

Pollutants of the PRTR - Situation in Germany -


Reporting years 2007 - 2023



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1 Introduction

Germany, as well as the European Union and its Member States signed the UN ECE PRTR Protocol and thus committed itself to establish a national Pollutant Release and Transfer Register (PRTR), which is open to the public. The establishment in Germany was based on the European Regulation (EG) 166/2006 (E-PRTR-VO) and the German PRTR-Gesetz (SchadRegProtAG). The PRTR compiles annual releases of pollutants into the air, water and land, the off-site transfers in waste water and the off-site transfer of hazardous and nonhazardous waste from certain industrial activities. A report about these releases becomes due, if the applicable thresholds for releases or waste are exceeded. The E-PRTR Regulation lists a total of 91 pollutants. German PRTR data are regularly published on the Internet www.thru.de.

The present volume contains a compact overview of each pollutant listed in the Regulation for which notifications have been received in the current reporting year. The detailed information is summarized in a table and two graphics for each pollutant grouped according to the releases into air, water and land and the off-site transfers in waste water. Reporting of releases to land only contains pollutants in waste which are disposed by land treatment or deep injection. The table shows a subdivision of total amounts of pollutants by industrial sectors and the number of reporting facilities for the most recent reporting year. The first figure shows the number of facilities by pollutant as time series subdivided by industrial sectors. The second figure shows the development of releases and off-site transfers in waste water as time series subdivided by industrial sectors. In both figures included is a maximum of five sectors which have the highest amount of pollutants seen in the displayed table for the most recent reporting year.



In this volume only pollutants are considered from which a release or off-site transfer in waste water is reported at least by one facility in the current year. If no threshold is given in the E-PRTR Regulation (see Annex A) reporting for this pollutant is not required. PRTR facilities have to report pollutants if they are exceeding the given thresholds. However, there is also the possibility of voluntarily reporting pollutants below the threshold value. Only a few reporting operators make use of it.

The data on pollutant quantities is recorded by the operator either by measurements, calculations or estimations. If the data is reported to the PRTR based on measurements or calculations, the analysis and/or calculation method must be stated. Emission factors or average effluent concentrations are available for calculations for various pollutants. If updates of these specific emission factors or average effluent concentrations result in significant shifts in pollutant quantities, these changes will be highlighted in the text for the affected pollutant in the present volume. Which determination method the operators use to record the pollutant quantities can be viewed in the German PRTR at www.thru.de.

Further information on the topic can be found in the [publicly accessible PRTR expert wiki](#).

The emission factors and average effluent concentrations were analyzed and updated as part of a research project on priority substances in municipal sewage treatment plants.

Further comprehensive information about the German PRTR can be found on the web site www.thru.de where also the complete dataset for all reporting years since 2007 can be downloaded as SQLite

database and in the formats xlsx, csv or ods. Information about the European PRTR is available at <https://industry.eea.europa.eu>.

This volume is updated regularly as new data becomes available. Please send questions or feedback to [thrude\(at\)uba.de](mailto:thrude(at)uba.de).

2 Releases to air, water and land

The following chapters cover only releases of pollutants to air, water and land.

2.1 1,1,1-trichloroethane

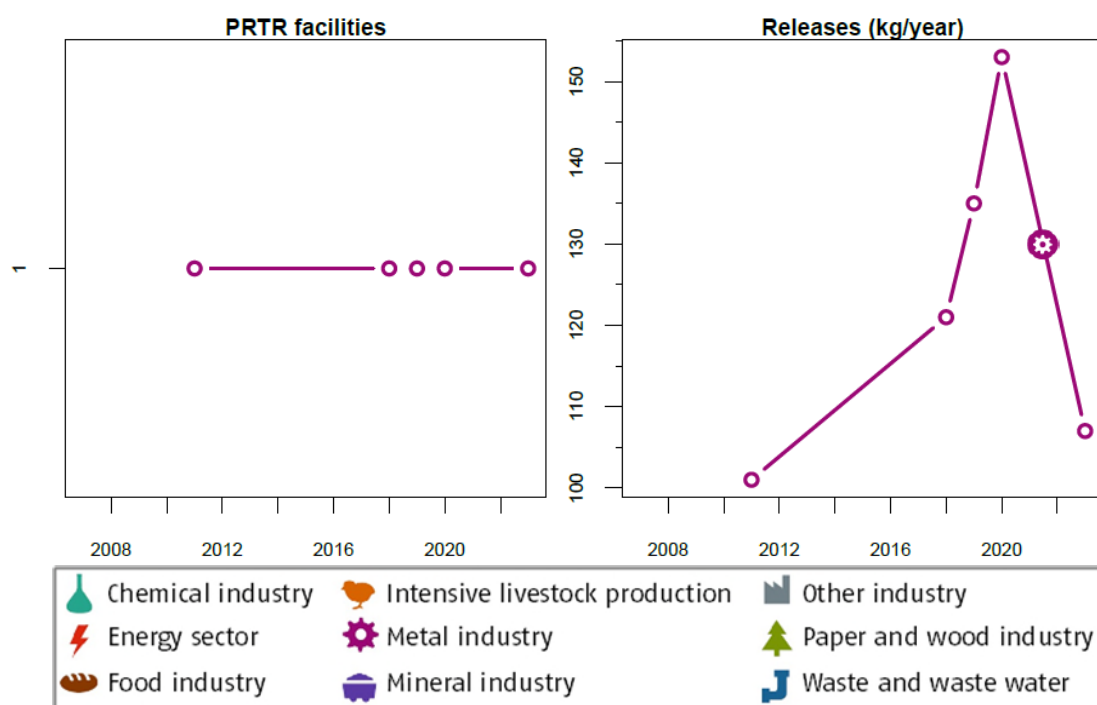
2.1.1 Releases to Air

The threshold is **100 kg “1,1,1-trichloroethane” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 1: For the reporting year 2023 -Number of facilities and their releases of the pollutant “1,1,1-trichloroethane” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	1	100	107	100
Total	1	100	107	100

Figure 1: Annual number of facilities (left) and their releases (right) of the pollutant “1,1,1-trichloroethane” to Air, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.2 1,2-dichlorethane (EDC)

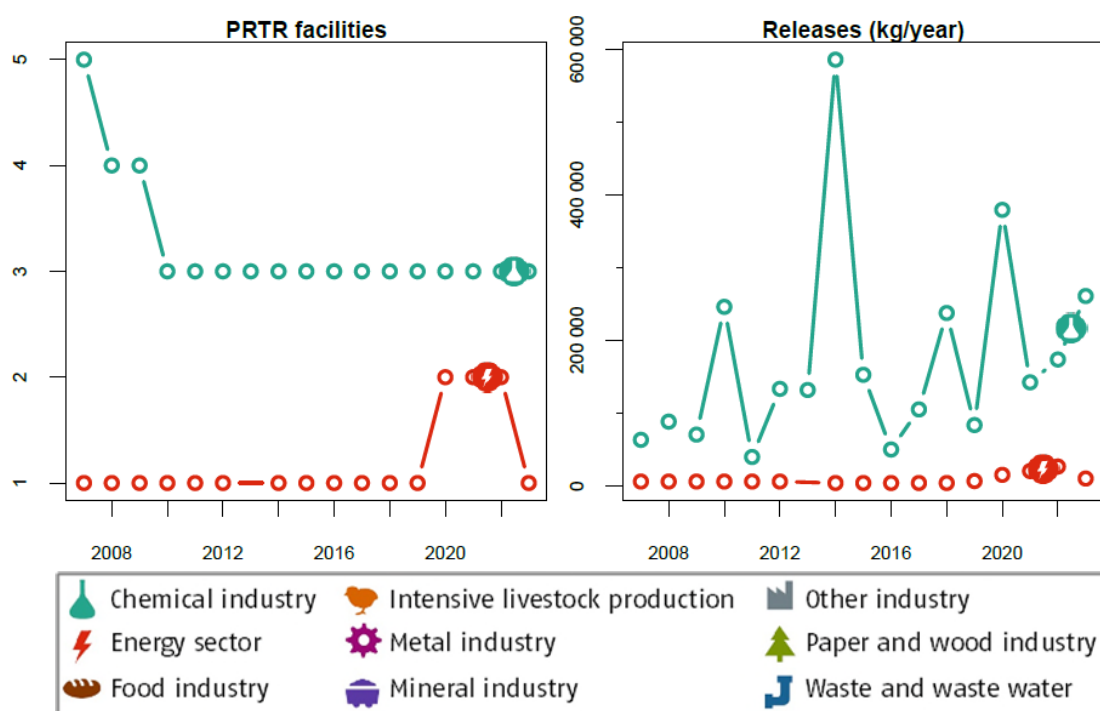
2.2.1 Releases to Air

The threshold is **1 000 kg “1,2-dichloroethane (EDC)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 2: For the reporting year 2023 -Number of facilities and their releases of the pollutant “1,2-dichloroethane (EDC)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	3	75	261 070	96.2
Energy sector	1	25	10 280	3.79
Total	4	100	271 350	100

Figure 2: Annual number of facilities (left) and their releases (right) of the pollutant “1,2-dichloroethane (EDC)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

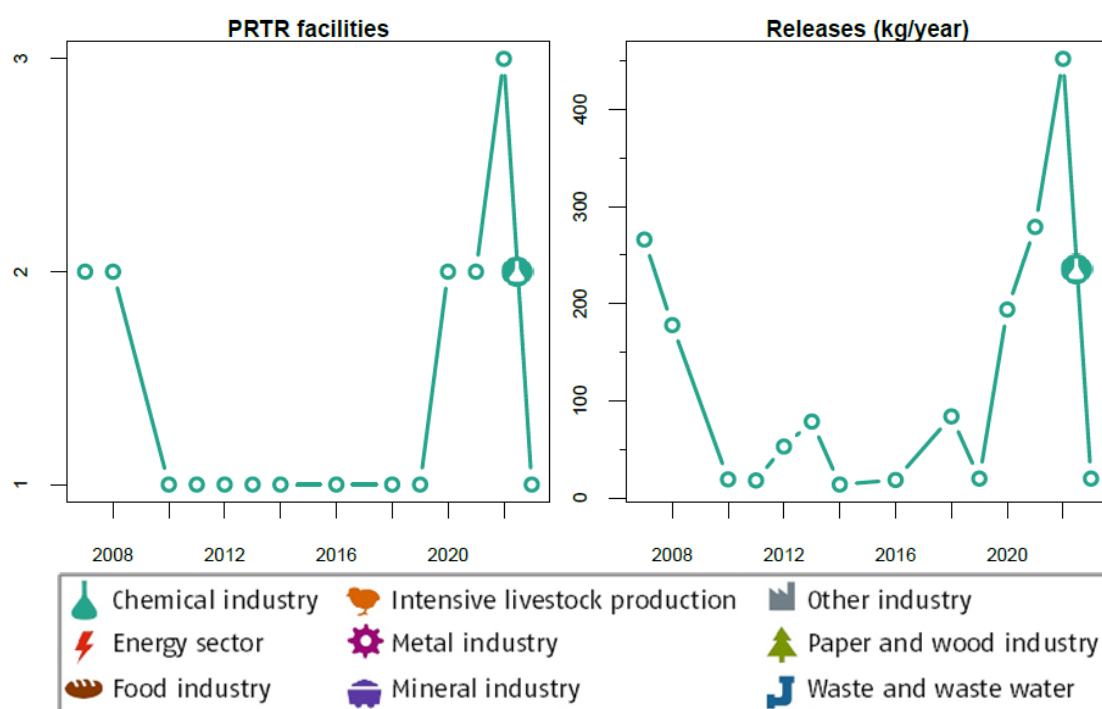
2.2.2 Releases to Water

The threshold is **1 000 kg “1,2-dichloroethane (EDC)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 3: For the reporting year 2023 -Number of facilities and their releases of the pollutant “1,2-dichloroethane (EDC)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	1	100	20	100
Total	1	100	20	100

Figure 3: Annual number of facilities (left) and their releases (right) of the pollutant “1,2-dichloroethane (EDC)” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.2.3 Releases to Land

The threshold is **1 000 kg “1,2-dichloroethane (EDC)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “1,2-dichloroethane (EDC)” to **Land** in **2023**.

2.3 1,2,3,4,5,6- hexachlorocyclohexane (HCH)

2.3.1 Releases to Air

The threshold is **10 kg “1,2,3,4,5,6-hexachlorocyclohexane (HCH)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “1,2,3,4,5,6-hexachlorocyclohexane (HCH)” to **Air** in **2023**.

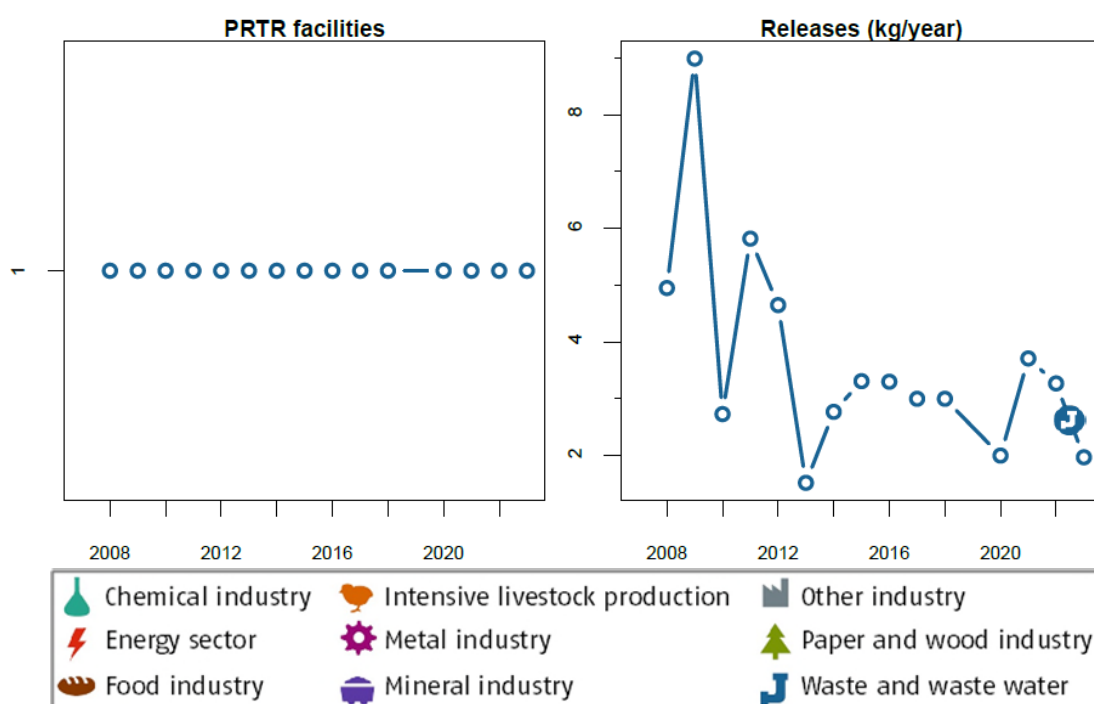
2.3.2 Releases to Water

The threshold is **1 kg “1,2,3,4,5,6-hexachlorocyclohexane (HCH)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 4: For the reporting year 2023 -Number of facilities and their releases of the pollutant “1,2,3,4,5,6-hexachlorocyclohexane (HCH)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	1	100	1.97	100
Total	1	100	1.97	100

Figure 4: Annual number of facilities (left) and their releases (right) of the pollutant “1,2,3,4,5,6-hexachlorocyclohexane (HCH)” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.3.3 Releases to Land

The threshold is **1 kg “1,2,3,4,5,6-hexachlorocyclohexane (HCH)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “1,2,3,4,5,6-hexachlorocyclohexane (HCH)” to **Land** in **2023**.

2.4 Ammonia (NH₃)

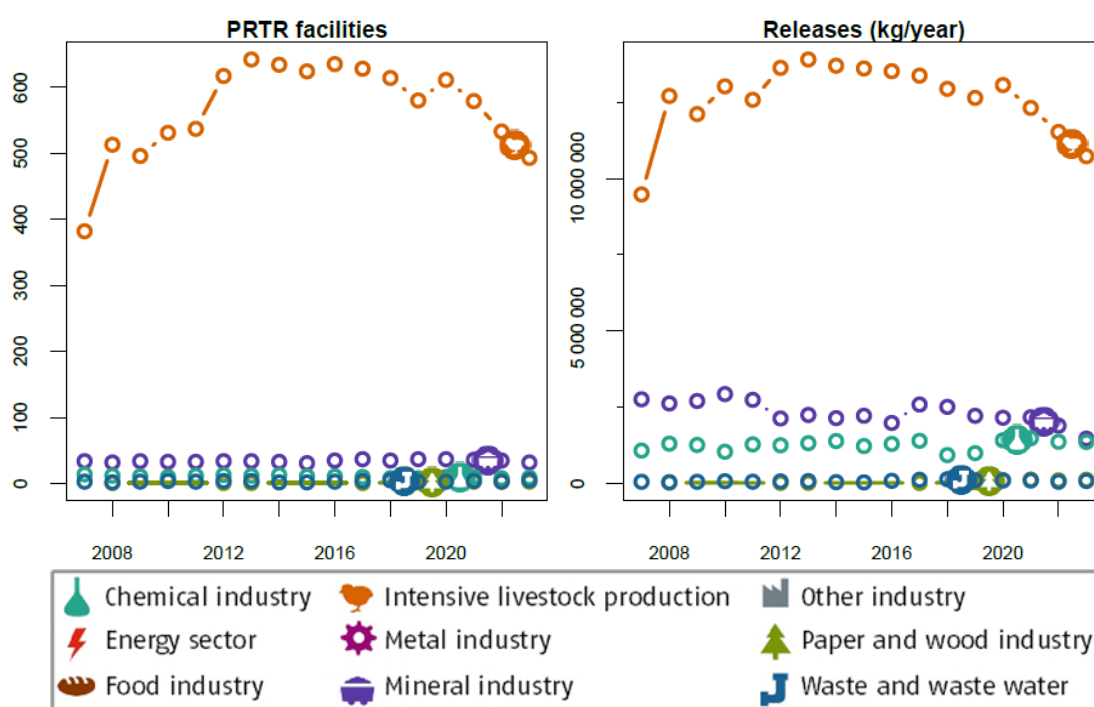
2.4.1 Releases to Air

The threshold is **10 000 kg “Ammonia (NH₃)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 5: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Ammonia (NH₃)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Intensive livestock production and aquaculture	493	90.5	10 730 400	77.8
Mineral industry	32	5.87	1 463 800	10.6
Chemical industry	9	1.65	1 357 100	9.84
Paper and wood industry	3	0.55	115 300	0.836
Waste and waste water management	5	0.917	74 900	0.543
Food industry	3	0.55	54 700	0.396
Total	567	100	14 463 000	100

Figure 5: Annual number of facilities (left) and their releases (right) of the pollutant “Ammonia (NH₃)” to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.5 Arsenic and compounds (as As)

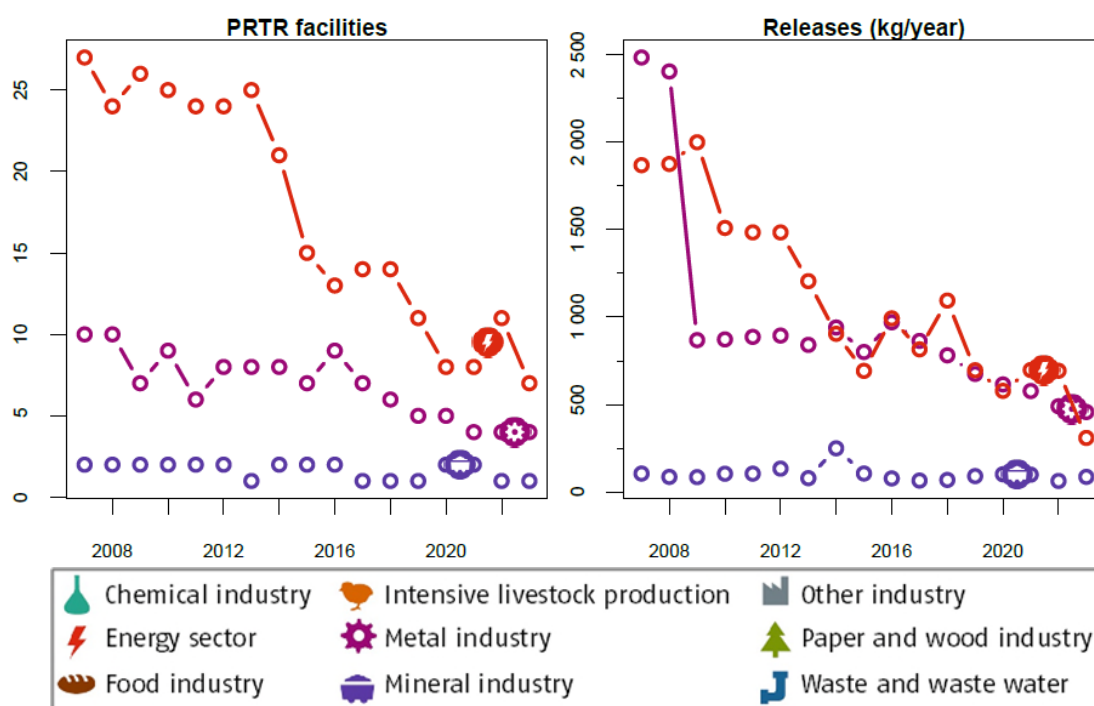
2.5.1 Releases to Air

The threshold is **20 kg “Arsenic and compounds (as As)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 6: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Arsenic and compounds (as As)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	4	33.3	457	53.6
Energy sector	7	58.3	309	36.2
Mineral industry	1	8.33	87	10.2
Total	12	100	854	100

Figure 6: Annual number of facilities (left) and their releases (right) of the pollutant “Arsenic and compounds (as As)” to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

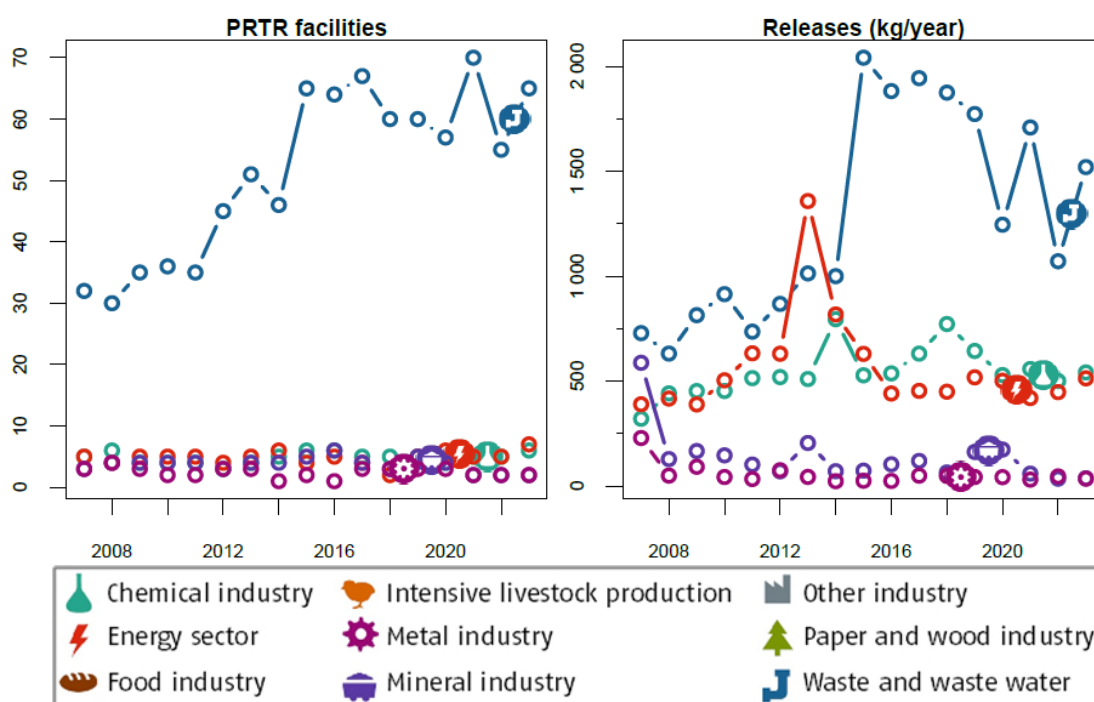
2.5.2 Releases to Water

The threshold is **5 kg “Arsenic and compounds (as As)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 7: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Arsenic and compounds (as As)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	65	78.3	1 520	57
Chemical industry	6	7.23	542	20.3
Energy sector	7	8.43	514	19.3
Mineral industry	2	2.41	38.1	1.43
Metal industry	2	2.41	36	1.35
Paper and wood industry	1	1.2	15.7	0.589
Total	83	100	2 666	100

Figure 7: Annual number of facilities (left) and their releases (right) of the pollutant “Arsenic and compounds (as As)” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.5.3 Releases to Land

The threshold is **5 kg “Arsenic and compounds (as As)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “**Arsenic and compounds (as As)”** to **Land** in **2023**.

2.6 Atrazine

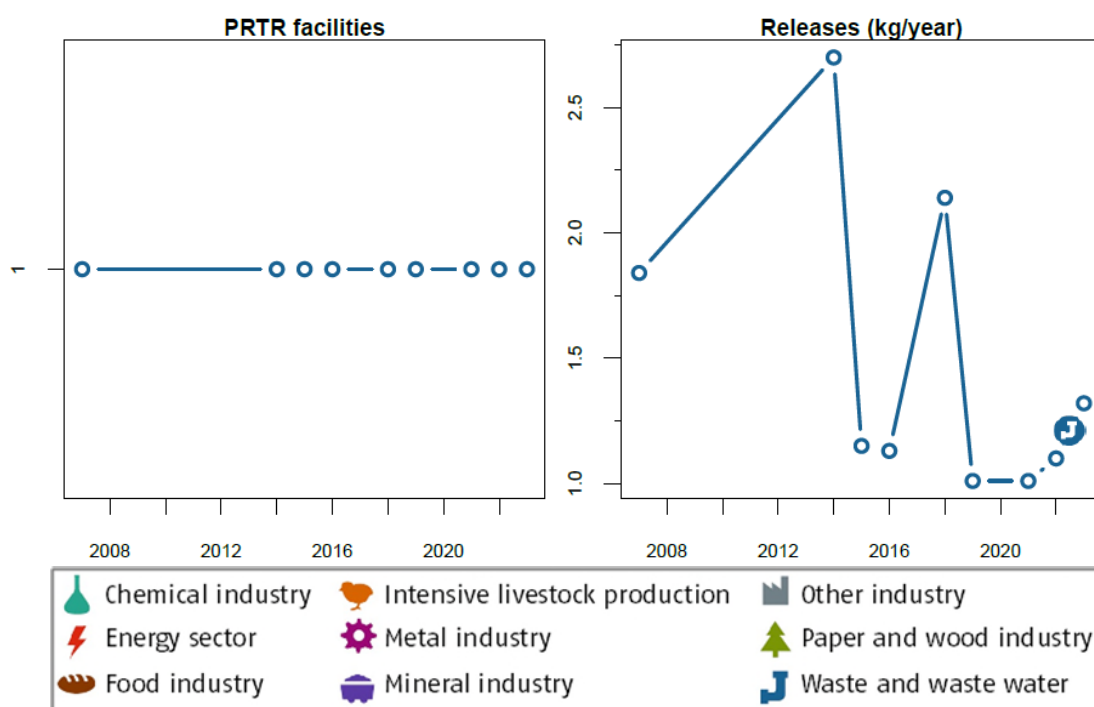
2.6.1 Release to Water

The threshold is **1 kg “Atrazine” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 8: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Atrazine” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	1	100	1.32	100
Total	1	100	1.32	100

Figure 8: Annual number of facilities (left) and their releases (right) of the pollutant “Atrazine” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.6.2 Releases to Land

The threshold is **1 kg “Atrazine” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Atrazine” to Land in 2023.

