

air flow rate. The flow rates in carburetor and sample line are measured continuously by laminar flow elements and associated pressure difference transducers. The proportional sampler is used in a vehicle on the road to provide a representative sample of exhaust gas, which is then analyzed to obtain mole fraction measurements of various air contaminants in the vehicle exhaust. The total volume of air entering the carburetor is also measured. The values for total air volume entering the carburetor and mole fraction of contaminants are used to calculate the emission rates in lb. of each air contaminant emitted/vehicle mile traveled.

-- APCA Absts.

- 79 Measurement of Atmospheric Ozone with the Chemiluminescent Method. V.H. Regener. J. Geophys. Res. 69, 3795-3800 (Sept. 15, 1964).

The balloon sonde and the aircraft ozone meter are provided at the air intake with a moisture trap containing phosphorus pentoxide, which does not react appreciably with ozone. A small pump aspirates air in the dark across the surface of the chemiluminescent substance while a photomultiplier tube views the material. Techniques are described for the measurement of atmospheric ozone, using the chemiluminescent reaction between ozone and rhodamine B. Details for a balloon sonde for an aircraft installed ozone meter, and for a surface ozone recorder are given.

-- APCA Absts.

- 80 Vertical Distribution of Atmospheric Ozone and Its Relation to Synoptic Meteorological Conditions. J.G. Breiland. J. Geophys. Res. 69, 3801-3808 (Sept. 15, 1964).

Results from an analysis of data obtained by means of the chemiluminescent ozone sonde in a series of observations at various stations in North America indicate that the vertical distribution of ozone is closely related to the thermal properties of the air masses through which the sounding is taken. Individual ozone soundings were analyzed and compared with features of the atmosphere depicted by charts showing individual temperature soundings, winds, and temperatures at the tropopause level, the topography of the tropopause, and wind and temperature fields in vertical cross sections. Ozone mixing ratio is relatively small at all levels below the tropopause and increases with altitude above the tropopause.

-- APCA Absts.

- 81 Carbon Dioxide Measuring Systems for Manned Spacecraft. W.H. Bush. Aerospace Med. 35, 951-953 (Oct. 1964).

For manned space flight to date, three types of carbon dioxide sensors have been developed. At present, the infrared approach to carbon dioxide detection is considered the most reliable and sensitive system available for use in manned space flight. The problems of total pressure sensitivity can be offset electronically, if required, on future missions; however, at present, the excellent pressure control which the environmental system supplies the spacecraft makes such refinements unnecessary for normal operations. -- Author's abst.

- 82 The Measurement of Atmospheric Sulphur Compounds Using Lead Dioxide. E.N. Lawrence. Intern. J. Air and Water Poll. 8, 381-388 (July, 1964).

The effect of wind speed on the reaction of lead dioxide with atmospheric compounds of sulfur is examined. The results from experiments with the standard (cubical) lead dioxide atmospheric pollution measuring instrument, described in a publication of the Department of Scientific and Industrial Research, are compared with those obtained from the exposure of unprotected lead dioxide in a wind tunnel. With allowance for differences between the two environments (atmosphere and wind tunnel), the results are found to be generally consistent. A formula is developed relating concentration of atmospheric sulfur compounds to the mean external wind speed and the sulphation of lead dioxide within the cylindrical louvred screen of a modified atmospheric pollution measuring instrument. This formula and the corresponding formula for the standard (cubical) instrument are found to be consistent with results obtained by Bowden (1964) from a comparison of the sulphation of lead dioxide within cubical and cylindrical screens. Orientation and exposure to wind of cubical and cylindrical instruments are discussed with reference to their effects on the pollution measurements from these instruments.

-- Cond. from Public Health Eng. Absts.