1.A.3.a ii (i) - Domestic Civil Aviation: LTO

Short description

In NFR category *1.A.3.a ii (i) - Domestic Civil Aviation: LTO* emissions from domestic flights between German airports occuring during LTO stage (Landing/Take-off: 0-3,000 feet) are reported.

Method	AD	EF	Key Category
T1, T2, T3	NS, M	CS, D, M	*no key category*

T = key source by Trend **L** = key source by Level

Methods	
D	Default
RA	Reference Approach
T1	Tier 1 / Simple Methodology *
T2	Tier 2*
T3	Tier 3 / Detailed Methodology *
C	CORINAIR
CS	Country Specific
M	Model
* as described in the EMEP/CORINAIR Emission Inventory Guidebook - 2007, in the group specific chapters.	

AD - Data Source for Activity Data	
NS	National Statistics
RS	Regional Statistics
IS	International Statistics
PS	Plant Specific data
AS	Associations, business organisations
Q	specific questionnaires, surveys

EF - Emission Factors	
D	Default (EMEP Guidebook)
C	Confidential
CS	Country Specific
PS	Plant Specific data

In the following, information on sub-category specific AD, (implied) emission factors and emission estimates are provided.

Methodology

Actitvity Data

Specific jet kerosene consumption during LTO-stage is calculated within TREMOD AV as described in the superordinate chapter.

Table 1: Percentual annual fuel consumption during LTO-stage of domestic flights

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Jet Kerosene																		
Aviation Gasoline																		

source: Knörr et al. (2019c) [1)] &: Gores (2019) [2)]

As explained above, the use of aviation gasoline is - due to a lack of further information - assumed to entirely take place within the LTO-range. As soon as better data allows the split of the consumption of aviation gasoline onto domstice and international flights as well as LTO and Cruise, Germany will accordingly adjust its inventory.

Table 2: annual LTO fuel consumption for domestic flights, in terajoule

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Jet Kerosene																		
Aviation Gasoline																		

source: Knörr et al. (2019c) [3)] &: Gores (2019) [4)]

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Emission factors

All country-specific emission factors used for emission reporting were basically ascertained within UBA project FKZ 360 16 029 (Knörr, W., Schacht, A., & Gores, S. (2010)) [5)] and have since then been compiled, revised and maintained in TREMOD AV [6)].

Furthermore, the **newly implemented EF(BC)** have been estimated via f-BCs as provided in the 2019 EMEP/EEA Guidebook [7)], Chapter 1.A.3.a, 1.A.5.b Aviation, page 49: “Conclusion”.

For more details, please see superordinate chapter on civil aviation.

Table 3: Country-specific emission factors, in kg/TJ

	1990	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
JET KEROSENE														
NH_3														
NMVOC														
NO_x														
SO_x														
BC[1]														
PM[2]														

CO														
AVIATION GASOLINE														
NH_3														
NMVOC														
NO_x														
SO_x														
BC[1]														
PM[2]														
TSP[3]														
CO														

[1] estimated via a f-BCs (avgas: 0.15, jet kerosene: 0.48) as provided in [8)]
[2] EF(PM,,2.5,,) also applied for PM,,10,, and TSP (assumption: > 99% of TSP from diesel oil combustion consists of PM,,2.5,,)
[3] also including TSP from lead: EF(TSP) = 1.6 x EF(Pb) - see road transport

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

Table 4: Tier1 emission factors for heavy-metal and POP exhaust emissions

	= **Pb**	= **Cd**	= **Hg**	= **As**	= **Cr**	= **Cu**	= **Ni**	= **Se**	= **Zn**	= **B[a]P**	= **B[b]F**	= **B[k]F**	= **I[...]p**	= **PAH 1-4**	= **PCDD/F**				
=									= [g/TJ]					= [mg/TJ]	= [µg/TJ]				
~ Kerosene	= NE	= NE	= NE	= NE	= NE	= NE	= NE	= NE	= NE	= NE	= NE	= NE	= NE	= NE	= NE				
~ Aviation gasoline	> 9,481	**1**		> 0.005	> 0.200	> 0.007	> 0.145	> 0.103	> 0.053	> 0.005	> 0.758	> 126	> 182	> 90	> 205	> 602		= NE	
1																			

> NFR 1.A.3.a ii (i) - Domestic Civil Aviation - LTO is **no key source**.