2.7 Benzene

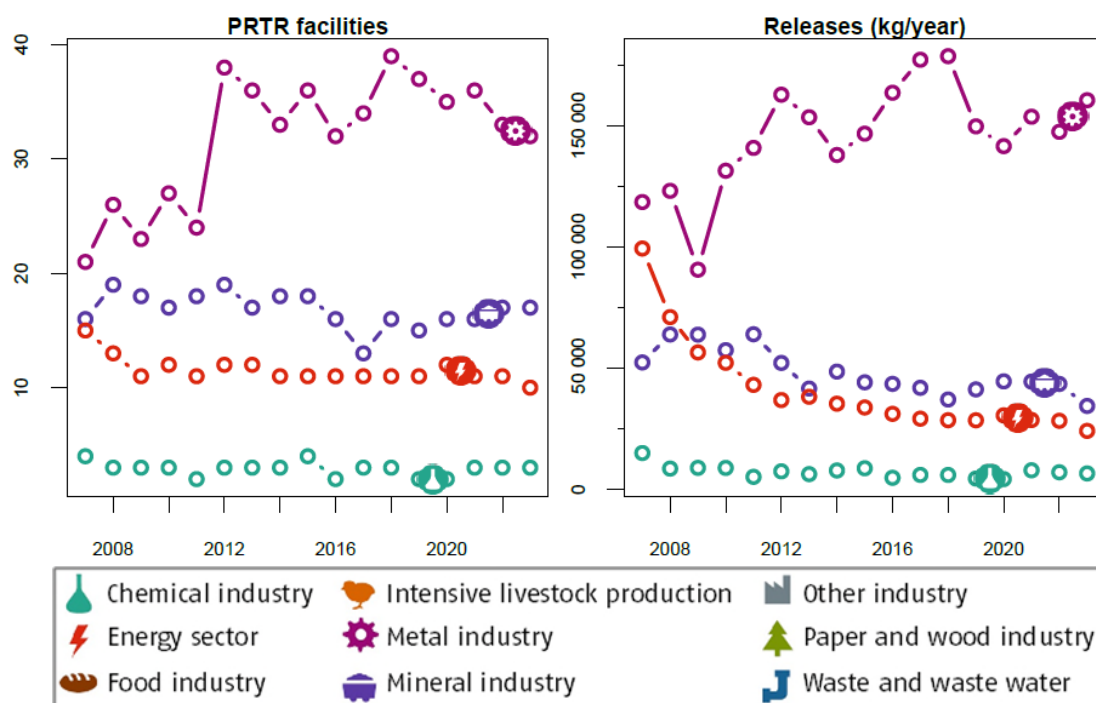
2.7.1 Releases to Air

The threshold is **1 000 kg “Benzene” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 9: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Benzene” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	32	51.6	160 540	71.2
Mineral industry	17	27.4	34 390	15.2
Energy sector	10	16.1	24 100	10.7
Chemical industry	3	4.84	6 540	2.9
Total	62	100	225 570	100

Figure 9: Annual number of facilities (left) and their releases (right) of the pollutant “Benzene” to Air, each by the 4 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.7.2 Releases to Water

The threshold is **200 kg “Benzene” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Benzene” to **Water** in **2023**.

2.7.3 Releases to Land

The threshold is **200 kg “Benzene” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Benzene” to **Land** in **2023**.

2.8 Cadmium and compounds (as Cd)

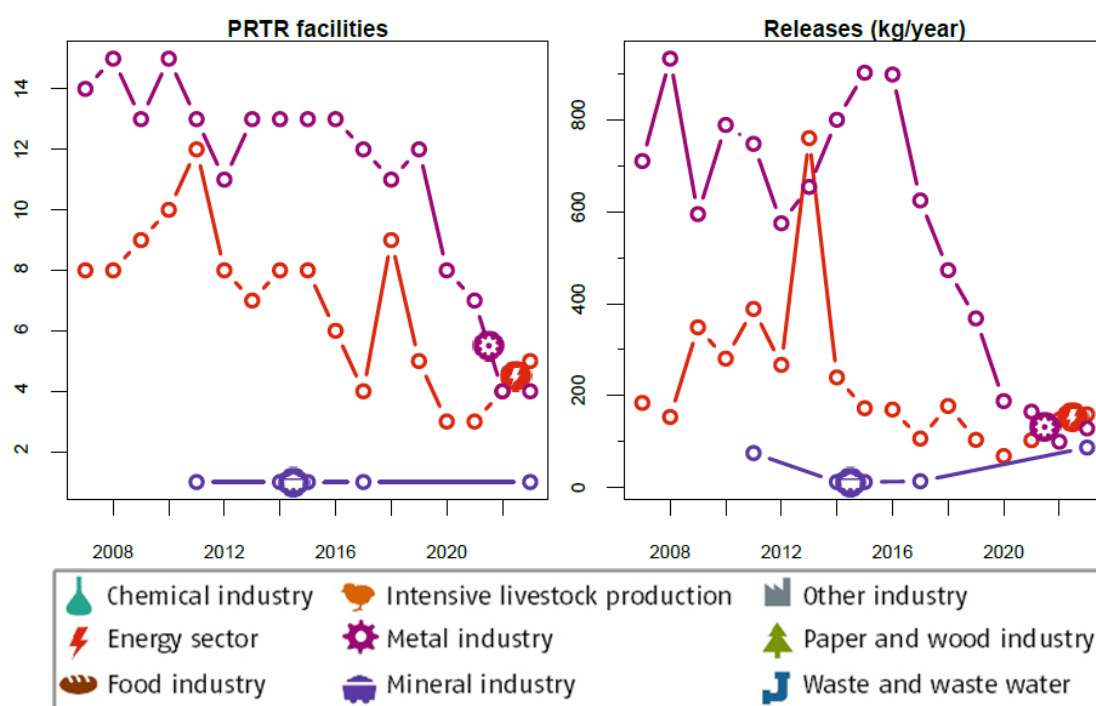
2.8.1 Releases to Air

The threshold is **10 kg “Cadmium and compounds (as Cd)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 10: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Cadmium and compounds (as Cd)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	5	50	159	42.5
Metal industry	4	40	129	34.3
Mineral industry	1	10	87	23,2
Total	10	100	375	100

Figure 10: Annual number of facilities (left) and their releases (right) of the pollutant “Cadmium and compounds (as Cd)” to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.8.2 Releases to Water

The threshold is **5 kg “Cadmium and compounds (as Cd)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

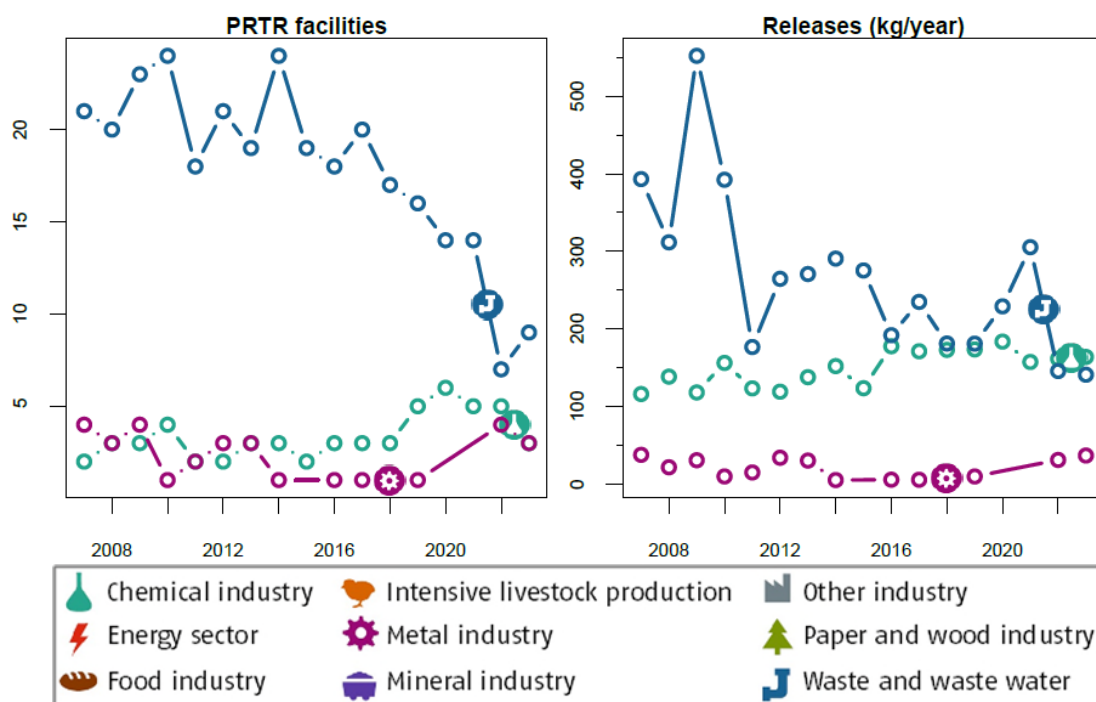
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Cadmium and compounds. The reduction in pollutant quantities (from 2022) can be partly based on this.

Further information can be found in the publicly accessible PRTR expert wiki referred to in the introduction.

Table 11: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Cadmium and compounds (as Cd)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	3	20	164	48
Waste and waste water management	9	60	141	41.3
Metal industry	3	20	36.8	10.8
Total	15	100	342	100

Figure 11: Annual number of facilities (left) and their releases (right) of the pollutant “Cadmium and compounds (as Cd)” to Water, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.8.3 Releases to Land

The threshold is **5 kg “Cadmium and compounds (as Cd)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Cadmium and compounds (as Cd)” to **Land** in **2023**.

2.9 Carbon dioxide (CO₂)

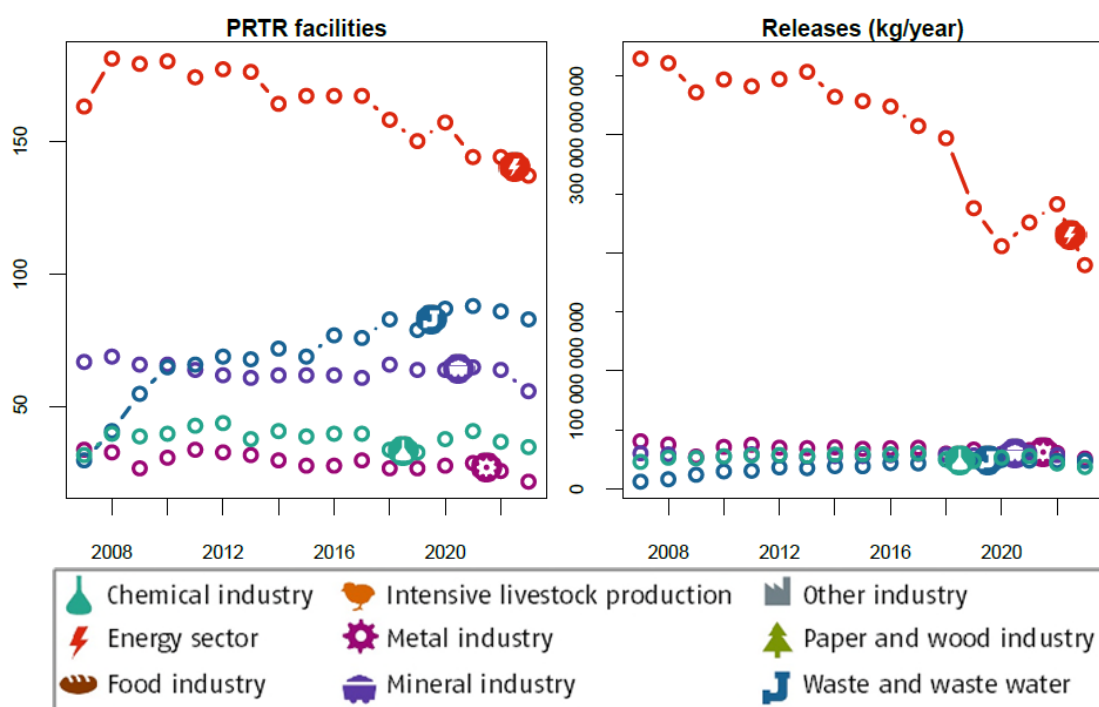
2.9.1 Releases to Air

The threshold is **100 000 000 kg “Carbon dioxide (CO₂)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 12: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Carbon dioxide (CO₂)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	137	38	189 689 111 206	65.6
Metal industry	22	6.09	25 788 000 000	8.91
Mineral industry	56	15.5	24 078 764 034	8.32
Waste and waste water management	83	23	23 688 148 770	8.19
Chemical industry	35	9.7	18 601 000 000	6.43
Paper- and wood industry	21	5.82	6 515 000 000	2.25
Food industry	4	1.11	536 000 000	0.185
Other industry	3	0.831	428 000 000	0.148
Total	361	100	289 324 024 010	100

Figure 12: Annual number of facilities (left) and their releases (right) of the pollutant “Carbon dioxide (CO₂)” to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.10 Carbon monoxide (CO)

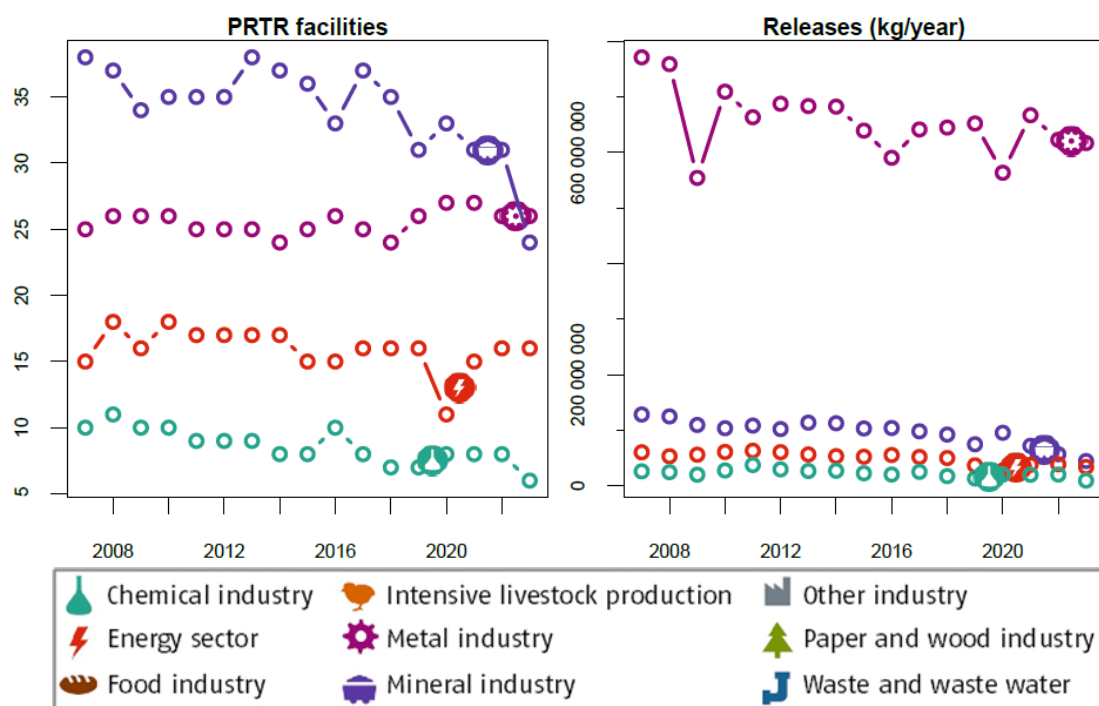
2.10.1 Releases to Air

The threshold is **500 000 kg “Carbon monoxide (CO)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 13: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Carbon monoxide (CO)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	26	36.1	616 821 000	87.6
Mineral industry	24	33.3	44 366 000	6.3
Energy sector	16	22.2	33 742 000	4.79
Chemical industry	6	8.33	9 156 000	1.3
Total	72	100	704 085 000	100

Figure 13: Annual number of facilities (left) and their releases (right) of the pollutant “Carbon monoxide (CO)” to Air, each by the 4 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.11 Chlorides (as total Cl)

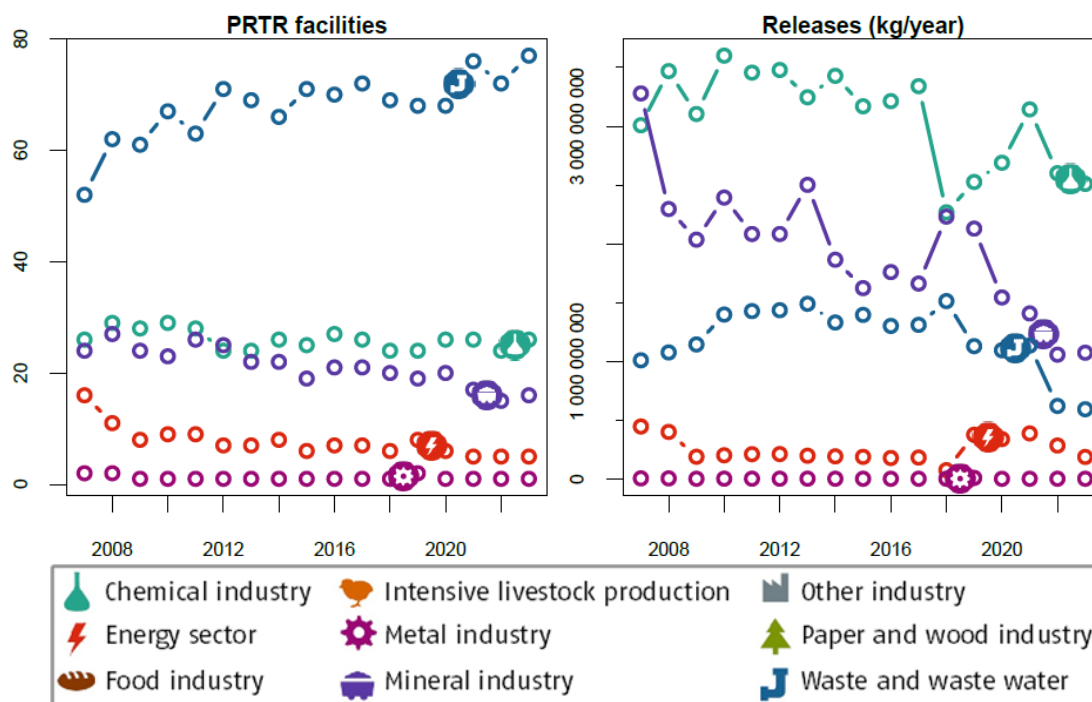
2.11.1 Releases to Water

The threshold is **2 000 000 kg “Chlorides (as total Cl)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 14: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Chlorides (as total Cl)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	26	20.8	2 509 780 000	57.4
Mineral industry	16	12.8	1 074 910 000	24.6
Waste and waste water management	77	61.6	594 350 000	13.6
Energy sector	5	4	188 740 000	4.32
Metal industry	1	0.8	3 400 000	0.0778
Total	125	100	4 371 180 000	100

Figure 14: Annual number of facilities (left) and their releases (right) of the pollutant “Chlorides (as total Cl)” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

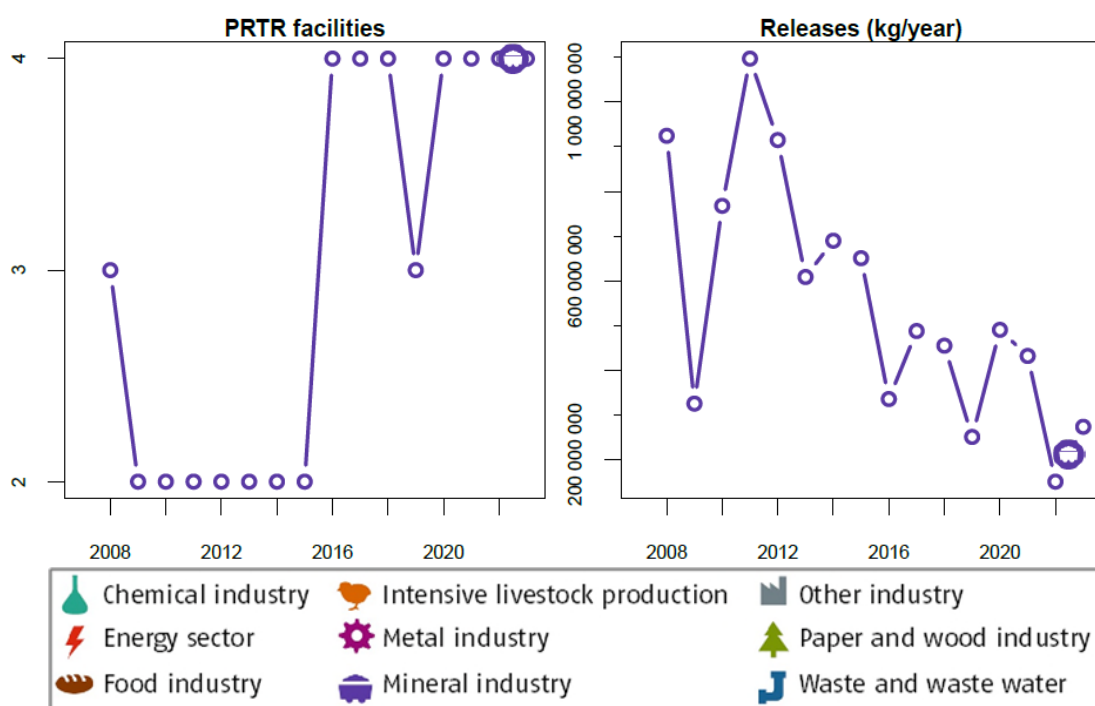
2.11.2 Releases to Land

The threshold is **2 000 000 kg “Chlorides (as total Cl)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

Table 15: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Chlorides (as total Cl)” to Land of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Mineral industry	4	100	274 240 000	100
Total	4	100	274 240 000	100

Figure 15: Annual number of facilities (left) and their releases (right) of the pollutant “Chlorides (as total Cl)” to Land, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.12 Chlorine and inorganic compounds (as HCl)

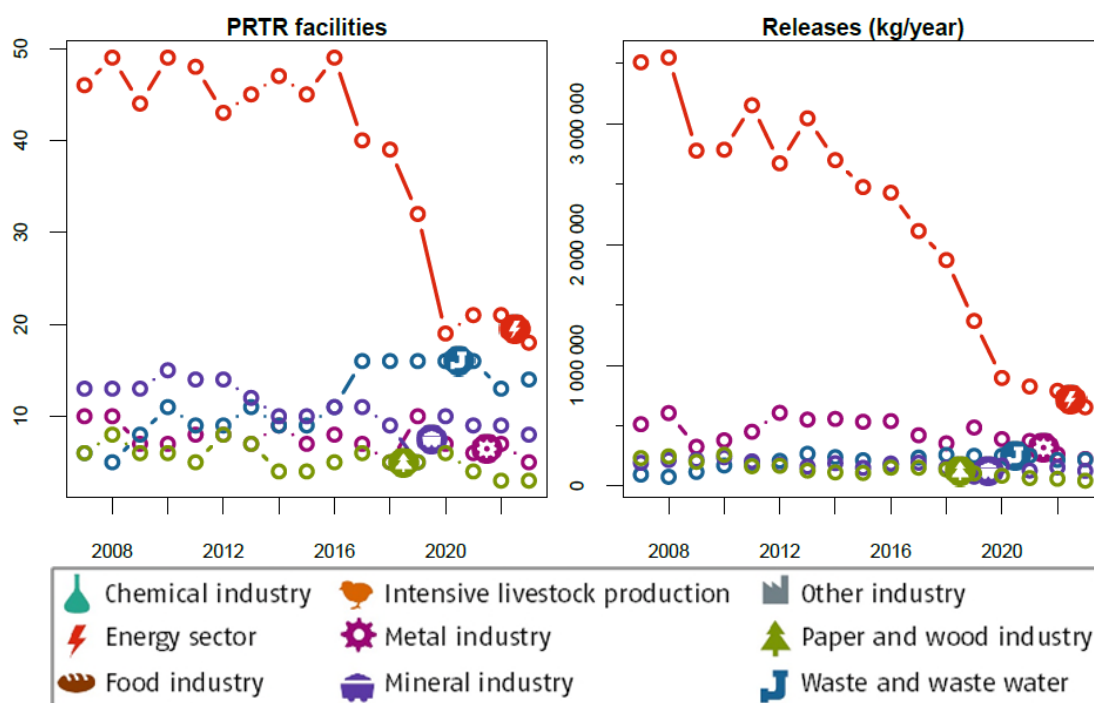
2.12.1 Releases to Air

The threshold is **10 000 kg “Chlorine and inorganic compounds (as HCl)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 16: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Chlorine and inorganic compounds (as HCl)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	18	36.7	653 100	51.1
Metal industry	5	10.2	224 000	17.6
Waste and waste water management	14	28.6	218 900	17.1
Mineral industry	8	16.3	126 400	9.89
Paper- and wood industry	3	6.12	45 000	3.52
Chemical industry	1	2.04	10 400	0.813
Total	49	100	1 278 600	100

Figure 16: Annual number of facilities (left) and their releases (right) of the pollutant “Chlorine and inorganic compounds (as HCl)” to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.13 Chloro-alkanes, C10-C13

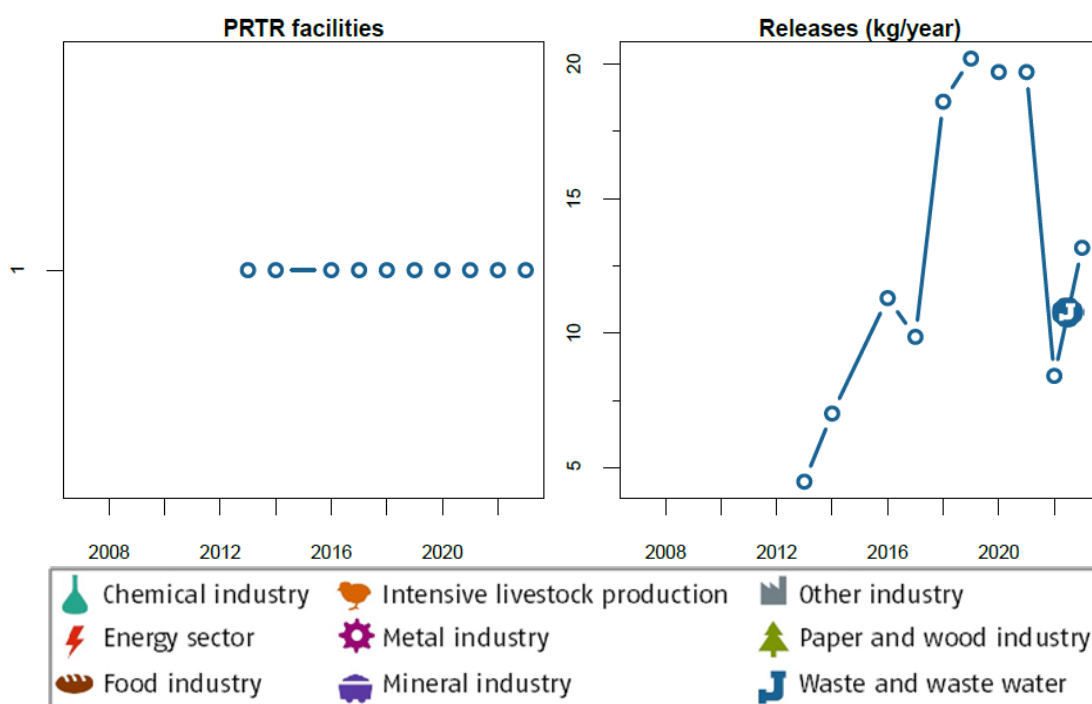
2.13.1 Releases to Water

The threshold is **1 kg “Chloro-alkanes, C10-C13” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 17: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Chloro-alkanes, C10-C13” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	1	100	13.2	100
Total	1	100	13.2	100

Figure 17: Annual number of facilities (left) and their releases (right) of the pollutant “Chloro-alkanes, C10-C13” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.13.2 Releases to Land

The threshold is **1 kg “Chloro-alkanes, C10-C13” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Chloro-alkanes, C10-C13” to **Land** in **2023**.

