

Handwritten scribbles and initials: "H6C" and other marks.

P. O. BOX 8500,
MONTREAL, P.Q., CANADA

<u>Research & Development</u>	
Date:	20 FEB 1961
To:	
From:	
File:	A6C

February 16, 1961.

Dr. C.I. Ayres
Research & Development
Establishment,
Regent's Park Road,
Southampton, England.

Dear Ian,

In recent weeks we have been attempting to determine the "total acids" content of the smoke from flue-cured cigarettes via the procedure obtained from you during my visit last February (Revised Method dated 22/1/60). You will undoubtedly conclude from the tabulated data below that we have not been too successful.

Five independent trials (5 selected cigarettes smoked for each determination as specified) gave the following results:

Milliequivalents of total acids/cigt.

- 0.170
- 0.055
- 0.113
- 0.131
- 0.062

It should be pointed out that excellent agreement was obtained between duplicate aliquots within each run. Hence the difficulty would appear to be in the washing of the collection trap or extraction phases of the procedure.

After strict adherence to the method yielded variable results an explanation for the variation was sought by checking the various stages of the procedure and reagents that could possibly have led to erroneous results. The following measures were taken:

- To eliminate the possibility of contamination from corn syrup normally employed in sealing the cigarettes into the collection spiral, the seal was replaced by a common dental dam gasket.

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- The spirals were extracted with bicarbonate and ether immediately after removing from the cold trap to prevent losses that might occur through volatilization during the warmup period (i.e. to room temperature).

- The behaviour of the ion exchange resin was checked and found to be adequate. The normality of the standard NaOH solution (.025 N) was also found to be constant over the period during which determinations were made.

- Approximately 0.2 milliequivalents of acetic acid in 1 ml were added to 45 ml. of .02 N NaHCO₃ and treated thereafter as recommended by the method. Slightly better than a 90% recovery was attained.

Certain fine points were not made clear in the procedure and although it is unlikely that they will explain the lack of reproducibility of the method (in our hands at least) it would be interesting to know how you proceed with this analysis. First of all do you allow the cold collection trap to come to room temperature before washing it out? Secondly, in the preparation of the Amberlite resin slurry what is the consistency or concentration of the final slurry ready for use?

We would sincerely appreciate hearing any comments on the "total acids" method that might be of value in explaining why we have been unable to obtain consistent results with it. If you should have a modified or improved method for determining acids in smoke, it would also be most welcome at this time.

Mr. Anderson visited us last week and I understand that you still have not received the Unicam Sp 700. This is very disappointing news to us because we had hoped you could give us the "low down" on it by now. We are still very much interested in acquiring one but not before I have either had one in my hands for trials (practically ruled out by Unicam's refusal to let us have one on approval) or else received very favourable reports from people I can rely upon like yourself.

Please say hello for me to the rest of the group.

With kindest regards,

Yours sincerely,


John E. de Souza
RESEARCH LABORATORY

JEdeS:BS
c.c. Dr. S.J. Green ✓

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