RJRT Interoffice Memorandum

Subj: Analysis of Humic Acid **Date:** June 6, 1989

To: Dr. Robert Harrington **From:** H. L. Chung
D. S. Moore
J. C. Aldridge

The sample of humic acid from Ecusta that will be used to replace the current dye used on MORE cigarettes to make them brown has been analyzed for its pyrolyzates as follows. A small amount of sample (30 mg) was placed inside a quartz tube and pyrolyzed at 700°C by on-line Pyrolysis/GC/MS. No compounds could be detected at this standard pyrolytical temperature. Therefore, the sample was then pyrolyzed at higher temperatures (900°C and 1200°C). The same sample was used for each pyrolysis. A 60-m DB-1701 fused silica capillary column was used. The oven temperature was held at 35°C for 5 minutes and then programmed to 220°C at 3°C/min. The pyrolyzates were identified by MS and semi-quantified using the relative peak areas as in the attachment.

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Xc: Mr. L. A. Lyerly
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Humic Acid (700°C)

No compounds could be detected.

Humic Acid (900°C)

Area %	Compound
trace amount	Benzene
trace amount	Toluene

Humic Acid (1200°C)

Area %	Compound
trace amount (58.54)	Benzene
trace amount (12.03)	Toluene
trace amount (2.25)	Benzene, 1,4-dimethyl-
trace amount (.68)	Naphthalene