2.14 Chlorofluorocarbons (CFCs)

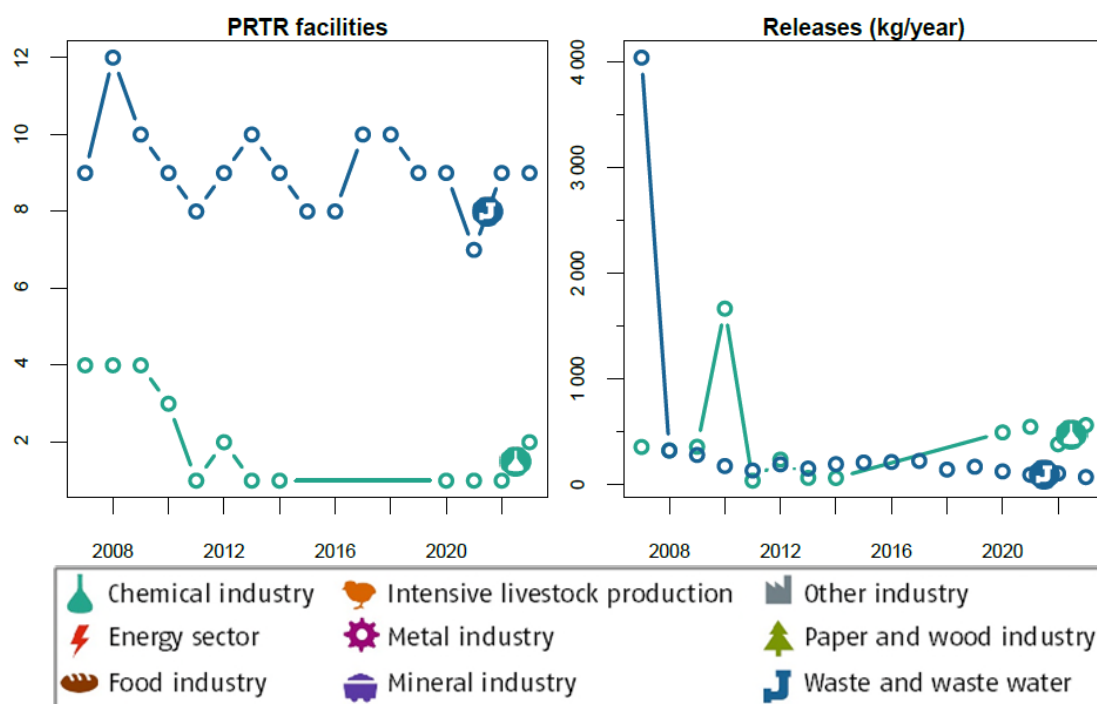
2.14.1 Releases to Air

The threshold is **1 kg “Chlorofluorocarbons (CFCs)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 18: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Chlorofluorocarbons (CFCs)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	2	18.2	562	89.1
Waste and waste water management	9	81.2	69	10.9
Total	11	100	631	100

Figure 18: Annual number of facilities (left) and their releases (right) of the pollutant “Chlorofluorocarbons (CFCs)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.15 Chromium and compounds (as Cr)

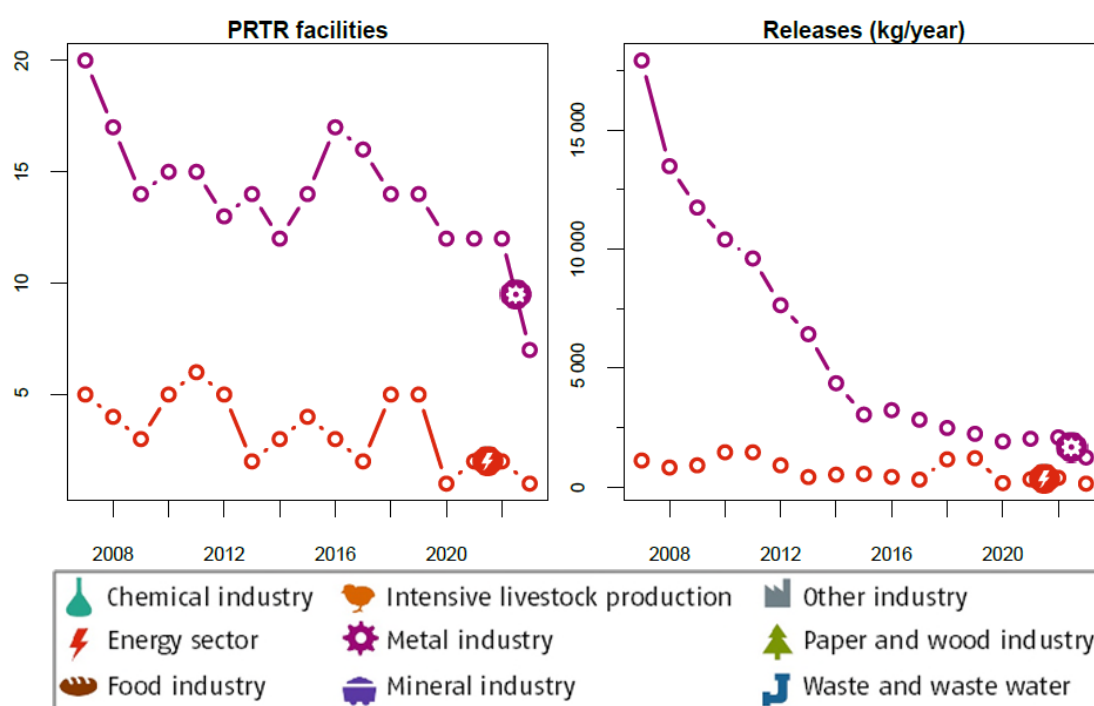
2.15.1 Releases to Air

The threshold is **100 kg “Chromium and compounds (as Cr)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 19: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Chromium and compounds (as Cr)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	7	87.5	1 246	89.4
Energy sector	1	12.5	147	10.6
Total	8	100	1 393	100

Figure 19: Annual number of facilities (left) and their releases (right) of the pollutant “Chromium and compounds (as Cr)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

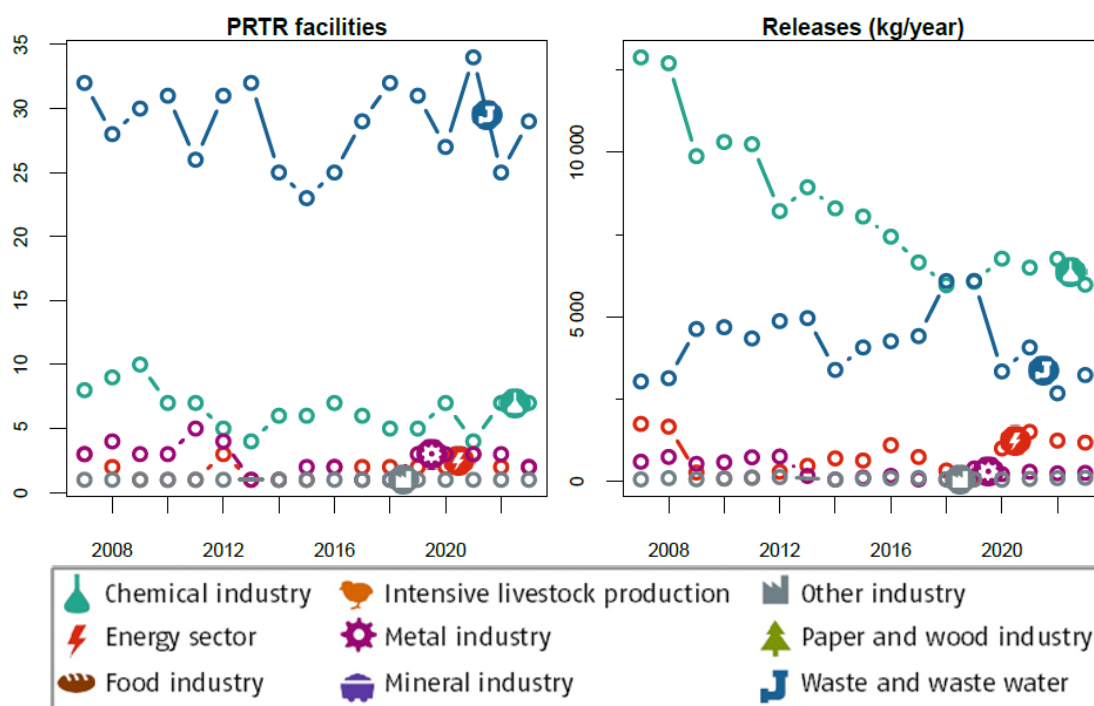
2.15.2 Releases to Water

The threshold is **50 kg “Chromium and compounds (as Cr)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 20: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Chromium and compounds (as Cr)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	7	16.7	5 980	55.1
Waste and waste water management	29	69	3 236	29.8
Energy sector	2	4.76	1 184	10.9
Metal industry	2	4.76	265	2.44
Other industry	1	2.38	115	1.06
Mineral industry	1	2.38	76	0.7
Total	42	100	10 856	100

Figure 20: Annual number of facilities (left) and their releases (right) of the pollutant “Chromium and compounds (as Cr)” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.15.3 Releases to Land

The threshold is **50 kg “Chromium and compounds (as Cr)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Chromium and compounds (as Cr)” to **Land** in 2023.

2.16 Copper and compounds (as Cu)

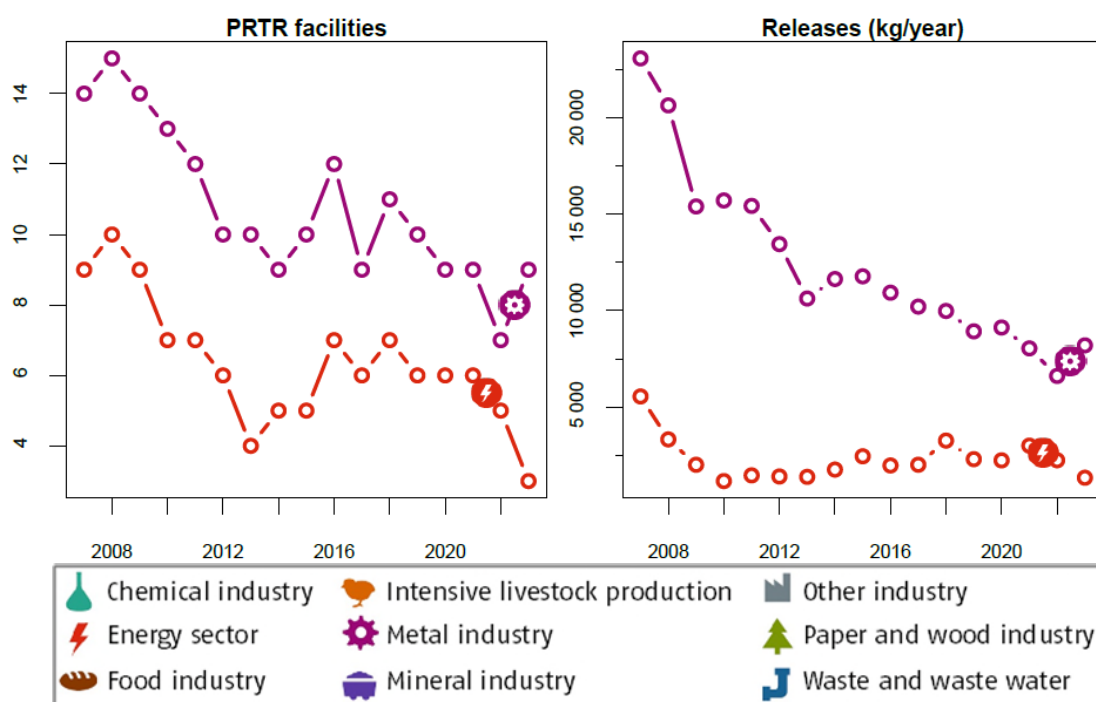
2.16.1 Releases to Air

The threshold is **100 kg “Copper and compounds (as Cu)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 21: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Copper and compounds (as Cu)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	9	75	8 197	86
Energy sector	3	25	1 337	14
Total	12	100	9 534	100

Figure 21: Annual number of facilities (left) and their releases (right) of the pollutant “Copper and compounds (as Cu)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

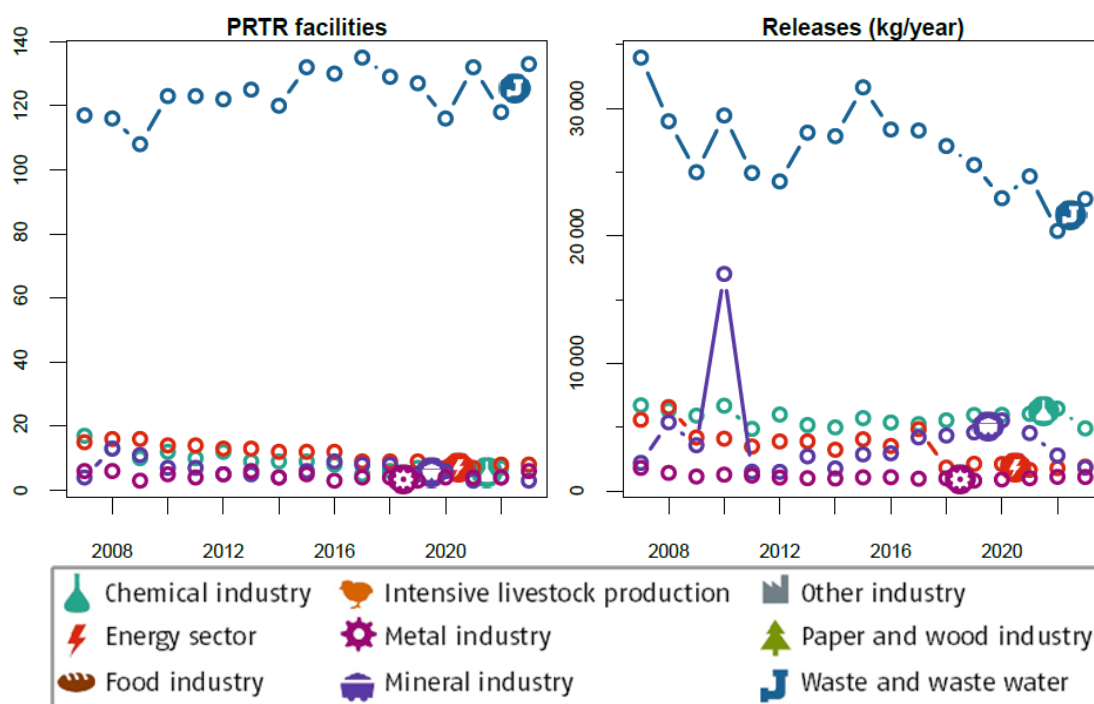
2.16.2 Releases to Water

The threshold is **50 kg “Copper and compounds (as Cu)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 22: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Copper and compounds (as Cu)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	133	82.6	22 897	69.7
Chemical industry	8	4.97	4 907	14.9
Energy sector	8	4.97	1 912	5.82
Mineral industry	3	1.86	1 824	5.56
Metal industry	6	3.73	1 093	3.33
Paper- and wood industry	3	1.86	198	0.604
Total	161	100	32 832	100

Figure 22: Annual number of facilities (left) and their releases (right) of the pollutant “Copper and compounds (as Cu)” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

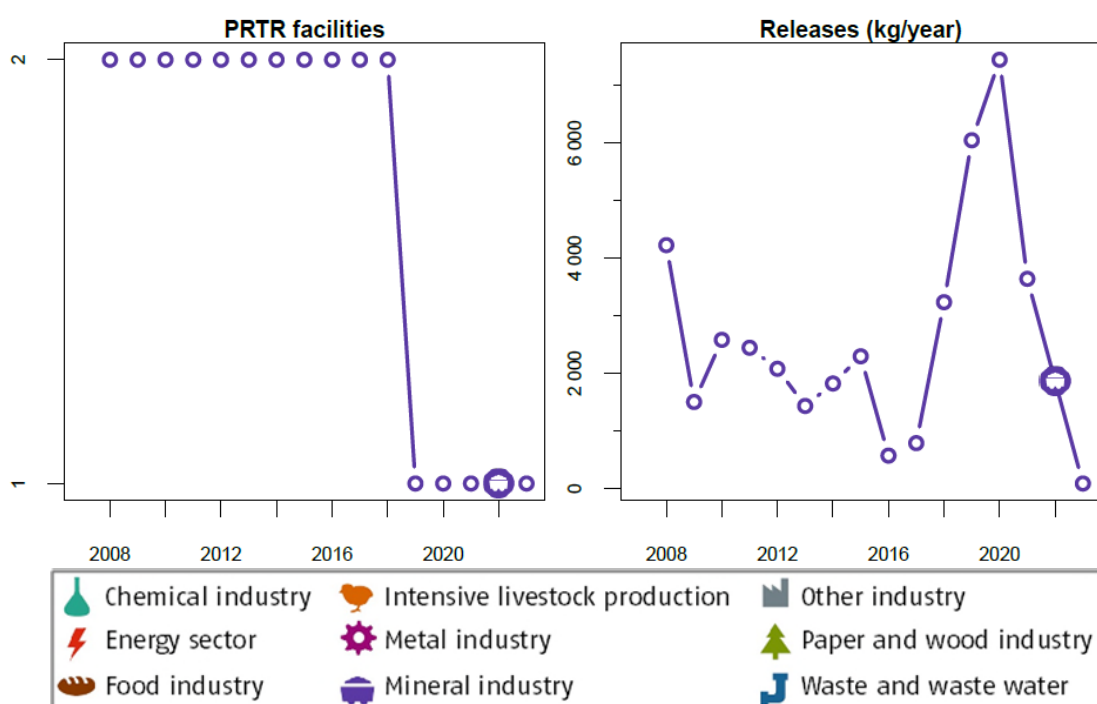
2.16.3 Releases to Land

The threshold is **50 kg “Copper and compounds (as Cu)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

Table 23: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Copper and compounds (as Cu)” to Land of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Mineral industry	1	100	81	100
Total	1	100	81	100

Figure 23: Annual number of facilities (left) and their releases (right) of the pollutant “Copper and compounds (as Cu)” to Land, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.17 Cyanides (as total CN)

2.17.1 Releases to Water

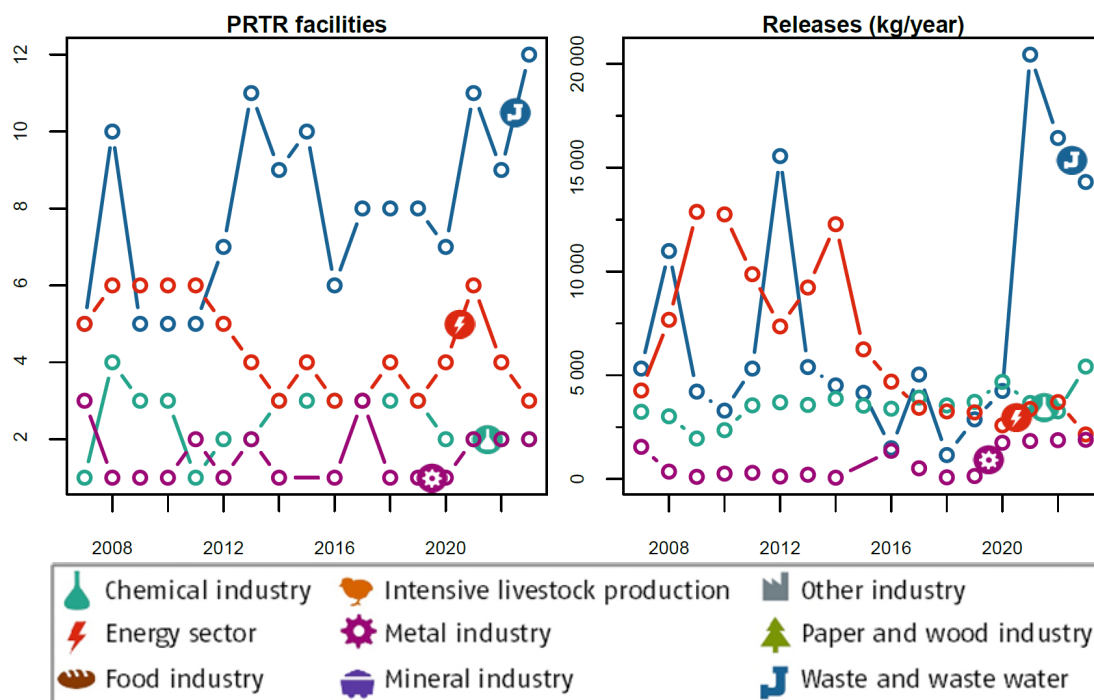
The threshold is **50 kg “Cyanides (as total CN)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 24: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Cyanides (as total CN)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	12	63.2	14 310	60.2
Chemical industry	2	10.5	5 419	22.8
Energy sector	3	15.8	2 148	9.04
Metal industry	2	10.5	1 891	7.96

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Total	19	100	23 768	100

Figure 24: Annual number of facilities (left) and their releases (right) of the pollutant “Cyanides (as total CN)” to Water, each by the 4 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.17.2 Releases to Land

The threshold is **50 kg “Cyanides (as total CN)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Cyanides (as total CN)” to **Land** in **2023**.

2.18 Di-(2-ethyl hexyl) phthalate (DEHP)

2.18.1 Releases to Air

The threshold is **10 kg “Di-(2-ethyl hexyl) phthalate (DEHP)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Di-(2-ethyl hexyl) phthalate (DEHP)” to **Air** in **2023**.

2.18.2 Releases to Water

The threshold is **1 kg “Di-(2-ethyl hexyl) phthalate (DEHP)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

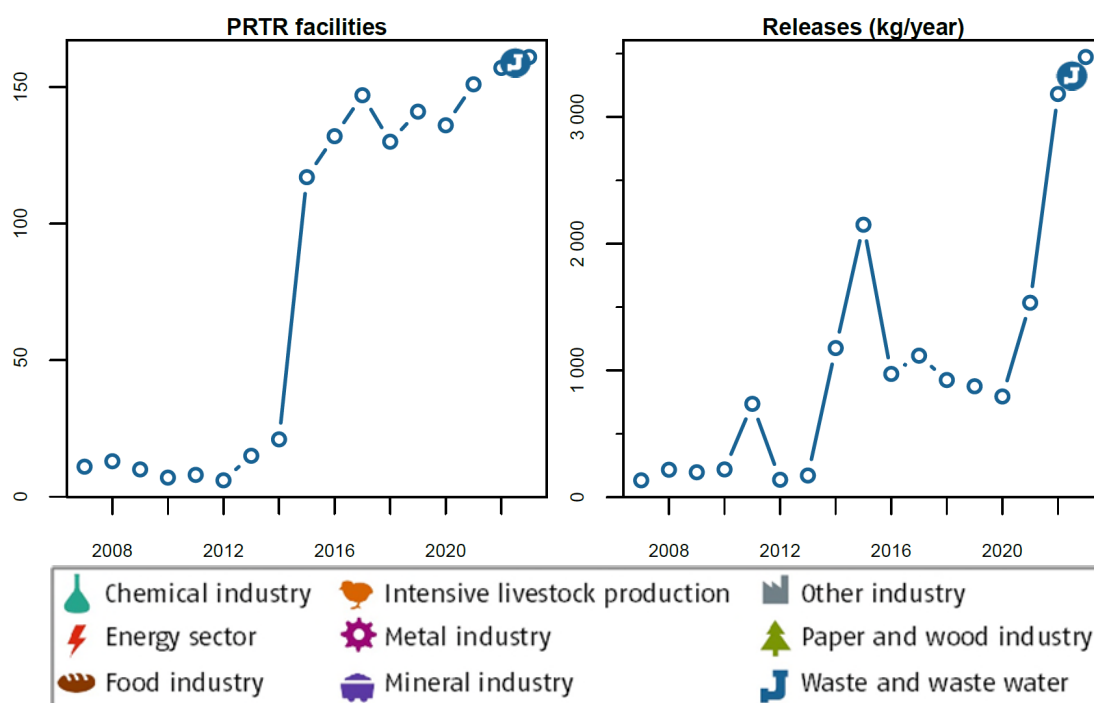
From reporting year 2022, an updated, increased emission factor or average effluent concentration will be used to calculate the pollutant quantities for Di-(2-ethyl hexyl) phthalate (DEHP). The increase in pollutant quantities (from 2022) can be partly based on this.

Further information can be found in the publicly accessible PRTR expert wiki referred to in the introduction.

Table 25: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Di-(2-ethyl hexyl) phthalate (DEHP)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	161	100	3 473	100
Total	161	100	3 473	100

Figure 25: Annual number of facilities (left) and their releases (right) of the pollutant “Di-(2-ethyl hexyl) phthalate (DEHP)” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.18.3 Releases to Land

The threshold is **1 kg “Di-(2-ethyl hexyl) phthalate (DEHP)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Di-(2-ethyl hexyl) phthalate (DEHP)” to **Land** in **2023**.

2.19 Dichloromethane (DCM)

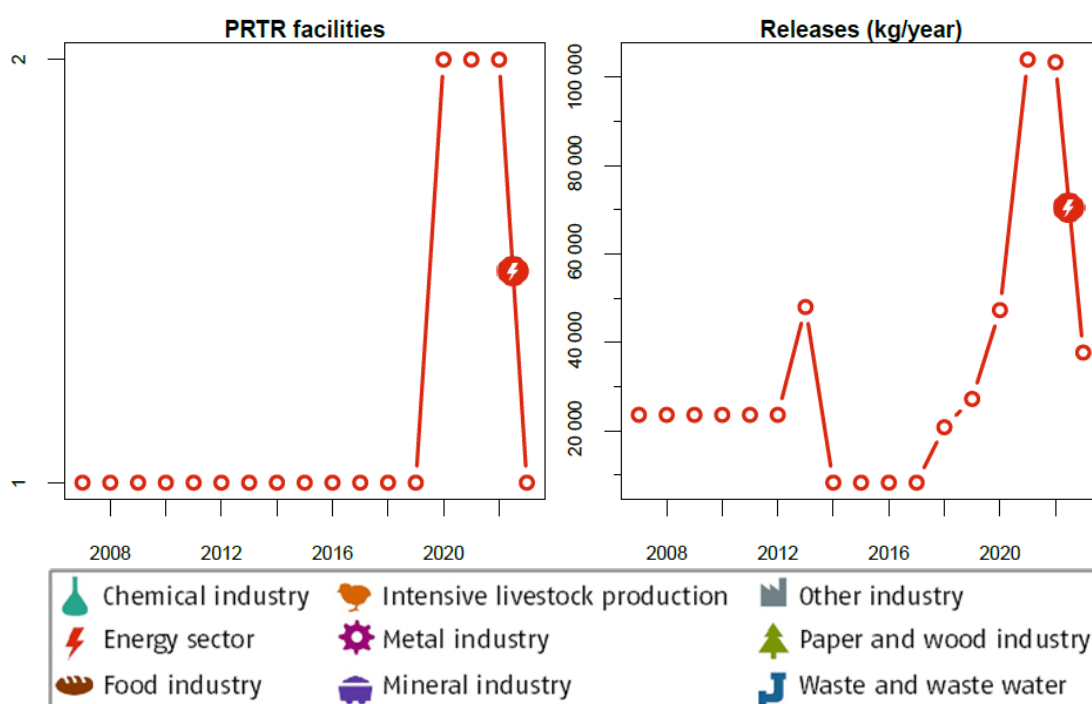
2.19.1 Releases to Air

The threshold is **1 000 kg “Dichloromethane (DCM)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 26: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Dichloromethane (DCM)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	1	100	37 690	100
Total	1	100	37 690	100

Figure 26: Annual number of facilities (left) and their releases (right) of the pollutant “Dichloromethane (DCM)” to Air, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

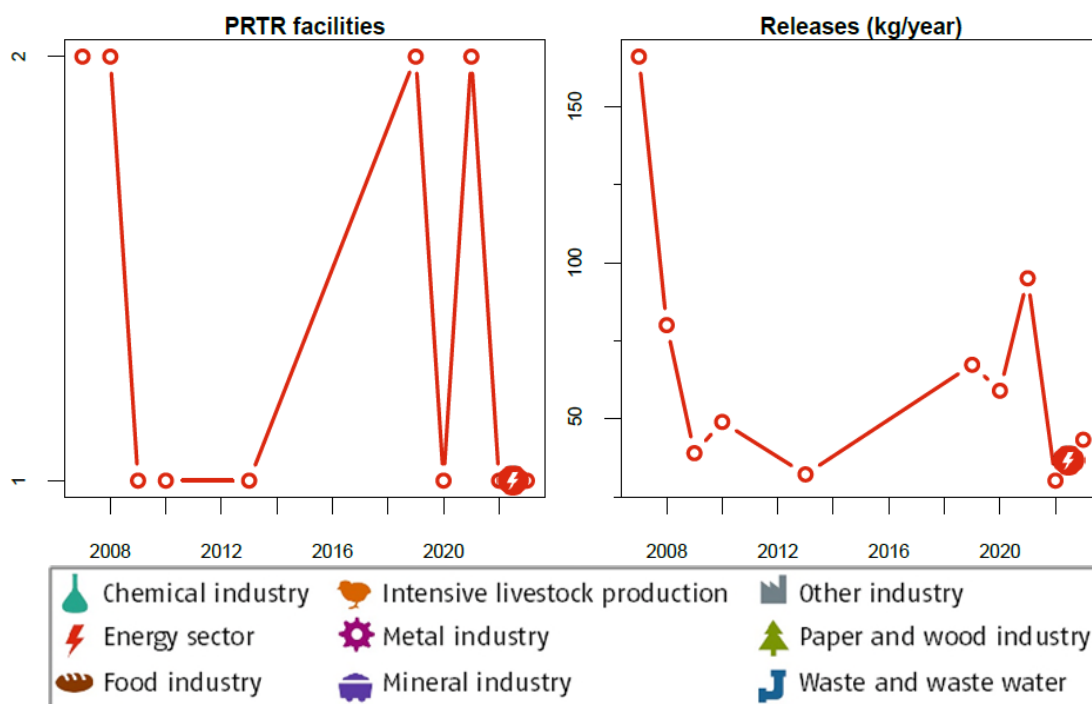
2.19.2 Releases to Water

The threshold is **10 kg “Dichloromethane (DCM)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 27: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Dichloromethane (DCM)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	1	100	43.3	100
Total	100	100	43.3	100

Figure 27: Annual number of facilities (left) and their releases (right) of the pollutant “Dichloromethane (DCM)” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.19.3 Releases to Land

The threshold is **10 kg “Dichloromethane (DCM)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Dichloromethane (DCM)” to **Land** in **2023**.

