CAS 1241-94-7 Ethylhexyl diphenyl phosphate (EHDPP)

Toxicity

The U.K. Environmental Agency reported dose-dependent alterations in the testes, ovaries, liver, blood, kidney and adrenal glands in rats fed for 90 days.\textsuperscript{1,2} Developmental and neurotoxicity screenings reported significant inhibition of mitochondrial activity and larval development and a reduced neuronal firing rate in the nematode \textit{C. elegans}.\textsuperscript{3,4}

Exposure

EDHPP is mostly used in flexible PVC as a plasticizer and flame retardant. It has also been used in polyurethanes, hydraulic fluid, rubber, paints, pigment dispersions, film, adhesives, and fabric coatings.\textsuperscript{1} EHDPP has been found in household dust and a variety of foods and food packaging such as meat wrapping.\textsuperscript{1,2,5} EHDPP was detected in cereals, pastries, meat, fish, dairy, eggs, fruits, vegetables, beverages, oil and sweet samples gathered from Swedish markets in 2015.\textsuperscript{6} A Norwegian cohort study detected EHDPP in diet samples at higher levels than all other flame retardants tested.\textsuperscript{7}

EHDPP or its metabolites have been detected via biomonitoring in blood, urine and breast milk.\textsuperscript{8-11} DPHP, a metabolite of EHDPP, TPHP and RDP, was detected in the urine of infants in North Carolina, children in German day cares, and adults in California.\textsuperscript{12-16} EHDPP was detected in samples of chorionic villi collected during the first 8 weeks of pregnancy from women in Beijing, China.\textsuperscript{17}

Biodegradation studies have reported EHDPP to have a half-life of 300 days in soil or sediment and 50 days in surface water.\textsuperscript{1} Studies have observed bioaccumulation in aquatic life.\textsuperscript{2} EDHPP was detected in Canadian and New York wastewater sludge.\textsuperscript{18,19}

References


