

8th December, 1982

CORESTA SYMPOSIUM - WINSTON-SALEM

31TH OCTOBER - 4TH NOVEMBER, 1982

TECHNOLOGY AND SMOKE STUDY GROUPS

By: H.G. Horsewell

I attended the CORESTA Symposium as a BAT(UK) delegate for the Smoke Study Group of CORESTA and, as there was no representative representing BAT(UK) for the Technology Group, I attempted to cover this as well. The two groups held their meetings simultaneously, so it was not possible to attend all the sessions of both. I therefore attempted to attend the discussion and business sessions of each group rather than the presentations of the papers, which are given in abstract form in the special issue of the CORESTA Information Bulletin supplied to each registered delegate.

The other official representatives for the BAT group were:

- Mr. Laurens, BAT (Germany) - Technology Group
- Dr. W. Schultz, BAT (Germany) - Smoke Group
- *Mr. T.G. Mitchell, BAT(UK) - Agronomy and Phytopathology Group
- *Mr. H.G. Horsewell, BAT(UK) - Smoke Group

Other representatives from the BAT Group were Mr. Van Putten, STK (Denmark), Dr. J.G. Esterle, Brown & Williamson (USA) and Dr. Hollweg, BAT (Germany).

* Messrs. Mitchell and Horsewell also represent BAT (Suisse).

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TECHNOLOGY GROUP

The Technology Group held their business session on the first day. Hence, in this note, I have decided to record the proceedings of this group first. The activities of the Smoke Study Group are discussed later.

The representatives on the Scientific Commission concerned with the Technology Group were P.I. Adams (Imperial Tobacco, UK - Chairman), C. Dietrich (Rinsoz and Ormond, Switzerland), H. Reif (Austria Tabakwerke AG) and R.B. Seligman (Philip Morris, USA).

Business Meeting

The Chairman announced that M. Pierre Ray, the CORESTA Secretary, had retired and had been replaced by M. J. Flesselles, a Chief Engineer from SEITA. This meant that the Moisture in Tobacco Task Force formerly led by Flesselles needed a new leader - no volunteers came forward. Apparently ISO had adopted the aesiotropic distillation method as a standard for moisture measurement in tobacco and had asked CORESTA to propose a less time-consuming and simpler method. The Chairman added that, if CORESTA failed to do this, ISO may produce a method themselves, which could be unsatisfactory. Nobody offered suggestions for an alternative method during this discussion.

The PILC (Plant Industry Liaison Committee) had a 15% response to the questionnaires concerning suggestions for suitable topics for study by the four CORESTA Study Groups. The Scientific Commission were not able to decide suitable topics from the responses. The Technology Group was running short of subjects for study - most of the suggested subjects involved the disclosure of proprietary information. Two suggested topics were a survey of long-term trends in product development to accommodate product needs and a study on how the changes in physical properties of tobacco can be modified, e.g. by cultural practices, curing or processing. A third suggestion was a workshop consisting of papers and discussions with the Smoke Group.

The Scientific Commission had met and discussed the question of Third World countries and CORESTA (which was raised at the meeting last year). It was decided to persuade Third World organisations to join CORESTA and attend the meetings as observers. A special reduced subscription rate would be offered. Messrs. Strydom (S.A.) and MacDonald (Zimbabwe) will construct a list of Third World organisations to be approached.

A report on results of the collaborative work on the measurement of filter rod circumference was requested by ISO. A method for measuring cigarette rod circumference was also required and it was proposed that cigarette circumference measurements be added to the programme of work for the Filter Task Force.

Ventilation Task Force Meeting

The purpose of this meeting was to discuss the BAT proposal that there should be a CORESTA method for measuring the permeability of pre-perforated tippings based on a simple modification of the procedure for measuring the permeability of cigarette paper. This was proposed last year: the

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proposal had been circulated and comments were invited. A fairly lengthy discussion took place, particularly among tipping suppliers and instrument manufacturers. The arguments centred mainly upon the airflow pressure to be used for the measurement and the area of tipping in the cell. Hence it was decided to carry out a collaborative test to study the effect of changing these and possibly other variables using a fairly wide range of tipplings supplied by Malaucene. The Co-ordinator agreed to circulate details of a proposed test and invite comments within a set time. This would be followed by circulation of samples of tipping. Overall, this item seemed to cause concern to tipping manufacturers, particularly when it was proposed to measure the variability of permeability, as it is quite likely that the variability is higher than the manufacturers claim. The Chairman asked if any other type of permeability measurements should be undertaken. Mr. Baskevitch (De Mauduit) said ultra-low cigarette papers should be considered. The Chairman asked why this should be of interest. Baskevitch did not dare answer this because low permeability paper is one of the ideas for sidestream reduction which both De Mauduit and BAT are developing!