Where **sulphur oxides** emissions are dominated by jet kerosene due to the amount of fuel used, the majority of **carbon monoxide** stems from the consumption of avgas given the much higher emission factor applied to this fuel.

gallery size="medium" : 1A3aii(i)_SOx.png : 1A3aii(i)_CO.png gallery

Lead emissions on the other hand, with no emission factor available for jet kerosene, are only calculated for avgas.

gallery size="medium" : 1A3aii(i)_Pb.png gallery

Recalculations

Activity data

In order to keep in line with the EMEP/EEA Guidebook 2019 and the regularly updated data sets provided to the EEA by Eurocontrol, the average fuel use per LTO cycle has been updated again within TREMOD Aviation but with much smaller impact as in last year's submission.

Resulting from this revision, the percentual shares of kerosene consumed during LTO within TREMOD AV have been recalculated as shown in Table 4.

Table 4: Revised percentual share of kerosene consumed during L/TO for domestic flights, in %

	= 1990	= 1995	= 2000	= 2005	= 2006	= 2007	= 2008	= 2009	= 2010	= 2011	= 2012	= 2013	= 2014	= 2015	= 2016	= 2017
~ Submission 2020	> 30.48	> 29.50	> 28.07	> 27.73	> 27.65	> 27.37	> 27.38	> 27.39	> 27.74	> 27.81	> 28.11	> 28.00	> 27.64	> 27.83	> 28.21	> 28.41
~ Submission 2019	> 31.08	> 31.35	> 30.62	> 29.93	> 29.92	> 29.31	> 29.50	> 30.23	> 30.59	> 30.53	> 30.18	> 29.48	> 29.49	> 30.11	> 29.66	> 29.25
~ absolute change	> 4	> -584	> -1,331	> -983	> -1,038	> -867	> -977	> -1,309	> -1,301	> -1,266	> -887	> -611	> -493	> -923	> -839	> -529
~ relative change	> 0.05%	> -6.26%	> -12.9%	> -10.6%	> -10.9%	> -9.1%	> -10.1%	> -13.7%	> -13.6%	> -13.1%	> -9.88%	> -7.74%	> -6.17%	> -10.8%	> -9.76%	> -6.54%

Hence, the amount of kerosene allocated to sub-category 1.A.3.a ii (i) had to be revised accordingly:

