# Supplementary Information

## SI.3 References Figures

*Table 1: Number of publications identified during the systematic literature review subdivided into the six topics and into primary (P) and secondary (S) publications*

| Topic | Total | | Particulate tire wear emission | | Leachables | | Volatiles | |
|---|---|---|---|---|---|---|---|---|
| | *P* | *S* | *P* | *S* | *P* | *S* | *P* | *S* |
| *Overall* | 406 | 96 | 281 | 88 | 168 | 19 | 12 | 5 |
| (i) analysis method | 145 | 13 | 118 | 11 | 53 | 6 | 7 | 0 |
| (ii) emission characteristics | 175 | 38 | 128 | 32 | 45 | 3 | 5 | 5 |
| (iii) exposure pathways | 175 | 48 | 109 | 45 | 75 | 6 | 1 | 0 |
| (iv) parameters affecting tire emission | 88 | 26 | 88 | 26 | 0 | 0 | 1 | 0 |
| (v) changes related to climate | 11 | 3 | 10 | 3 | 2 | 0 | 0 | 0 |
| (vi) changes related to electric vehicles | 7 | 13 | 7 | 12 | 0 | 2 | 0 | 0 |

*Table 2: Reference list for Figure 1 "CEM model"*

| Reference label | Compartment | Release Type | References |
|---|---|---|---|
| [a] | road surface | TRWP | 1–17 |
| [b] | road run off | TRWP | 9,10,12–15,18–21 |
| | | leachables | 22–28 |
| [c] | surface water (freshwater, estuary, marine) | TRWP | 29–33 |
| | | leachables | 23,24,26,27,32–47 |
| [d] | sediments | TRWP | 1,9,10,12,17,30,31,48–51 |
| | | leachables | 26,27,45,47,52,53 |
| [e] | wastewater treatment plant | TRWP | 19 |
| | | leachables | 37,53–57 |
| [f] | biosolids | leachables | 53,56–58 |
| [g] | roadside soil / soil | TRWP | 12,19,48,59–64 |
| | | leachables | 26,65,66 |
| [h] | air | TRWP | 9,15,19,29,67–74 |
| [i] | PM2.5 /PM10 | TRWP | 68,75–84 |
| [j] | aquatic organisms | TRWP | 85 |
| | | leachables | 27 |
| [k] | plant | leachables | 86 |
| [l] | human | TRWP | 86–88 |

*Table 3: Reference List for Figure 2 “Tiered characterization scheme”*

| Tier | Reference label | References |
|---|---|---|
| Tier 4 Chemicals | [1] | 32,89–95 |
| | [2] | 40 |
| Tier 3 Single Particle | [3] | 15,16,32,70,74,79,96–104 |
| | [4] | 74,100,105–108 |
| | [5] | 67,109 |
| | [6] | 110 |
| Tier 2 Mass | [7] | 17,19,32,48,61,62,73,75,100,111–120 |
| | [8] | 1,20,63,121 |
| Tier 1 Screening | [9] | 12,122–126 |
| | [10] | 1,63,121,127,128 |
| Tier 0 Exploratory | [11] | 6,14,76,92,99–102,105,106,129–134 |
| | [12] | 112,125,132,135,136 |
| | [13] | 137 |
| | [14] | 138,139 |
| | [15] | 61,73,83,133,136,140–146 |
| | [16] | 3,147 |

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