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Since the ban of most polybrominated diphenyl ethers (PBDEs) the production pattern of flame retardants has changed and alternatives are increasingly being used. Among the alternatives are the novel brominated flame retardants (NBFRs). However, little is known about exposure pathways, not least dermal absorption, for NBFRs and other POPs. Therefore the dermal uptake of NBFRs was investigated in an *ex vivo* human skin model, applying human skin from plastic surgery in Franz diffusion cells. Two types of receptor fluids were tested: one biologically relevant scenario with albumin and one worst-case scenario with 50% ethanol. DPTE, EHTBB, BTBPE, BEHTBP, DBDPE and HBCDs were loaded onto the skin in ethanol (w. 20% isooctane). Loads were 10 to 300 ng, depending on LOD, in cells with an average area available for dermal absorption of 2.6 cm^2. After 72h the compounds were analysed in the receptor fluid, dermis, epidermis and donor chamber. Preliminary results show, that for physiological receptor fluid only a small fraction of the applied dose was absorbed in the skin (8-15%). The majority of the absorbed dose was found in the epidermis fraction (~90%) of the skin, while only a small fraction reached the dermis layer. Even less was found in the receptor fluid itself, here only DPTE and EHTBB were detected at levels around LOQ with maximum fractions of 0.9% and 0.5%, respectively. DBDPE was not detected in the receptor fluid at all. Using the 50% ethanol receptor fluid, the adsorption in the skin was slightly higher (9-27%) and significant concentrations were found in both epidermis and dermis. In the 50% ethanol receptor fluid only DPTE and BTBPE were detected at levels around LOQ, the maximum fractions were 0.3% and 0.1%, respectively. For both experiments the absorbed fraction decreased in the following order: DPTE > HBCDs ≥ BEHTBP ≥ EHTBB ≥ BTBPE ≥ DBDPE. With the exception of BEHTBP that seems to be more easily absorbed, the decreasing absorption order follows the order of increasing octanol-water partitioning coefficient K_{ow}, which is often used in model estimates of dermal penetration coefficients. However, using fractions can be misleading; therefore further work on using fluxes is under way and will be presented at the meeting.

In conclusion, the study showed that only limited fractions of the NBFR available on the skin was absorbed in the skin, and within the duration of the experiments negligible amounts of NBFRs permeated through the skin.