Table 5: Revised fuel consumption data, in terajoule

	= 1990	= 1995	= 2000	= 2005	= 2006	= 2007	= 2008	= 2009	= 2010	= 2011	= 2012	= 2013	= 2014	= 2015	= 2016	= 2017
Jet kerosene																
~ Submission 2020	> 8,777	> 8,734	> 8,962	> 8,276	> 8,455	> 8,631	> 8,728	> 8,212	> 8,284	> 8,390	> 8,084	> 7,278	> 7,492	> 7,609	> 7,758	> 7,568
~ Submission 2019	> 8,773	> 9,318	> 10,293	> 9,259	> 9,493	> 9,498	> 9,705	> 9,521	> 9,585	> 9,656	> 8,970	> 7,889	> 7,985	> 8,531	> 8,597	> 8,097
~ absolute change	> 4	> -584	> -1,331	> -983	> -1,038	> -866	> -977	> -1,309	> -1,301	> -1,266	> -887	> -611	> -493	> -922	> -839	> -529
~ relative change	> 0.05%	> -6.26%	> -12.9%	> -10.6%	> -10.9%	> -9.1%	> -10.1%	> -13.7%	> -13.6%	> -13.1%	> -9.88%	> -7.74%	> -6.18%	> -10.8%	> -9.76%	> -6.54%
Aviation gasoline																
~ Submission 2020	> 2,438	> 1,142	> 1,120	> 698	> 653	> 611	> 638	> 594	> 568	> 614	> 558	> 496	> 472	> 553	> 407	> 403
~ Submission 2019	> 2,438	> 1,142	> 1,120	> 698	> 653	> 611	> 638	> 594	> 568	> 614	> 558	> 496	> 472	> 553	> 407	> 403
~ absolute change	> 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	> 0.00
~ relative change	> 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%	> 0.00%
Total fuel consumption																
~ Submission 2020	> 11,215	> 9,876	> 10,082	> 8,974	> 9,108	> 9,242	> 9,366	> 8,806	> 8,852	> 9,004	> 8,642	> 7,774	> 7,964	> 8,162	> 8,165	> 7,971
~ Submission 2019	> 11,211	> 10,460	> 11,413	> 9,957	> 10,146	> 10,109	> 10,343	> 10,115	> 10,153	> 10,270	> 9,528	> 8,385	> 8,457	> 9,084	> 9,004	> 8,500
~ absolute change	> 4.39	> -584	> -1.331	> -983	> -1.038	> -866	> -977	> -1.309	> -1.301	> -1.266	> -887	> -611	> -493	> -922	> -839	> -529
~ relative change	> 0.04%	> -5.58%	> -11.7%	> -9.88%	> -10.2%	> -8.57%	> -9.45%	> -12.9%	> -12.8%	> -12.3%	> -9.31%	> -7.29%	> -5.83%	> -10.2%	> -9.32%	> -6.23%

In parallel, the majority of **country-specific emission factors** has been revised within TREMOD AV based on information available from the 2019 EMEP/EEA Guidebook [9] and Eurocontrol's AEM model [10]. Here, among others, the EF for SO,,2,, from jet kerosene has been replaced by new and more reliable data showing no sulphur reduction since 1990.

Furthermore, all EF applied for aviation gasoline have been revised widely based on better knowlegde but with no significant impact on the emission inventory.

Table 6: Revised country-specific emission factors for jet kerosene, in [kg/TJ]

