

	1990	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NH₃	0.33	0.33	0.33	0.33	0.33	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NMVOC	36.4	36.4	36.4	36.4	36.4	36.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NO_x	1,258	1,258	1,258	1,258	1,258	1,258	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SO_x	1,319	1,332	1,323	1,336	496	496	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC²	64.9	65.5	65.1	65.7	24.4	24.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PM_{2.5}	541	546	542	548	203	203	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PM₁₀	595	601	597	602	224	224	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TSP	595	601	597	602	224	224	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	200	200	200	200	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

¹ ratios PM_{2.5} : PM₁₀ : TSP derived from the tier1 default EF as provided in ⁴⁾

² estimated from f-BCs as provided in ⁵⁾; f-BC (HFO) = 0.12, f-BC (MDO/MGO) = 0.31, chapter: 1.A.3.d.i, 1.A.3.d.ii, 1.A.4.c.iii Navigation, Table 3-2 and Table A1 - BC fractions of PM emissions from relevant studies

NOTE: For the country-specific emission factors applied for particulate matter, no clear indication is available, whether or not condensables are included.

For information on the **emission factors for heavy-metal and POP exhaust emissions**, please refer to Appendix 2.3 - Heavy Metal (HM) exhaust emissions from mobile sources and Appendix 2.4 - Persistent Organic Pollutant (POP) exhaust emissions from mobile sources.

Trend discussion for Key Sources

NFR 1.A.4.c iii - National Fishing is **no key source**.

Recalculations

With both **activity data** and **emission factors unaltered**, no recalculations occur against last year's submission.



For **pollutant-specific information on recalculated emission estimates for Base Year and 2020**, please see the recalculation tables following [chapter 8.1 - Recalculations](#).

Uncertainties

Uncertainty estimates for **emission factors** were adopted from NFR 1.A.3.d i as a comparable emission source.

Planned improvements

Besides a routine revision of the underlying BSH model, further focus will be put on the correct allocation of activity data to the different navigation activities covered in different NFR sub-sectors.

^{3), 4), 5)} EMEP/EEA, 2019: EMEP/EEA air pollutant emission inventory guidebook – 2019; Chapter 1.A.3.d.i, 1.A.3.d.ii, 1.A.4.c.iii Navigation; URL:

<https://www.eea.europa.eu/publications/emep-eea-guidebook-2019/part-b-sectoral-guidance-chapters/1-energy/1-a-combustion/1-a-3-d-navigation>