



Environmental Monitoring of Dioxin/Furan in Emission Gas from Coal Fired Power Plants in Vietnam

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In Vietnam, coal fired power generation has very important role in the national power supply capacity. The contribution of coal fired power generation has been increasing over the years and obtained 14,448 MW in 2017, accounting for 34.3% of the total capacity. Coal fired power plants are known as potential air pollution sources due to their large emission volumes to the atmosphere. In this study, emission gas samples were collected from six coal fired power plants and determined for Dioxins/Furans and dl-PCBs by isokinetic sampling which follow the US EPA method 23A and quantification by high resolution mass spectrometer ($R > 10,000$). Mean and range of Dioxins/Furans and dl-PCBs in emission gas are 0.073 (0.025 – 0.155) ng TEQ/Nm³ and 0.005 (nd – 0.018) ng TEQ/Nm³, respectively. The TEQ levels in emission gas of coal fired power plants is comparable to those of cement kilns and several times lower compared to metallurgy steel making plants in Vietnam. The mean and range of Dioxins/Furans and dl-PCBs in the bottom ash samples are 1.23 (nd – 6.20) ng TEQ/kg and 0.038 (0.001 – 0.102) ng TEQ/kg, respectively. In the emission gas samples, contribution of Furan congeners on mass basis is higher compared to those of Dioxin congeners, topped by 2,3,4,7,8-PeCDF and 1,2,3,4,6,7,8-HpCDF. For dl-PCBs, congeners PCB77 and PCB118 are the first and the second abundant one in the gas samples.