	= **1990**	= **1995**	= **2000**	= **2005**	= **2006**	= **2007**	= **2008**	= **2009**	= **2010**	= **2011**	= **2012**	= **2013**	= **2014**	= **2015**	= **2016**	= **2017**
< **NMVOC**																
~ Submission 2020	> 29.1	> 30.2	> 30.5	> 32.4	> 33.9	> 34.7	> 35.1	> 33.9	> 33.4	> 33.2	> 33.5	> 36.8	> 37.7	> 38.8	> 39.0	> 40.9
~ Submission 2019	> 19.7	> 20.0	> 18.4	> 20.6	> 22.2	> 22.8	> 22.2	> 19.7	> 17.8	> 18.9	> 19.8	> 22.4	> 23.2	> 19.4	> 20.2	> 22.3
~ absolute change	> 9.42	> 10.14	> 12.13	> 11.82	> 11.67	> 11.91	> 12.90	> 14.22	> 15.54	> 14.27	> 13.74	> 14.39	> 14.49	> 19.37	> 18.82	> 18.64
~ relative change	> 47.7%	> 50.7%	> 66.0%	> 57.3%	> 52.6%	> 52.3%	> 58.2%	> 72.2%	> 87.2%	> 75.4%	> 69.4%	> 64.2%	> 62.4%	> 99.9%	> 93.3%	> 83.5%
< **Nitrogen oxides - NO,,x,,**																
~ Submission 2020	> 290	> 319	> 276	> 262	> 258	> 261	> 272	> 283	> 289	> 293	> 295	> 290	> 299	> 296	> 306	> 305
~ Submission 2019	> 301	> 332	> 301	> 286	> 285	> 289	> 299	> 310	> 315	> 318	> 323	> 323	> 321	> 326	> 332	> 334
~ absolute change	> -10.92	> -13.06	> -24.33	> -24.23	> -26.74	> -27.85	> -26.91	> -26.19	> -26.76	> -25.24	> -28.13	> -33.10	> -22.14	> -30.48	> -26.20	> -28.52
~ relative change	> -3.63%	> -3.93%	> -8.10%	> -8.47%	> -9.38%	> -9.65%	> -9.01%	> -8.46%	> -8.49%	> -7.93%	> -8.71%	> -10.26%	> -6.89%	> -9.34%	> -7.89%	> -8.54%
< **Sulphur oxides - SO,,x,,**																
~ Submission 2020	> 19.7	> 19.5	> 19.5	> 19.6	> 19.6	> 19.6	> 19.6	> 19.6	> 19.6	> 19.6	> 19.6	> 19.6	> 19.6	> 19.6	> 19.6	> 19.6
~ Submission 2019	> 25.1	> 15.2	> 8.5	> 6.3	> 5.9	> 5.5	> 5.1	> 4.7	> 4.7	> 4.7	> 4.7	> 4.7	> 4.7	> 4.7	> 4.7	> 4.7
~ absolute change	> -5.45	> 4.30	> 11.08	> 13.28	> 13.71	> 14.13	> 14.55	> 14.98	> 14.98	> 14.98	> 14.98	> 14.98	> 14.98	> 14.98	> 14.98	> 14.98
~ relative change	> -21.7%	> 28.2%	> 131%	> 209%	> 232%	> 257%	> 287%	> 322%	> 322%	> 322%	> 322%	> 322%	> 322%	> 322%	> 322%	> 322%
< **Black carbon - BC**																
~ Submission 2020	> 1.21	> 1.20	> 1.21	> 1.22	> 1.22	> 1.22	> 1.22	> 1.22	> 1.22	> 1.22	> 1.22	> 1.22	> 1.22	> 1.22	> 1.22	> 1.22
~ Submission 2019	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95	> 0.95
~ absolute change	> 0.26	> 0.26	> 0.26	> 0.27	> 0.27	> 0.27	> 0.27	> 0.27	> 0.27	> 0.27	> 0.27	> 0.27	> 0.27	> 0.27	> 0.27	> 0.27
~ relative change	> 27.76%	> 27.11%	> 27.54%	> 28.52%	> 28.53%	> 28.58%	> 28.67%	> 28.75%	> 28.57%	> 28.56%	> 28.68%	> 28.94%	> 28.96%	> 28.95%	> 28.90%	> 28.94%
< **Particulate matter - PM**																
~ Submission 2020	> 2.52	> 2.51	> 2.52	> 2.54	> 2.54	> 2.54	> 2.54	> 2.54	> 2.54	> 2.54	> 2.54	> 2.54	> 2.54	> 2.54	> 2.54	> 2.54
~ Submission 2019	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97	> 1.97

~ absolute change	> 0.55	> 0.53	> 0.54	> 0.56	> 0.56	> 0.56	> 0.57	> 0.57	> 0.56	> 0.56	> 0.57	> 0.57	> 0.57	> 0.57	> 0.57	> 0.57
~ relative change	> 27.76%	> 27.1%	> 27.54%	> 28.5%	> 28.5%	> 28.6%	> 28.67%	> 28.75%	> 28.57%	> 28.56%	> 28.68%	> 28.94%	> 28.96%	> 28.95%	> 28.90%	> 28.94%
< **Carbon monoxide - CO**																
~ Submission 2020	> 203	> 201	> 254	> 262	> 260	> 255	> 250	> 240	> 240	> 234	> 232	> 238	> 241	> 246	> 238	> 238
~ Submission 2019	> 182	> 184	> 238	> 254	> 255	> 248	> 240	> 226	> 217	> 215	> 210	> 212	> 214	> 206	> 201	> 199
~ absolute change	> 21.2	> 17.1	> 16.4	> 7.80	> 5.58	> 6.22	> 9.74	> 14.0	> 23.0	> 19.0	> 21.8	> 25.6	> 27.3	> 39.7	> 36.7	> 39.1
~ relative change	> 11.6%	> 9.3%	> 6.9%	> 3.1%	> 2.2%	> 2.5%	> 4.1%	> 6.2%	> 10.6%	> 8.9%	> 10.3%	> 12%	> 12.7%	> 19.2%	> 18.3%	> 19.7%

