

cc S. Inge



**British-American Tobacco Company Limited**

TECHNOLOGY CENTRE  
SOUTHAMPTON ENGLAND

**B.D.B.**  
REC'D - 7 MAY 1992

|                                               |                      |
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| To Mr. B.D. Bramley,<br>Chairman,<br>Staines. | FROM Dr. C.C. Greig. |
| REF CCG/JJ                                    | DATE 6th May 1992    |

re: Transdermal nicotine patches/pads

In Geoff Brooks absence in Malaysia, he has asked me to try to respond to the points you raised in your telephone conversation with him last Friday. I have tried to do this as follows:

Background information

1. Transdermal pads (TP's or TNS) involve taping a nicotine source/solution (in a reservoir) over an area up to 2" x 3" typically on the upper arm, replacing this usually once/day.
2. The TP's are tailored to produce a steady nicotine level in blood/plasma similar to that produced by any given level of cigarette smoking.
3. The intention of TP's is to assist smoking cessation therapy and to cause the smoker to 'quit gradually' as the TP's nicotine level and thus delivery rate can be reduced with time (up to '9 weeks').
4. No severe adverse effects, other than mild skin irritation, appear at normal doses. Headaches and nausea, have been reported for higher nicotine levels.
5. In perspective:
  - i). FAVOR, the 'nicotine only' imitation cigarette product, was seen as ineffective although it used the fastest and most efficient nicotine input route, inhalation.
  - ii) Nicorette, the chewing gum, seems less effective than TD's, probably due to the fact that ingestion, via saliva/gut, is slower and less efficient.
  - iii) TD's offer an effective input route, skin adsorption, and the ability to control blood levels.

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TD's - Current Status

1. TD's have been and still are in active research use in both the US (Jarvik, California, and Rose, North Carolina) and in the UK (Jarvis, Russel). In all cases the researchers report an increased smoking cessation rate relative to a placebo (i.e. blank) patch but there is conflicting long term evidence in relation to both Nicorette gum use and psychological intervention e.g. group counselling, hypnotism etc.
2. Ciba-Geigy, the Swiss multi-national, Burroughs Wellcome (US), Pharmetrix Corp (US) and I believe, from memory only, Marion Merrell Dow (US) are all pharmaceutical/drug companies who hold patents, have worked on, or have published work in the TP area. At least two commercial sources of TP's exist.
3. There is no indication of the actual nicotine origin. Since only 'natural' nicotine i.e. derived from tobacco/plant sources is pharmacologically active, it is likely that the nicotine is sourced thus. When we investigated FAVOR, and its parent organisation Advanced Tobacco Products, we learned that they used Indian scrap tobacco as a source, from which they extracted and then purified nicotine. ?
4. Since the nicotine is very highly purified, to 99.9+ % there is no advantage to any particular tobacco type as a source. Obviously processing of a high nicotine scrap is advantageous in handling terms, but if the lower nicotine material is readily available and much cheaper it is likely to be preferred. //
5. In comparison, the amount of nicotine in a TP (normally about 20mg) is similar to that contained in the tobacco of a cigarette. The nicotine in a TP is a pure, concentrated material, not dispersed in a tobacco structure, and must thus, as a Category 1 poison, (UK), be subject to very highly supervised/controlled handling in manufacture. With 20mg of available nicotine, any accident which causes spillage over a large skin area is likely to cause severe over-dosing. Only in a very susceptible subject is thus likely to be lethal.

I hope that this answers the questions you asked Geoff. If you require further information/clarification I will be glad to assist.

C.C. GREIG

cc. Mr. G.O. Brooks  
Mr. G.A. Read.

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