CHARGE NUMBER: 6908

PROGRAM TITLE: SMOKE CONDENSATE STUDIES

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PROJECT LEADER: R. N. Ferguson

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I. CHEMICAL STUDIES

A. Condensate Collection[1]

The impaction trap efficiency study, using an impaction trap backed by an Elmenhorst cold trap (ECT), was continued.[2] WSC yields greater than 80% of CI lab TPM were obtained for both 2R1 and X6D8XI cigarettes. These results were obtained with a Borgwaldt machine, while efficiency problems were first observed with a 240-port machine. Since the 240-port machine traps each puff separately there may be an aspect of smoke collection unique to this system which is causing low efficiency. However, it is possible to conduct high efficiency impaction trapping using a Borgwaldt machine regardless of batch size.

The volatiles collected in the ECT from these smokings were in the range of 20-30% of the total material collected. The major component for both 2R1 and X6D8XI is water and this caused a two phase system in the material recovered from each ECT. Both samples will be analyzed by gc/ms. Tentatively identified in the 2R1 "aqueous phase" were acetone, methylethylketone, dimethyl (or ethyl) amine, a nitrile, and two unknowns.

The possibility of impaction trapping into DMSO to obtain high efficiency collection of volatiles in smoke as well as particulates and to provide "fresher" smoke for 6906 personnel is being evaluated. Initial results are encouraging.

B. MW 288[4]

Duvatriene-1,3-diol was isolated from tobacco cuticular wax. A portion of this material was added to IT WSC from X6D7HI (bright stem). After normal workup, no increase in MW 288 was observed, indicating normal isolation procedures do not convert duvatriene-1,3-diol to MW 288. Next the diol will be sprayed on X6D7HI filler, cigarettes will be prepared and smoked in order to detect possible increased formation of MW 288.