

# Appendix 2.1 - Reporting of PM emissions

Table A2.1: Inclusion/exclusion of the condensable component from PM<sub>10</sub> and PM<sub>2.5</sub> emission factors



NFR categories with no reported activity or PM emissions (notation keys 'NO' or 'NA' in the NFR tables) are excluded here.)

| NFR code              | Source / sector name   | condensable component |          | EF reference and/or comments                       |
|-----------------------|--|-----------------------|----------|--|
|                       |  | included              | excluded |  |
| <b>NFR 1 - Energy</b> |  |                       |          |  |
| 1.A.1.a               | Public electricity and heat production   |                       | x        |  |
| 1.A.1.b               | Petroleum refining   |                       | x        |  |
| 1.A.1.c               | Manufacture of solid fuels and other energy industries   |                       | x        |  |
| 1.A.2.a               | Stationary combustion in manufacturing industries and construction: Iron and steel                     |                       | x        |  |
| 1.A.2.b               | Stationary combustion in manufacturing industries & construction: Non-ferrous metals                   | ?                     |          | no indication                                      |
| 1.A.2.c               | Stationary combustion in manufacturing industries & construction: Chemicals                            |                       |          |  |
| 1.A.2.d               | Stationary combustion in manufacturing industries & construction: Pulp, Paper & Print                  |                       |          |  |
| 1.A.2.e               | Stationary combustion in manufacturing industries & construction: Food processing, beverages & tobacco |                       | x        |  |
| 1.A.2.f               | Stationary combustion in manufacturing industries & construction: Non-metallic minerals                |                       |          |  |
| 1.A.2.g vii           | Mobile combustion in manufacturing industries & construction   | x <sup>1</sup>        |          | country-specific EF likely to include condensables |
| 1.A.2.g viii          | Stationary combustion in manufacturing industries & construction                                       |                       | x        |  |
| 1.A.3.a i(i)          | International aviation LTO (civil)   | ?                     |          | country-specific EF without clear indication       |
| 1.A.3.a ii(i)         | Domestic aviation LTO (civil)  | ?                     |          | country-specific EF without clear indication       |
| 1.A.3.b i             | Road transport: Passenger cars   | x <sup>1</sup>        |          | country-specific EF likely to include condensables |

| <b>NFR code</b>     | <b>Source / sector name</b>   | <b>condensable component</b> |   | <b>EF reference and/or comments</b>                |
|---------------------|---|------------------------------|---|--|
| 1.A.3.b ii          | Road transport: Light duty vehicles                                   | x <sup>1</sup>               |   | country-specific EF likely to include condensables |
| 1.A.3.b iii         | Road transport: Heavy duty vehicles and buses                         | x <sup>1</sup>               |   | country-specific EF likely to include condensables |
| 1.A.3.b iv          | Road transport: Mopeds & motorcycles                                  | x <sup>1</sup>               |   | country-specific EF likely to include condensables |
| 1.A.3.b v           | Road transport: Gasoline evaporation                                  | NA                           |   | no PM emissions from this source category          |
| 1.A.3.b vi          | Road transport: Automobile tyre and brake wear                        |                              | x |  |
| 1.A.3.b vii         | Road transport: Automobile road abrasion                              |                              | x |  |
| 1.A.3.c             | Railways  | x <sup>1</sup>               |   | country-specific EF likely to include condensables |
| 1.A.3.d i(ii)       | International inland waterways  | IE                           |   | included in NFR 1.A.3.d ii                         |
| 1.A.3.d ii          | National navigation (shipping)  | x <sup>1</sup>               |   | country-specific EF likely to include condensables |
| 1.A.3.e i           | Pipeline transport  |                              | x |  |
| 1.A.4.a i           | Commercial/Institutional: Stationary                                  |                              | x |  |
| 1.A.4.a ii          | Commercial/Institutional: Mobile                                      | x <sup>1</sup>               |   | country-specific EF likely to include condensables |
| 1.A.4.b i           | Residential: Stationary   |                              | x |  |
| 1.A.4.b ii          | Residential: Household and gardening (mobile)                         | ?                            |   | country-specific EF without clear indication       |
| 1.A.4.c i           | Agriculture/Forestry/Fishing: Stationary                              |                              | x |  |
| 1.A.4.c ii          | Agriculture/Forestry/Fishing: Off-road vehicles and other machinery   | x <sup>1</sup>               |   | country-specific EF likely to include condensables |
| 1.A.4.c iii         | Agriculture/Forestry/Fishing: National fishing                        | ?                            |   | country-specific EF without clear indication       |
| 1.A.5.a             | Other stationary (including military)                                 |                              | x |  |
| 1.A.5.b             | Other, Mobile (including military, land based and recreational boats) | x <sup>1</sup>               |   | country-specific EF likely to include condensables |
| 1.B.1.a             | Fugitive emission from solid fuels: Coal mining and handling          |                              | x |  |
| 1.B.1.b             | Fugitive emission from solid fuels: Solid fuel transformation         |                              | x |  |
| 1.B.2.c             | Venting and flaring (oil, gas, combined oil and gas)                  | ?                            |   | EMEP GB 2016 EF without any indication             |
| <b>NFR 2 - IPPU</b> |   |                              |   |  |
| 2.A.1               | Cement production   |                              | ? | country-specific EF without any indication         |

