

What happens to tetraethyllead in the body ?

In our work with TEL we have developed two new tools:

- (1) a method for measurement of TEL in liver, and
- (2) a method of extracting (from liver) unidentified organic Pb compounds formed by metabolism of TEL in vivo.

With these methods, it appears that of 10 mgm. of Pb inhaled as TEL by a rat, 0.5 mgm. can be recovered as organic Pb compounds from the liver a day later. Of that 0.5 mgm., less than 0.1 mgm. is combined as TEL. The remainder consists of ionic organic Pb decomposition products of TEL.

These methods can be analytically investigated to establish their validity and limitations, to clarify the reasons for their success, or to extend their utility. Or, they can be used to attack questions such as these:

1. How is TEL distributed among various tissues ?
2. How long after exposure is TEL to be found in liver ?
3. What are the decomposition products of TEL in the body ?
in the test tube ?
4. Where are ionic organic Pb derivatives of TEL localized in the body ?
5. At what rate does TEL decompose in the body ? in tissue slices ? in tissue homogenates ?
6. What are the mechanisms of toxic action of the decomposition products of TEL that are produced in the body ?
7. How can these analytical methods be used in developing prophylactic (and curative) therapy ?

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Dr. Stevens will discuss this with a small group at 11:00