2.20 Diuron

2.20.1 Releases to Water

The threshold is **1 kg “Diuron” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

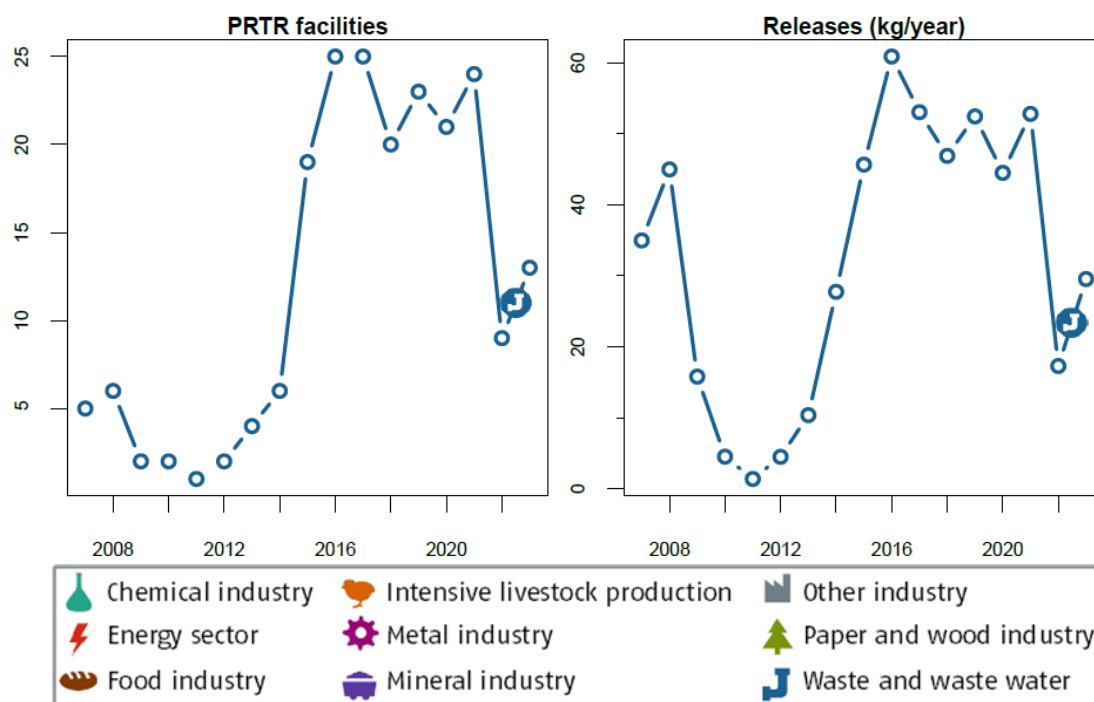
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Diuron. The reduction in pollutant quantities (from 2022) can be partly based on this.

Further information can be found in the publicly accessible PRTR expert wiki referred to in the introduction.

Table 28: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Diuron” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	13	100	29.5	100
Total	13	100	29.5	100

Figure 28: Annual number of facilities (left) and their releases (right) of the pollutant “Diuron” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.20.2 Releases to Land

The threshold is **1 kg “Diuron” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Diuron” to **Land** in **2023**.

2.21 Fluoranthene

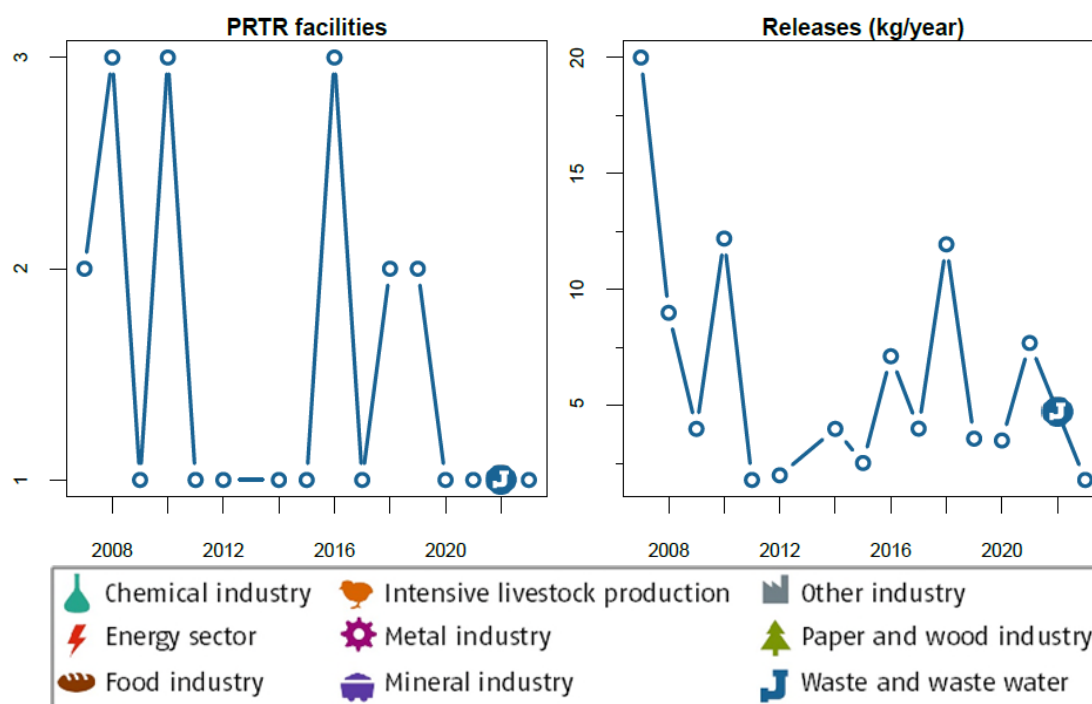
2.21.1 Releases to Water

The threshold is **1 kg “Fluoranthene” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 29: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Fluoranthene” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	1	100	1.8	100
Total	1	100	1.8	100

Figure 29: Annual number of facilities (left) and their releases (right) of the pollutant “Fluoranthene” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.22 Fluorides (as total F)

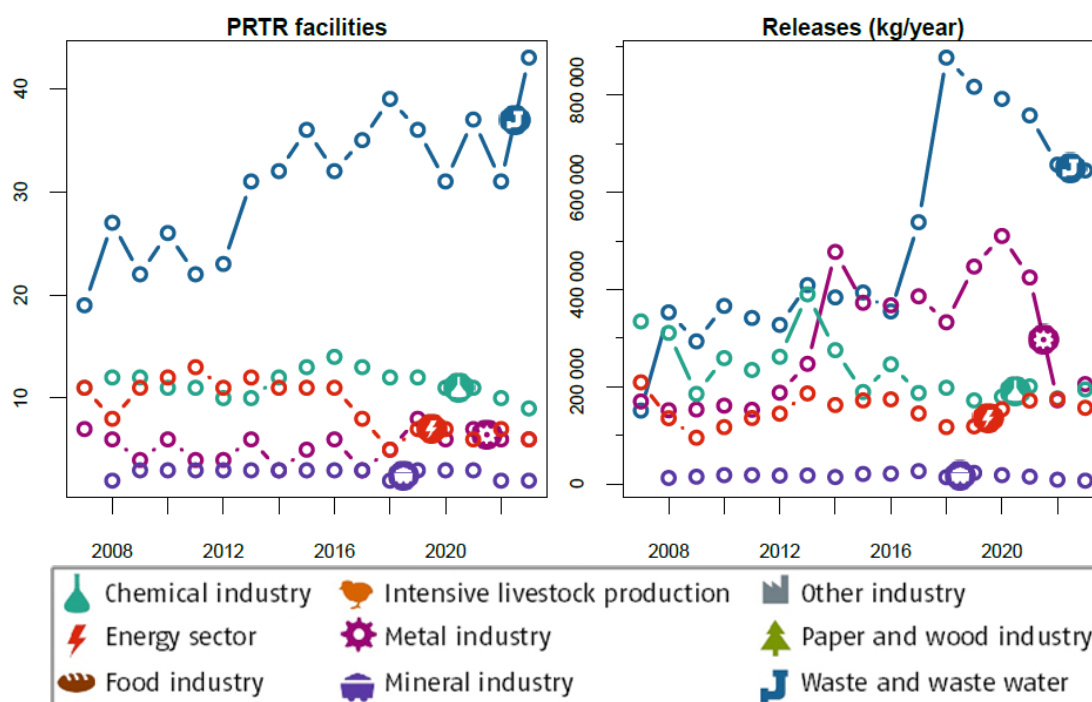
2.22.1 Releases to Water

The threshold is **2 000 kg “Fluorides (as total F)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 30: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Fluorides (as total F)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	43	65.2	645 120	53.4
Metal industry	6	9.09	205 490	17
Chemical industry	9	13.6	194 480	16.1
Energy sector	6	9.09	156 630	13
Mineral industry	2	3.03	6 750	0.559
Total	66	100	1 208 470	100

Figure 30: Annual number of facilities (left) and their releases (right) of the pollutant “Fluorides (as total F)” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.22.2 Releases to Land

The threshold is **2 000 kg “Fluorides (as total F)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Fluorides (as total F)” to **Land** in **2023**.

2.23 Fluorine and inorganic compounds (as HF)

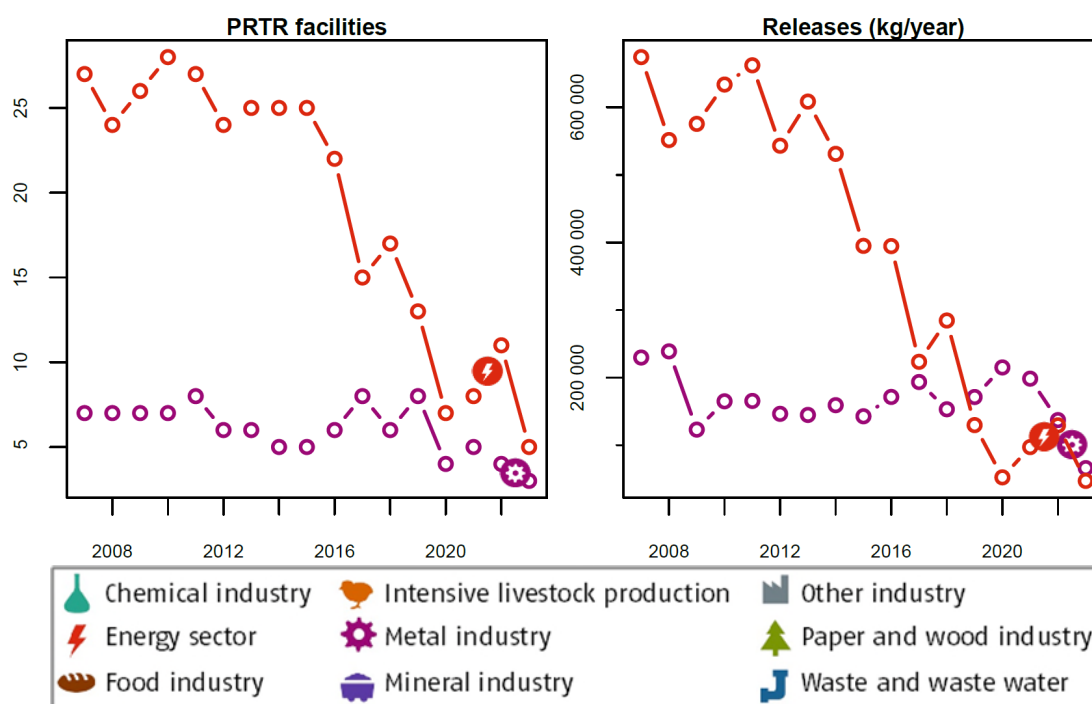
2.23.1 Releases to Air

The threshold is **5 000 kg “Fluorine and inorganic compounds (as HF)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 31: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Fluorine and inorganic compounds (as HF)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	3	37.5	66 180	58.3
Energy sector	5	62.5	47 250	41.7
Total	8	100	113 430	100

Figure 31: Annual number of facilities (left) and their releases (right) of the pollutant “Fluorine and inorganic compounds (as HF)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.24 Halogenated organic compounds (as AOX)

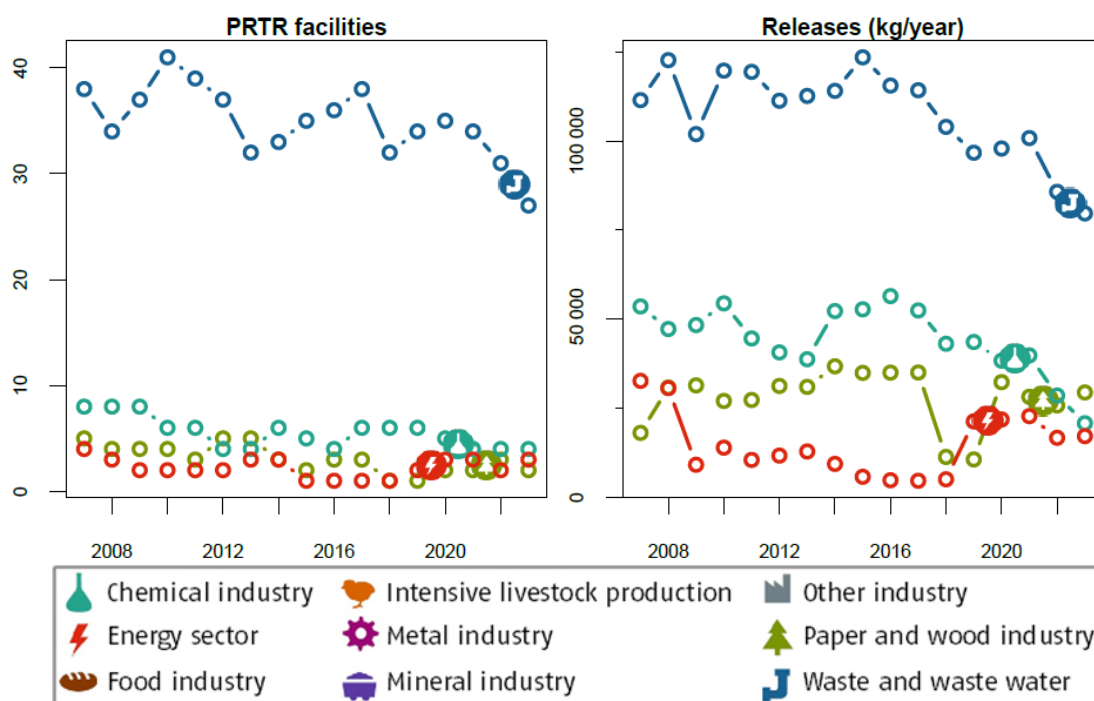
2.24.1 Releases to Water

The threshold is **1 000 kg “Halogenated organic compounds (as AOX)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 32: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Halogenated organic compounds (as AOX)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	27	75	79 680	54.2
Paper- and wood industry	2	5.56	29 410	20
Chemical industry	4	11.1	20 760	14.1
Energy sector	3	8.33	17 140	11.7
Total	36	100	146 990	100

Figure 32: Annual number of facilities (left) and their releases (right) of the pollutant “Halogenated organic compounds (as AOX)” to Water, each by the 4 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.24.2 Releases to Land

The threshold is **1 000 kg “Halogenated organic compounds (as AOX)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Halogenated organic compounds (as AOX)” to **Land** in **2023**.

2.25 Hydrochlorofluorocarbons (HCFCs)

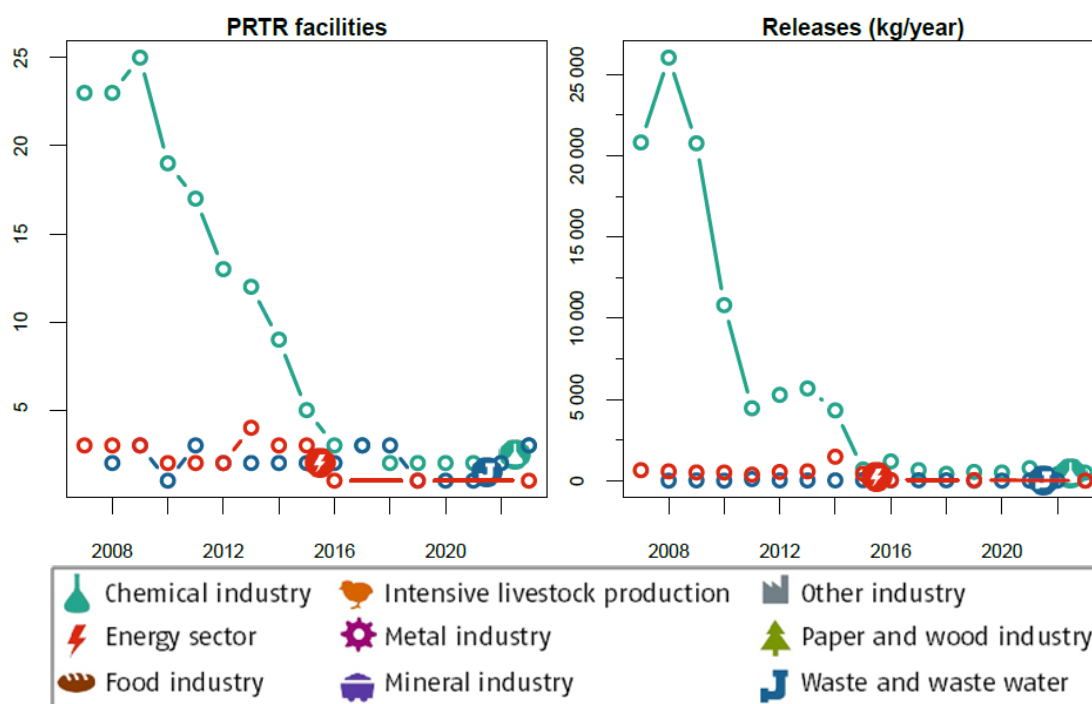
2.25.1 Releases to Air

The threshold is **1 kg “Hydrochlorofluorocarbons (HCFCs)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 33: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Hydrochlorofluorocarbons (HCFCs)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	3	42.9	493	97.7
Waste and waste water management	3	42.9	10.1	2
Energy sector	1	14.3	1.3	0.258
Total	7	100	504	100

Figure 33: Annual number of facilities (left) and their releases (right) of the pollutant “Hydrochlorofluorocarbons (HCFCs)” to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.26 Hydro-fluorocarbons (HFCs)

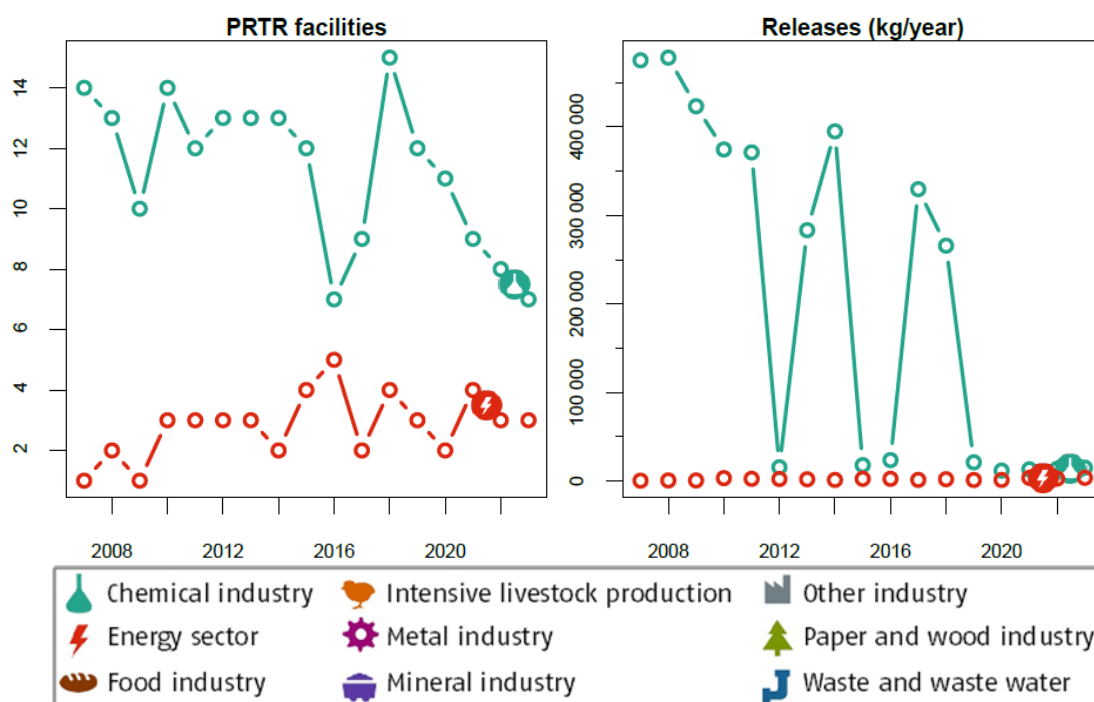
2.26.1 Umweltmedium Luft

The threshold is **100 kg “Hydro-fluorocarbons (HFCs)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 34: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Hydro-fluorocarbons (HFCs)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	7	70	15 030	80.8
Energy sector	3	30	3 565	19.2
Total	10	100	18 595	100

Figure 34: Annual number of facilities (left) and their releases (right) of the pollutant “Hydro-fluorocarbons (HFCs)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.27 Hydrogen cyanide (HCN)

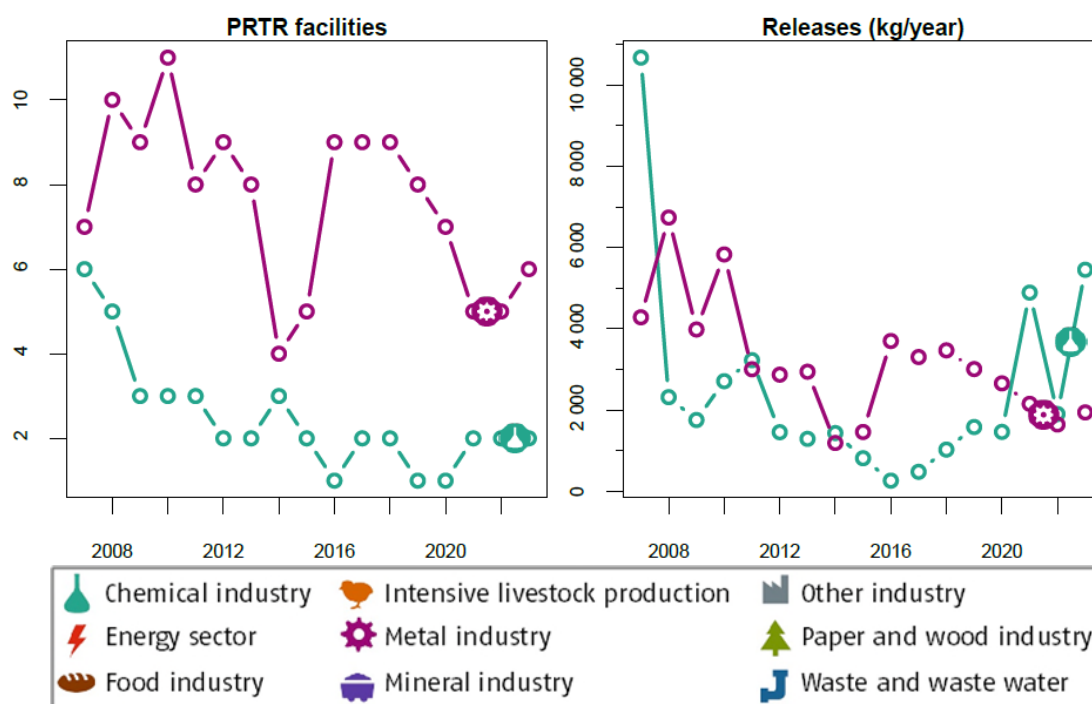
2.27.1 Releases to Air

The threshold is **200 kg “Hydrogen cyanide (HCN)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 35: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Hydrogen cyanide (HCN)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	2	25	5 453	37.8
Metal industry	6	75	1 940	26.2
Total	8	100	7 393	100

Figure 35: Annual number of facilities (left) and their releases (right) of the pollutant “Hydrogen cyanide (HCN)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.28 Isoproturon

2.28.1 Releases to Water

The threshold is **1 kg “Isoproturon” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

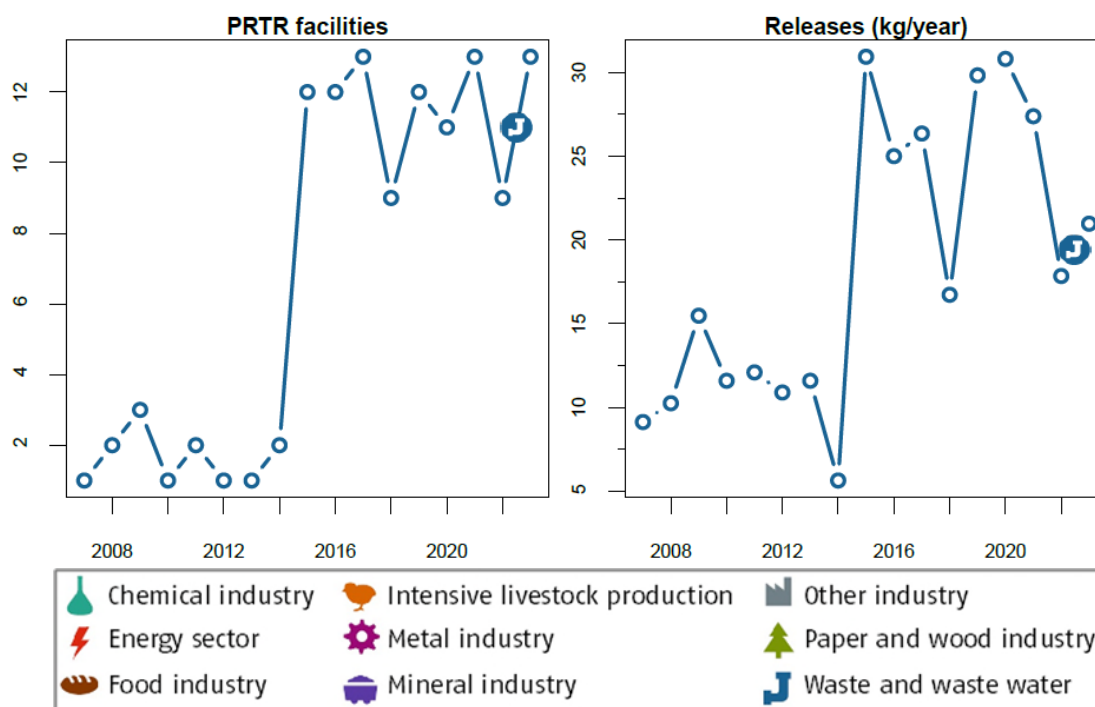
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Isoproturon. The reduction in pollutant quantities (from 2022) can be partly based on this.

Further information can be found in the publicly accessible PRTR expert wiki referred to in the introduction.

Table 36: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Isoproturon” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	13	100	21	100
Total	13	100	21	100

Figure 36: Annual number of facilities (left) and their releases (right) of the pollutant “Isoproturon” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.28.2 Releases to Land

The threshold is **1 kg “Isoproturon” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Isoproturon” to **Land** in **2023**.

