

POLLUTION IN AREQUIPA, PERU FROM SOLIDS WHICH WILL SETTLE: AN ECONOMICAL AND PRACTICAL PROCEDURE.

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18 geochemical centers were set up in the city of Arequipa, Peru, America (population 750 000) to collect particles suspended in the atmosphere and to determine their chemical compositions, their quantity, and to plot their distribution by area in order to find out where these particles accumulate; they are the cause of an increased incidence of respiratory diseases. Results range between 9t and 90t per square kilometer per month and this has motivated the extension of the study to the investigation of deaths from pulmonary cancer. Analyses carried out using scanning electron microscope and x-ray dispersion spectroscopy show a very high level of pollution from solid lead originating in tetra-ethyl lead, from hydrocarbons in solid phase of 2 to 10 microns size, from sulfur, bromine, silicates, oxides, pollen and spores. The statistical analysis of the winds which mobilize these particles is based on a frequency distribution concept.

The wind data are grouped according to nine categories which represent eight wind directions (N; N.E.; E; S.E.; S.; S.W.; W; N.W.) and one class for calm conditions. Maps showing iso-contents for lead and hydrocarbons as well as electron photographs, tables and x-ray spectra for the samples are presented. This procedure has been taken as a model to be applied in other Peruvian cities on account of its being economical, simple to operate, and reliable in its results. The Mayor has accepted it in order to apply the necessary remedial action.