

Appendix II : Test Results on Air Samples Collected on PolyU Campus

Contaminants tested include:

- Dioxins;
- Total Polychlorinated Biphenyls (PCBs);
- Polycyclic Aromatic Hydrocarbons (PAHs); and
- 2-Chlorobenzalmalononitrile (an active ingredient of CS powder), also called o-Chlorobenzylidene Malononitrile

Air samples (A1-A8):

Contaminant	Range of Test Results of the Samples	Reference Level	Reference Document
Dioxins	0.034 – 0.096 pg I-TEQ/m ³ (note 1)	0.1 pg TEQ/m ³	AAQCs, Canada
		0.6 pg TEQ/m ³	Ministry of the Environment, Japan
Total PCBs	0.278 – 0.419 ng/m ³	150 ng/m ³	AAQCs, Canada
PAHs as benzo(a)pyrene (BaP)	0.278 – 0.400 ng/m ³ (note 2)	87 ng/m ³ (note 3) as benzo(a)pyrene (BaP)	Guidelines for Air Quality, WHO
2-Chlorobenzalmalononitrile (CS)	< 0.1 mg/m ³ (below reporting limit)	0.4 mg/m ³ (REL-C)	Recommended Exposure Limit (REL) by NIOSH, USA

* For completeness, the test results for CS powder in the air samples which were announced on 28 December 2019 are also included in the above table.

Remarks

Note 1:

- The dioxins figures are 24-hour average concentrations in pg I-TEQ /m³, and are expressed as toxic equivalent (I-TEQ) concentration of 2,3,7,8 - Tetrachlorodibenzodioxin (TCDD). They are calculated based on the International Toxic Equivalent Factors (I-TEF) of the North Atlantic Treaty Organization (NATO/CCMS) using 17 types of dioxin-like compound of structurally closely related chemical families and having similar chemical properties. For congener concentrations that are lower than the estimated minimum sample detectable level (EMSDL), one half of the EMSDL is used in calculating the I-TEQ concentration.

Note 2:

- PAHs are formed from the incomplete combustion of organic matter from either natural or manmade combustion sources (e.g. cooking, open burning, fire). PAHs are considered ubiquitous in the environment.
- The concentrations of PAHs previously measured at roadsides in the neighborhood areas of PolyU campus ranged from 0.05 to 1.34 ng/m³ and had an average value of 0.49 ng/m³. ([Lee et al., 2001](#))

Note 3:

- *The guideline value of PAHs (as BaP) in air given by World Health Organisation (WHO) is 87ng/m³. The estimated increase of risk of cancer from exposure to PAHs (as BaP) at a concentration of 87ng/m³ is 1 in 1,000,000.*

Conclusion

The concentrations of all the tested contaminants for soil (S1-S8), tap water (WA1-WA4), and surface wipes (W1-W22) samples, as announced on 28 December 2019, are well below the applicable reference levels of local or international organisations, where appropriate.

The concentrations of dioxins, total PCBs and CS powder in the air samples (A1-A8) are below the reference levels. Besides, the concentrations of the PAHs (as BaP) are well below the guideline value of the WHO, and are comparable to the background concentrations in the vicinity of PolyU campus.