

2.G(b) - Other Product use: Tobacco

Short description

In this sub-category of 2.G(b) - Other product use: Tobacco Germany reports NO_x, NH₃, NMVOC, TSP, PM₁₀, PM_{2.5}, Cd, Co, Cu, Ni, Zn, Benzo(a)pyrene (B[a]P), Benzo(b)fluoranthene (B[b]F), Benzo(k)fluoranthene (B[k]F), Indeno(1,2,3-cd)pyrene (I[1,2,3-c,d]P), PAH 1-4 and PCDD/F emissions from the smoking of cigarettes and cigars.

NFR-Code	Name of Category	Method	AD	EF
2.G(b)	Other Product use: Tobacco	T2	NS	CS/D

Method

Activity data: Statistical data from the tax registration of sold tobacco¹⁾, cigarettes and cigars are used as **activity data**.

Emission factors: For the **emission factors**, a study was made and published in October 2016 "Entwicklung von Methoden zur Berechnung von Emissionen von Luftschadstoffen aus der Verwendung von Holzkohle, Tabak, Feuerwerk und Kerzen sowie aus dem Entfachen von Brauchtumsfeuern" from Nicola Toenges-Schuller et al., AVISO GmbH, for the Umweltbundesamt Germany. Based on this study, most of the EFs are an average value from different studys.

Table 1: Applied emission factors

	Value	Unit	Data source
NO_x	1.8	kg/t tobacco	EMEP/EEA 2019 ²⁾
NMVOC	9.56	kg/t tobacco	average value
NH₃	5.33	kg/t tobacco	average value
CO	112.51	kg/t tobacco	average value
TSP/PM₁₀/PM_{2.5}	18.85	kg/t tobacco	average value
BC	0.074	kg/t tobacco	average value
Cd	0.0054	kg/t tobacco	EMEP/EEA 2019
Cu	5.4	g/t tobacco	EMEP/EEA 2019
Ni	2.7	g/t tobacco	EMEP/EEA 2019
Zn	2.16	g/t tobacco	average value
PCDD/F	0.1	µg/t tobacco	EMEP/EEA 2019
B[a]P	0.21	g/t tobacco	average value
B[b]F	0.26	g/t tobacco	average value
B[k]F	0.26	g/t tobacco	average value
I[1,2,3-c,d]P	0.42	g/t tobacco	average value

Recalculations

So far for the calculation of the activity data the production, import and export of cigarettes, cigars and tobacco products was used. But because of double counting of tobacco amounts the activity data were overestimated. As new data source for the activity data the sold amount of tobacco registered for the taxes is used.

	Subm2020	Subm2021	Difference
	Activity data	Activity data	
	t	t	t
1990	408.171	169.724	-238.447
1991	435.441	169.724	-265.717
1992	430.880	158.243	-272.637
1993	438.902	147.181	-291.721
1994	452.966	153.485	-299.481
1995	435.306	152.618	-282.688
1996	390.828	155.226	-235.602
1997	381.328	158.332	-222.996
1998	391.045	161.501	-229.544
1999	431.930	170.375	-261.555
2000	336.197	166.077	-170.120
2001	349.237	169.829	-179.408
2002	319.870	176.813	-143.057
2003	334.437	167.661	-166.776
2004	320.141	155.110	-165.031
2005	276.110	150.003	-126.107
2006	276.758	144.814	-131.944
2007	304.975	148.082	-156.893
2008	249.158	136.666	-112.492
2009	216.960	130.702	-86.258
2010	232.027	129.643	-102.384
2011	251.896	136.594	-115.302
2012	251.847	129.331	-122.516
2013	237.208	125.000	-112.208
2014	242.183	125.870	-116.313
2015	250.841	123.250	-127.591
2016	227.667	117.970	-109.697
2017	235.325	117.456	-117.869
2018	235.325	117.026	-118.299

The emissions have changed as follows:

[illegible]

