

# Tobacco Science Research Conference

## INSTRUCTIONS FOR THE PREPARATION OF ABSTRACTS

Circle one: **Presentation** **Poster**

Please type name, address, phone and email of the principal author below.

**NOTE:** The abstract must contain a meaningful summary of the material to be presented. It must include the objectives of the research efforts, the methods used, and the results obtained. The editorial committee reviews and accepts papers based on the abstract. Very short or vague abstracts will not be accepted.

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FORMATION OF NITROGEN CONTAINING POLYCYCLIC AROMATIC HYDROCARBONS (AZA-ARENES) FROM THE PYROLYSIS OF AMADORI COMPOUNDS. Phillip F. Britt, A. C. Buchanan, III, and Clyde V. Owens, Jr., Oak Ridge National Laboratory, P. O. Box 2008, Oak Ridge, TN 37831-6197.

The formation of nitrogen containing aromatic hydrocarbons (i.e., N-heterocyclics and aza-arenes) from the combustion and pyrolysis of tobacco has been of interest since these compounds contribute to the aroma and flavor of tobacco smoke. N-Heterocyclic compounds and aza-arenes are thought to arise from the thermal degradation of proteins, tobacco alkaloids, free amino acids, and Amadori compounds, which are condensation products between free amino acids and sugars. Although the formation mechanisms and the low temperature pyrolysis (<400 °C) of Amadori compounds have been investigated, there is surprising little information on their high temperature (>500 °C) pyrolysis. In this investigation, pyrolysis of the Amadori compounds derived from proline and asparagine, i.e., 1-deoxy-1-proline-D-fructose and 1-deoxy-1-asparagine-D-fructose, were studied at temperatures from 600 to 800 °C and at residence times ranging from 0.1 to 1.0 s under a flow of inert gas. The goal of this research is to gain insight into formation of aza-arenes from the pyrolysis of nitrogen containing tobacco components.

Research sponsored by Philip Morris, USA, ERD9801660, U.S. Department of Energy, under contract DE-AC05-00OR22725 with Oak Ridge National Laboratory, managed and operated by UT-Battelle, LLC.

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