| <b>NFR 2 - IPPU</b> |  |    |   |   |
|---------------------|--|----|---|---|
| 2.A.2               | Lime production  |    | ?   | country-specific EF without any indication                        |
| 2.A.3               | Glass production   |    | ?   | country-specific EF without any indication                        |
| 2.A.5.a             | Quarrying and mining of minerals other than coal                                 |    | ?   | EMEP GB 2016 EF without any indication                            |
| 2.A.5.b             | Construction and demolition  |    | ?   | EMEP GB 2016 EF without any indication                            |
| 2.A.5.c             | Storage, handling and transport of mineral products                              | IE | included in NFR 2.L   |   |
| 2.A.6               | Other mineral products (please specify in the IIR)                               |    | ?   | country-specific EF without any indication                        |
| 2.B.3               | Adipic acid production   | NE | no EF in EMEP GB 2019   |   |
| 2.B.5               | Carbide production   |    | ?   | country-specific EF without any indication                        |
| 2.B.7               | Soda ash production  |    | ?   | country-specific EF without any indication                        |
| 2.B.10.a            | Chemical industry: Other (please specify in the IIR)                             |    | ?   | carbon black: country-specific EF without any indication          |
| 2.B.10.a            | Chemical industry: Other (please specify in the IIR)                             |    | ?   | fertilizer production: country-specific EF without any indication |
| 2.B.10.b            | Storage, handling and transport of chemical products (please specify in the IIR) | IE | included in NFR 2.L   |   |
| 2.C.1               | Iron and steel production  |    | ?   | country-specific EF without any indication                        |
| 2.C.2               | Ferroalloys production   |    | ?   | country-specific EF without any indication                        |
| 2.C.3               | Aluminium production   |    | ?   | country-specific EF without any indication                        |
| 2.C.4               | Magnesium production   | NE | no primary magnesium production; emission for secondary magnesium production allocated in 1.A.2.b |   |
| 2.C.5               | Lead production  |    | ?   | country-specific EF without any indication                        |
| 2.C.6               | Zinc production  |    | ?   | country-specific EF without any indication                        |
| 2.C.7.a             | Copper production  |    | ?   | country-specific EF without any indication                        |
| 2.C.7.c             | Other metal production (please specify in the IIR)                               |    | ?   | no indication   |