Pollutant		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
NOx	Difference [EM]	-420.20	-478.28	-480.75	-525.10	-519.07	-568.84	-424.08	-481.99	-413.18	-470.88	-304.22	-322.93	-257.55	-305.20	-297.06	-236.99	-237.50	-282.41	-262.49	-155.26	-184.29	-207.54	-220.53	-201.07	-209.36	-229.68	-197.45	-212.16	-212.84	
PAHs Gemisch/Substanz2018[EM]		0.47	0.56	0.59	0.52	0.52	0.56	0.45	0.46	0.43	0.56	0.28	0.40	0.37	0.39	0.37	0.32	0.33	0.35	0.28	0.25	0.37	0.39	0.28	0.27	0.30	0.29	0.26	0.24	0.27	
PAHs Gemisch/Substanz2021[EM]		0.20	0.28	0.38	0.17	0.18	0.18	0.18	0.18	0.18	0.28	0.18	0.20	0.20	0.19	0.18	0.17	0.17	0.18	0.15	0.16	0.15	0.16	0.15	0.14	0.15	0.14	0.14	0.14	0.14	
PAHs Gemisch/Difference [EM]		0.28	0.31	0.31	0.34	0.34	0.38	0.27	0.26	0.27	0.38	0.20	0.21	0.11	0.19	0.19	0.15	0.18	0.13	0.13	0.10	0.18	0.14	0.13	0.14	0.11	0.13	0.12	0.14	0.14	
PCDDs	Substanz2018[EM]	0.000000401	0.000000413	0.000000419	0.000000419	0.000000413	0.000000381	0.000000381	0.000000381	0.000000381	0.000000381	0.000000348	0.000000348	0.000000324	0.000000314	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	0.000000325	
PCDDs	Substanz2021[EM]	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	0.000000170	
PCDDs	Difference [EM]	0.000000231	0.000000243	0.000000249	0.000000249	0.000000243	0.000000211	0.000000211	0.000000211	0.000000211	0.000000211	0.000000178	0.000000178	0.000000154	0.000000154	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	0.000000155	
PCDFs	Substanz2018[EM]						8.264.75	7.386.59	7.187.54	7.730.48	8.141.09	6.136.71	6.582.48	6.028.97	6.303.52	6.034.08	5.204.18	5.716.38	5.748.22	4.686.17	4.688.30	4.313.29	4.747.78	4.746.86	4.476.94	4.564.71	4.777.90	4.291.16	4.435.43	4.435.43	4.435.43
PCDFs	Substanz2021[EM]						2.876.37	2.925.73	2.884.27	3.644.00	3.111.24	3.182.25	3.265.97	3.332.66	3.165.10	2.923.54	2.817.38	2.754.48	2.791.88	2.375.91	2.461.48	2.441.53	2.574.55	2.437.65	2.356.50	2.371.42	2.331.84	2.223.52	2.213.83	2.205.75	2.205.75
PM10	Difference [EM]						-5.388.38	-4.440.87	-4.263.07	-4.338.48	-4.929.85	-3.206.46	-3.381.52	-2.696.37	-3.143.42	-3.110.54	-2.376.89	-2.488.90	-2.957.14	-2.120.24	-2.226.82	-2.301.90	-2.173.23	-2.309.28	-2.114.91	-2.138.29	-2.404.88	-2.067.58	-2.221.62	-2.229.72	-2.229.72
PM2.5	Substanz2018[EM]						5.204.75	7.386.59	7.187.54	7.730.48	8.141.09	6.136.71	6.582.48	6.028.97	6.303.52	6.034.08	5.204.18	5.716.38	5.748.22	4.686.17	4.688.30	4.313.29	4.747.78	4.746.86	4.476.94	4.564.71	4.777.90	4.291.16	4.435.43	4.435.43	4.435.43
PM2.5	Substanz2021[EM]						2.876.37	2.925.73	2.884.27	3.644.00	3.111.24	3.182.25	3.265.97	3.332.66	3.165.10	2.923.54	2.817.38	2.754.48	2.791.88	2.375.91	2.461.48	2.441.53	2.574.55	2.437.65	2.356.50	2.371.42	2.331.84	2.223.52	2.213.83	2.205.75	2.205.75
SO2	Difference [EM]						-5.328.16	-4.440.87	-4.263.07	-4.338.48	-4.929.85	-3.206.46	-3.381.52	-2.696.37	-3.143.42	-3.110.54	-2.376.89	-2.488.90	-2.957.14	-2.120.24	-2.226.82	-2.301.90	-2.173.23	-2.309.28	-2.114.91	-2.138.29	-2.404.88	-2.067.58	-2.221.62	-2.229.72	-2.229.72
SO2	Substanz2018[EM]	7.693.26	8.207.24	8.121.31	8.272.50	8.537.58	9.264.75	7.386.59	7.187.54	7.730.48	8.141.09	6.136.71	6.582.48	6.028.97	6.303.52	6.034.08	5.204.18	5.716.38	5.748.22	4.686.17	4.688.30	4.313.29	4.747.78	4.746.86	4.476.94	4.564.71	4.777.90	4.291.16	4.435.43	4.435.43	4.435.43
SO2	Substanz2021[EM]	3.186.90	3.186.90	2.982.50	2.774.69	2.892.91	2.876.37	2.925.73	2.884.27	3.644.00	3.111.24	3.182.25	3.265.97	3.332.66	3.165.10	2.923.54	2.817.38	2.754.48	2.791.88	2.375.91	2.461.48	2.441.53	2.574.55	2.437.65	2.356.50	2.371.42	2.331.84	2.223.52	2.213.83	2.205.75	2.205.75
SO2	Difference [EM]	-4.496.29	-5.020.27	-5.138.75	-5.498.41	-5.644.67	-5.328.16	-4.440.87	-4.263.07	-4.338.48	-4.929.85	-3.206.46	-3.381.52	-2.696.37	-3.143.42	-3.110.54	-2.376.89	-2.488.90	-2.957.14	-2.120.24	-2.226.82	-2.301.90	-2.173.23	-2.309.28	-2.114.91	-2.138.29	-2.404.88	-2.067.58	-2.221.62	-2.229.72	-2.229.72
Zn	Substanz2018[EM]	0.88	0.94	0.93	0.96	0.94	0.84	0.82	0.84	0.93	0.72	0.75	0.69	0.72	0.69	0.68	0.60	0.60	0.68	0.54	0.47	0.50	0.54	0.54	0.51	0.52	0.49	0.51	0.51	0.51	
Zn	Substanz2021[EM]	0.17	0.17	0.16	0.22	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	
Zn	Difference [EM]	-0.51	-0.57	-0.59	-0.63	-0.63	-0.62	-0.51	-0.48	-0.49	-0.58	-0.37	-0.39	-0.31	-0.36	-0.36	-0.27	-0.28	-0.34	-0.24	-0.19	-0.22	-0.25	-0.26	-0.24	-0.25	-0.27	-0.24	-0.25	-0.25	

Planned improvements

No planned improvements.

[bibliography](#) : 1 : EMEP/EEA air pollutant emission inventory guidebook 2016, Copenhagen, 2016.
[bibliography](#)

- ¹⁾ Destatis, Besteuerung von Tabakwaren 73411, SBA FS 14 R 9.1.1 Absatz von Tabakwaren
- ²⁾ EMEP/EEA air pollutant emission inventory guidebook 2019, Copenhagen, 2019