Atmospheric pollution by sulphur dioxide in the Ottawa area

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Technical Note (National Research Council of Canada. Division of Building Research); no. TN-161, 1954-05-14

NATIONAL RESEARCH COUNCIL OF CANADA

DIVISION OF BUILDING RESEARCH

No. 161

TECHNICAL NOTE

NOT FOR PUBLICATION — FOR INTERNAL USE

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PREPARED FOR Mr. H. F. Brown, c/o Mathers & Holdenby, 15 St. Mary's Street, Toronto 5, Ontario. DATE May 14, 1954.

SUBJECT Atmospheric Pollution by Sulphur Dioxide in the Ottawa Area

An inquiry was received concerning atmospheric pollution records in the Ottawa area from Mr. H. F. Brown local representative of Messrs. Mathers & Holdenby, architects, for the reconstruction of the Parliamentary Library. Mr. Brown was particularly interested in the sulphur dioxide content of the atmosphere since trouble has been encountered in other libraries when appreciable amounts are circulated into a library by the ventilation system.

Dr. M. Katz was contacted because of the air polution studies which he conducted in the Windsor-Detroit area for an international commission. To his knowledge no records had been prepared for Ottawa but he suggested telephoning Dr. Kingsley Kay, Department of National Health and Welfare. Dr. Kay advised that sulphur dioxide determinations were to be commenced shortly in this region. A delay had occurred in receiving the equipment they proposed using but he thought the apparatus would be in operation by May, 1954.

The only pertinent data which can be given at this time for the Ottawa area are the results being obtained by the Division at our atmospheric exposure site on the grounds of National Research Council Laboratories on the Montreal Road. Determination of the atmospheric pollution by sulphur dioxide was started in November, 1953. Measurements were made by the lead peroxide instrument described in the publication of the British Department of Scientific and Industrial Research, Fuel Research Station entitled "The Investigation of Atmospheric Pollution".

In this method lead peroxide is coated on a one hundred square centimeter area and exposed in a louvered box. It absorbs sulphur dioxide from the atmosphere according to the reaction

$$PbO_2 + SO_2 \rightarrow PbSO_4$$

After exposure for approximately one month, the sulphate produced is determined gravimetrically as barium sulphate. The results obtained are reported as milligrams of sulphur trioxide, per day,

per one hundred square centimeter of Batch "A" lead peroxide. The Batch "A" is the lead peroxide which is used by the British Fuel Research Station as the Standard.

Results:

Exposure Time	Milligrams of SO_3/day/100 cm^2 of Batch A Lead Peroxide
Nov. 6 - Dec. 7, 1953	0.62
Dec. 7 - Jan. 6, 1954	0.78
Jan. 6 - Feb. 5, 1954	0.83
Feb. 5 - Mar. 5, 1954	0.86
Mar. 5 - April 5, 1954	0.92
April 5 - May 5, 1954	0.48