

Lorillard

MEMORANDUM

December 15, 1976

TO: Ms. M. S. Ireland
FROM: M. A. Skladanowski
SUBJECT: Air Dilution Cigarette with Puffed Tobacco Blend

Tom Larson and Jim Morgan have made cigarettes similar to the True 85 (5mg) using a blend containing all puffed tobacco. The all puffed blend, 40% puffed flue cured tobacco and 60% puffed burley tobacco, was treated with 2.0 to 2.5 percent $(\text{NH}_4)_2\text{HPO}_4$ to decrease the burn time. An "all air dilution" cigarette (1,2) was made from these puffed tobacco cigarettes following the same procedures given for sample #5 in a previous report (1).

Cigarettes were selected by weight after the plastic mouthpieces, cellulose acetate plugs and plug wraps had been removed. Then a 20mm section of True plastic rod, which had three 0.4cmX 1.0cm slots in the sides, and a gas chromatography column cap (6.25cm) with 8 holes in the bottom (0.4mm drill bit) were inserted into the filter end of the sample cigarettes as shown in Figure 1. Four additional air vents (0.6mm diameter) were added to the True 85 air vents before the sample cigarettes were smoked. The control cigarettes, which contained no filter plugs or mouthpieces, were taped and then smoked.

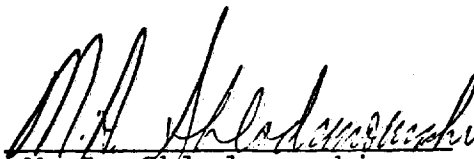
The sample and control cigarettes were smoked by the Lorillard smoking laboratory and the results are shown in Table 1. The smoke data for the same cigarette design made with True 85 (5mg) tobacco blend is also shown in Table 1(1). The unfiltered and filtered smoke from the all puffed blend has a larger nicotine to tar ratio than the True 85 blend. The nicotine to tar ratio multiplied by 100 was 11.9 for the filtered unpuffed blend and was 10.0 for the filtered True 85 blend.

Dean Sidbury, in the Lorillard Engineering Department, was contacted with regard to the design of a cigarette utilizing only air dilution to filter the smoke. He

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felt that the models which have been put together in the laboratory would be difficult to manufacture and the model proposed in the previous report using a solid plastic piece would not work. Presently, the new designs for all air dilution cigarettes are being investigated.



M. A. Skladanowski

MAS/lmh

Xc: Dr. F. J. Schultz
Dr. H. J. Minnemeyer

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Table 1. Smoke data for "all air dilution" cigarettes without cellulose acetate plugs

	All Puffed ^a Blend	All Puffed Control	True 85 ^b Blend(1)	True 85 Control(1)
Weight mg/cig	.662	.462	.877	.680
Pressure drop mm/cig	112.	68	108	63
Dry Part Mat mg/cig	7.5	19.8	7.0	19.4
Nicotine mg/cig	0.80	1.33	0.63	1.11
Corrected Part Mat mg/cig	6.7	18.4	6.3	18.3
Puff Count	4.7	3.8	6.2	5.1
(Nicotine/CPM) 100	11.9	7.2	10.0	6.1
% CPM Removal	64		66	
% Nicotine Removal	40		43	

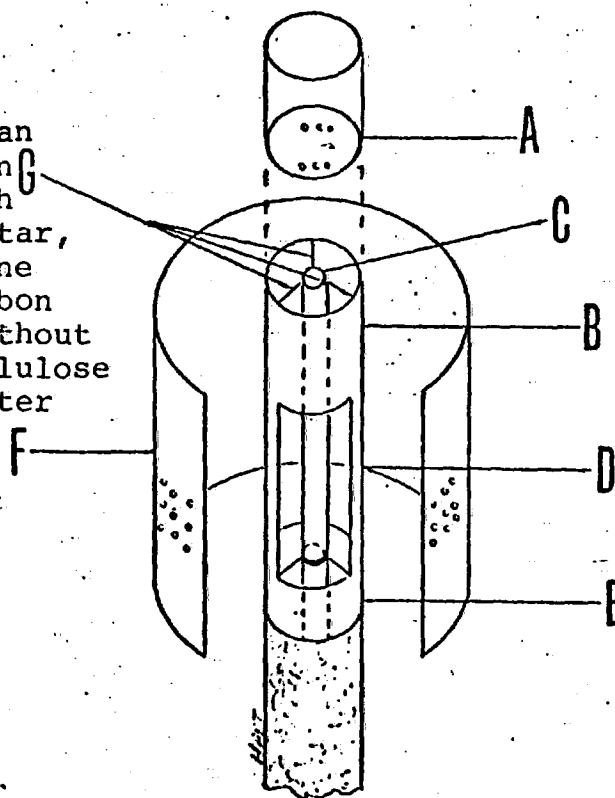
a. Cigarette design like sample #5(1)

b. Sample #5(1).

1. M. A. Skladanowski, "Air Dilution Filtration of Cigarette Smoke Without a Cellulose Acetate Plug", Lorillard Research Report, Accession Number 908, Nov. 4, 1976.
2. M. A. Skladanowski, "Air Dilution As A Filtration Technique to Increase Nicotine to Tar Ratios in the Mainstream Smoke of Cigarettes", Lorillard Memorandum, July 27, 1976.

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Figure 1. Design for an air dilution filter which offers low tar, high nicotine and low carbon monoxide without using a cellulose acetate filter plug.



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