Furthermore, all country-specific emission factorsapplied for aviation gasoline have been revised widely based on better knowlegde but with no significant impact on the emission inventory.

Table 7: Revised country-specific emission factors for aviation gasoline, in [kg/TJ]

< **NMVOC**																
~ Submission 2020	> 612	> 622	> 608	> 616	> 614	> 612	> 612	> 615	> 612	> 622	> 619	> 621	> 619	> 618	> 619	> 614
~ Submission 2019	> 181	> 182	> 179	> 177	> 175	> 174	> 177	> 178	> 180	> 186	> 186	> 186	> 184	> 183	> 187	> 187
~ absolute change	> 431	> 440	> 429	> 439	> 439	> 437	> 435	> 436	> 432	> 436	> 433	> 435	> 434	> 435	> 432	> 426
~ relative change	> 238%	> 242%	> 239%	> 248%	> 250%	> 251%	> 245%	> 245%	> 241%	> 235%	> 233%	> 234%	> 235%	> 237%	> 231%	> 228%
< **Nitrogen oxides - NO,,x,,**																
~ Submission 2020	> 126	> 128	> 125	> 126	> 125	> 125	> 125	> 125	> 124	> 128	> 127	> 128	> 127	> 126	> 127	> 125
~ Submission 2019	> 279	> 275	> 284	> 292	> 298	> 301	> 291	> 287	> 283	> 263	> 262	> 261	> 266	> 270	> 257	> 257
~ absolute change	> -153	> -147	> -159	> -166	> -173	> -176	> -166	> -162	> -159	> -135	> -135	> -133	> -139	> -144	> -129	> -131
~ relative change	> -54.8%	> -53.4%	> -56.0%	> -56.8%	> -58.0%	> -58.6%	> -56.9%	> -56.3%	> -56.1%	> -51.4%	> -51.4%	> -51.1%	> -52.3%	> -53.3%	> -50.4%	> -51.2%
< **Sulphur oxides - SO,,x,,**																
~ Submission 2020	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46
~ Submission 2019	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51	> 0.51
~ absolute change	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05	> -0.05
~ relative change	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%	> -9.5%
< **Black carbon - BC**																
~ Submission 2020	> 1.12	> 1.13	> 1.12	> 1.18	> 1.16	> 1.16	> 1.12	> 1.17	> 1.18	> 1.14	> 1.12	> 1.13	> 1.12	> 1.16	> 1.11	> 1.05
~ Submission 2019	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07	> 0.07

