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To the Honorable Members of the Committee on Children:

The study conducted by the Connecticut Department of Public Health, *Human Health Risk Assessment of Artificial Turf Fields Based Upon Results from Five Fields in Connecticut (2010)*, was not designed to assess the safety of recycled rubber playgrounds and makes assumptions about exposure routes in the absence of supporting experimental data. While it contributes to our understanding of chemicals of concern that may be emitted from crumb rubber, the results of this study should not be used to draw conclusions about the safety of recycled rubber playground surfaces for the following reasons:

1. **The study does not consider all potential routes of exposure.** The authors use the assumption that inhalation to be the primary route by which individuals are exposed to toxins from rubber surfaces to justify exclusion of oral and dermal routes from their investigation. There is no evidence to support inhalation as the major route of exposure to chemicals contained in crumb rubber. In fact, given a small child's hand to mouth behaviors, the ways in which they interact directly with the turf material, and the likelihood of eating and drinking on the playground, ingestion is a likely route of exposure to dust, rubber particles, and leached chemicals in this population. The study did not investigate chemical deposition on skin or the possibility of exposures via abrasions and wounds. Prior studies that examine oral and dermal exposures cited by DPH do not adequately model these types of exposures. Importantly, biomonitoring studies were not conducted to determine whether players experience elevated exposures to components of the crumb. Without data from studies such as these, exposure modeling and risk assessment are incomplete.
2. **Safety data gaps have been identified by the federal government.** In December 2016, the EPA released a Status Report on the *Federal Research Action Plan on Recycled Tire Crumb Used on Playing Fields and Playgrounds* (downloadable at <https://www.epa.gov/chemical-research/december-2016-status-report-federal-research-action-plan-recycled-tire-crumb>), outlining gaps in the data supporting safety of recycled rubber playing surfaces identified through an extensive literature search. Some of these gaps include lack of information about dermal and oral routes of exposure, bioavailability, biomonitoring, and epidemiological studies, none of which

were addressed in the CT DPH study. Furthermore, the EPA report states that data gaps for playground surfaces are larger than for outdoor athletic fields.

3. **Playground surfaces were not considered.** The DPH study examined potential risks associated with crumb rubber athletic fields. This data cannot be used to assume the safety of recycled rubber products on playground surfaces. There are various types of recycled tire rubber playground surfaces that differ from athletic crumb infill, including rubber mulch, tiles, poured in place products, and others that may differ in composition from crumb rubber. For example, poured in place products contain glues and epoxy resins that were not considered in the DPH study. Playgrounds are utilized by younger children who interact with the surface in different ways than child or adult athletes do. For example, young children sit, crawl, dig, roll, eat, and drink on playgrounds. Detailed studies of playground composition and utilization are underway as a part of the federal study and include field observation, focus groups, a national survey, and exposure modeling outlined in the EPA December 2016 Status Report (see Appendix D, page 149).
4. **Exposure to extreme heat is not addressed.** This is a major concern given studies that have shown much higher temperatures on crumb rubber fields compared with natural grass on moderately warm summer days. Children are less able to regulate their body temperature, produce more heat for their size, sweat less, and hydrate less often than adults, making them particularly susceptible to conditions of extreme heat.
5. **The CT DPH continues to cite uncertainty about safety.** The following statement regarding the potential for elevated health risks from playing on crumb rubber can be found on the DPH website: “There is still uncertainty, however, and additional investigation is warranted” (<http://www.ct.gov/dph/artificialturf>, updated 4/5/2016). Given their own uncertainty about safety it is unclear why the DPH is continues to support the use of these products in areas where young children play. Numerous studies, including this one, have identified carcinogens and other chemicals of concern in and released from recycled tire rubber. A failure to consider relevant exposure routes and impacts of chemical mixtures could lead to an underestimation of risk. Given that safe alternatives such as wood chips exist, even one additional case of cancer as a result of exposure to recycled tire playing surfaces is not necessary.



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