

>ALH  
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(for TSRT)

### Fundamental Research Centre, Projects

The rationale underlying fundamental research is:

- (i) anticipation of regulatory needs and the ability to alter products to meet those requirements;
- (ii) chemosensory research to find means of overcoming sensory barriers as products are modified, and to produce concepts for superior products;
- (iii) the use of alternative materials/structures as "building blocks" for future cigarette design.

The key project areas are:

1. Tar/nicotine ratio reduction

Basic research into means of creating evolutionary products delivering adequate levels of nicotine with minimum accompanying levels of other components will be actively pursued. The following topics will be explored: tobacco treatments leading to reduced tar formation, the creation of novel sheet materials capable of controlled release of nicotine/flavourants, and means of enhancing the transfer of nicotine/flavourants to smoke.

2. Minor components of tobacco smoke

Means of controlling the concentration of specific minor components of smoke are being explored using techniques such as the chemical or enzymic treatment of tobacco. To date the work has been aimed at reducing components as required by regulatory trends but in the future will include increasing components to enhance consumer preference.

3. Sidestream reduction

To date prototype low sidestream products have been developed using modified cigarette paper in combination with reduced tobacco. These reduce visible sidestream by about 50% but the gas phase is only reduced by about 20% with only marginal reductions in sidestream odour and irritation. In order to achieve total sidestream reduction further research is concentrating on modifications to the tobacco rod structure.

4. Ultra light-weight structures

In terms of smoke deliveries there is clearly too much tobacco in a conventional cigarette. Means of creating light-weight tobacco rod structures are being sought which will more efficiently deliver conventional smoke yields while at the same time offer potential for reductions in sidestream. Approaches include the creation of foamed-structures of tobacco origin.

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5. Chemosensory research

A new team has been established to explore the chemical and physical properties of smoke important to sensory perception. The work is involved with factors governing irritation, impact and taste as well as the effect that smoking behaviour has on such properties. The work area is aimed at both enhancing the sensory attributes of low tar/medium nicotine products and creating concepts for superior smoking quality in conventional products.

6. Environmental tobacco smoke

A small effort is retained in this area to provide an information base useful to public affairs initiatives. Activities currently in the programme include details of the formation and decay of specific groups of chemicals and the search for reliable methods of assessing the exposure of humans to ETS.

7. Reduced ignition potential

There is pressure at both the federal and state government level in the USA to introduce legislation stipulating that all cigarettes must pass a furniture ignition test. Work at the FRC is aimed at developing suitable test methodology. Some of this work is done in collaboration with CORESTA and we expect to have agreed a method by mid 1991. Design features affecting this aspect of our products will then be established.

8. Biological testing

The role of monitoring external developments in biological testing will be maintained; those methods which have potential application for tobacco smoke will continue to be assessed 'in house' or under contract.

9. Additive chemistry

In order to gain regulatory approval to use various additives or new processes we must be able to provide reliable data on their chemistry and their effects on smoke chemistry. This work area is aimed at providing this information on additives/processes agreed by the CAC Companies. The work will focus on providing 'tobacco natural' status of additives and on their fate during combustion.

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