

MEMORANDUM CONCERNING THE DETECTION AND MEASUREMENT
FROM LEAD-CONTAINING EFFLUENT FROM INDUSTRIAL OPERATIONS

In our experience, the discharge of lead-containing wastes from the stacks or vents of industry has created greater hazard through the contamination of vegetation in the vicinity of the operations than through the exposure of persons in the affected neighborhood to air-borne lead compounds. The conditions that arise out of industrial operations are variable, however, and certainly the contamination of the environment of homes and areas in which people work, families reside and children play may offer a variety of opportunities for human exposure to significant quantities of lead. It would seem, therefore, that any method by which the public hazards afforded by industrial plants in which lead is produced or processed, is to be appraised, should take into account the deposition of lead on soil, vegetation and structures within an appropriate area and the severity and the geographic spread of the contamination of the surrounding atmosphere.

It is not possible to prescribe a simple and specific test, or combination of tests, which would be adequate for the purpose of revealing the existence of hazardous environmental conditions of all types. There are, however, certain general procedures which are suitable for such purposes. It is believed that, through experience in the use of such methods in the appraisal of typical situations, a comparatively simple method could be developed to meet both hygienic and legal requirements. The general procedures are indicated below.

1. Determination of the lead content of particulate material removed from the air by sampling devices set up at appropriate sites around the industrial plant or relevant area. High volume samplers of the air, for example, may be operated continuously for periods sufficient to arrive at average levels of the concentration of lead per day, week or month as required. (The filter would have

to be changed at appropriate intervals so as to avoid partial or complete clogging.)

2. Determination of the lead content of particulate material that separates out of the atmosphere at appropriate sites around a plant or relevant area. Containers should be set out at each selected site for the collection of particulate material which settles out of the air during appropriate periods of time (week, or month, for example). Such containers should be replaced at designated intervals over a period of time sufficient to yield representative data according to regulatory specifications, as, for example, monthly average levels of concentration.

3. Determinations of the rate of emission of lead from a stack or vent (stacks and vents) may be useful, and in certain instances may be the best means of appraising the significance of a problem of environmental pollution. The analyses of the effluent material for its content of lead, may be supplemented by an approximate (or precise, if necessary) determination of the distribution of lead-containing particles, according to size.