2.29 Lead and compounds (as Pb)

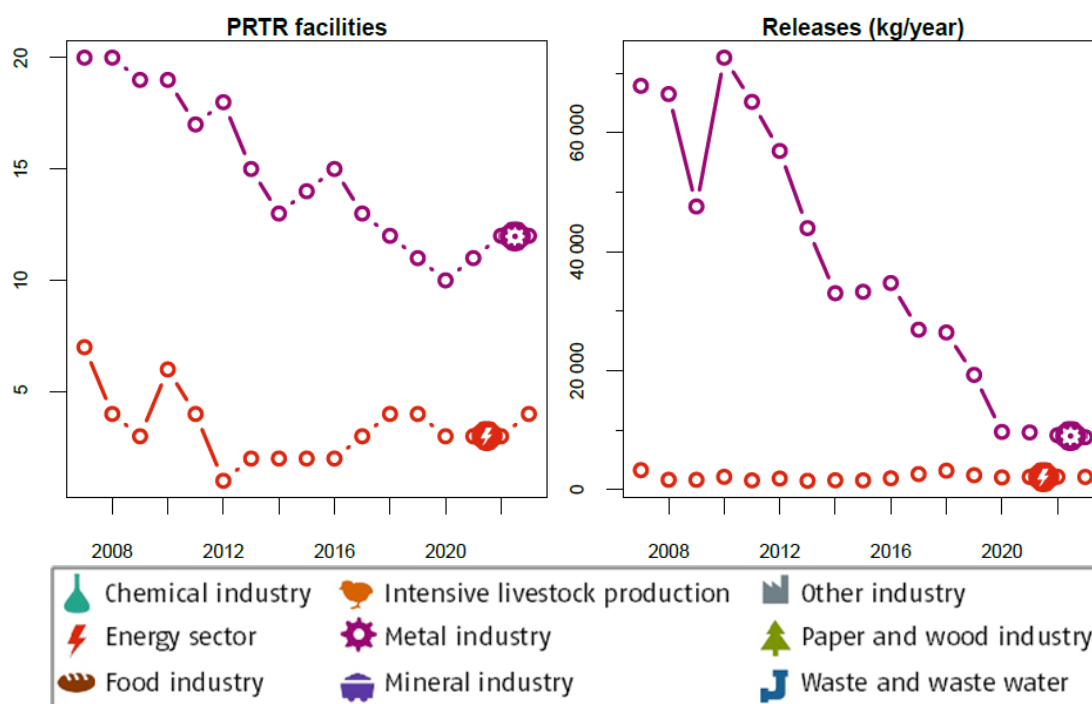
2.29.1 Releases to Air

The threshold is **200 kg “Lead and compounds (as Pb)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 37: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Lead and compounds (as Pb)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	12	75	8 804	80.5
Energy sector	4	25	2 134	19.5
Total	16	100	10 938	100

Figure 37: Annual number of facilities (left) and their releases (right) of the pollutant “Lead and compounds (as Pb)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.29.2 Releases to Water

The threshold is **20 kg “Lead and compounds (as Pb)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

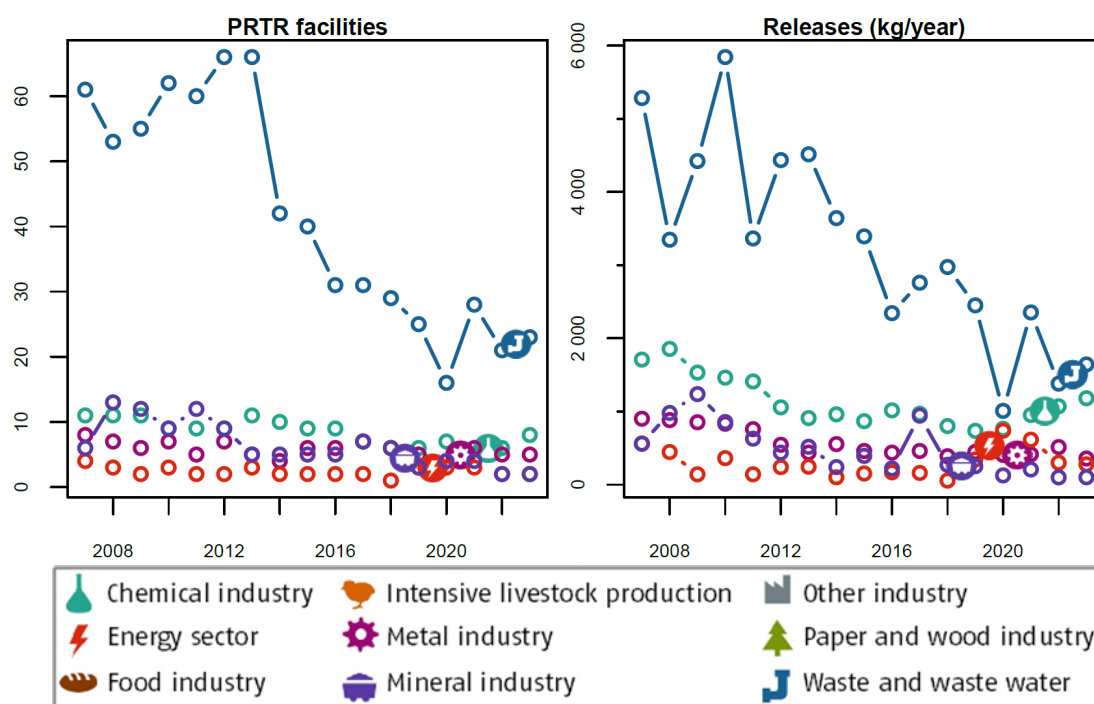
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Lead and compounds. The reduction in pollutant quantities (from 2022) can be partly based on this.

Further information can be found in the publicly accessible PRTR expert wiki referred to in the introduction.

Table 38: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Lead and compounds (as Pb)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	23	57.5	1 642	46.2
Chemical industry	8	20	1 180	33.2
Metal industry	5	12.5	357	10
Energy sector	2	5	277	7.79
Mineral industry	2	5	101	2.84
Total	40	100	3 558	100

Figure 38: Annual number of facilities (left) and their releases (right) of the pollutant “Lead and compounds (as Pb)” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.29.3 Releases to Land

The threshold is **20 kg “Lead and compounds (as Pb)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Lead and compounds (as Pb)” to **Land** in 2023.

2.30 Mercury and compounds (as Hg)

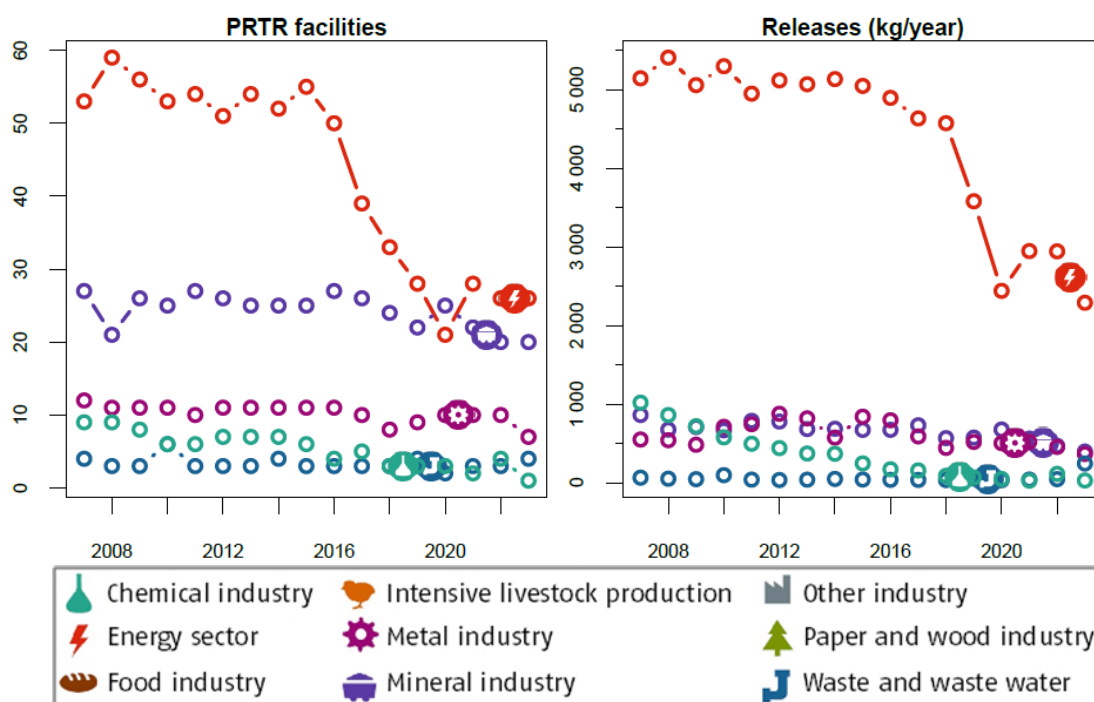
2.30.1 Releases to Air

The threshold is **10 kg “Mercury and compounds (as Hg)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 39: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Mercury and compounds (as Hg)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	26	44.8	2 291	68.9
Mineral industry	20	34.5	396	11.9
Metal industry	7	12.1	366	11
Waste and waste water management	4	6.9	244	7.34
Chemical industry	1	1.72	28.2	0.848
Total	58	100	3 326	100

Figure 39: Annual number of facilities (left) and their releases (right) of the pollutant “Mercury and compounds (as Hg)” to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.30.2 Releases to Water

The threshold is **1 kg “Mercury and compounds (as Hg)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

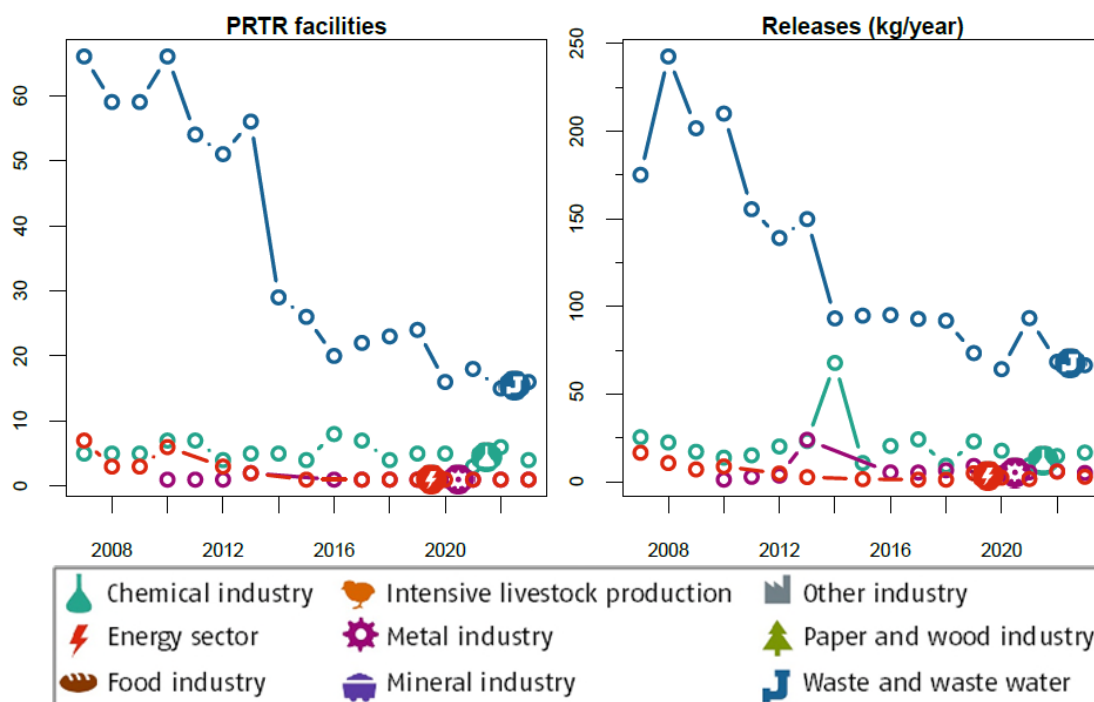
From reporting year 2022, an updated, increased emission factor or average effluent concentration will be used to calculate the pollutant quantities for Mercury and compounds. An increase in pollutant quantities (from 2022) cannot be seen or depicted in Figure 40 due to strong fluctuations in reporting facilities.

Further information can be found in the publicly accessible PRTR expert wiki referred to in the introduction.

Table 40: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Mercury and compounds (as Hg)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	16	72.7	66.5	73.1
Chemical industry	4	18.2	16.6	18.3
Metal industry	1	4.55	5	5.5
Energy sector	1	4.55	2.81	3.09
Total	22	100	90.9	100

Figure 40: Annual number of facilities (left) and their releases (right) of the pollutant “Mercury and compounds (as Hg)” to Water, each by the 4 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.30.3 Releases to Land

The threshold is **1 kg “Mercury and compounds (as Hg)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Mercury and compounds (as Hg)” to **Land** in **2023**.

2.31 Methane (CH₄)

2.31.1 Umweltmedium Luft

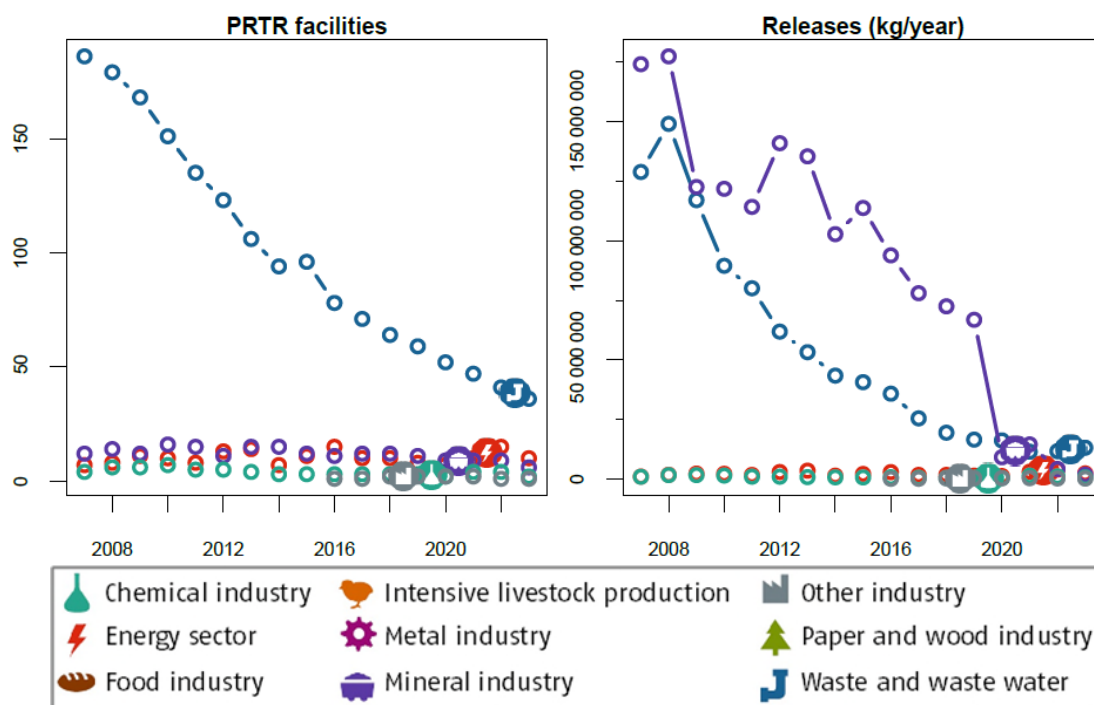
The threshold is **100 000 kg “Methane (CH₄)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 41: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Methane (CH₄)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	36	64.3	13 155 000	71.8
Energy sector	10	17.9	2 377 000	13
Mineral industry	6	10.7	1 794 000	9.79
Chemical Industry	2	3.57	693 000	3.78
Other Industry	1	1.79	200 000	1.09
Intensive livestock production and aquaculture	1	1.79	104 000	0.568

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Total	56	100	18 323 000	100

Figure 41: Annual number of facilities (left) and their releases (right) of the pollutant “Methane (CH₄)” to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.32 Naphthalene

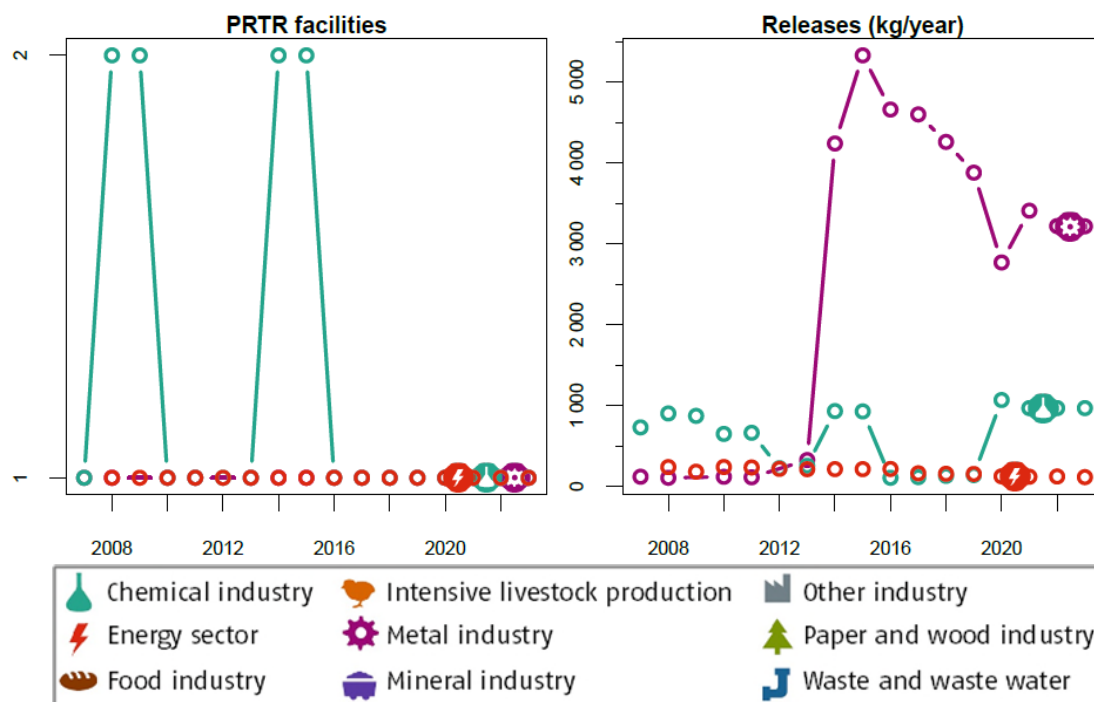
2.32.1 Releases to Air

The threshold is **100 kg “Naphthalene” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 42: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Naphthalene” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	1	33.3	3 217	74.7
Chemical industry	1	33.3	970	22.5
Energy sector	1	33.3	117	2.72
Total	3	100	4 304	100

Figure 42: Annual number of facilities (left) and their releases (right) of the pollutant “Naphthalene” to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.32.2 Releases to Water

The threshold is **10 kg “Naphthalene” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Naphthalene” to **Water** in **2023**.

2.32.3 Releases to Land

The threshold is **10 kg “Naphthalene” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Naphthalene” to **Land** in **2023**.

2.33 Nickel and compounds (as Ni)

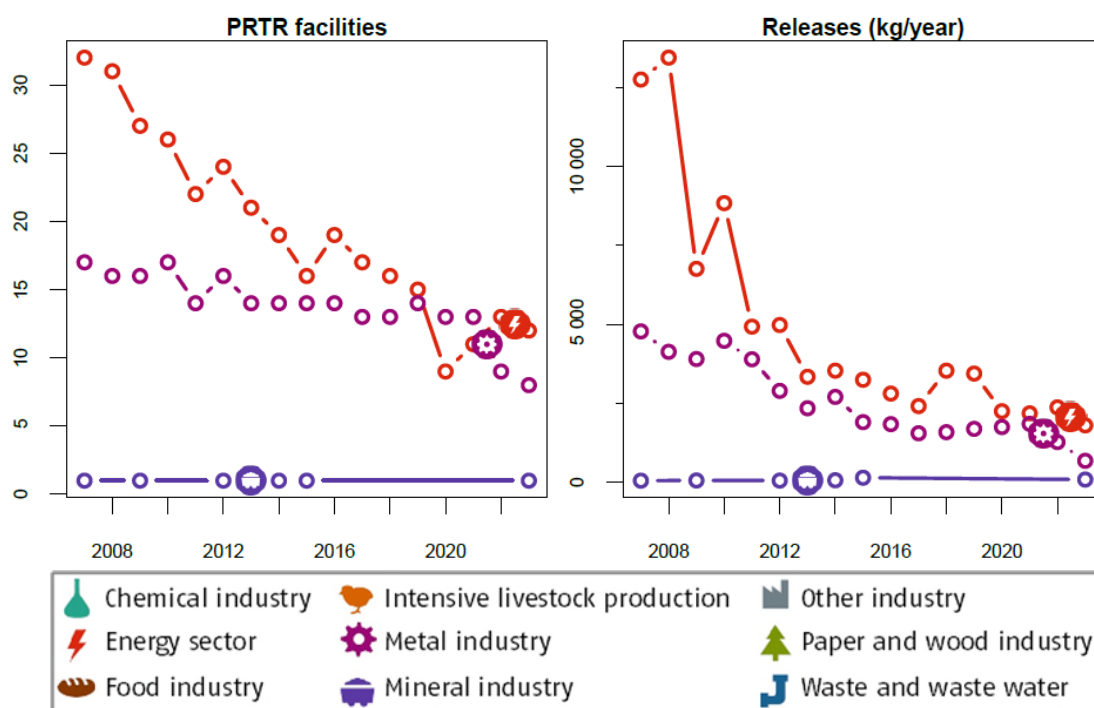
2.33.1 Releases to Air

The threshold is **50 kg “Nickel and compounds (as Ni)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 43: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Nickel and compounds (as Ni)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	12	57.1	1 802	70.1
Metal industry	8	38.1	680	26.5
Mineral industry	1	4.76	87	3.39
Total	21	100	2 569	100

Figure 43: Annual number of facilities (left) and their releases (right) of the pollutant “Nickel and compounds (as Ni)” to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.33.2 Releases to Water

The threshold is **20 kg “Nickel and compounds (as Ni)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

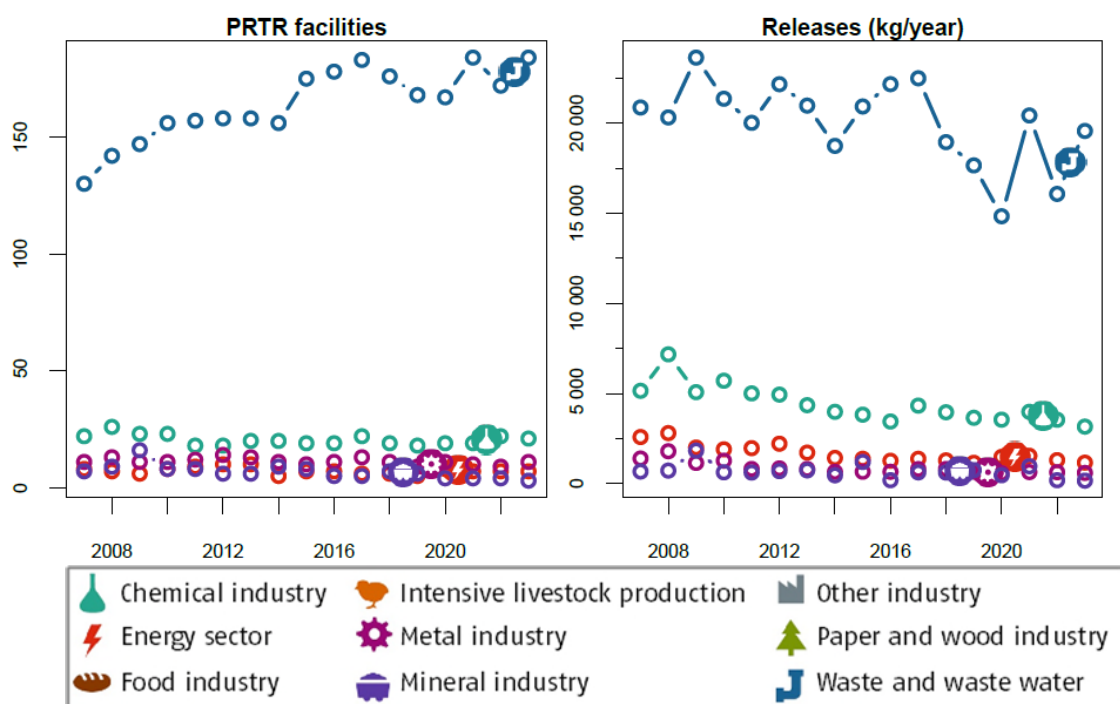
From reporting year 2022, an updated, increased emission factor or average effluent concentration will be used to calculate the pollutant quantities for Nickel and compounds. An increase in pollutant quantities (from 2022) cannot be seen or depicted in Figure 44 due to strong fluctuations in reporting facilities.

Further information can be found in the publicly accessible PRTR expert wiki referred to in the introduction.

Table 44: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Nickel and compounds (as Ni)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	184	80.7	19 560	78.9
Chemical industry	21	9.21	3 171	12.8
Energy sector	7	3.07	1 173	4.73
Metal industry	11	4.82	603	2.43
Mineral industry	3	1.32	175	0.707
Paper- and wood industry	2	0.877	120	0.484
Total	228	100	24 802	100

Figure 44: Annual number of facilities (left) and their releases (right) of the pollutant “Nickel and compounds (as Ni)” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

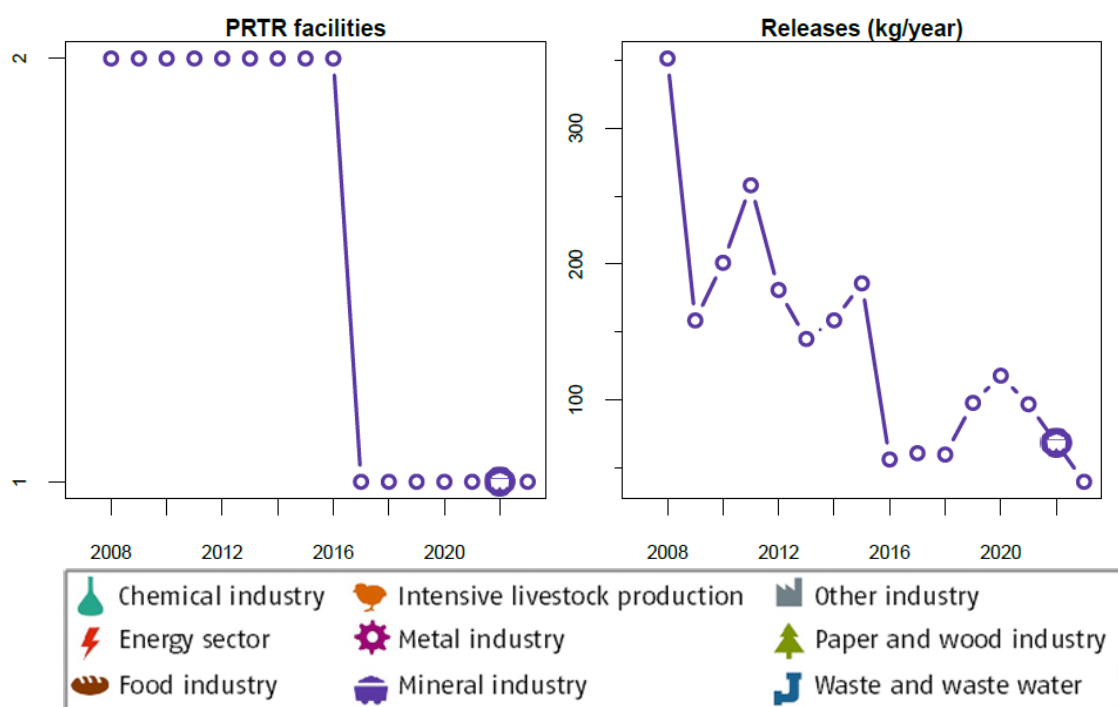
2.33.3 Releases to Land

The threshold is **20 kg “Nickel and compounds (as Ni)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

Table 45: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Nickel and compounds (as Ni)” to Land of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Mineral industry	1	100	40	100
Total	1	100	40	100

Figure 45: Annual number of facilities (left) and their releases (right) of the pollutant “Nickel and compounds (as Ni)” to Land, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.34 Nitrogen oxides (NO_x/NO₂)

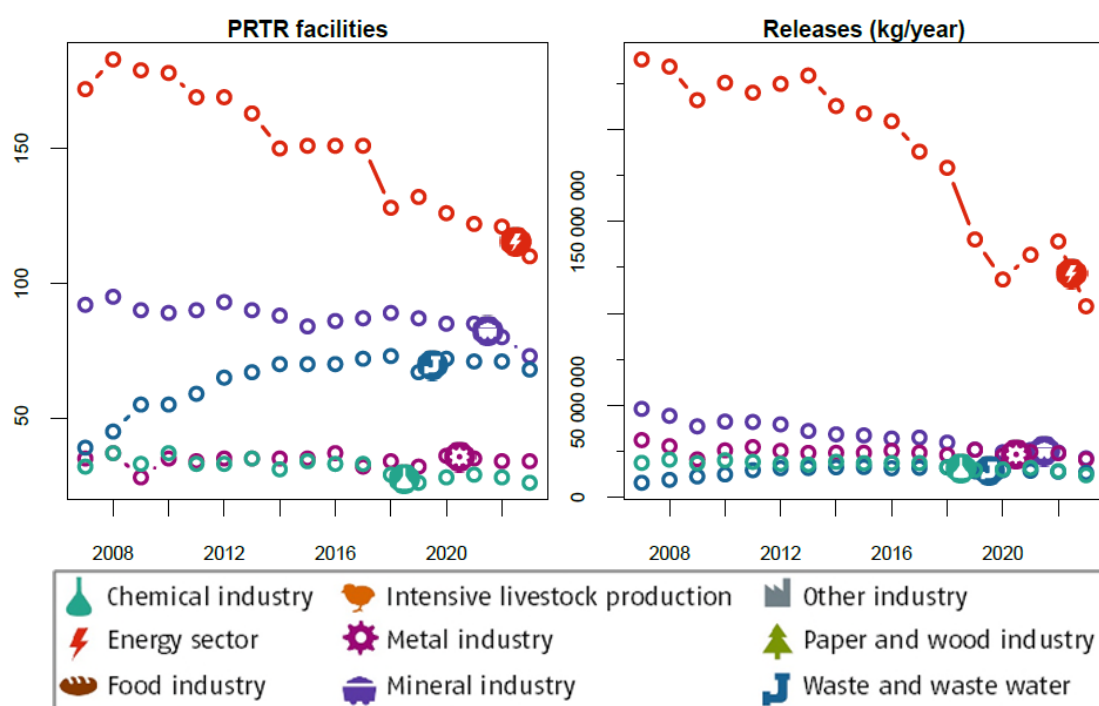
2.34.1 Releases to Air

The threshold is **100 000 kg “Nitrogen oxides (NO_x/NO₂)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 46: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Nitrogen oxides (NO_x/NO₂)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	110	31.4	103 844 000	57.8
Mineral industry	73	20.9	20 982 000	11.7
Metal industry	34	9.71	20 458 000	11.4
Waste and waste water management	68	19.4	13 102 000	7.29
Chemical industry	26	7.43	11 787 000	6.56
Paper- and wood industry	29	8.29	7 726 000	4.3
Food industry	6	1.71	1 189 000	0.662
Other industry	4	1.14	584 000	0.325
Total	350	100	179 672 000	100

