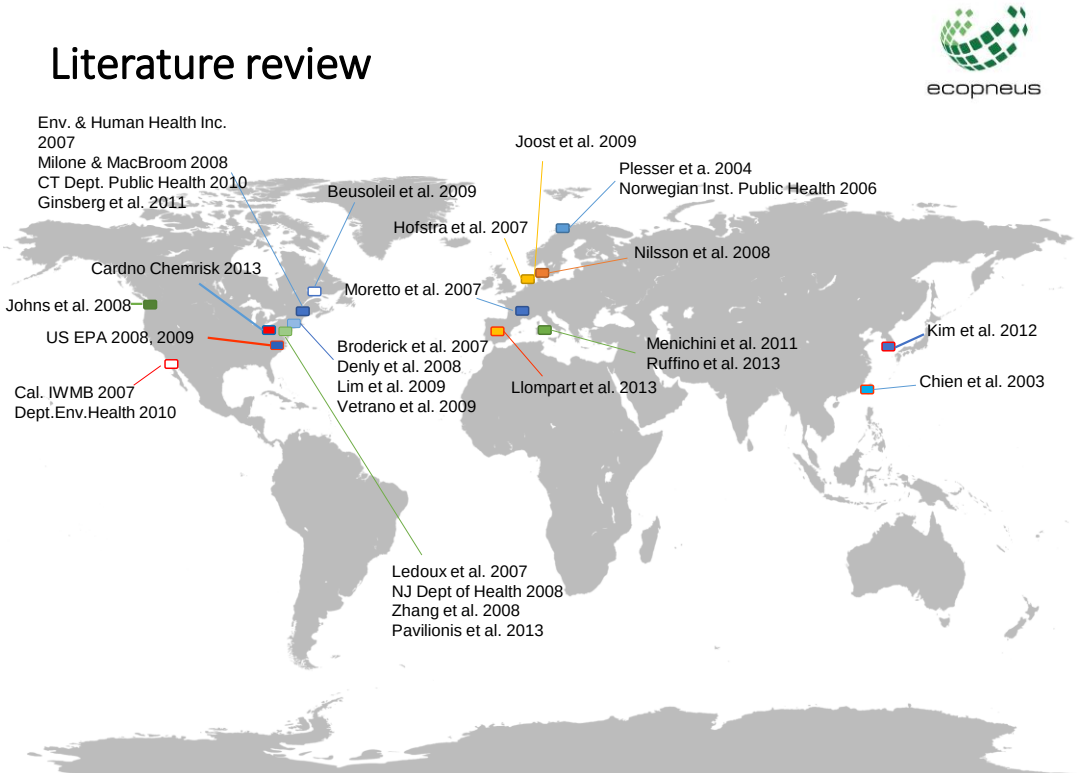
LITERATURE REVIEW

A large number of papers and scientific reports have been published worldwide by public and private institutes trying to assess the risk related to the use of recycled rubber in artificial turf and playgrounds. All these studies converged in concluding that there are no significant or scientifically justified health risks due to the PAHs impurities.



- **DIRECT CONTACT -** A testing program to determine the PAHs content in different types of tyres was conducted in Italy between October 2014 and January 2015. Migration of PAHs in artificial sweat and pulmonary surfactant are being finalised by Istituto Mario Negri, a not-for-profit biomedical research organization, through a procedure representative of a prolonged contact (EN1810. 1 h at 37°C). The laboratories decided to repeat the test for 24 h. After 1 day, the concentration of PAH in artificial sweat was still not detectable, confirming that the level of exposure to PAHs is minimal. The results are independent from the age and country of origin of tyres.
- **INHALATION -** Another team of scientists (Waste and Chemicals and Ecoresearch) determined the exposure to PAHs of the workers that install the artificial turf fields and the athletes that play on those surfaces. Personal pump samplers that adsorb the VOC and fine particles within the breathing zone (near the neck) were used. Results have showed that exposure to PAHs is comparable - and probably due - to environmental background concentrations. The magnitude of the values is 2-3 orders of magnitude below the most conservative occupational limit for PAHs existing in Europe (2 µg/m³) (Germany and Sweden).
- **INDIRECT DERMAL EXPOSURE** - At the same time, polypropylene patches were used to cover different parts of the body to capture aerosols, fine particles and VOCs that could deposit on the skin layer and release PAHs. Results showed that the dermal exposure is one order of magnitude smaller than inhalation exposure. The concentration of PAH found in the patches was 10.000 times lower than the concentration that is generally used to determine chronic toxicity on mice.
- **RISK ASSESSMENT** - A re-assessment[3] of the risk related to exposure to shock absorbing surfaces installed in children playgrounds, showed that PAH exposure for young children is well below the lowest value of the Derived Minimal Effect Level (DMEL)[4] proposed by ECHA (5 - 550 pg BaP/kg bw/day).

[3] *"Reassessment of PAH exposure among children from granulate/tiles of end of life tyres" Dr. J. Van Rooij, European Registered Toxicologist, Ceasar Consult B.V.*

[4] *DMELs are risk-based limit values for substances for which no toxicological threshold mode of action is to be assumed*