

INTERNAL CORRESPONDENCE

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DEPT.			
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" "	C. S. MULJE	MS. B. L. McCAFFERTY	W. H. KNABLE
FROM MR.	J. L. EMS/plh/112		DATE APRIL 2, 1976
SUBJECT	VANGUARD		

DR. P. L. AULBACH  
J. L. KNOOP/J. F. WALL

Attached are the results of the evaluations of VANGUARD produced 3/23/76.

All results obtained on the physical characteristics are close to their respective targets. However, the rounded tar and nicotine deliveries and puffs are unexplainably high (2 mg. tar and 0.2 mg. nicotine higher than those reported for the prototype cigarette manufactured in the Development Center). (Memo to W. L. Schermerhorn from J. F. Wall dated 3/23/76.)

*J. L. Ems*  
J. L. Ems

VANGUARD  
OUTGOING PRODUCT SPECIFICATIONS SHEET  
REV. 1

CHARACTERISTIC	REQUIRED SPECIFICATIONS					ACTUAL RESULTS		
	TARGET	(1) REJECT LIMITS		(2) TOLERANCE LIMITS		AVERAGE	(3) TOLERANCE VALUES	
		MIN.	MAX.	MIN.	MAX.		MIN.	MAX.
Cigarette Length (mm)	84					84		
Filter Length (mm)	25					25		
Filter Tip Length (mm)	30					30		
Circumference (mm)	25.0					25.1	25.0	25.2
Density (mg/cc)	261					263	260	270
Tobacco Weight (mg/cig.)	765					784	770	798
Non-Tobacco Weight (mg/cig.)	283					278		
Cigarette Weight (mg/cig.)	1,048					1,062		
Filter Tip P.D. (in. H <sub>2</sub> O)						2.2	2.0	2.4
Cigarette P.D. (in. H <sub>2</sub> O)	4.3					4.1		
Moisture (%)	13.5					13.4	13.0	13.8
Nicotine (mg/cig.)						16.2		
tar (mg/cig.)						1.23		
Refractive Cigarettes (%)						---		

- 1) Reject limits are the minimum or maximum acceptable average value for each characteristic.  
 2) Tolerance limits are minimum and maximum values within which 95% of the batch should fall.  
 3) Actual tolerance values represent 2 sigma. Sigmas and corresponding averages were calculated from an analysis of 30 individual packages representing the batch.

Additional Tests

Characteristic	Actual Results
No. of Puffs	8.0
Filter Efficiency - Nic. (%)	40.0
Tobacco Analyses (%)	
Total Alkaloids	1.90
Reducing Sugars	11.1
Total Sugars	13.7
Weight of Duolite (mg)	33.0
Weight Standard Deviation - Duolite (mg)	1.60
Constant Vacuum Smoking	
Hydrogen Cyanide (mg)	
Acetaldehyde (mg)	
Filter Eff. - Acetaldehyde (%)	

COMMENTS:

Signature \_\_\_\_\_

3/23/76  
Production Date \_\_\_\_\_

Report Date \_\_\_\_\_