Figure 46: Annual number of facilities (left) and their releases (right) of the pollutant “Nitrogen oxides (NO_x/NO₂)” to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.35 Nitrous oxide (N₂O)

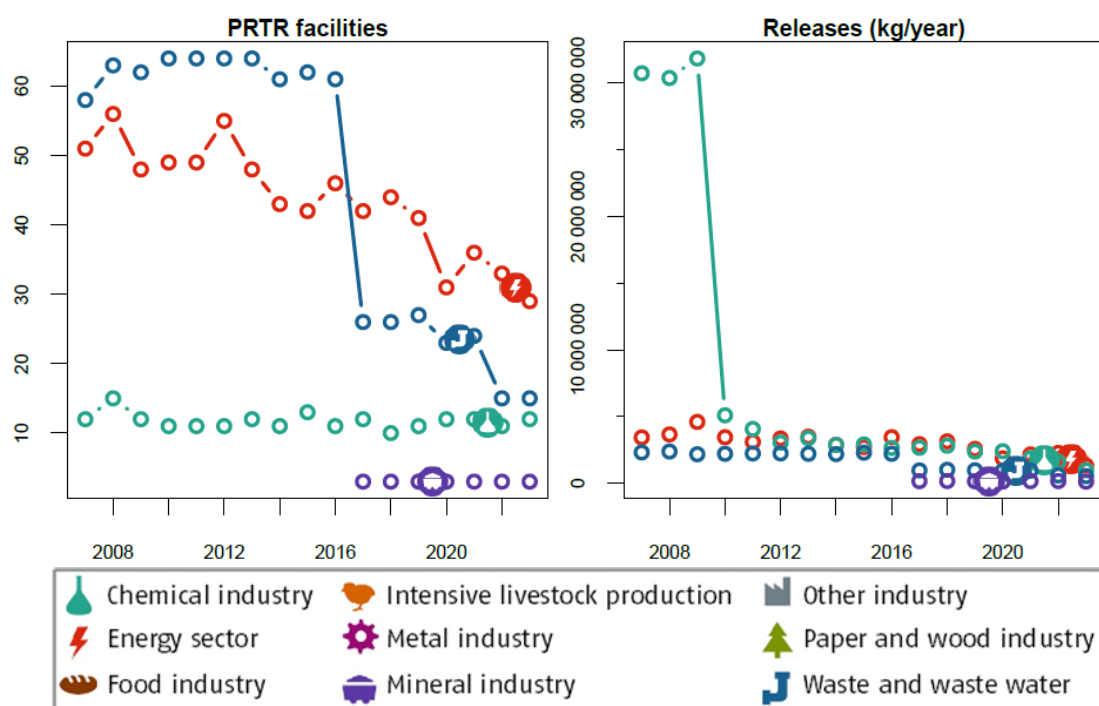
2.35.1 Releases to Air

The threshold is **10 000 kg “Nitrous oxide (N₂O)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 47: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Nitrous oxide (N₂O)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	29	49.2	1 329 900	44.8
Chemical industry	12	20.3	976 800	32.9
Waste and waste water management	15	25.4	536 300	18.1
Mineral industry	3	5.08	123 600	4.17
Total	59	100	2 966 600	100

Figure 47: Annual number of facilities (left) and their releases (right) of the pollutant “Nitrous oxide (N₂O)” to Air, each by the 4 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.36 Non-methane volatile organic compounds (NMVOC)

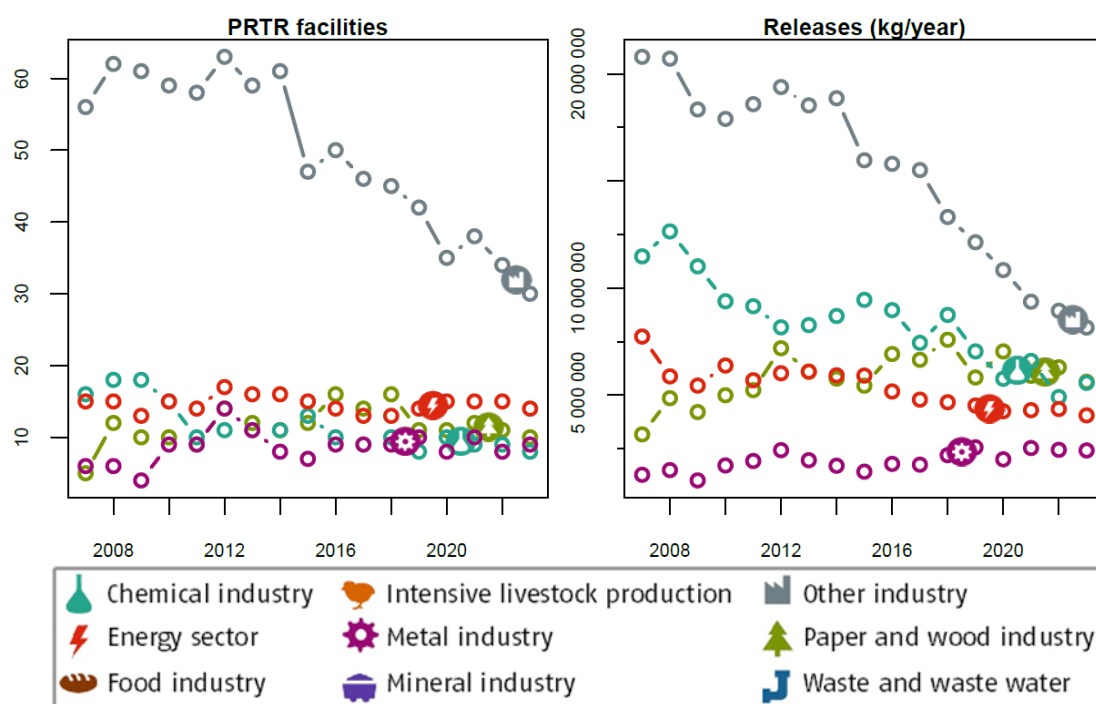
2.36.1 Releases to Air

The threshold is **100 000 kg “Non-methane volatile organic compounds (NMVOC)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 48: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Non-methane volatile organic compounds (NMVOC)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Other industry	30	37.5	8 156 000	28.9
Paper- and wood industry	10	12.5	5 625 000	19.9
Chemical industry	8	10	5 575 000	19.8
Energy sector	14	17.5	4 059 000	14.4
Metal industry	9	11.2	2 419 000	8.57
Food industry	9	11.2	2 387 000	8.46
Total	87	100	29 432 000	100

Figure 48: Annual number of facilities (left) and their releases (right) of the pollutant “Non-methane volatile organic compounds (NMVOC)” to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.37 Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)

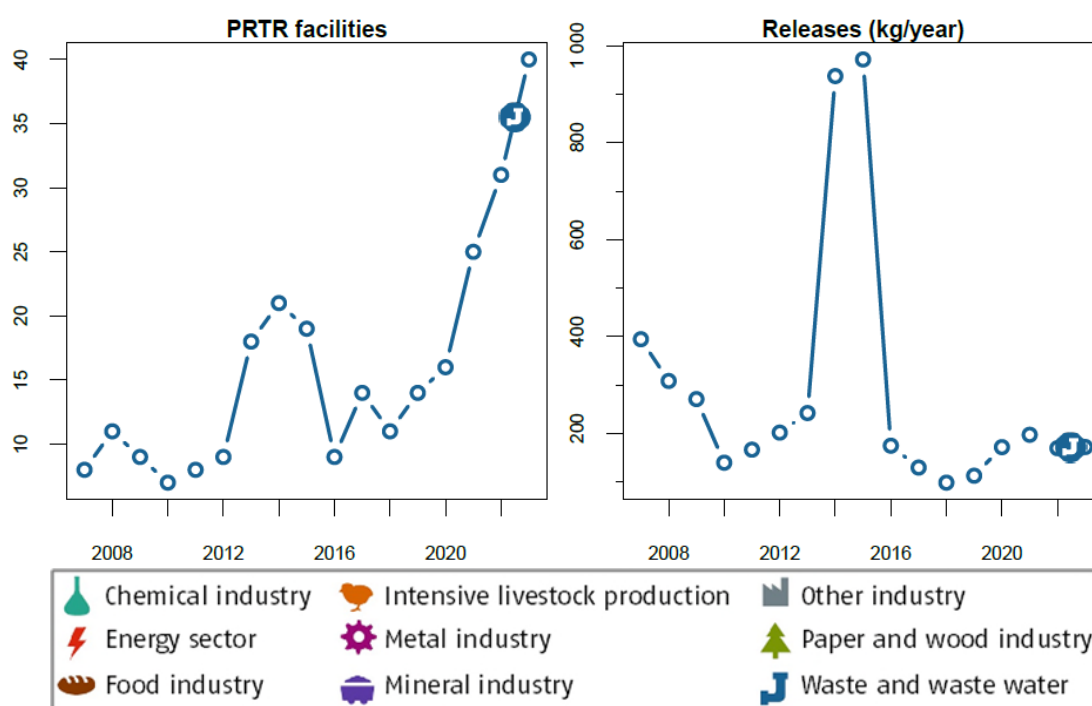
2.37.1 Releases to Water

The threshold is **1 kg “Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 49: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	40	100	172	100
Total	40	100	172	100

Figure 49: Annual number of facilities (left) and their releases (right) of the pollutant “Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.37.2 Releases to Soil

The threshold is **1 kg “Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)” to **Land** in **2023**.

2.38 Octylphenols and Octylphenol ethoxylates

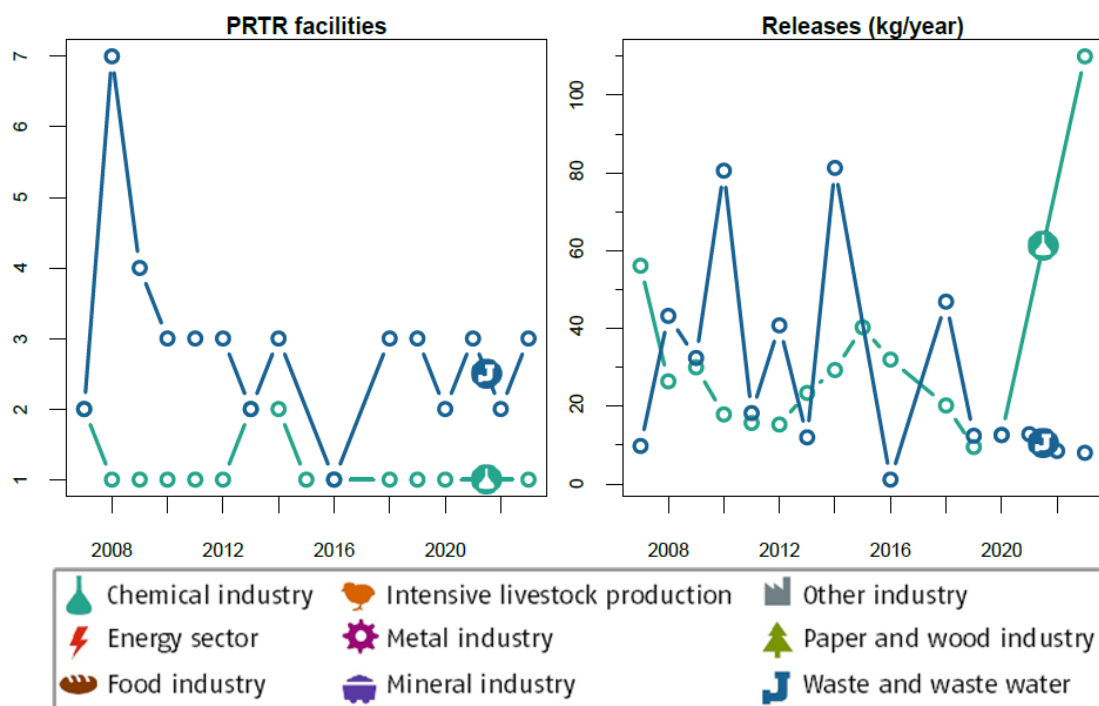
2.38.1 Releases to Water

The threshold is **1 kg “Octylphenols and Octylphenol ethoxylates” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 50: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Octylphenols and Octylphenol ethoxylates” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	1	25	110	93.2
Waste and waste water management	3	75	8.02	6.8
Total	4	100	8.5	100

Figure 50: Annual number of facilities (left) and their releases (right) of the pollutant “Octylphenols and Octylphenol ethoxylates” to Water, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.39 Particulate matter (PM10)

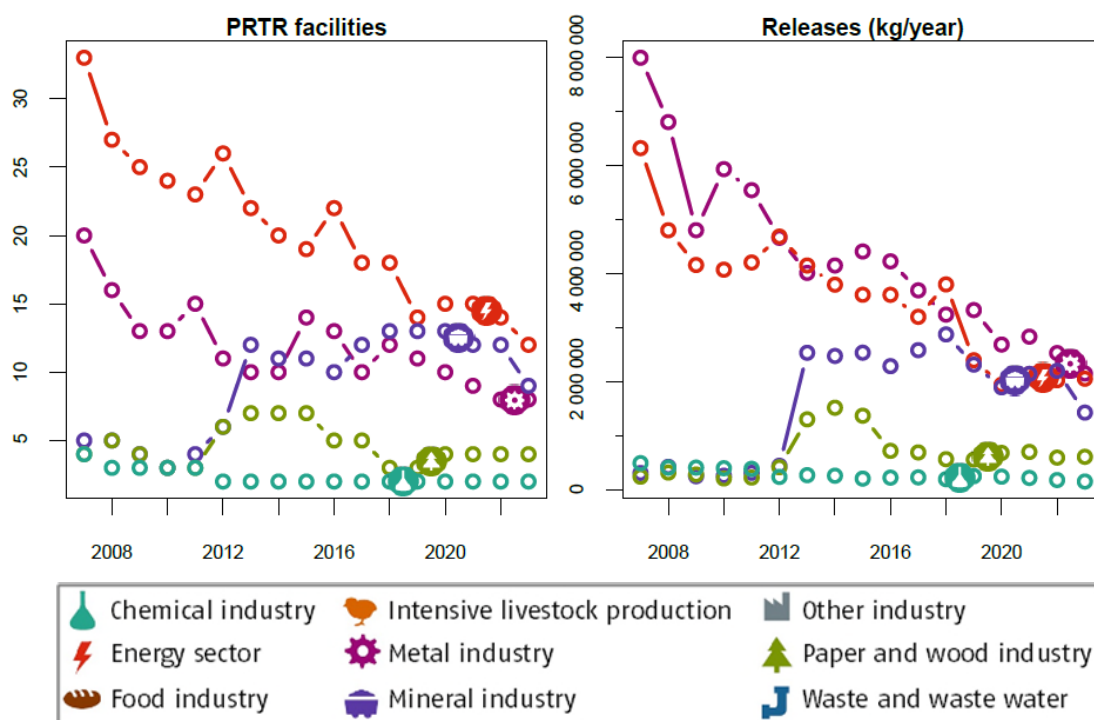
2.39.1 Releases to Air

The threshold is **50 000 kg “Particulate matter (PM10)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 51: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Particulate matter (PM10)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	8	21.6	2 149 200	33
Energy sector	12	32.4	2 052 800	31.5
Mineral industry	9	24.3	1 425 600	21.9
Paper- and wood industry	4	10.8	606 200	9.31
Chemical industry	2	5.41	148 200	2.28
Intensive livestock production and aquaculture	2	5.41	130 300	2
Total	37	100	6 512 300	100

Figure 51: Annual number of facilities (left) and their releases (right) of the pollutant “Particulate matter (PM10)” to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.40 PCDD + PCDF (dioxins + furans) (as Teq)

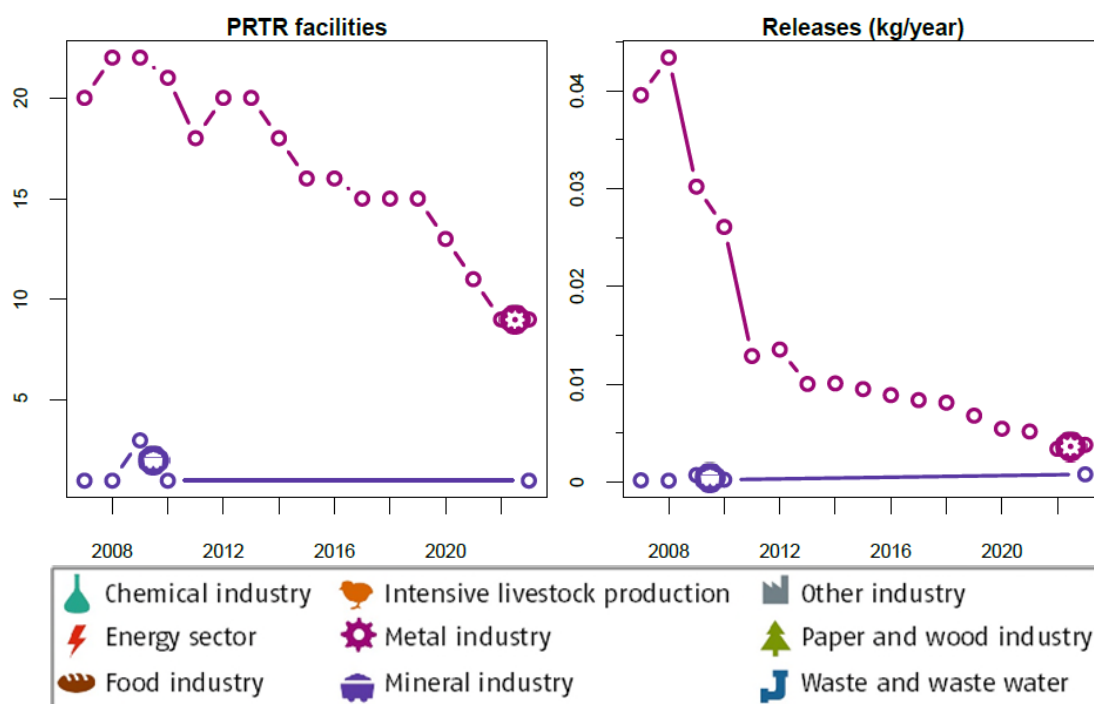
2.40.1 Releases to Air

The threshold is **0,0001 kg “PCDD + PCDF (dioxins + furans) (as Teq)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 52: For the reporting year 2023 -Number of facilities and their releases of the pollutant “PCDD + PCDF (dioxins + furans) (as Teq)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	9	90	0.00379	83.1
Mineral industry	1	10	0.00077	16.9
Total	10	100	0.00456	100

Figure 52: Annual number of facilities (left) and their releases (right) of the pollutant “PCDD + PCDF (dioxins + furans) (as Teq)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.40.2 Releases to Water

The threshold is **0,0001 kg “PCDD + PCDF (dioxins + furans) (as Teq)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “PCDD + PCDF (dioxins + furans) (as Teq)” to **Water** in 2023.

2.40.3 Releases to Land

The threshold is **0,0001 kg “PCDD + PCDF (dioxins + furans) (as Teq)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “PCDD + PCDF (dioxins + furans) (as Teq)” to Land in 2023.

2.41 Pentachlorophenol (PCP)

2.41.1 Releases to Air

The threshold is **10 kg “Pentachlorophenol (PCP)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Pentachlorophenol (PCP) “ to **Air** in 2023.

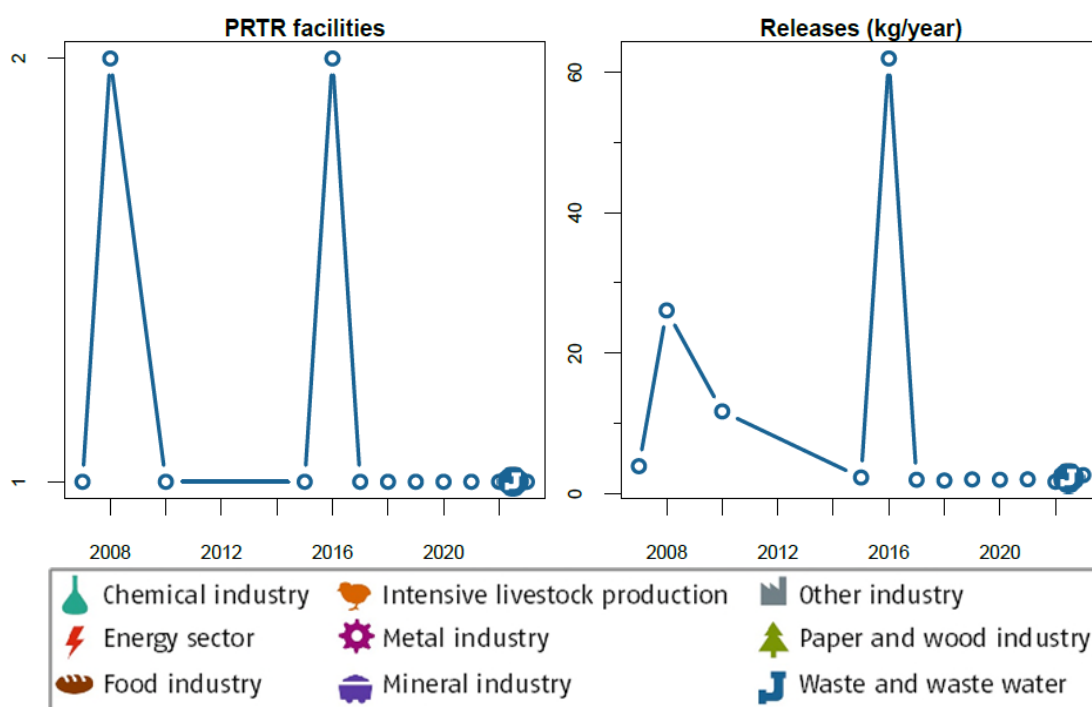
2.41.2 Releases to Water

The threshold is **1 kg “Pentachlorophenol (PCP)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 53: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Pentachlorophenol (PCP)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	1	100	2.63	100
Total	1	100	2.63	100

Figure 53: Annual number of facilities (left) and their releases (right) of the pollutant “Pentachlorophenol (PCP)” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.41.3 Releases to Land

The threshold is **1 kg “Pentachlorophenol (PCP)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of **“Pentachlorophenol (PCP)” to Land** in **2023**.

2.42 Perfluorocarbons (PFCs)

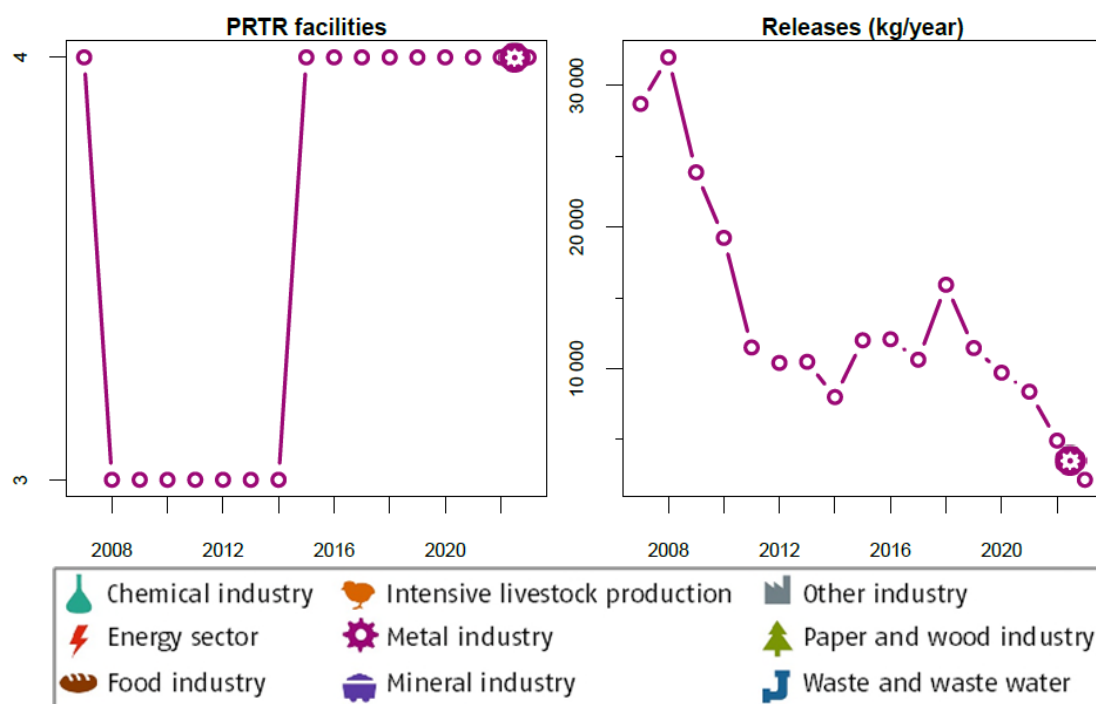
2.42.1 Releases to Air

The threshold is **100 kg “Perfluorocarbons (PFCs)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 54: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Perfluorocarbons (PFCs)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	4	100	2 159	100
Total	4	100	2 159	100

Figure 54: Annual number of facilities (left) and their releases (right) of the pollutant “Perfluorocarbons (PFCs)” to Air, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.43 Phenols (as total C)

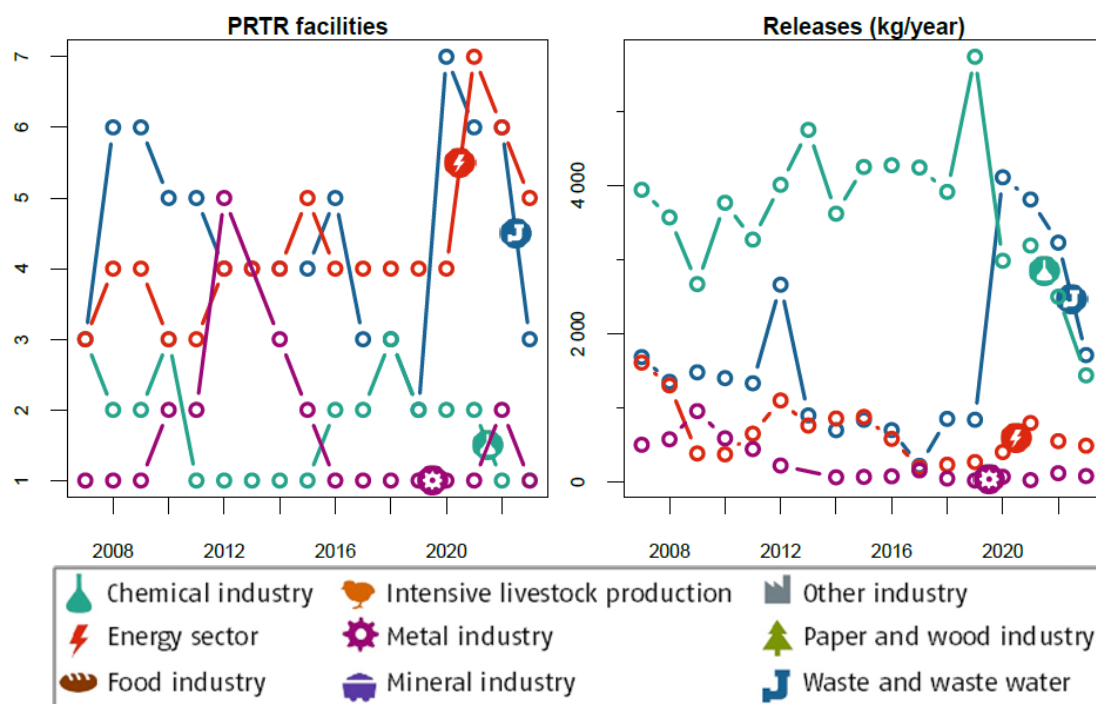
2.43.1 Releases to Water

The threshold is **20 kg “Phenols (as total C)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 55: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Phenols (as total C)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	3	30	1 713	46
Chemical industry	1	10	1 440	38.7
Energy sector	5	50	490	13.2
Metal industry	1	10	81.4	2.19
Total	10	100	3 725	100

Figure 55: Annual number of facilities (left) and their releases (right) of the pollutant “Phenols (as total C)” to Water, each by the 4 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.43.2 Releases to Land

The threshold is **20 kg “Phenols (as total C)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Phenols” to Land in 2023.