| <b>NFR 2 - IPPU</b>        |   |    |  |
|----------------------------|---|----|--|
| 2.C.7.d                    | Storage, handling and transport of metal products (please specify in the IIR)                                   | IE | included in NFR 2.L                                  |
| 2.D.3.b                    | Road paving with asphalt  | ?  | country-specific EF without any indication           |
| 2.G                        | Other product use: Tobacco  | ?  | country-specific EF without any indication           |
| 2.G                        | Other product use: Fireworks  | ?  | EMEP GB 2019 EF without any indication               |
| 2.G                        | Other product use: Charcoal   | ?  | EF from 1.A.4 EMEP GB 2019 EF without any indication |
| 2.H.1                      | Pulp and paper industry   | ?  | country-specific EF without any indication           |
| 2.H.2                      | Food and beverages industry   | ?  | EMEP GB 2016 EF without any indication               |
| 2.I                        | Wood processing   | ?  | country-specific EF without any indication           |
| 2.J                        | Production of POPs  | NE |  |
| 2.L                        | Other production, consumption, storage, transportation or handling of bulk products (please specify in the IIR) | ?  | country-specific EF without any indication           |
| <b>NFR 3 - Agriculture</b> |   |    |  |
| 3.B.1.a                    | Manure management - Dairy cattle  | ?  | EMEP GB 2016 EF without any indication               |
| 3.B.1.b                    | Manure management - Non-dairy cattle  | ?  | EMEP GB 2016 EF without any indication               |
| 3.B.2                      | Manure management - Sheep   | ?  | EMEP GB 2016 EF without any indication               |
| 3.B.3                      | Manure management - Swine   | ?  | EMEP GB 2016 EF without any indication               |
| 3.B.4.a                    | Manure management - Buffalo   | IE | EMEP GB 2016 EF without any indication               |
| 3.B.4.d                    | Manure management - Goats   | ?  | EMEP GB 2016 EF without any indication               |
| 3.B.4.e                    | Manure management - Horses  | ?  | EMEP GB 2016 EF without any indication               |
| 3.B.4.f                    | Manure management - Mules and asses   | IE | EMEP GB 2016 EF without any indication               |
| 3.B.4.g i                  | Manure management - Laying hens   | ?  | EMEP GB 2016 EF without any indication               |
| 3.B.4.g ii                 | Manure management - Broilers  | ?  | EMEP GB 2016 EF without any indication               |
| 3.B.4.g iii                | Manure management - Turkeys   | ?  | EMEP GB 2016 EF without any indication               |
| 3.B.4.g iv                 | Manure management - Other poultry   | ?  | EMEP GB 2016 EF without any indication               |

| <b>NFR 2 - IPPU</b>                                       |   |    |  |
|---|---|----|--|
| 3.B.4.h   | Manure management - Other animals (please specify in the IIR)   | NE | EMEP GB 2016 EF without any indication       |
| 3.D.c   | Farm-level agricultural operations including storage, handling and transport of agricultural products | ?  | EMEP GB 2016 EF without any indication       |
| <b>NFR 5 - Waste</b>                                      |   |    |  |
| 5.A   | Biological Treatment of Waste - Solid Waste Disposal on Land  | ?  | EMEP-GB 2019: EF without any indication      |
| 5.C.1.b v   | Cremation   | ?  | country-specific EF without any indication   |
| 5.E.2   | Other Waste: Building and Car Fires   | ?  | EMEP GB 2016 EF without any indication       |
| <b>MEMO ITEMS - NOT TO BE INCLUDED IN NATIONAL TOTALS</b> |   |    |  |
| 1.A.3.a i(ii)   | International aviation cruise (civil)   | ?  | country-specific EF without clear indication |
| 1.A.3.a ii(ii)  | Domestic aviation cruise (civil)  | ?  | country-specific EF without clear indication |
| 1.A.3.d i(i)  | International maritime navigation   | ?  | country-specific EF without clear indication |
| 1.A.5.c   | Multilateral operations   | NE |  |
| 11.B  | Forest fires  | ?  | EMEP GB 2016 EF without any indication       |

<sup>1</sup> Due to the conditions during test-bench measurements applied for type/mitigation/Euro norm approval, the Country-specific emission factors for passenger cars, light and heavy-duty vehicles (both on- and offroad), mopeds and motorcycles also include a condensable fraction. The same is assumed to be the case for engines approved for and installed in railways and boats/vessels/ships.