TTI Study Finds Arsenic and Lead in Imported Glass Beads

The American Glass Bead Manufacturers' Association, which sponsored the study, is urging states and the U.S. government to limit heavy metal levels in glass beads used for highway markings.

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A recent study sponsored by the American Glass Bead Manufacturers’ Association says that a growing number of imported glass bead products for highway markings have high concentrations of heavy metals, including arsenic and lead.

The findings of the study, which was conducted by Texas A&M University’s Texas Transportation Institute (TTI), were presented last month at the American Traffic Safety Services Association’s 41st Annual Convention and Traffic Expo in Phoenix, Ariz.

The TTI study showed that imported glass beads had extremely high levels of arsenic and lead and were susceptible to rapid leaching with exposure to water. The high levels of heavy metal substances pose a hazard to highway worker safety and are an environmental threat, in terms of runoff into the soil, surface water, and drinking water, according to the association.

The trade group notes that glass beads manufactured by companies in emerging nations, particularly China, continue to use glass made from old glass-making techniques that require chemical modification, resulting in products containing high levels of arsenic and lead. U.S. producers use such materials as recycled flat glass to make glass beads, which do not contain high levels of arsenic and lead. These products are primarily used for highway safety markings, providing the light-reflective lane markings found on highways around the world.

“These findings are consistent with results from a recent New Jersey Institute of Technology/Rowan University study and also confirm what our membership has known to be true for some time,” said Robert McClune, association president. “It’s time for state and federal transportation officials and lawmakers to act and establish a federal standard for engineered glass beads in highway markings and prevent these hazardous substances from being applied to our roads and highways,” he said.

Such a bill was introduced Feb. 15 by U.S. Rep. Bill Shuster. The Safe Highway Markings Act of 2011 prescribes standards for glass beads used in pavement markings, limiting the arsenic or lead content to 200 parts per million. The bill, which has been sent to the House Subcommittee on Highways and Transit, also requires the Secretary of Transportation to withhold up to 5
percent of the apportionment of federal-aid highway funds for any state that fails to enforce requirements to ensure that glass beads used in pavement markings on or along federal-aid highway roads or highways do not contain more than 200 parts per million arsenic or lead.

Setting a heavy metals standard for glass beads has gained strong support from environmental groups like the Sierra Club, state and federal lawmakers, and unions like the International Union of Operating Engineers, according to the association. Nineteen states have adopted laws or regulations that require the use of non-toxic materials in the production of glass beads for highway markings. This same issue is gaining traction globally with the European Union, Australia, New Zealand, and several Canadian provinces. China has also set strict heavy metal standards for internal use but continues to export contaminated glass bead products to other nations, according to the association.

Based in Valley Forge, Pa., the association was established in 1991 and represents a majority of the glass bead manufacturing base in the United States. The trade group works toward the betterment of the industry and is involved in programs to expand and improve highway safety. For more information, call 843.422.7934.

Source: American Glass Bead Manufacturers' Association