Organotin Compounds in Modern Technology; by Colin J. Evans and Stephen Karpel. (Journal of Organometallic Chemistry Library, volume 16) Elsevier Science Publishers, Amsterdam/New York, 1985, X+280 pages, Dfl. 195.00, ISBN 0-444-42422-9.

Since about 1950 organotin compounds have developed from laboratory curiosities into compounds with industrial and agricultural consumption of more than 35 000 tonnes per year. This book, by authors from the International Tin Research Institute, presents an excellent survey of the established applications, and points the directions in which new uses may be expected.

The industrial routes to the organotin compounds are first described; these are still based largely on the alkylation of tin tetrachloride with a Grignard reagent or an organoaluminium compound, although 'direct' methods from elementary tin and alkyl halides are at last becoming economically viable.

About two thirds of the consumption of organotin compounds is in the plastics industry, and the use of dialkyltin compounds in the stabilisation of polyvinyl chloride is described in detail. The first patent on this was filed in 1940. The presence of an organotin stabiliser such as dibutyltin dilaurate or dioctyltin bis(isooctylthioglycollate) inhibits the elimination of HCl when the PVC is calendered at about 200°C, and the protection is enhanced by the presence of a monoalkyltin compound. A variety of PVC products from drain pipes, foams, and blow-molded bottles, to records and credit cards bear witness to the stabilising action of organotin compounds.

Trialkyltin compounds are also used as catalysts in the formation of polyurethanes, in the room temperature vulcanisation of silicone elastomers, and in some transesterification reactions.

The other major use of organotin compounds is as industrial biocides. Trialkyltin compounds are used in protecting wood against wet and dry rot, and in preventing the fouling of ships' hulls, and it is pointed out that *Hydroides norvegica*, Teredo worms, and *Limnoria* should share with Sir Francis Drake the credit for destroying the Spanish Armada. In recent developments, tributyltin groups are incorporated into a self-polishing ablative polymer which coats the hull of the ship.

Organotin compounds also find application as agricultural biocides, and a variety of triorganotin compounds are used on a large scale for controlling mites and fungus diseases on plants.

Potential uses include anti-cancer drugs, schistosomiasis control, water proofing treatments, and the provision of surface-coatings for glass, and a formulation based on bis(tributyltin) oxide has showed promise for preventing the growth of *Legionella pneumophile* in cooling towers.

The book has been photographically reproduced from a camera-ready manuscript, and contains many illustrations. It is a very good example of this method of reproduction, but would have been even better if a different typeface could have been used to highlight the headings.

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