

Table 4-5. Studies of 6PPD and 6PPD-q concentrations in roadside soil

| Location | Information | Concentration (ng/g) | Lab Instrumentation | Detection Limit |
|---|--|---|---|--|
| New Territories and Kowloon, Hong Kong (Cao et al. 2022) | In August and September 2021, researchers collected 12 samples of roadside soil on nonrainy days and analyzed them for a range of antioxidants and transformation products, including 6PPD and 6PPD-q. 6PPD-q is the primary quinone present in soil, comprising 75.7% of the total PPD-q detected in roadside soil samples. | The concentrations of 6PPD and 6PPD-q in roadside soil were found to be [median (range)]: 6PPD: 309 (31.4–831) 6PPD-q: 234 (9.50–936) | Analytical: UHPLC Triple Quadrupole Mass Spectrometry | IQL: 6PPD: 0.035 ng/mL 6PPD-q: 0.023 ng/mL |

Notes: IQL=instrument quantification limit, ng/g=nanograms per gram, PPD-q=para-phenylenediamines-quinones, UHPLC=ultra-high-performance liquid chromatography

References(Marques dos Santos and Snyder 2023)

Cao, Guodong, Wei Wang, Jing Zhang, Pengfei Wu, Xingchen Zhao, Zhu Yang, Di Hu, and Zongwei Cai. 2022. “New Evidence of Rubber-Derived Quinones in Water, Air, and Soil.” *Environmental Science & Technology* 56 (7): 4142–50.
<https://doi.org/10.1021/acs.est.1c07376>.

Marques dos Santos, Mauricius, and Shane Allen Snyder. 2023. “Occurrence of Polymer Additives 1,3-Diphenylguanidine (DPG), N-(1,3-Dimethylbutyl)-N'-Phenyl-1,4-Benzenediamine (6PPD), and Chlorinated Byproducts in Drinking Water: Contribution from Plumbing Polymer Materials.” *Environmental Science & Technology Letters*, September.
<https://doi.org/10.1021/acs.estlett.3c00446>.