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Oxidation of the PAH Coronene by Ozone and OH Radical ERIN MYSAK, JARED D. SMITH, JOHN T. NEWBERG, KEVIN R. WILSON, HENDRIK BLUHM, Lawrence Berkeley National Laboratory, LAWRENCE BERKELEY NATIONAL LABORATORY TEAM — Reactivity of the polycyclic aromatic hydrocarbon (PAH) coronene to oxidation sources ozone and OH radical is examined. To probe the extent of chemical reaction, product formation, and change in surface morphology as a function of reaction, we examine coronene, adsorbed onto various substrates, from both a surface and bulk perspective, with ambient pressure photoemission spectroscopy (APPES) and aerosol mass spectrometry (AMS), respectively. For bulk on-line analysis, a 20nm thick layer of coronene adsorbed onto NaCl seed particles and reacted with either oxidant in a flow tube showed very little reactant conversion to product in the AMS. However, surface analysis by the APPES of the same reaction where coronene was adsorbed onto model substrates showed up to 50 per cent conversion of the carbon species to oxidized carbon, depending on coronene layer thickness (about 1.5-14A). Data obtained with these complimentary techniques provide evidence for a surface selective reaction.

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