

NMVO	316	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274
NO_x	1.195	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360	1.360
SO_x	125	60,5	14,0	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,37
PM²	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0	53,0
BC³	134	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
CO	515	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
GASOLINE FUELS																		
NH₃	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00
NMVO	594	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373
NO_x	682	725	725	725	725	725	725	725	725	725	725	725	725	725	725	725	725	725
SO_x	11,8	8,30	3,20	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40
PM²	3,63	3,55	3,13	2,66	2,66	2,51	2,39	2,27	2,14	2,09	2,03	1,97	1,91	1,91	1,91	1,91	1,91	1,91
BC³	0,44	0,43	0,38	0,32	0,32	0,30	0,29	0,27	0,26	0,25	0,24	0,24	0,23	0,23	0,23	0,23	0,23	0,23
CO	4.199	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010	4.010
TSP⁴	2,46	0,82																
Pb⁴	1,54	0,52																

¹ Due to lack of better information: similar EF are applied for fossil fuels and biofuels.

² EF(PM_{2.5}) also applied for PM₁₀ and TSP (assumption: > 99% of TSP from diesel oil combustion consists of PM_{2.5})

³ EF(BC) estimated from tier1 default f-BC values provided in ³⁾, chapter 1.A.3.b, table 3-11 for gasoline passenger cars (f-BC: 0.12) and diesel heavy duty vehicles (f-BC: 0.53)

⁴ from leaded gasoline (until 1997), based upon country-specific emission factors from ⁴⁾



With respect to the emission factors applied for particulate matter, given the circumstances during test-bench measurements, condensables are most likely included at least partly. [footnote](#) During test-bench measurements, temperatures are likely to be significantly higher than under real-world conditions, thus reducing condensation. On the contrary, smaller dilution (higher number of primary particles acting as condensation germs) together with higher pressures increase the likeliness of condensation. So over-all condensables are very likely to occur but different to real-world conditions. ¹⁾



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](#).

Discussion of emission trends

This sub-category is **not considered separately in the key category analysis**.

Due to the application of very several tier1 emission factors, most emission trends reported for this sub-category only reflect the trend in fuel deliveries. Therefore, the fuel-consumption dependend trends in emission estimates are only influenced by the annual fuel mix.

Submission 2021	36.545	17.801	8.841	10.324	8.123	6.741	6.303	6.117	6.102	5.551	5.394	4.988	4.580	4.099	3.748	3.046	2.741
Submission 2020	36.545	17.801	8.841	10.343	8.144	6.760	6.310	6.119	6.103	5.551	5.395	4.988	4.580	4.099	3.748	3.046	2.741
absolute change	0	0	0	-18,9	-20,4	-19,2	-7,34	-1,49	-1,46	-0,33	-0,64	-0,12	-0,07	-0,05	-0,03	-0,02	-0,01
relative change	0,00%	0,00%	0,00%	-0,18%	-0,25%	-0,28%	-0,12%	-0,02%	-0,02%	-0,01%	-0,01%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%



For pollutant-specific information on recalculated emission estimates for Base Year and 2018, please see the pollutant specific recalculation tables following chapter [8.1 - Recalculations](#).

Planned improvements

Given the limited quality of the emission factors applied, the inventory compiler will check a possible revision at least for the main pollutants.

FAQs

bibliography : 1 : BAFA, 2019: Federal Office of Economics and Export Control (Bundesamt für Wirtschaft und Ausfuhrkontrolle, BAFA): Amtliche Mineralöl-daten für die Bundesrepublik Deutschland; URL: https://www.bafa.de/SharedDocs/Downloads/DE/Energie/Mineraloel/moel_amtliche_daten_2017_dezember.html, Eschborn, 2019. : 2 : AGEb, 2019b: Working Group on Energy Balances (Arbeitsgemeinschaft Energiebilanzen (Hrsg.), AGEb): Daten - Sondertabellen - Heizwerte der Energieträger und Faktoren für die Umrechnung von spezifischen Mengeneinheiten in Wärmeinheiten (2005-2017); URL: <https://ag-energiebilanzen.de/#heizwerte2005bis2016>, Köln & Berlin, 2019. : 3 : Knörr et al. (2019b): Knörr, W., Heidt, C., Gores, S., & Bergk, F. (2018b): ifeu Institute for Energy and Environmental Research (Institut für Energie- und Umweltforschung Heidelberg gGmbH, ifeu): Aktualisierung des Modells TREMOD-Mobile Machinery (TREMOD MM) 2019, Heidelberg, 2019 : 4 : EMEP/EEA, 2019: EMEP/EEA air pollutant emission inventory guidebook 2019; Copenhagen, 2019. : 5 : Rentz et al., 2008: Nationaler Durchführungsplan unter dem Stockholmer Abkommen zu persistenten organischen Schadstoffen (POPs), im Auftrag des Umweltbundesamtes, FKZ 205 67 444, UBA Texte | 01/2008, January 2008, URL: <http://www.umweltbundesamt.de/en/publikationen/nationaler-durchfuehrungsplan-unter-stockholmer-bibliography>

¹⁾ (bibcite 1)

²⁾ (bibcite 2)

³⁾ (bibcite 4)

⁴⁾ (bibcite 3)

¹⁾

During test-bench measurements, temperatures are likely to be significantly higher than under real-

world conditions, thus reducing condensation. On the contrary, smaller dilution (higher number of primary particles acting as condensation germs) together with higher pressures increase the likelihood of condensation. So over-all condensables are very likely to occur but different to real-world conditions.