

PM201 Fate and source analysis of PCBs in the ambient air. Kim, K-S. and Masunaga, S. Yokohama National University, Yokohama, Kanagawa, JAPAN. Air samples were collected in Yokohama city, Japan, with air sampler (100 mL/min, one week) during the period of March 2002 to Jan. 2003 (n=11). The TEQ concentration of PCB ranged from 0.002 to 0.014 pgTEQ/m³. The correlation between total concentration and average temperature during sampling could not be found. Relatively long sampling period and rain may be the cause of no relationship. PCBs in air mostly existed as gas phase and tri-CBs and tetra-CBs were predominated in homologue composition (57-80% of total PCBs). The isomer patterns looked similar among samples regardless of sampling time. Principal component analysis (PCA) was used to extract source information and relationship among congeners. The 122 congeners from tetra-CBs to deca-CBs were the input data for PCA analysis. As a result, three principal components were extracted with eigenvalue of over 10. The normal-varimax-rotation was applied for better interpretation. After the rotation, PC-1 and PC-2 accounted for 43.4 and 23.3% of total variance, respectively. The congeners related to PC-2 were PCB-198, 205, 189, 81, 126, 206, 209, 195, 169, etc. and most of other congeners were related to PC-1. The congeners related to PC-3 were PCB-125/116 and 92. PC-1 was interpreted as difference of volatilization of PCB congeners and PC-2 was interpreted as characteristic congeners from combustion sources.