

RJR CONFIDENTIAL

U-230-R+D

INTEROFFICE MEMORANDUM

SUBJECT: Invention Disclosure -
Low 'tar' yield Cigarettes with
Enhanced Nicotine Delivery

DATE: September 16, 1986

TO: Mr. Grover Myers

FROM: A. B. Norman
T. A. Perfetti

BACKGROUND

To produce cigarettes with 'tar' deliveries in the 4-7 mg range, high levels of ventilation in conjunction with highly efficient filters are required. These design features enable low 'tar' yields but also cause substantial reductions in nicotine deliveries. Typically, T/N ratios for low and ultra low 'tar' yield products range from 8 to 12. Modifications can be made to the tobacco blend to increase nicotine content. However, the effect of increased tobacco nicotine content on mainstream smoke yield is marginal owing to limited transfer of the nicotine from the tobacco to the smoke. Further, availability of high-nicotine content tobacco is not always sufficient to support large scale production. Thus, it is desirable to develop means to enhance the smoke from low 'tar' products with nicotine in a highly controlled manner.

Description of the Invention:

Four prototype products were made as shown in figure 1. A section of rod made from reconstituted sheet (G-7) served as a portion of the filter system in each. The control products were prepared without treatment to the G-7 section. The test products had G-7 segments which were injected with 24 mg of nicotine. Smoke analysis results are shown in Table I. As can be seen from Table I, substantial amounts of nicotine were delivered from the prototypes with the injected G-7 segments. The T/N ratios found decreased from ~8 to ~5 for the injected prototypes regardless of filter type, ventilation level or point of ventilation introduction into the filter.

2
0
0
0
2

51151 1035

RECEIVED

SEP 18 '86

J. M. M.

We believe the method of smoke nicotine enhancement described offers a means to increase nicotine yields in low-'tar' products in a controllable manner. An advantage of this approach is that the nicotine addition is made to a tobacco substance, rather than filter material (i.e., cellulose acetate).

AB Norman 9/17/86
A. B. Norman
mp

T A Perfett 9/17/86
T. A. Perfett

ABM/TAP/dsw

Attachments

Xc: Dr. M. E. Stowe
Mr. B. V. Hardin
Mr. W. M. Dufour

Witnessed by:

Leslie D. Lewis 9/17/86

Oliver E. Creamer 9/17/86

for Robert Morte 1-25-88

3
0
0
0
2

51151 1036

Table 1. Smoke Analysis Results for Control and Nicotine Loaded Products

Sample	WTPM	Analysis		
		'Tar'	Nicotine	T/N
A (2.1/48K, 60% dilution) no nicotine load	9.4	7.7	0.95	8.1
A (2.1/48K, 60% dilution) w/nicotine	8.4	6.4	1.26	5.1
B (2.1/48K, 70% dilution) no nicotine load	6.7	5.4	0.72	7.5
B (2.1/48K, 70% dilution) w/nicotine	6.7	5.6	1.20	4.7
C (5.0/35K, 75% dilution) no nicotine load	6.7	5.6	0.69	7.1
C (5.0/35K, 75% dilution) w/nicotine	6.8	5.2	1.06	4.9
D (5.0/35K, 75% dilution) no nicotine load	7.3	6.0	0.79	7.6
D (5.0/35K, 75% dilution) w/nicotine	6.8	5.2	1.07	4.8

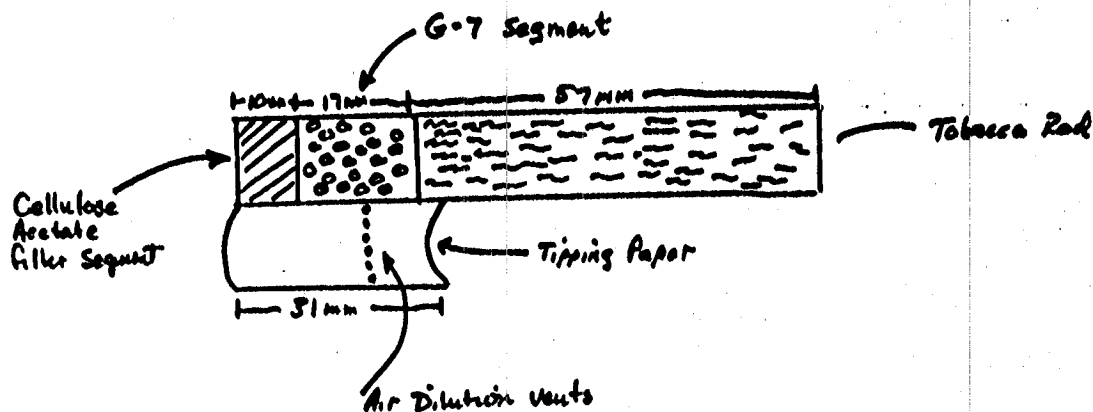
400232

Witnessed by:
ASL 9/17/86
OEC 9/17/86

THP 9/17/86
ABN 9/17/86

5151 1037

Figure 1. Construction of Cigarette Prototypes



Example	Filter type (dpt/rod)	Air dilution vent location (mm from mouthend)	Air Dilution level (%)	
A	2.1/48K	13	60	00
B	2.1/48K	27	70	00
C	5.0/35K	13	75	23
D	5.0/35K	27	75	27

Witnessed by:

LST 9/17/86

D&C 9/17/86

TAP 9/17/86
ABN/TAP 9/17/86

51151 1038