Filter Task Force Meeting

This meeting was concerned with the results of a large collaborative test which involved the measurement of the circumference of unplasticised filter rods wrapped in a wide range of different permeability plugwraps. Collaborators had used a variety of methods - Filtrona tape gauge (nine people), Filtrona air gauge (six), LaserMike (eight), Solex (six), Sodim (one), Profile projection (one). M. Coq delivered a very long talk on the analysis of the results, which boiled down to the following:

- (a) The results using the LaserMike and profile projection > Tape Gauge and Sodim > Filtrona air gauge > Solex, over the complete range of plugwrap permeabilities - obviously the results converge at the lower end of the permeability range.
- (b) The variability within the methods are statistically similar, but M. Coq added that the LaserMike gave the best reproducibility overall.
- (c) M. Coq asked for more time and help to carry out further analyses of the results - intercomparisons between methods, laboratories, instruments and plugwrap permeabilities.

At the end of the meeting, the Chairman asked for volunteers of participants for the cigarette circumference measurement exercise. I said BAT would take part.

Tobacco Moisture Task Force Meeting

This coincided with the business meeting of the Smoke Study Group so I was unable to attend this session.

Technology Group Elections

I did not attend this meeting because voting is restricted to nominated Technology Group delegates. However, the election results were:

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Chairman: Mr. C. Deitrich (Rinsoz and Ormond, Switzerland)
Secretary: Mr. Ruy Villas Boas*
Scientific Commission: Dr. N. Baskevitch (LTR, France)
Dr. R.B. Seligman (Philip Morris, USA)
Mr. M.L. Strydom (Rupert Int., SA)

* Mr. Ruy Villas Boas is not a member of the Scientific Commission.

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SMOKE STUDY GROUP MEETINGS

The meeting commenced with some preliminary announcements similar to those recorded in the Technology section of this document. This was followed by reports of certain committees outside CORESTA and the reports of the CORESTA task forces.

Pesticide Legislative Committee

This is not a CORESTA committee. The report, given by Mr. A. de Bates, simply said the committee had contacted users of pesticides on tobacco to obtain information on the amounts of pesticides used. The results of this enquiry will be reported next year.

Pesticide Sub-Group

Dr. H. Reif announced the retirement of Dr. Cora Ayers and expressed the thanks of the group for her hard work as secretary. To date, a replacement secretary had not been found. Overall, the activity of this group is declining and it is planned to reduce the number of meetings to one per year. The procedure for Aldicarb residues has given variable results. It was decided to apply the method to pure samples of the residues but low recoveries were still obtained. The method will be regarded as a screening method and will not be suitable as an ISO standard procedure.

Ciba Geigy supplied the group with their method for determination of Ridomil, the systemic Blue Mould pesticide, which gave recoveries of 40-60%. Representatives from this company said the report was confidential to members of the Group. With regard to Maleic Hydrazide residues, only the potassium salt will be made. Checks for nitrosamines in smoke should be made if necessary.

Cigar Group

Mr. Van der Straeten said that a collaborative test has been carried out on nicotine deliveries to explain interlaboratory differences using isopropanol solutions of nicotine and cigar condensate. Seven laboratories took part and various methods were used - the ISO procedure, gas chromatography (GC), autoanalyser, Markam Still. Six out of seven laboratories obtained good results. The ISO procedure gave the best results. The GC results were lower than those of the autoanalyser. For cigars, the variation was 6-7% compared to 2% for cigarettes. This variability must be taken into account when considering the number of cigarettes to be smoked. It should be noted that increasing the number smoked does not decrease the variability of the results.

Metals Task Force

Dr. T. Osdene reported that there are now 394 papers in the data bank - seven more papers have been added since last year. In May there was a meeting in Finland concerned with cadmium. Briefly, the seven papers were concerned with: trace metals in tobacco paper and smoke of cigarettes in Jordan - arsenic in tobacco grown near a superphosphate plant in Russia - levels of copper, lead and zinc in tobacco grown in soils to

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which cadmium had been added (Cd also found in the tobacco) - origins of manganese from the calcite used in paper and tobacco - determination of vanadium in tobacco (India) - effect of calcium levels applied as CaSO_4 during growing on sugar production, etc. - determination of calcium in cigarette ash using an ion selective electrode.

Vapour Phase Task Force

The method for measuring carbon monoxide has been published as a CORESTA Recommended Method (No. 5). I have one reprint.

A collaborative test on the measurements of nitric oxide in smoke was conducted with 17 laboratories. The standard deviation was 14.3%, which is unsatisfactory. This item was discussed during the meeting of the task force, which is discussed later.

