

A multi-site recycled tire crumb rubber characterization study: recruitment strategy and field sampling approach

Kelsey Benson¹, Aaron Grober¹, John Truhe¹, Karen Scruton¹, Spencer Williams¹, Robert Helverson¹, Patrick Young¹, Kent Thomas², Marsha Morgan², Carry Croghan², Elizabeth Irvin-Barnwell¹

¹Agency for Toxic Substances and Disease Registry

²U.S. Environmental Protection Agency, Office of Research and Development, National Exposure Research Laboratory, Research Triangle Park, NC

ABSTRACT

Recently, concerns have been raised by the public about the safety of tire crumb rubber infill used in synthetic turf fields. In response, the 2016 *Federal Research Action Plan on Recycled Tire Crumb Used on Playing Fields and Playgrounds* (FRAP) was developed to examine key environmental and human health questions resulting from the use of tire crumb rubber. One specific objective of the FRAP was to characterize the chemicals, potential emissions, and toxicity of tire crumb rubber.

The goal of the tire crumb characterization study was to analyze new and aged/used tire crumb rubber for a variety of chemicals and to characterize field use patterns and maintenance procedures using a structured questionnaire. The aim was to recruit and sample 40 synthetic turf fields with tire crumb rubber infill. Ten fields in each of the 4 U.S. census regions were targeted. We used a convenience sampling approach for recruitment and online search engines to locate contact information for potential fields. Study inclusion criteria included a maximum of two outdoor fields per facility with fields having different installation years or different installation companies. In addition, we recruited tire recycling/crumb rubber manufacturing facilities located across the U.S.

A total of 306 community field owners/managers were contacted for potential participation. Sample collection was completed at 40 synthetic turf fields, including 21 community fields and 19 military installation fields. The final field count per census region was 9 Northeast fields (5 outdoor, 4 indoor), 13 South fields (11 outdoor, 2 indoor), 8 Midwest fields (2 outdoor, 6 indoor) and 10 West fields (7 outdoor, 3 indoor). Additionally, samples were collected at nine tire recycling/crumb rubber manufacturing plants across the country, including both ambient and cryogenic processes. Recruitment challenges will be discussed and field use and maintenance characteristics will be summarized.