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## **Studies Confirm Workplace Safety of Tin Stabilizer Use**

CLEVELAND, December 5, 2003 -- Two recent sets of studies conducted by the Tin Stabilizer Association (TSA) provide additional confirmation that tin stabilizers, when handled properly, can be used safely in the workplace. These studies extend work that had been done previously on these products.

One set of studies, carried out by Central Toxicology Laboratory (part of Syngenta Limited), Cheshire, England, examined the ability of butyl and octyl tin stabilizers, as well as their chloride intermediates, to penetrate human and animal skin.<sup>1</sup> The studies follow similar work performed earlier to evaluate methyl tin stabilizers and chlorides. For all of these materials, the results indicate that skin effectively provides a protective barrier against non-irritating, non-damaging doses. Moreover, because the tests indicated that animal (rodent) skin appears to be more permeable than human skin, any additional testing using rodents should be evaluated to make certain it does not overestimate the potential for human exposure. In addition, while the tests show skin can be a protective barrier, users of tin stabilizers should consult the appropriate material safety data sheet (MSDS) and follow proper procedures – including use of appropriate protective equipment -- when handling these materials.

TSA also has performed a set of studies to monitor the workplace for the presence of airborne organotins. The new measurements, conducted by Clayton Group Services, Inc., of Kennesaw, Ga., evaluated workplace airborne exposure levels to tin stabilizers at vinyl processing plants in the United States.<sup>2</sup> These studies focused on workers involved in extrusion, blending, milling, pelletizing and injection molding of vinyl compounds. A total of 68 samples were taken at seven plant locations. In all cases, the levels measured were well below the U.S. Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.1 mg/m<sup>3</sup> (as tin) for organic tin compounds.

This research follows initial work performed in Canada, which found worker exposure levels to be below the Threshold Limit Value (TLV) set by the American Conference of Governmental Industrial Hygienists for organic tin.<sup>3</sup> Combined with the 34 samples taken in Canada, 102 samples now exist in North America specific to the levels of airborne organotins in the workplace. While individual results varied depending on the specific work, duties and tasks of the individual employees, in no case was any worker found to be exposed to levels of ambient tin that exceeded the OSHA PEL or the ACGIH TLV.

The two studies are the latest to confirm the safety of tin stabilizers. This research was presented to the Global Plastics Environmental Conference in a paper titled, "Assessing the Workplace Environmental Performance of Organotin Stabilizers Used at PVC Processing Facilities." For a copy of the paper or for more information, please visit: [www.tinstabilizers.org](http://www.tinstabilizers.org). Information about handling specific tin stabilizers is available in the material safety data sheet (MSDS) for each product.

The Tin Stabilizers Association was established in 1999 to promote the use of tin stabilizers in vinyl plastics. Its member companies are Akcros Chemicals America, Atofina Chemicals, Inc., Baerlocher USA, Crompton Corporation, Reagens Canada, LTD, and Rohm and Haas Company. TSA works to provide accurate information about the quality and safety of tin stabilizers and to differentiate the use of tin stabilizers from other tin-based applications. TSA cooperates with other organizations throughout the world to promote product stewardship, conduct scientific studies and enhance communications related to tin stabilizers.

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<sup>1</sup> CTL/JV1698/Regulatory/Report: Dibutyltin Dichloride: *In Vitro* Absorption Through Human and Rat Epidermis, Central Toxicology Laboratory, Cheshire, England, January 9, 2003; CTL/JV1699/Regulatory/Report: Dibutyltin bis (2-Ethylhexylmercaptoacetate): *In Vitro* Absorption Through Human and Rat Epidermis, Central Toxicology Laboratory, Cheshire, England, January 8, 2003; CTL/JV1700/Regulatory/Report: Dioctyltin Dichloride: *In Vitro* Absorption Through Human and Rat Epidermis, Central Toxicology Laboratory, Cheshire, England, January 8, 2003; CTL/JV1701/Regulatory/Report: Dioctyltin bis (2-Ethylhexylmercaptoacetate): *In Vitro* Absorption Through Human and Rat Epidermis, Central Toxicology Laboratory, Cheshire, England, January 8, 2003.

<sup>2</sup> "Final Composite Report – Industrial Hygiene Assessment for Organotin Compounds at Seven PVC Processing Facilities," Clayton Group Services, Inc., Clayton Project N. 20-03482.00, May 29, 2003.

<sup>3</sup> John Batt and Graham Knowles, Vinyl Council of Canada and the Organotin Environmental Programme, "Report on Sampling of Employee Exposure to Tin Stabilizers at Some Vinyl Processing Facilities in Canada," November 2000.