2.44 Polycyclic aromatic hydrocarbons (PAHs)

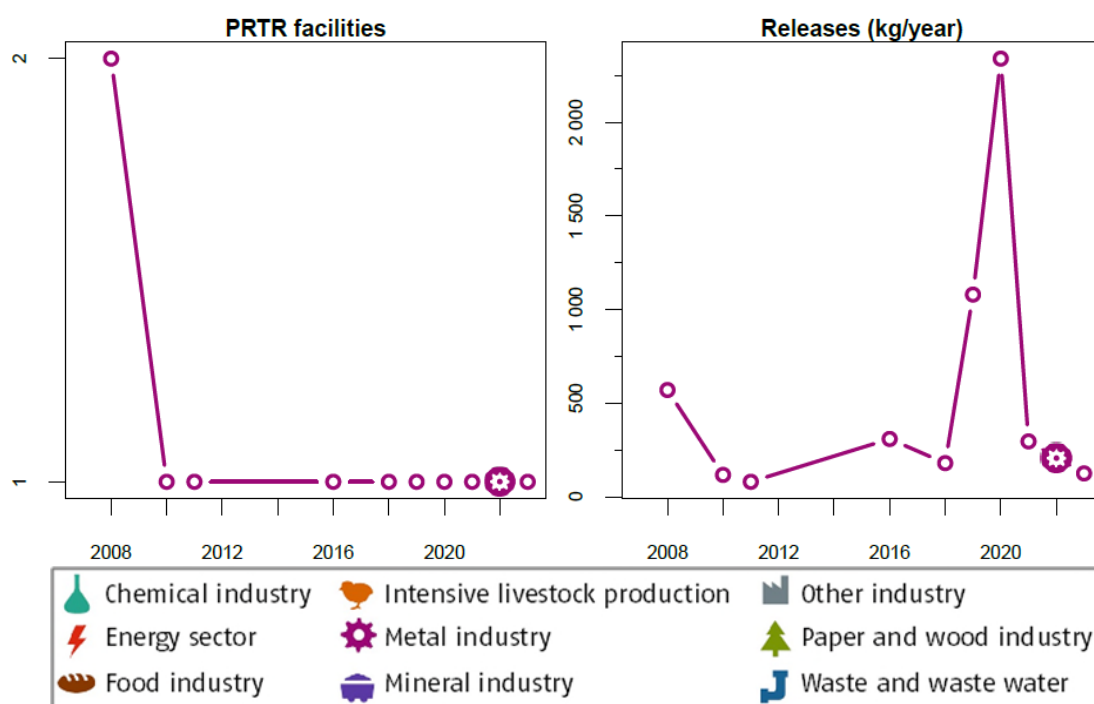
2.44.1 Releases to Air

The threshold is **50 kg “Polycyclic aromatic hydrocarbons (PAHs)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 56: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Polycyclic aromatic hydrocarbons (PAHs)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	1	100	125	100
Total	1	100	125	100

Figure 56: Annual number of facilities (left) and their releases (right) of the pollutant “Polycyclic aromatic hydrocarbons (PAHs)” to Air, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.44.2 Releases to Water

The threshold is **5 kg “Polycyclic aromatic hydrocarbons (PAHs)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

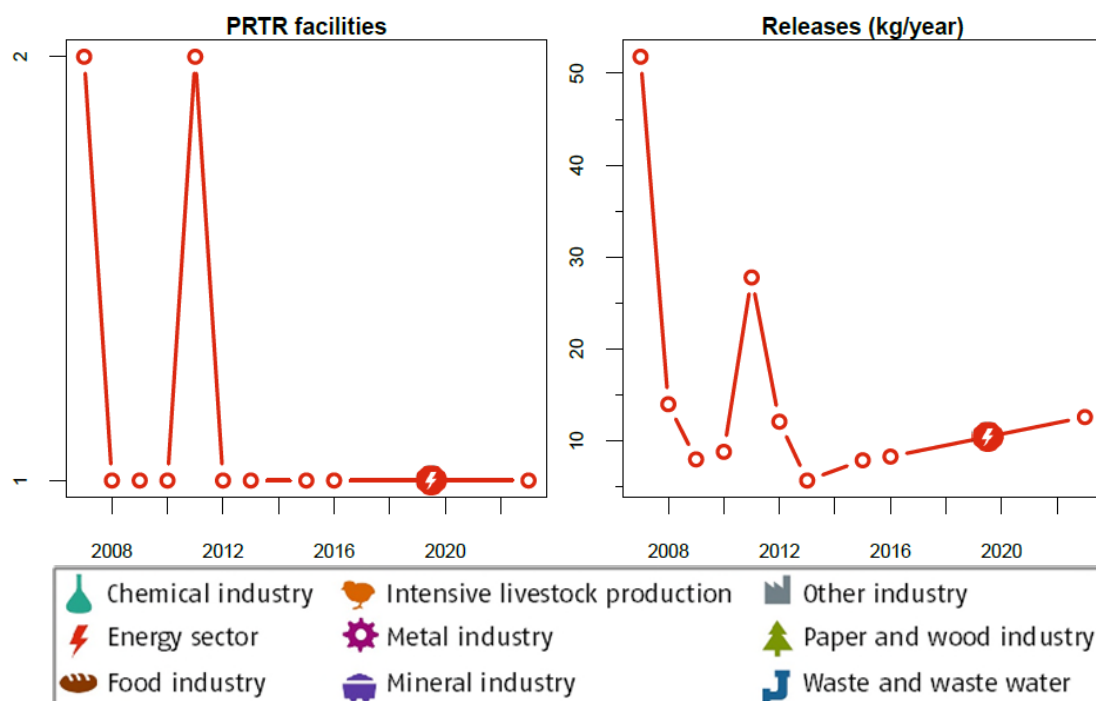
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Polycyclic aromatic hydrocarbons (PAHs). The reduction in pollutant quantities (from 2022) can be partly based on this.

Further information can be found in the publicly accessible PRTR expert wiki referred to in the introduction.

Table 57: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Polycyclic aromatic hydrocarbons (PAHs)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	1	100	12.6	100
Total	1	100	12.6	100

Figure 57: Annual number of facilities (left) and their releases (right) of the pollutant “Polycyclic aromatic hydrocarbons (PAHs)” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.44.3 Releases to Land

The threshold is **5 kg “Polycyclic aromatic hydrocarbons (PAHs)” per year**. Releases to Land above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Polycyclic aromatic hydrocarbons (PAHs)” to Land in 2023.

2.45 Simazine

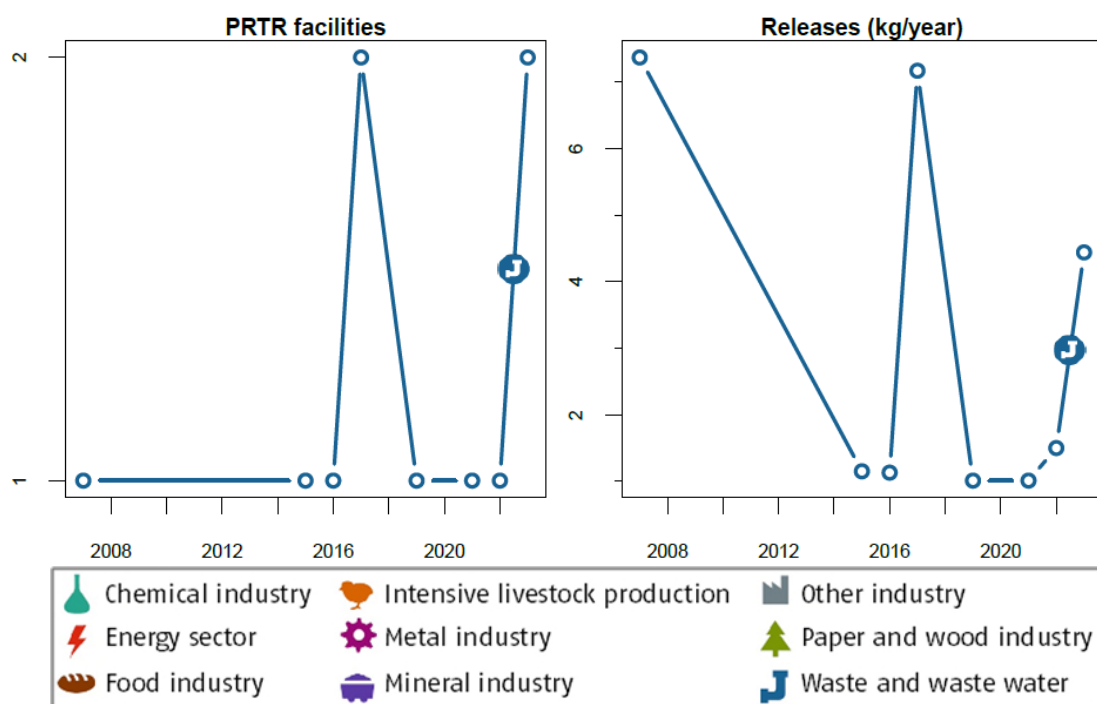
2.45.1 Releases to Water

The threshold is **1 kg “Simazine” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 58: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Simazine” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	2	100	4.44	100
Total	2	100	4.44	100

Figure 58: Annual number of facilities (left) and their releases (right) of the pollutant “Simazine” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.45.2 Releases to Land

The threshold is **1 kg “Simazine” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Simazine” to Land in 2023.

2.46 Sulphur hexafluoride (SF₆)

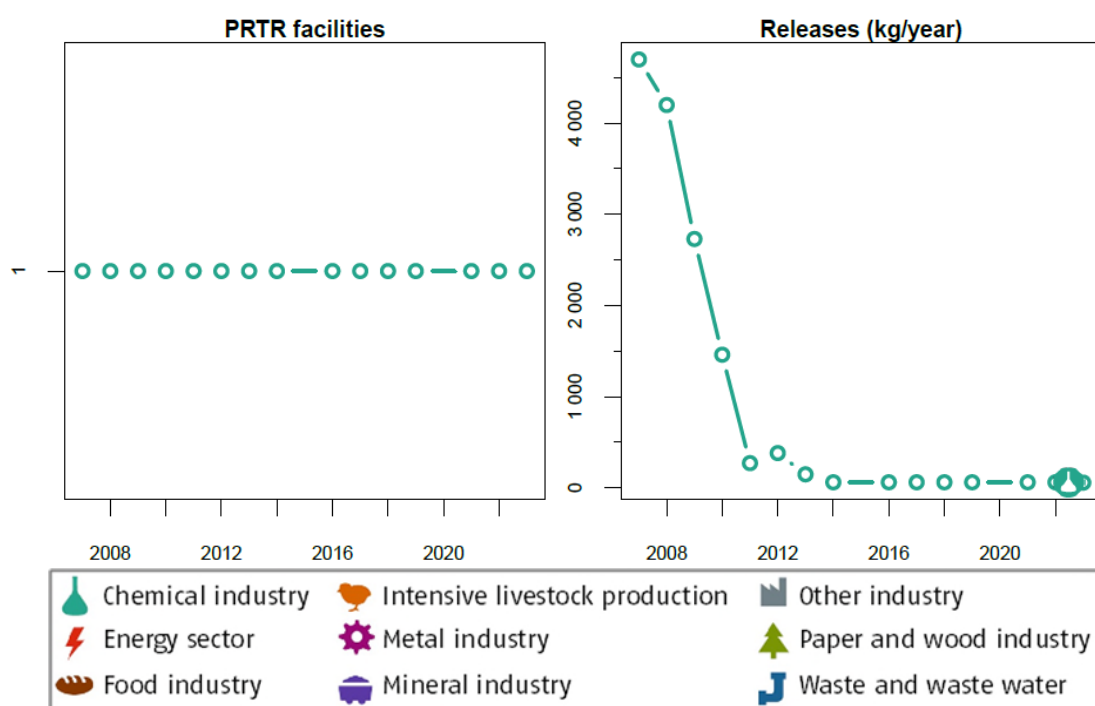
2.46.1 Releases to Air

The threshold is **50 kg “Sulphur hexafluoride (SF₆)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 59: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Sulphur hexafluoride (SF₆)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	1	100	56	100
Total	1	100	56	100

Figure 59: Annual number of facilities (left) and their releases (right) of the pollutant “Sulphur hexafluoride (SF₆)” to Air, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.47 Sulphur oxides (SO_x/SO₂)

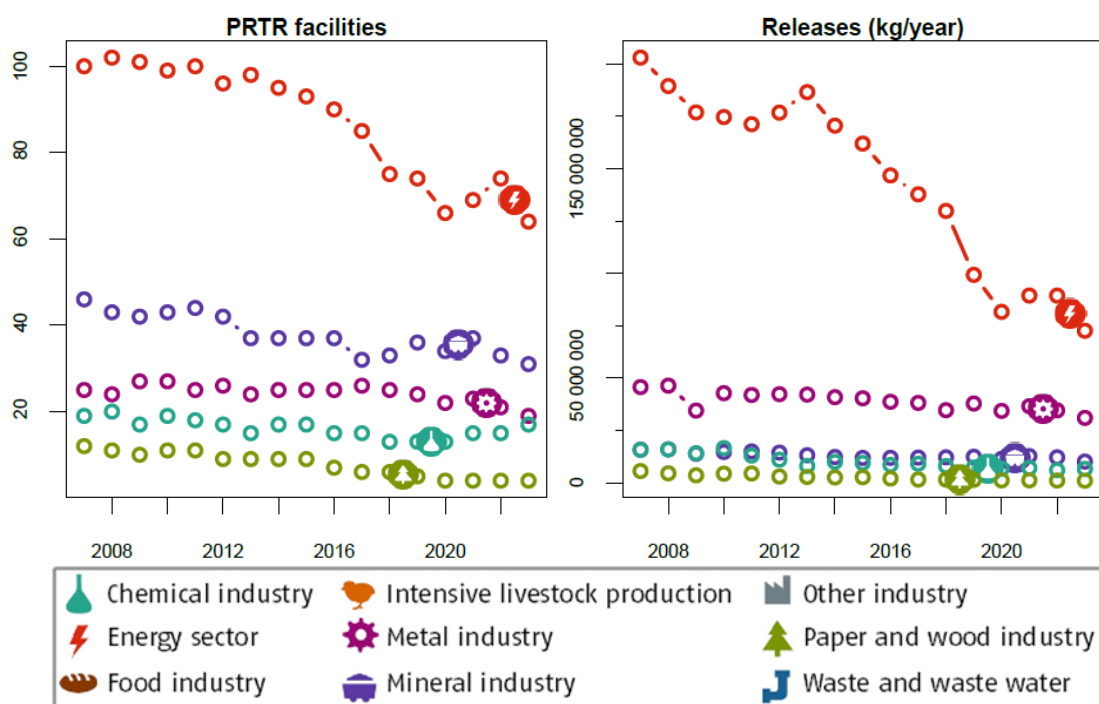
2.47.1 Releases to Air

The threshold is **150 000 kg “Sulphur oxides (SO_x/SO₂)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 60: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Sulphur oxides (SO_x/SO₂)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	64	47.1	72 596 000	59.8
Metal industry	19	14	30 966 000	25.5
Mineral industry	31	22.8	10 107 000	8.32
Chemical industry	17	12.5	6 608 000	5.44
Paper- and wood industry	4	2.94	989 000	0.814
Food industry	1	0.735	229 000	0.188
Total	136	100	121 495 000	100

Figure 60: Annual number of facilities (left) and their releases (right) of the pollutant “Sulphur oxides (SO_x/SO₂)” to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.48 Tetrachloroethylen (PER)

2.48.1 Releases to Air

The threshold is **2 000 kg “Tetrachloroethylen (PER)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of **“Tetrachloroethylen (PER)”** to **Air** in **2023**.

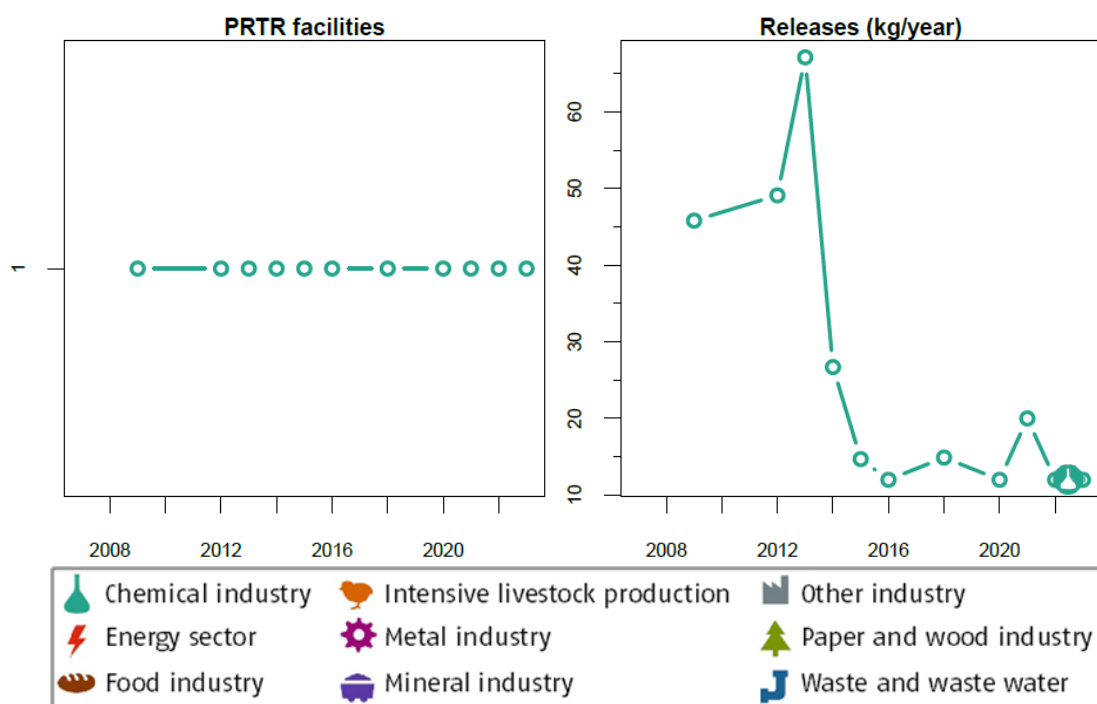
2.48.2 Releases to Water

The threshold is **10 kg “Tetrachloroethylen (PER)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 61: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Tetrachloroethylen (PER)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	1	100	12	100
Total	1	100	12	100

Figure 61: Annual number of facilities (left) and their releases (right) of the pollutant “Tetrachloroethylen (PER)” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.49 Tetrachloromethane (TCM)

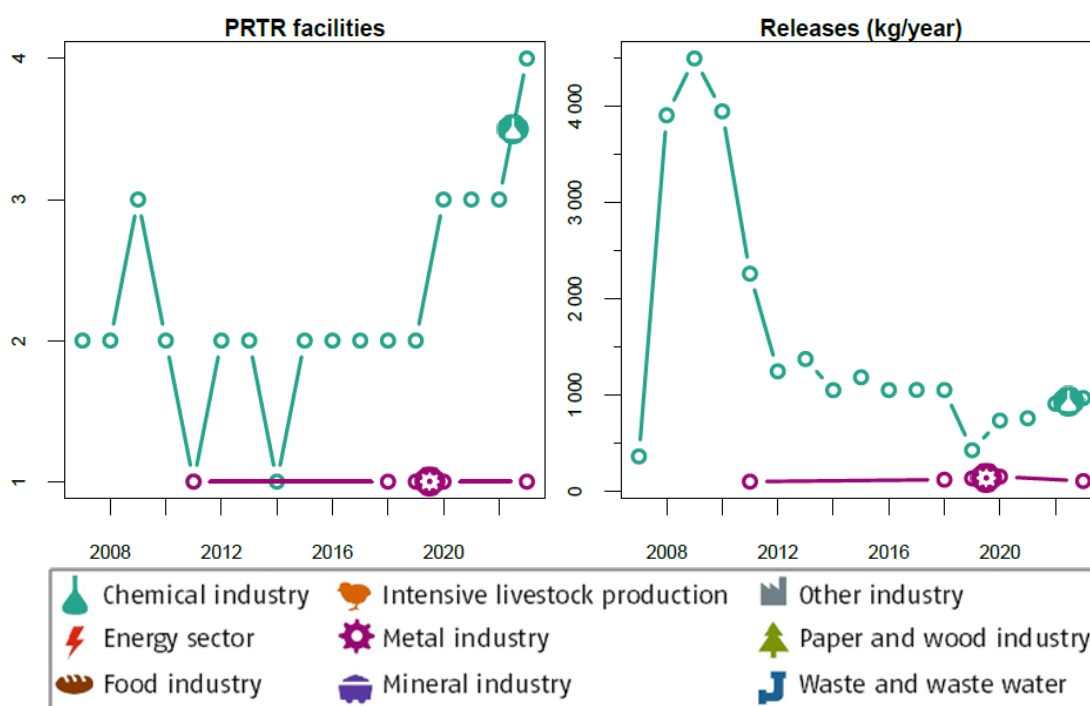
2.49.1 Releases to Air

The threshold is **100 kg “Tetrachloromethane (TCM)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 62: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Tetrachloromethane (TCM)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	4	80	969	90.1
Metal industry	1	20	107	9.94
Total	5	100	1 076	100

Figure 62: Annual number of facilities (left) and their releases (right) of the pollutant “Tetrachloromethane (TCM)” to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.49.2 Releases to Water

The threshold is **1 kg “Tetrachloromethane (TCM)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Tetrachloromethane (TCM)” to **Water** in **2023**.

2.50 Total nitrogen

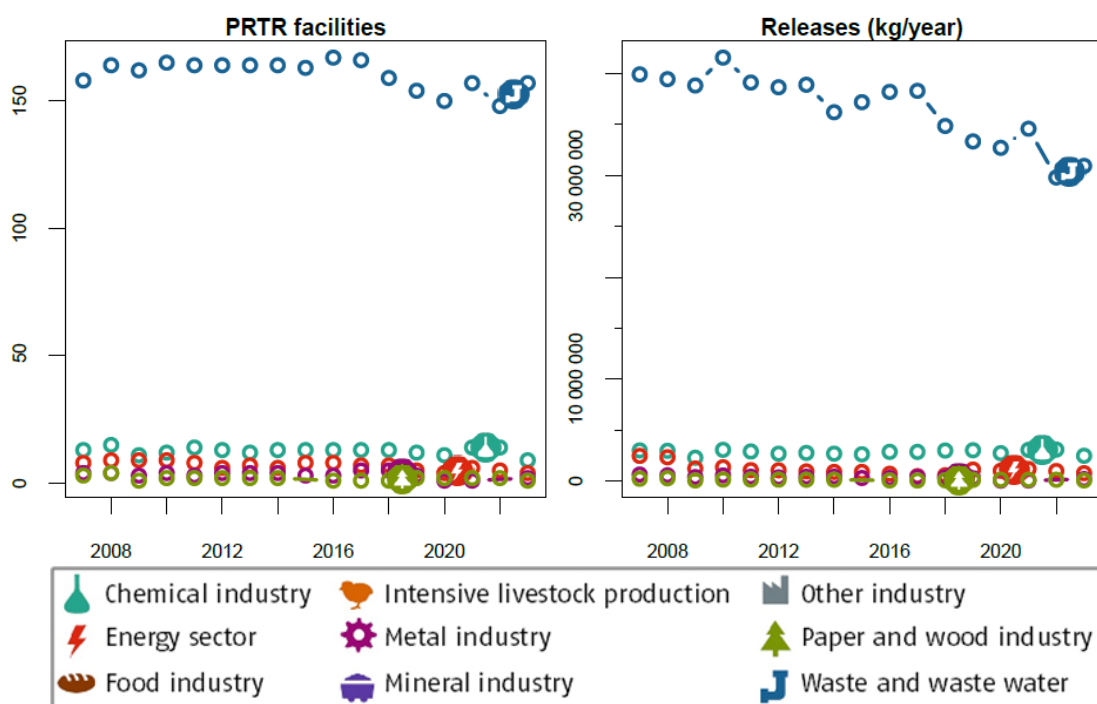
2.50.1 Releases to Water

The threshold is **50 000 kg “Total nitrogen” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 63: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Total nitrogen” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	157	90.2	30 924 200	89.5
Chemical industry	9	5.17	2 492 800	7.22
Energy sector	4	2.3	784 700	2.27
Metal industry	2	1.15	200 800	0.581
Paper- and wood industry	1	0.575	74 500	0.216
Mineral industry	1	0.575	64 300	0.186
Total	174	100	34 541 300	100

Figure 63: Annual number of facilities (left) and their releases (right) of the pollutant “Total nitrogen” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

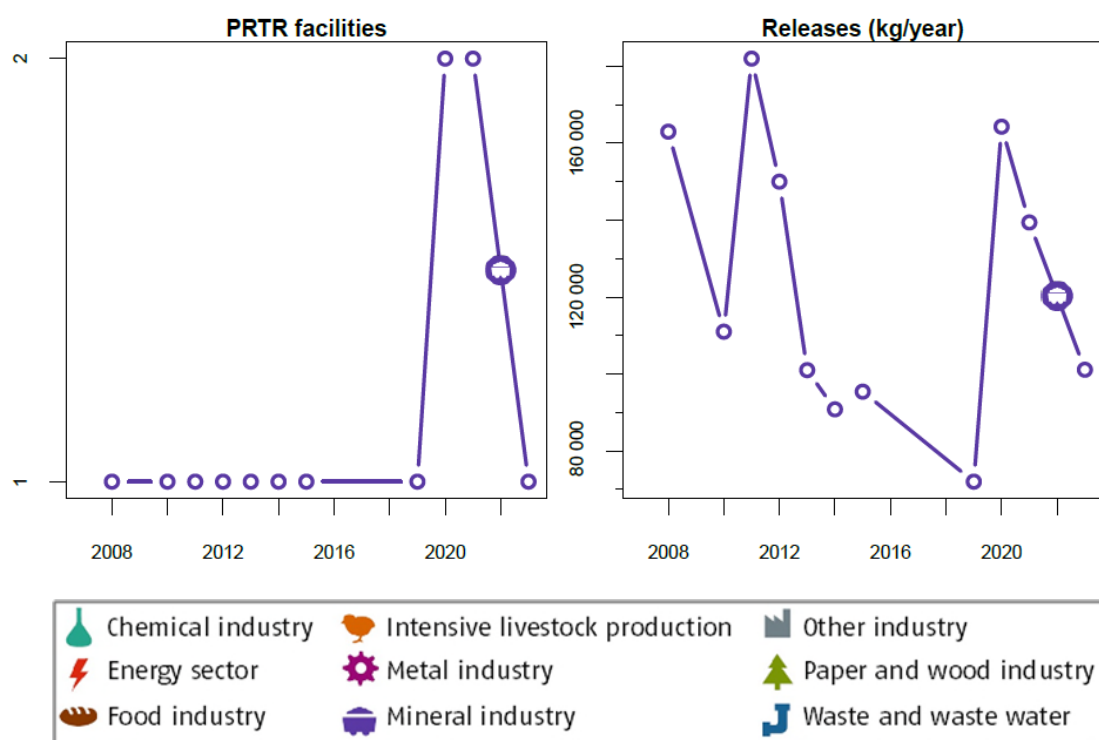
2.50.2 Releases to Land

The threshold is **50 000 kg “Total nitrogen” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

Table 64: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Total nitrogen” to Land of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Mineral industry	1	100	101 000	100
Total	1	100	101 000	100

Figure 64: Annual number of facilities (left) and their releases (right) of the pollutant “Total nitrogen” to Land, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.51 Total organic carbon (TOC) (as total C or COD/3)

