Percutaneous Penetration of $^{14}$CFormaldehyde (H$^{14}$CHO) in Rhesus Monkeys, and Disposition of H$^{14}$CHO after IV Dose in Monkeys and Fischer 344 Rats. A. R. Jeffcoat*, R. B. Marc*, B. M. Sadler*, D. Feldman*, R. Bogroch† (GPN; C. E. Cook) Research Triangle Institute, Res. Tri. Park, N.C. 27709 and Formaldehyde Institute (FI)*, Scarsdale, NY 10583.

Penetration of CH$_2$O through skin was studied because of its wide-spread environmental presence. In 3 male monkeys 24 hr after dermal application of 0.4–0.9 μg/cm$^2$ of H$^{14}$CHO, most had evaporated (52%) or was bound (33%) to the surface layers of skin at the application site. Percutaneous penetration of $^{14}$C was very low. Based on 24 hr excretion of $^{14}$C in breath following separate dermal and IV administration of H$^{14}$CHO, percutaneous penetration was 0.27% of dose; 0.48% of dose based on urinary excretion. Tissues and organs of a monkey necropsied 24 hr after dermal dosing contained <0.2% of dose. Breath was the primary route of excretion of $^{14}$C following IV doses of H$^{14}$CHO to 4 monkeys (47% of dose excreted in 6 hr, 51% in 1 day, 55% in 5 days). Urinary excretion was 2.4% of dose in day 1, 4.2% in 10 days. After an IV dose of H$^{14}$CHO to rats, ca. 70% of dose was excreted in breath as $^{14}$CO$_2$, 9% in urine and 2% in feces in 10 days. Remainder of dose was quantitatively recovered from the carcasses. Sex or dose level did not affect amount or rate of excretion. [Supported by contract with American Textile Manufacturers Inst. and FI].