

NM VOC	594	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	
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	
PM ²	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	
BC ³	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	
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	
TSP ⁴	2.46	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Pb ⁴	1.54	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

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 likelihood 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.

[gallery size="medium" : 1A5bi_EM_NH3.png : 1A5bi_EM_NOx.png](#) [gallery](#)

Here, for **sulphur dioxide**, this consumption-based falling trend is intensified by the impact of fuel-sulphur legislation.

[gallery size="medium" : 1A5bi_EM_SO2.png](#) [gallery](#)

Over-all **particulate matter** emissions are by far dominated by emissions from diesel oil combustion with the falling trend basically following the decline in fuel consumption. Here, until 1997, the emission values reported for **total suspended particles (TSP)** are slightly higher than those reported for PM_{2.5}, and PM₁₀, due to the additional TSP emissions from leaded gasoline that was banned in 1997.

[gallery size="medium" : 1A5bi_EM_PM.png](#) [gallery](#)

Recalculations

activity data

Table: Revised activity data, in terajoules

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1.A.5.b i TOTAL										
Submission 2021	6,119	6,103	5,551	5,395	4,988	4,580	4,099	3,748	3,046	
Submission 2020	6,119	6,103	5,551	5,395	4,988	4,580	4,102	3,752	3,155	
absolute change	-0.09	0.02	0.11	0.0	0.0	0.0	-3.6	-4.2	-109	
relative change	-0.001%	0.0004%	0.002%	0.00%	0.00%	0.00%	-0.09%	-0.11%	-3.46%	
DIESEL OIL										
Submission 2021	1,003	990	622	972	681	683	580	578	415	
Submission 2020	1,003	990	622	972	681	683	583	582	421	
absolute change	0.02	0.02	0.00	0.00	0.00	0.00	-3.50	-4.10	-5.76	
relative change	0.002%	0.002%	0.00%	0.00%	0.00%	0.00%	-0.60%	-0.70%	-1.37%	
BIODIESEL										
Submission 2021	69	64	41	63	39	41	31	30	22	
Submission 2020	69	64	41	63	39	41	32	31	22	
absolute change	0.00	0.00	0.00	0.00	0.00	0.00	-0.19	-0.22	-0.31	
relative change	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.60%	-0.70%	-1.37%	
GASOLINE										
Submission 2021	4,907	4,862	4,696	4,175	4,092	3,695	3,342	3,009	2,502	
Submission 2020	4,907	4,862	4,695	4,175	4,092	3,695	3,342	3,009	2,605	
absolute change	-0.11	0.00	0.10	0.00	0.00	0.00	0.08	0.07	-103	
relative change	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-3.96%	
BIOGASOLINE										
Submission 2021	140	188	192	185	175	161	145	131	107	
Submission 2020	140	188	192	185	175	161	145	131	106	
absolute change	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	
relative change	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%	



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

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¹⁾ (bibcite 1)

²⁾ (bibcite 2)

³⁾ (bibcite 4)

⁴⁾ (bibcite 3)

¹⁾

footnote