Monitoring PBDEs in air during e-waste recycling

Shyamala Mani¹, Amanda Northcross², Charles Perrino², Katherine Hammond²

1 National Institute of Urban Affairs

2 University of California, Berkeley, USA

Email: smani@niua.org, Phone: +91-11-24617543; Fax: +91-11-24617513

Many types of plastics and circuit boards used in electronic products contain Poly Brominated Diethyl Ethers (PBDEs)ⁱ. There are rising concerns about worker exposures to PBDEs in the e-waste recycling industry, due to early studies in Swedenⁱⁱ. There are a variety of techniques used by recyclers to dismantle and shred electronic waste to separate materials, which result in PBDEs being discharged into air as vapor or dust which cause different exposuresⁱⁱⁱ. This pilot study examined airborne concentrations of combined vapor and particle phase PBDEs at three facilities using different techniques to break down electronic waste^{iv}. The sampling and analysis methods used in this study were able to detect airborne concentrations for 9 of the 10 congeners included.

References

ⁱ Hakk H, Letcher R J; Metabolism in the Toxicokinetics and fate of brominated flame retardants – a review; Environment International 29 (2003) 801-828 Elsevier

¹ Schecter, A, Colacino, J A., Harris, T R., Shah, N, Brummitt, S I; Newly Recognized Occupational Hazard for US Electronic Recycling Facility Workers: Polybrominated Diphenyl Ethers, JOEM 51(2009) 04, 1-6

¹ De Wit C A, An overview of brominated flame retardants in the environment; Chemosphere 46 (2002) 583-624; Pergamon

¹ CHEN Duo·hong, Ll Li·ping2, Bl Xin·hui, ZHAO Jin·ping, SHENG Guo·ying, FU Jia·no; PBDEs Pollution in the Atmosphere of a Typical E-waste Dismantling Region; Environmental Science 29(2008) 08, 2105-2110 http://www.cqvip.com