

ETS DIVISION WEEKLY HIGHLIGHTS

SS and ETS Chemical Spreadsheet - Status: Sheila Cash is working on a sidestream and an environmental tobacco smoke spreadsheet inputting components of interest from various studies that have been completed in house. Significance: A chemical database will be compiled from the information collected. Next Steps: The spreadsheet will be given to Roger Jennings and put data into a chemical database. Contact: Sheila Cash

Polyphenol Paper Application - Status: Ms. Susan Kelly and Dr. David Boldridge obtained a UV/vis spectrophotometer from Dr. Bob Heckman. The instrument has been installed in 611-13W/102 and is functioning properly. This instrument will be used to determine the levels of polyphenols on papers treated with selected polyphenols. Various solvents are being investigated to determine which ones are best for extracting the polyphenols from the treated papers. Significance: This study will determine the potential of polyphenols to modify sidestream smoke Ames activity. Next Steps: The solvents for extraction will be determined. Contact: Susan Kelly & David Boldridge

Outdoor Air Sampling - Status: Forest fires in neighboring states and atmospheric conditions during the week of November 4th led to high smoke concentrations in Winston-Salem. A series of outdoor air particulate matter samples was obtained during that time with a Hi-vol sampler. The samples will be used to obtain a preliminary comparison of ETS with ambient air pollution. The samples will be tested for Ames activity to determine relative mutagenicity differences between outdoor air particulate matter and ETS. In addition, the samples will be tested for solanesol content and a PAH analysis may be performed. Outdoor air RSP concentrations were between 113 and 170 $\mu\text{g}/\text{m}^3$. Sampling will continue until normal background levels are reached. Significance: The results may be useful for putting exposure of nonsmokers to ETS in perspective with normal background exposure to air pollution. Solanesol results will be used to determine whether non-tobacco

smoke might interfere the use of solanesol to apportion ETS derived particulate matter in indoor environments. Next Steps: Await completion of analyses. Contact: P. Nelson

Spouse Pairs ETS Study - Status: A manuscript titled "Comparative evaluation of diffusive and active sampling systems for determining airborne nicotine and 3-ethenylpyridine" was submitted to *Environmental Science & Technology* for publication. This manuscript describes construction and validation of the air sampler used in the Columbus, Ohio spouse pairs study. Significance: The study is aimed at addressing several issues raised by the U.S. EPA in their risk-assessment document regarding misclassification and background ETS exposure in the U.S. population. A full report of sampler validation is necessary for establishing sampler reliability and verifying uptake rates used in converting mass collected (nicotine and 3-ethenylpyridine) to air concentrations. Contact: M. Ogden

Olfactometer Calibration - Status: Sample analysis is continuing for calibrating olfactometer output in support of research efforts within the Biobehavioral Division. Odorants being calibrated for are nicotine, *n*-amyl acetate, acetic acid, and propionic acid. Significance: Olfactometer delivery rates need to be verified to facilitate data interpretation in experiments which measure the responses of humans to odorants. Next Steps: Finalize analyses and submit results to requestors (R. Jennings and J. Walker). Contact: M. Ogden

Determining ETS Film Formation on Glass (Support to Project XA) - Status: At the request of A. Norman, M. Ogden met with P. Perfetti and R. Hayworth to discuss the feasibility of utilizing ETS Division methodologies for estimating film formation due to ETS on glass surfaces. Initial experiments with a commercial cigarette brand indicated that the UVPM methodology (an estimate of particulate

deposition based on UV absorbance) was not sufficiently sensitive; however, FPM (the same estimate based on fluorescence) did show a quantifiable response. Current experiments are underway in the PETS rooms in an attempt to detect differences between control and test cigarettes. **Significance:** Analytical efforts may prove beneficial in supporting claims of reduced film formation on glass (e.g., car windows, etc.). **Contact:** M. Ogden

Misclassification Calculations - **Status:** We are repeating calculations for the misclassification and "background" corrections to the relative risk statistics reported by the EPA in the 1990 Risk Assessment draft document. Our method is identical to that outlined in the EPA draft, but includes improved values for the "misclassification rate" and "background correction factor." The improved parameter values come from the recently analyzed "Spousal Smoking Study" data. Repeating the calculation with the new misclassification rate parameter (all other EPA parameter values being held constant) yields a lower confidence limit below unity, indicating a non-significant risk. **Significance:** The misclassification and background corrections are generally accepted as necessary modifications of ETS epidemiological data. Both exert considerable influence on the relative magnitude of the summary relative risk. **Next Steps:** Currently we are examining the Spousal Study data in greater detail to determine whether it is possible or appropriate to incorporate other results in the misclassification calculation. **Contact:** Stephen Sears

Japanese Spousal Study - **Status:** The International ETS Management Committee, IEMC, has funded a two-phase research project by two Japanese scientists, Prof. Jun Kagawa (Dept. of Hygiene and Public Health, Tokyo Women's Medical College) and Prof. Eiji Yano (Dept. of Public Health at Teikyo University, Tokyo), to study smoking status misclassification and ETS exposure among nonsmoking spouses in the city of Osaka and the rural prefecture of Okayama in Japan. RJR R&D will make technical contributions by providing urinary cotinine and ETS nicotine analyses. Samples for the first phase of the study (misclassification) are currently being collected and will be delivered to RJR on Nov. 16th. Dr. Kuo-Mei Chang will determine cotinine in the 400 urine samples by the ELISA technique. **Significance:** Results of this study will allow us to investigate criticisms of the

Hirayama ETS epidemiology and evaluate assumptions made by the U.S. EPA in their draft health risk assessment on ETS exposure. **Contact:** Charles Green.

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