~ absolute change	> 1.05	> 1.06	> 1.05	> 1.11	> 1.09	> 1.09	> 1.05	> 1.10	> 1.11	> 1.07	> 1.06	> 1.06	> 1.05	> 1.09	> 1.04	> 0.98
~ relative change	> 1521%	> 1536%	> 1527%	> 1616%	> 1580%	> 1585%	> 1529%	> 1600%	> 1616%	> 1547%	> 1532%	> 1538%	> 1525%	> 1583%	> 1508%	> 1428%
< **Particulate matter - PM**																
~ Submission 2020	> 7.45	> 7.52	> 7.48	> 7.89	> 7.72	> 7.74	> 7.49	> 7.81	> 7.89	> 7.57	> 7.50	> 7.53	> 7.47	> 7.73	> 7.39	> 7.02
~ Submission 2019	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46	> 0.46
~ absolute change	> 6.99	> 7.06	> 7.02	> 7.43	> 7.26	> 7.28	> 7.03	> 7.35	> 7.43	> 7.11	> 7.04	> 7.07	> 7.01	> 7.27	> 6.93	> 6.57
~ relative change	> 1521%	> 1536%	> 1527%	> 1616%	> 1580%	> 1585%	> 1529%	> 1600%	> 1616%	> 1547%	> 1532%	> 1538%	> 1525%	> 1583%	> 1508%	> 1428%
< **Carbon monoxide - CO**																
~ Submission 2020	> 20,728	> 21,069	> 20,855	> 20,973	> 21,124	> 21,248	> 21,122	> 21,229	> 21,326	> 21,339	> 21,463	> 21,389	> 21,513	> 21,555	> 21,468	> 21,944
~ Submission 2019	> 14,951	> 15,047	> 14,832	> 14,644	> 14,479	> 14,421	> 14,648	> 14,750	> 14,853	> 15,354	> 15,384	> 15,406	> 15,269	> 15,174	> 15,502	> 15,503
~ absolute change	> 5,777	> 6,022	> 6,023	> 6,329	> 6,645	> 6,827	> 6,474	> 6,479	> 6,473	> 5,985	> 6,079	> 5,983	> 6,244	> 6,381	> 5,966	> 6,441
~ relative change	> 38.6%	> 40.0%	> 40.6%	> 43.2%	> 45.9%	> 47.3%	> 44.2%	> 43.9%	> 43.6%	> 39.0%	> 39.5%	> 38.8%	> 40.9%	> 42.1%	> 38.5%	> 41.5%

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

Uncertainties

For uncertainties information, please see main chapter on civil aviation.

Planned improvements

For information on planned improvements, please see main chapter on civil aviation.

FAQs

Why are emissions from aviation gasoline reported using a Tier 1 approach whereas for jet kerosene Tier 2a has been applied?

For reporting emissions from the cosumption of jet kerosene, the party uses an annual split factor provided by Eurocontrol to devide the total amount of kerosene used (from Energy Balances & Official oil data for the Federal Republic of Germany) onto national and international civil aviation. For aviation gasoline, such split factor does not exist. - Furthermore, the deviation of kerosene used onto flight stages LTO and Cruise has been carried out using data on numbers of take-offs from German airports provided by the German Federal Statistical Office. At the moment, such data is not available for aircraft using aviation gasoline.

On which basis does the party estimate the reported lead emissions from aviation gasoline?

assumption by party: aviation gasoline = AvGas 100 LL (AvGas 100 LL is the predominant sort of aviation gasoline in Western Europe)footnote https://en.wikipedia.org/wiki/Avgas : "…Common in North America and western Europe, limited availability elsewhere worldwide." footnote lead content of AvGas 100 LL: 0.56 g lead/liter (as tetra ethyl lead)footnote EMEP/EEA GB 2016: "Thus, general emission factors for the stationary combustion of kerosene and the combustion of gasoline in cars may be applied. The only exception is lead. Lead is added to aviation gasoline to increase the octane number. The lead content is higher than in leaded car gasoline, and the maximum permitted levels in the UK are shown below. A value of 0.6 g of lead per litre of gasoline should be used as the default value if there is an absence of more accurate information. Actual data may be obtained from oil companies."footnote

The applied procedure is similar to the one used for calculating lead emissions from leaded gasoline used in road transport. (There, in contrast to aviation gasoline, the lead content constantly declined resulting in a ban of leaded gasoline in 1997.)

On which basis does the party estimate the reported TSP emissions from aviation gasoline?

The TSP emissions calculated depend directly on the reported lead emissions: The emission factor for TSP is 1.6 times the emission factor used for lead: EF(TSP) = 1.6 x EF(Pb). The applied procedure is similar to the one used for calculating TSP emissions from leaded gasoline used in road transport.

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