Supplement of

Potential new tracers and their mass fraction in the emitted PM$_{10}$ from the burning of household waste in stoves

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Table S1. The retention indices of the identified tracer compounds.

| Compound                                      | Retention time | Kovats RI  | Lee RI | Kovats RI  | Lee RI | References                                                                 |
|-----------------------------------------------|----------------|------------|--------|------------|--------|----------------------------------------------------------------------------|
| *o*-Terphenyl (o-TPH)                         | 27.86          | 1888.3     | 316.5  |            |        | 317.42 (Marynowski et al. 2004), 317.9 (Li et al. 2016)                      |
| *m*-Terphenyl (m-TPH)                         | 32.15          | 2157.7     | 357.6  |            |        | 356.74 (Marynowski et al. 2004), 356.95 (Li et al. 2016)                     |
| *p*-Terphenyl (p-TPH)*                        | 32.74          | 2196.3     | 363.2  |            |        | 362.4 (Marynowski et al. 2004), 362.8 (Li et al. 2016)                       |
| 1,3,5-Triphenylbenzene (135-TPB)*             | 42.32          | 2944.4     | 463.7  |            |        | 3007 (Simoneit et al., 2005), 2630 (Simoneit et al., 2005), 2741, estimated with error: 55 (http://www.chemspider.com/Chemical-Structure.452244.html (ref. to NIST)) |
| 1,2,4-Triphenylbenzene (124-TPB)*             | 39.38          | 2691.9     | 431.1  |            |        | 463.4 (Li et al. 2016)                                                      |
| m,p-Quaterphenyl (m,p-QTPH)                   | 43.48          | 3049.3     | 476.5  |            |        | 476.3 (https://pubchem.ncbi.nlm.nih.gov/compound/1166-19-4)                  |
| p-Quaterphenyl (p-QTPH)*                      | 43.99          | 3095.7     | 482.2  |            |        | 482.98 (Li et al. 2016)                                                     |
| 2-(Benzoyloxy)ethyl vinyl terephthalate (2-BEVT) | 38.43          | 2615.7     | 420.6  |            |        | 2636 (Tsuge et al. 2011)                                                    |
| 2,4,6-Triphenyl-1-hexen (SSS)*                | 36.21          | 2444.0     | 396.5  |            |        | 2484 (Tsuge et al. 2011)                                                    |
| 2-Methylene-4-phenylethanedinitrile (ASA)     | 26.72          | 1822.6     | 305.6  |            |        | 1843 (Tsuge et al. 2011)                                                    |
| 2-Methylene-4,6-diphenylhexanenitrile (ASS)   | 31.31          | 2101.5     | 349.6  |            |        | 2129 (Tsuge et al. 2011)                                                    |
| 4,6-Diphenyleth-6-enenitrile (SSA)            | 31.95          | 2144.7     | 355.7  |            |        | 2175 (Tsuge et al. 2011)                                                    |
| 2-Phenethyl-4-phenylpenta-4-enenitrile (SAS)  | 32.35          | 2171.0     | 359.5  |            |        | 2200 (Tsuge et al. 2011)                                                    |

* The retention behaviour was studied with authentic standards

References

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Table S2. The absolute emission factors (mg kg\(^{-1}\)) and the mass fraction (µg g\(^{-1}\) PM) of the identified tracer compound for waste burning. The values in parentheses are the relative standard deviation (%) obtained for a given type of waste under different burning conditions.

| Emission Factor (mg kg\(^{-1}\)) | ABS 2.1 (75) | LDF 0.060 (111) | OSB <LOQ | PAP 0.16 (75) | PE 0.026 (175) | PP 0.026 (175) | PS 40 (175) | PU <LOQ | PVC 0.17 (105) | RAG 0.13 (51) | TIRE <LOQ | WOOD <LOQ |
|----------------------------------|--------------|-----------------|-----------|---------------|--------------|--------------|------------|---------|--------------|-------------|-----------|----------|
| Mass fraction (µg g\(^{-1}\) PM) | 135-TBP 2.41 (41) | o-TBP 1.9 (224) | m-TBP 11 (14) | p-TBP 3.2 (35) | <LOQ | <LOQ | 2.2 (105) | <LOQ | <LOQ | 10.0 (90) | 2.0 (35) | <LOQ | <LOQ |
| Mass fraction (µg g\(^{-1}\) PM) | m,p-QTBP 8.2 (44) | p-QTBP 0.7 (27) | 2-BEVT 1.0 (52) | 124-TBP 9.3 (76) | <LOQ | <LOQ | 5.0 (150) | <LOQ | <LOQ | 19.0 (51) | 3.0 (35) | <LOQ | <LOQ |
| Mass fraction (µg g\(^{-1}\) PM) | 15-TPB 2.41 (41) | o-TBP 1.9 (224) | m-TBP 11 (14) | p-TBP 3.2 (35) | <LOQ | <LOQ | 2.2 (105) | <LOQ | <LOQ | 10.0 (90) | 2.0 (35) | <LOQ | <LOQ |
| Mass fraction (µg g\(^{-1}\) PM) | m,p-QTBP 8.2 (44) | p-QTBP 0.7 (27) | 2-BEVT 1.0 (52) | 124-TBP 9.3 (76) | <LOQ | <LOQ | 5.0 (150) | <LOQ | <LOQ | 19.0 (51) | 3.0 (35) | <LOQ | <LOQ |
| Mass fraction (µg g\(^{-1}\) PM) | 15-TPB 2.41 (41) | o-TBP 1.9 (224) | m-TBP 11 (14) | p-TBP 3.2 (35) | <LOQ | <LOQ | 2.2 (105) | <LOQ | <LOQ | 10.0 (90) | 2.0 (35) | <LOQ | <LOQ |
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| Mass fraction (µg g\(^{-1}\) PM) | m,p-QTBP 8.2 (44) | p-QTBP 0.7 (27) | 2-BEVT 1.0 (52) | 124-TBP 9.3 (76) | <LOQ | <LOQ | 5.0 (150) | <LOQ | <LOQ | 19.0 (51) | 3.0 (35) | <LOQ | <LOQ |

* Possible contamination