Plant Industry Liaison Committee (PILC)

Dr. T. Osdene delivered a 20-minute lecture on PILC. This committee was set up about four years ago to study how the four CORESTA Study Groups could work together or in pairs on carefully selected topics. The committee had the greatest of difficulty in deciding what to do. The latest attempt to resolve this was the circulation of a questionnaire asking for suggestions. The response was very poor (15%). The PILC Committee met on 31st October and came up with a list of suggestions to be put to the Scientific Commission. Dr. Osdene listed these at considerable speed, hence I can only record a selection of the topics.

The first two were those already recorded under the corresponding section in the Technology Group meeting. Others included: a workshop to determine methods for the reduction of tar, nicotine, carbon monoxide and nitric oxide - a study of fertiliser level and nitric oxide in smoke - an index of disease-resistant tobaccos - the control of blue mould - limits for levels of pesticide residues - development of alerting networks for new fertilisers and other chemicals. Also suggested were plenary lectures on papers of mutual interest, such as genetic engineering.

I am unable to see that this programme can or will go forward, but it is to be discussed at the next meeting of the Scientific Commission.

Tabak Colloquium

Dr. H. Reif gave a summary of papers given to this discussion group. It was hosted by BAT Germany and the papers given included the following topics: fertiliser residues and heavy metals - moisture measurements - equations for prediction of ventilation levels with sheet process involving closed circuit systems, i.e. no water loss (recirculated). If readers of this note have an interest in this, contact should be made with BAT Germany.

Vapour Phase Components Library

At the last CORESTA meeting, it was proposed that the Smoke Study Group should formulate a library of published papers on sidestream. As far as I can remember, this was rejected as being undesirable for political reasons and it was suggested and accepted that a library of papers on

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vapour phase mainstream should be collected and tabulated. Nevertheless, Mr. S.O. Almquist had set up a library of papers on sidestream smoke components and invited CORESTA members to contribute to it. As with the Metals Task Force, the print-out will be available to CORESTA members. I have obtained a copy of this document.

Nitric Oxide Task Force Meeting

Mr. Joigny, the Co-ordinator, presented the results of the collaborative tests in which participants measured the nitric oxide deliveries by their own methods. There was a high level of variability (13-14%), which was much higher than that obtained during a collaborative test carried out two years ago when participants measured the concentration of standard nitric oxide for nitrogen gas mixtures. The variability could not be explained by differences in puff numbers. After considerable discussion, it was decided that the critical areas could be the time interval between generation and measurement and the type of interface between the smoking machine and the nitric oxide analyser. The next stage of this work consists of a survey of the details of the procedure used by each participant, including a detailed description of the equipment used. The Co-ordinator will circulate a request for the required information.

Nicotine by Gas Chromatography Sub-Group

This is not an official CORESTA sub-group, but a group of people interested in the measurement of nicotine by gas chromatography, organised by Dr. J. Hollweg of BAT Germany. They had carried out a small collaborative test on a solution of smoke in isopropanol, measuring nicotine by GC and the ISO method. The mean and standard deviation for the GC method was 0.85 and 0.032, for the ISO method the figures were 0.85 and 0.012. Further collaborative work will be carried out and more participants were invited.

Smoke Group Elections

Elections were held for four officers in the Smoke Study Group - namely Chairman, Secretary and two further members of the Scientific Commission. The results were:

Chairman - Dr. D.T. Westcott (Imperial Tobacco Limited, UK)
Secretary - M. C. Joigny, SEITA.

The two other elected members of the Scientific Commission were:

Dr. H. Elmenhorst (Martin Brinkman, Germany)
M. P. Ceschini (Ed Laurens, Switzerland)

Dr. H. Kaneko (JTS, Japan) was narrowly defeated by 2 votes for an elected place on the Scientific Commission, but was nominated and accepted for one of the four additional places on the Scientific Commission.

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GENERAL ASSEMBLY

The main activity of the General Assembly is the election of three members of the Council and four members of the Scientific Commission. The remainder of the proceedings consisted of the presentation of the CORESTA accounts, etc. These were set out in detail before the meeting in the form of a handout limited to each subscriber.

Three members of the Council had to withdraw: these were Hungary, the Phillipines and the UK. The three new proposed members were Belgium, Japan and Bulgaria, all of which were elected.

The new Chairman of the Council was Mr. A. Musil (Austria). I suspect the choice was made because the next CORESTA Congress (1984) will take place in Vienna. Dr. R. Morse (R.J. Reynolds) was Vice Chairman.

It was also announced that the next Technology and Smoke Study meetings will be held somewhere in Italy on 24th-26th October, 1983.

GENERAL COMMENTS

The most important parts of the symposium were the task force discussions and the opportunity to meet suppliers and people from other tobacco companies. The main reasons for attending the task force discussions are to enable BAT to have a voice on what type of work should be done and to be aware of anything which could affect the business of the BAT Group.

As agreed before I attended the meeting, I resisted pressure from the Chairmen of the Technology and Smoke Study Groups for the BAT representative to play a bigger part in the work of CORESTA.

H J Hordley

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