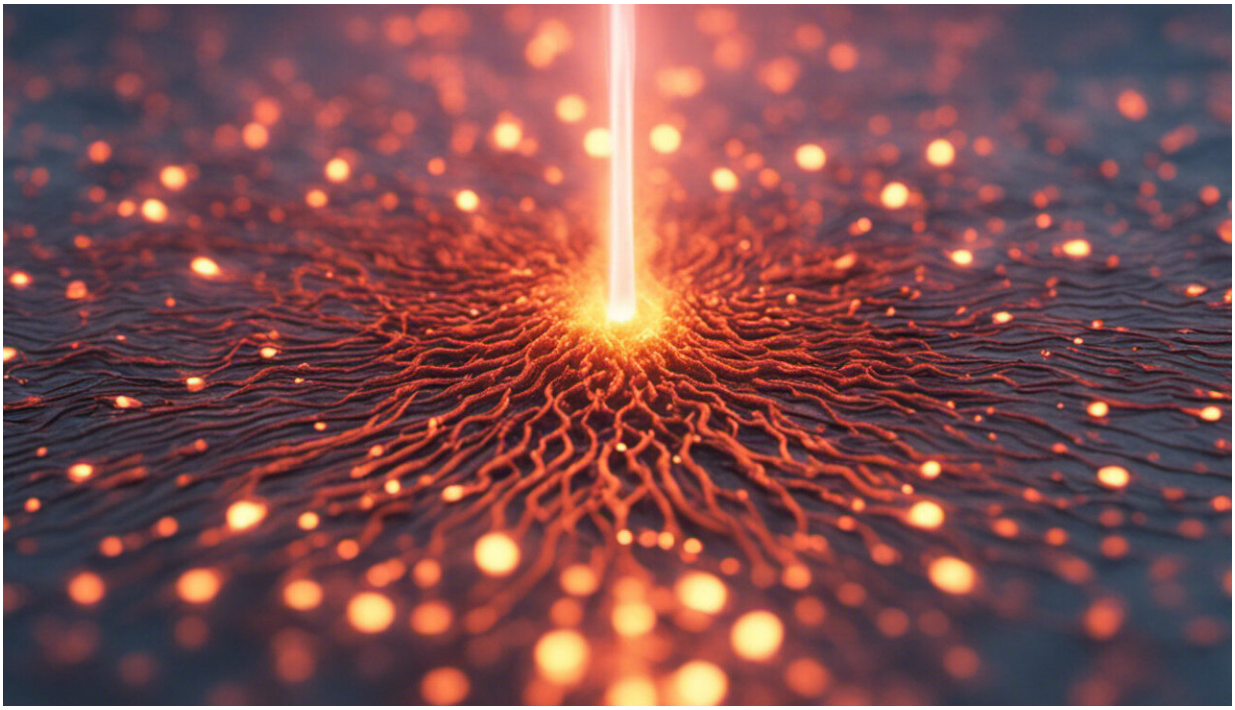
Flame retardants measured in pregnant Aussies

August 4 2014, by Lizzie Thelwell



Credit: AI-generated image (disclaimer)

Australians have more traces of flame retardants in their bloodstream than Europeans and Asians but fewer than in North Americans, according to a study by local and international researchers.

Polybrominated diphenyl ethers (PBDEs) are a class of brominated

flame retardants applied to consumer goods such as furniture and electrical equipment to reduce their flammability and are an emerging area of health concern internationally.

University of Western Australia researcher Ania Stasinska says despite the suggestive evidence of health effects such as endocrine disruption, neurological effects, reproductive toxicity and effects on birth outcomes, data from Australia has been limited until now.

"Our study provides baseline data on concentrations of PBDEs in plasma of pregnant women living in the south-west regions of Western Australia," Ms Stasinska says.

"PBDEs were detected in all 164 maternal plasma samples collected from Australian Maternal Exposure to Toxic Substances (AMETS) study participants and concentrations were higher than those previously reported in European and Asian studies.

"While statistical significance was not reached, a pattern was observed between increasing maternal age and increasing PBDE concentrations and lower BDE-153 concentrations were associated with an increasing number of children."

PBDEs migrate to soil, water and air during their production, through leakage from products containing PBDEs or during the degradation of products.

"Dust seems the most important route of exposure for adults in North America due to their higher use of PBDEs, however in Europe and Australia, diet is suggested to be the most important source," Ms Stasinska says.

In the study, 164 pregnant women from the AMETS study completed a

questionnaire on demographic and lifestyle information.

At 38 weeks gestation, each participant provided a blood sample from which plasma was isolated and analysed.

One hundred and fifty participants completed a second questionnaire after the birth of the baby with questions relating to birth outcomes.

Monitoring required for importation

Ms Stasinska says PBDEs are not produced in Australia but there appears to be no process for monitoring its importation, thus the population may be exposed to consumer products containing these chemicals.

"The Australian Government needs to follow the lead of other developed nations by enforcing regulatory action to decrease our population's exposure to PBDEs from imported goods," she says.

"The first step is ratifying the addition of penta- and octa-BDEs to Annex A of the Stockholm Convention, followed by a commitment to the phase-out of deca-BDE."

"Internationally, responsibility needs to be redirected to manufacturers to produce safer products."

More information: Ania Stasinska, Jane Heyworth, Alison Reid, Anna Callan, Jon Øyvind Odland, Phi Trong Duong, Quoc Van Ho, Andrea Hinwood, "Polybrominated diphenyl ether (PBDE) concentrations in plasma of pregnant women from Western Australia," *Science of The Total Environment*, Volume 493, 15 September 2014, Pages 554-561, ISSN 0048-9697, dx.doi.org/10.1016/j.scitotenv.2014.06.001.

Provided by Science Network WA