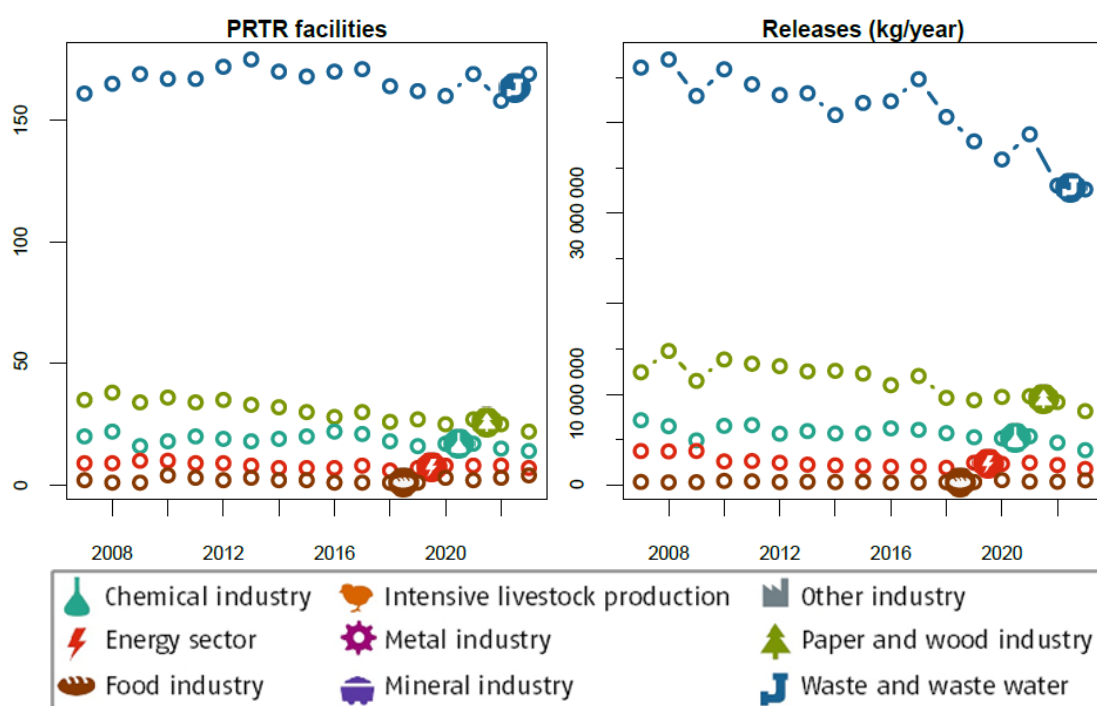
2.51.1 Releases to Water

The threshold is **50 000 kg “Total organic carbon (TOC) (as total C or COD/3)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 65: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Total organic carbon (TOC) (as total C or COD/3)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	169	76.8	32 635 900	69.2
Paper- and wood industry	22	10	8 126 000	17.2
Chemical industry	14	6.36	3 821 900	8.11
Energy sector	7	3.18	1 737 600	3.69
Food industry	4	1.82	493 100	1.05
Metal industry	1	0.455	132 000	0.28
Mineral industry	2	0.909	115 100	0.244
Other industry	1	0.455	74 700	0.158
Total	220	100	47 136 300	100

Figure 65: Annual number of facilities (left) and their releases (right) of the pollutant “Total organic carbon (TOC) (as total C or COD/3)” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.52 Total phosphorus

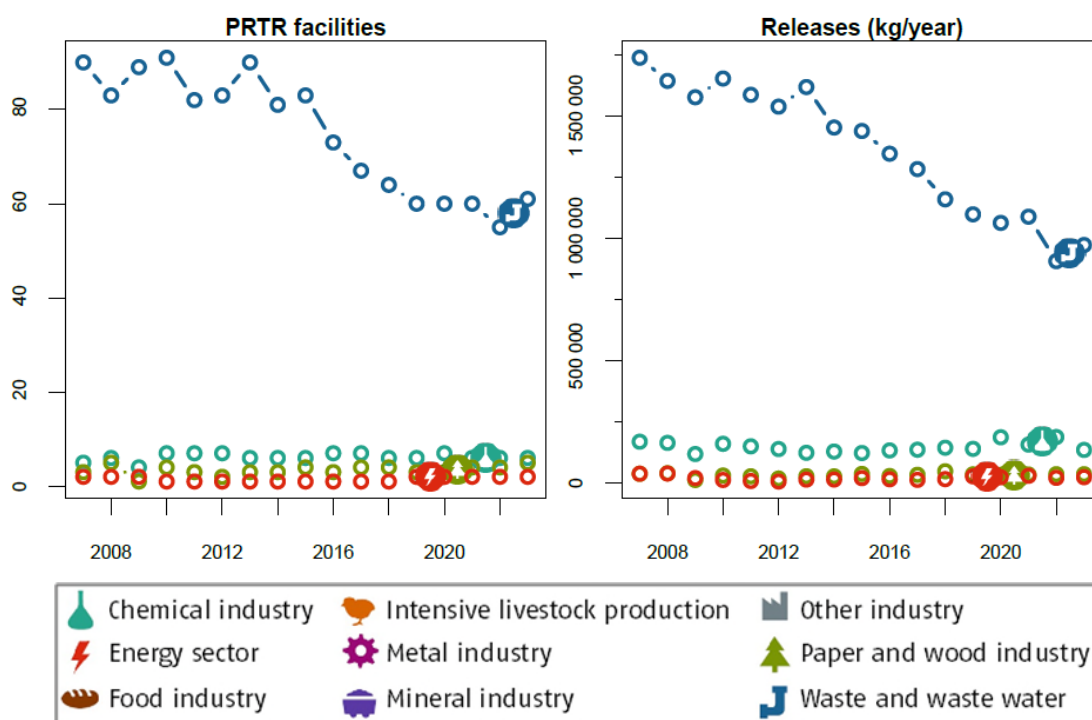
2.52.1 Releases to Water

The threshold is **5 000 kg “Total phosphorus” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 66: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Total phosphorus” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	61	82.4	972 140	83.1
Chemical industry	6	8.11	135 920	11.6
Paper- and wood industry	5	6.76	36 690	3.13
Energy sector	2	2.7	24 650	2.11
Total	74	100	1 170 400	100

Figure 66: Annual number of facilities (left) and their releases (right) of the pollutant “Total phosphorus” to Water, each by the 4 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.52.2 Releases to Land

The threshold is **5 000 kg “Total phosphorus” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Total phosphorus” to Land in 2023.

2.53 Tributyltin and compounds

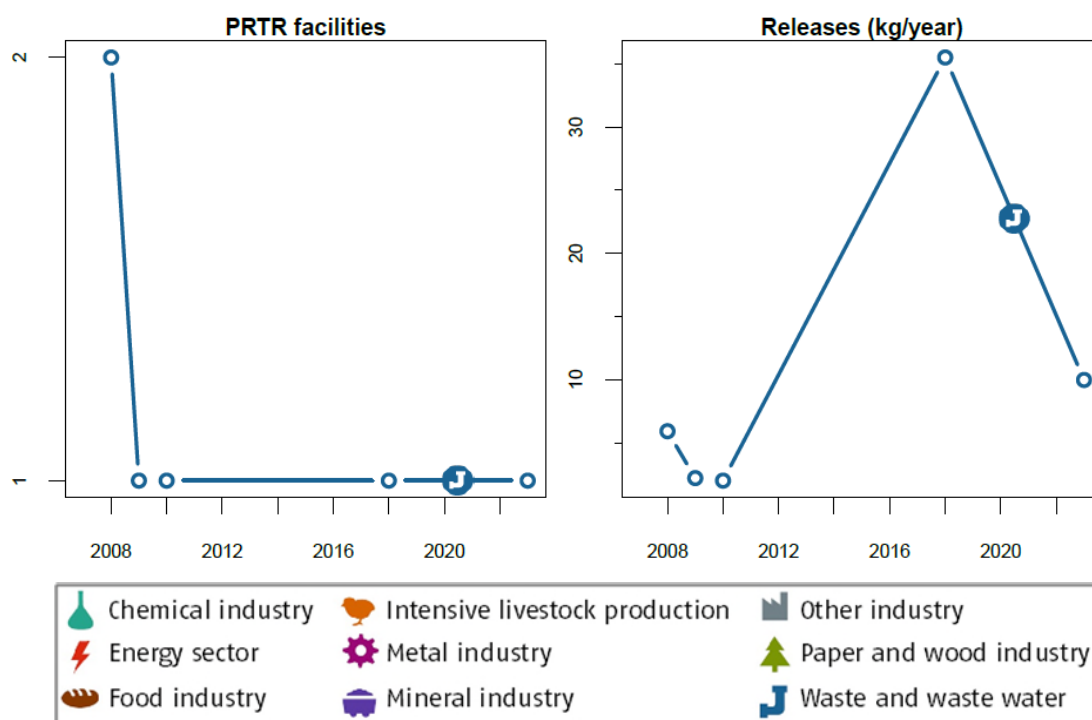
2.53.1 Releases to Water

The threshold is **1 kg “Tributyltin and compounds” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 67: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Tributyltin and compounds” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	1	100	9.97	100
Total	1	100	9.97	100

Figure 67: Annual number of facilities (left) and their releases (right) of the pollutant “Tributyltin and compounds” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.54 Trichlormethane

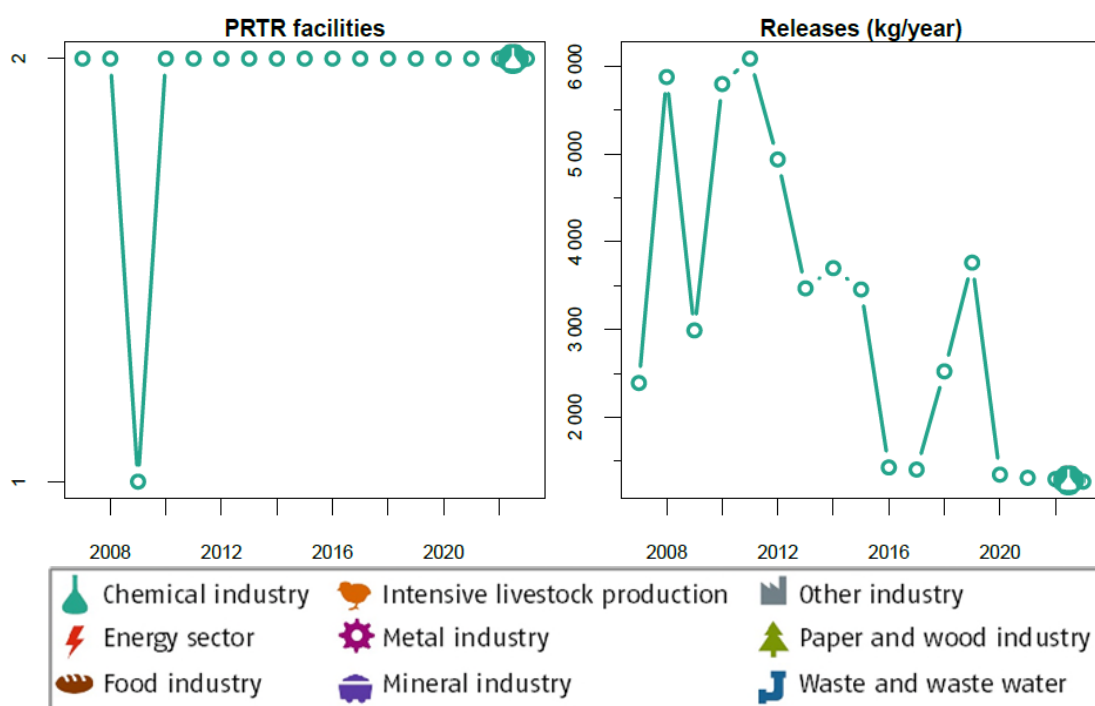
2.54.1 Releases to Air

The threshold is **500 kg “Trichlormethane” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 68: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Trichlormethane” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	2	100	1 265	100
Total	2	100	1 265	100

Figure 68: Annual number of facilities (left) and their releases (right) of the pollutant “Trichlormethane” to Air, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

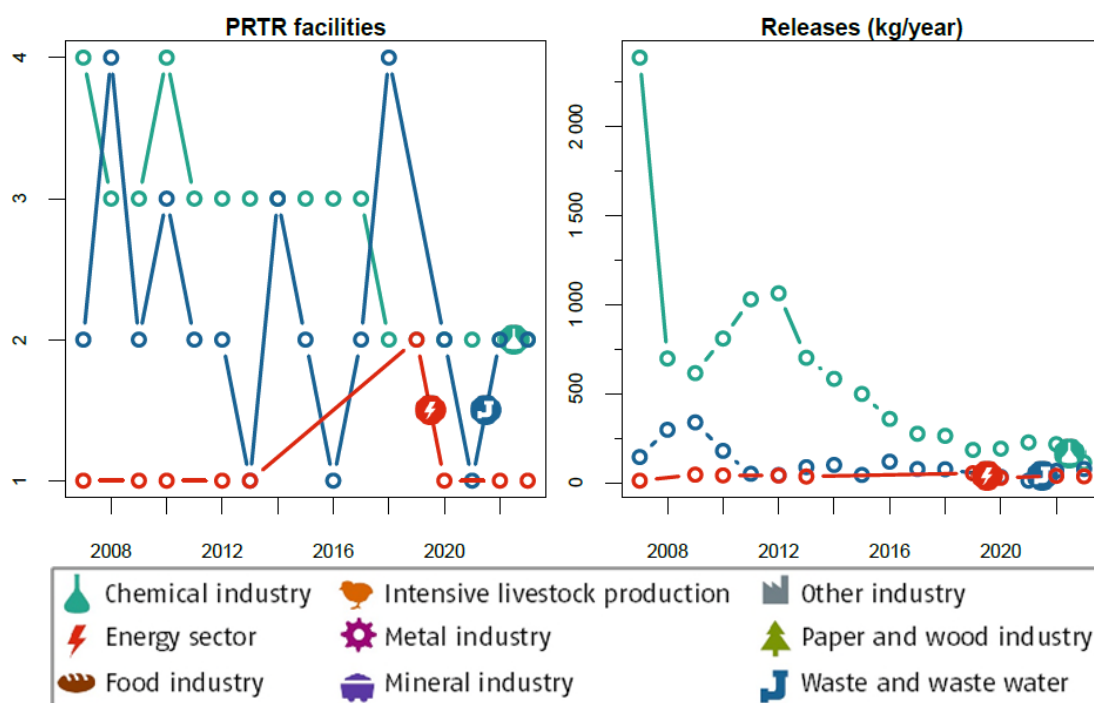
2.54.2 Releases to Water

The threshold is **10 kg “Trichlormethane” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 69: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Trichlormethane” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	2	40	113	50.1
Waste and waste water management	2	40	77	34.1
Energy sector	1	20	35.7	15.8
Total	5	100	226	100

Figure 69: Annual number of facilities (left) and their releases (right) of the pollutant “Trichlormethane” to Water, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.55 Vinyl chloride

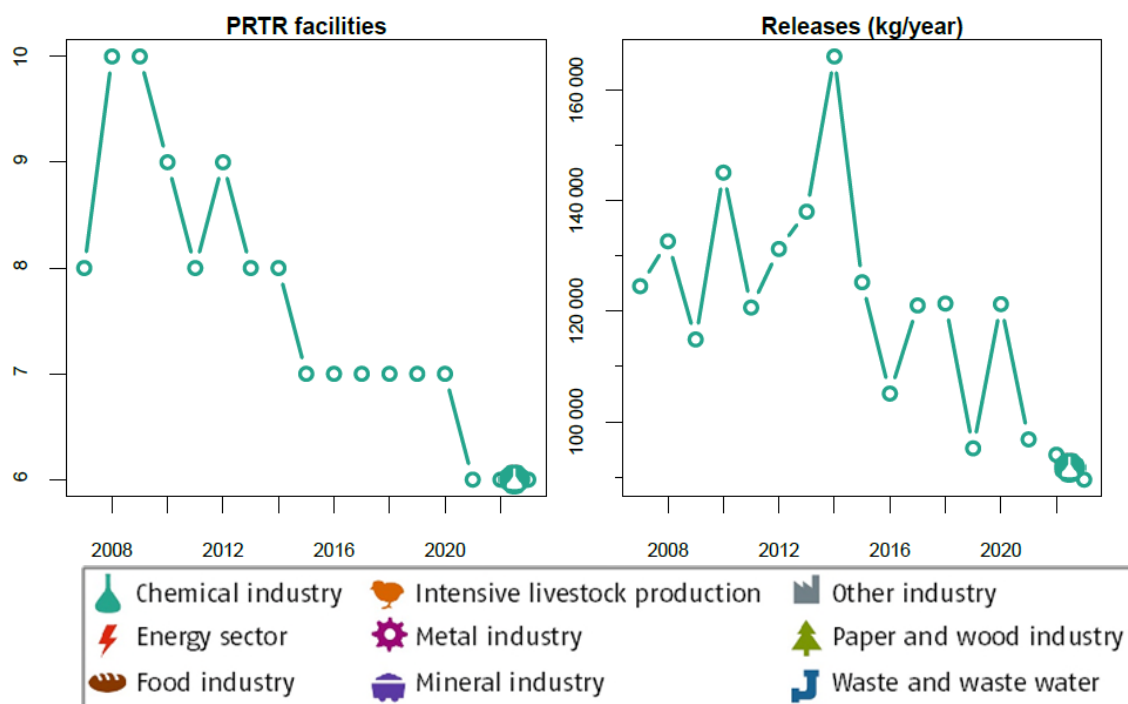
2.55.1 Releases to Air

The threshold is **1 000 kg “Vinyl chloride” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 70: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Vinyl chloride” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	6	100	89 560	100
Total	6	100	89 560	100

Figure 70: Annual number of facilities (left) and their releases (right) of the pollutant “Vinyl chloride” to Air, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

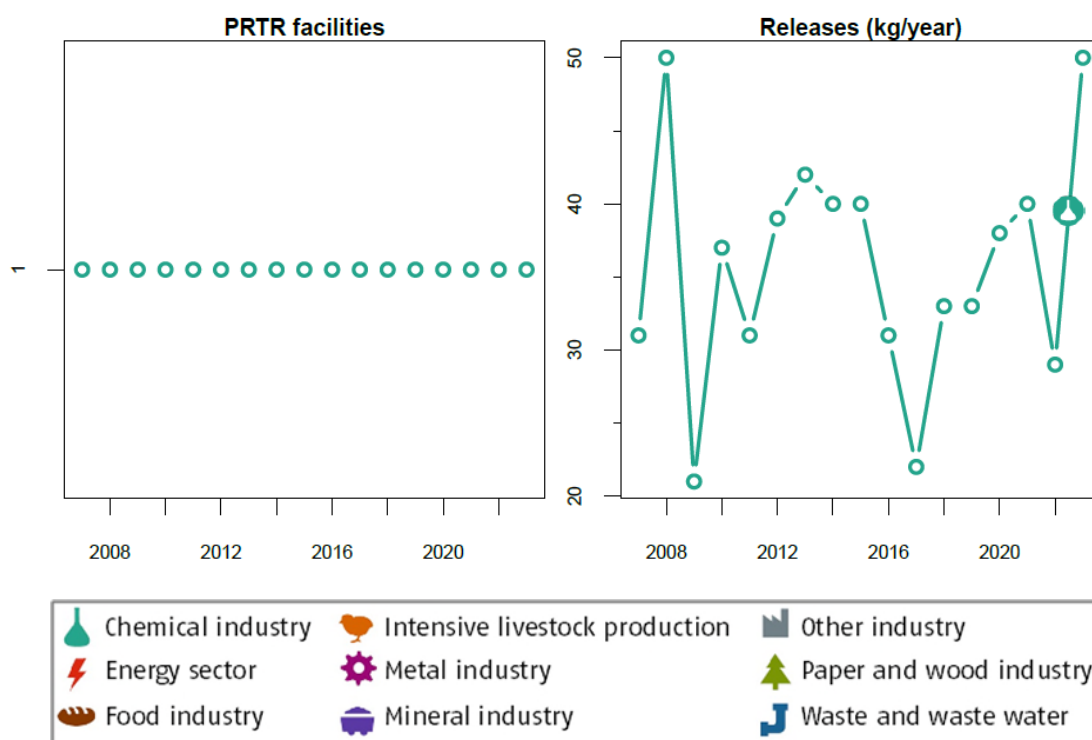
2.55.2 Releases to Water

The threshold is **10 kg “Vinyl chloride” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 71: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Vinyl chloride” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Chemical industry	1	100	50	100
Total	1	100	50	100

Figure 71: Annual number of facilities (left) and their releases (right) of the pollutant “Vinyl chloride” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.55.3 Releases to Land

The threshold is **10 kg “Vinyl chloride” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Vinyl chloride” to **Land** in **2023**.

2.56 Xylenes

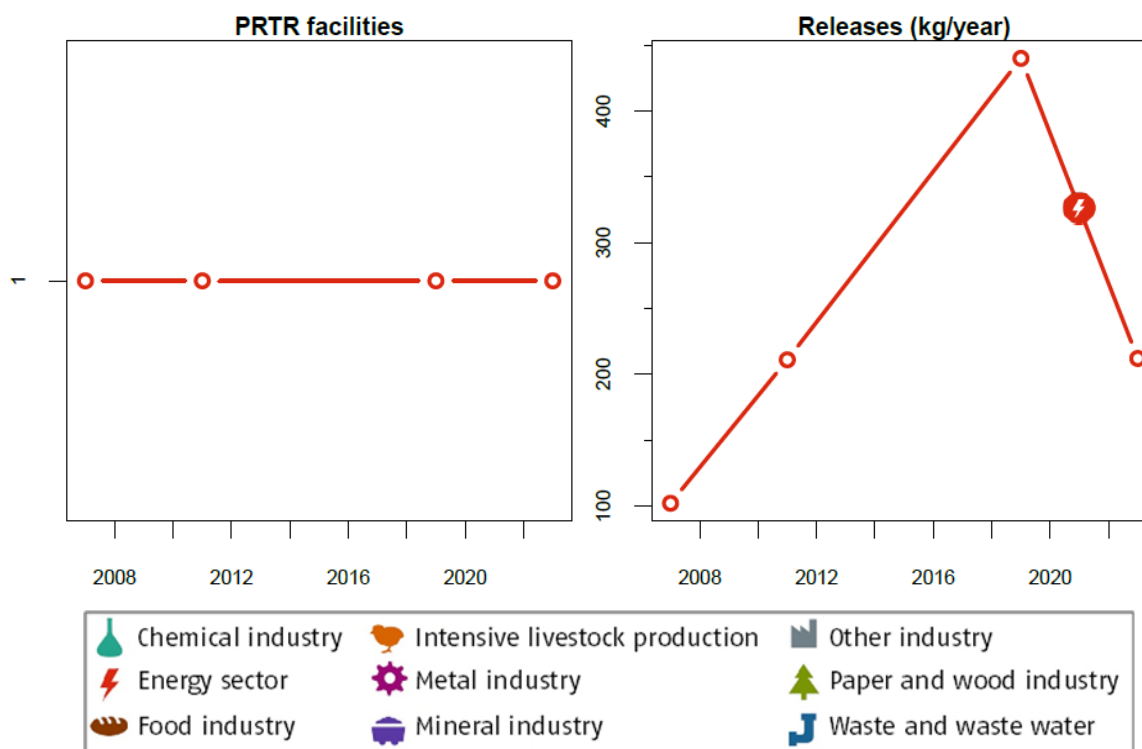
2.56.1 Releases to Water

The threshold is **200 kg “Xylenes” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 72: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Xylenes” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	1	100	212	100
Total	1	100	212	100

Figure 72: Annual number of facilities (left) and their releases (right) of the pollutant “Xylenes” to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

2.56.2 Releases to Land

The threshold is **200 kg “Xylenes” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

No facility reported the release of “Xylenes” to **Land** in **2023**.

2.57 Zinc and compounds (as Zn)

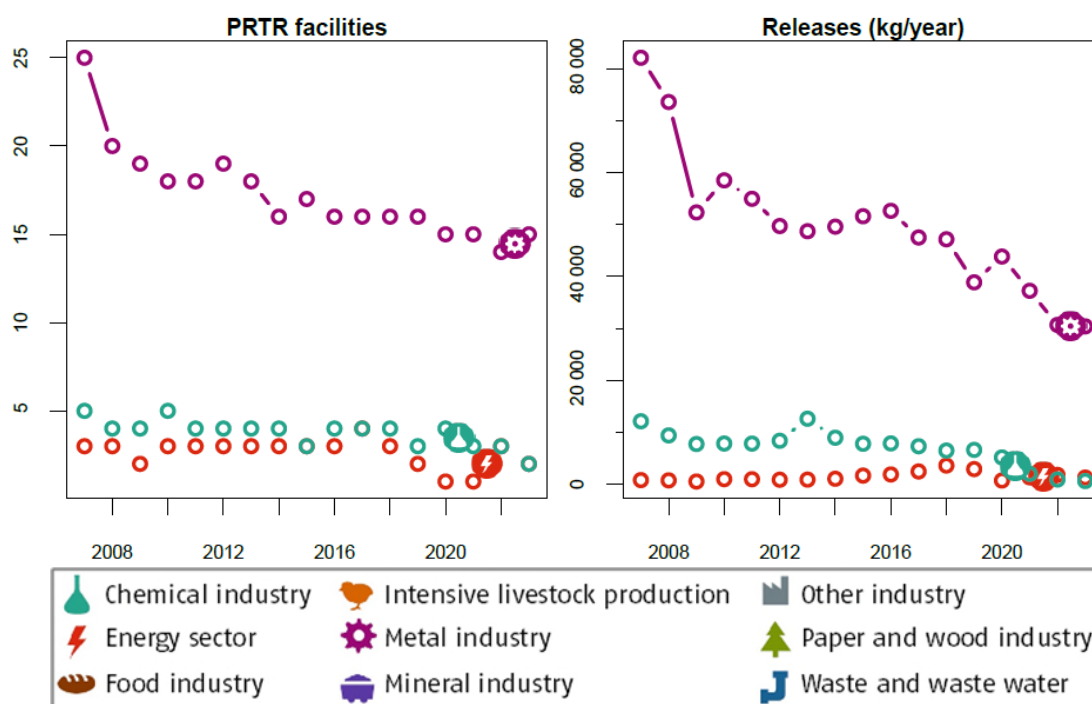
2.57.1 Releases to Air

The threshold is **200 kg “Zinc and compounds (as Zn)” per year**. Releases to **Air** above this value have to be reported according to the E-PRTR Regulation.

Table 73: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Zinc and compounds (as Zn)” to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	15	78.9	30 395	94.1
Energy sector	2	10.5	1 287	3.98
Chemical industry	2	10.5	619	1.92
Total	19	100	32 301	100

Figure 73: Annual number of facilities (left) and their releases (right) of the pollutant “Zinc and compounds (as Zn)” to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

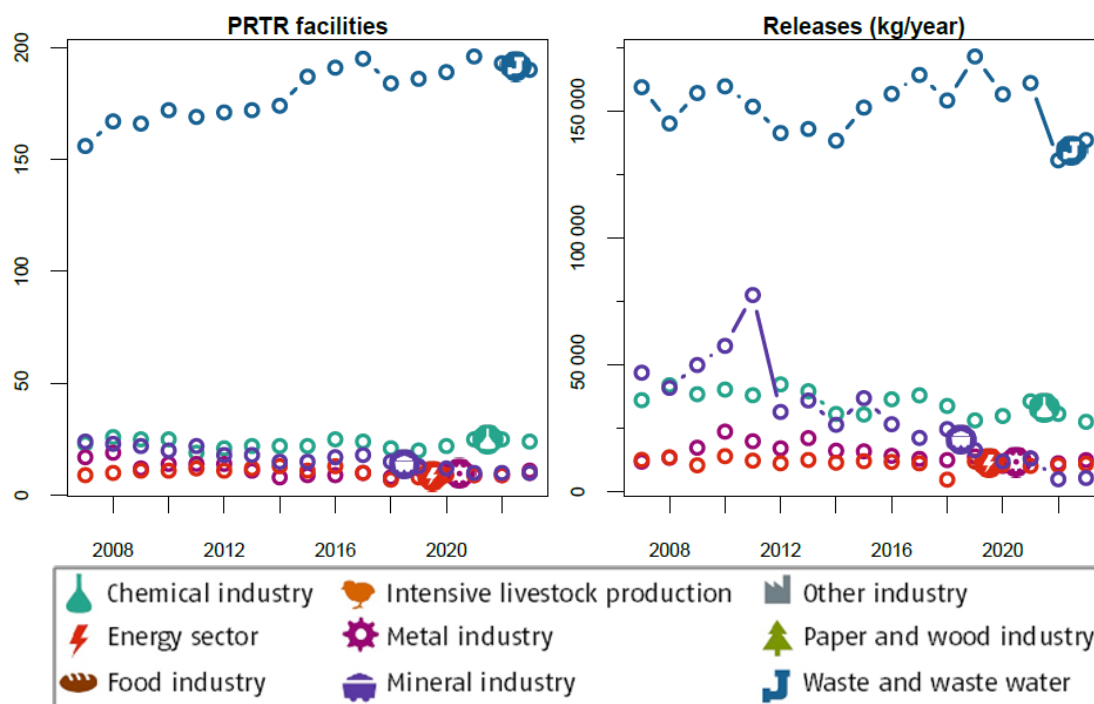
2.57.2 Releases to Water

The threshold is **100 kg “Zinc and compounds (as Zn)” per year**. Releases to **Water** above this value have to be reported according to the E-PRTR Regulation.

Table 74 For the reporting year 2023 -Number of facilities and their releases of the pollutant “Zinc and compounds (as Zn)” to Water of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Waste and waste water management	190	76.3	138 782	70.9
Chemical industry	24	9.64	27 551	14.1
Metal industry	11	4.42	12 401	6.33
Energy sector	10	4.02	10 927	5.58
Mineral industry	10	4.02	5 369	2.74
Paper- and wood industry	3	1.2	720	0.368
Other industry	1	0.402	113	0.058
Total	249	100	195 863	100

Figure 74: Annual number of facilities (left) and their releases (right) of the pollutant “Zinc and compounds (as Zn)” to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

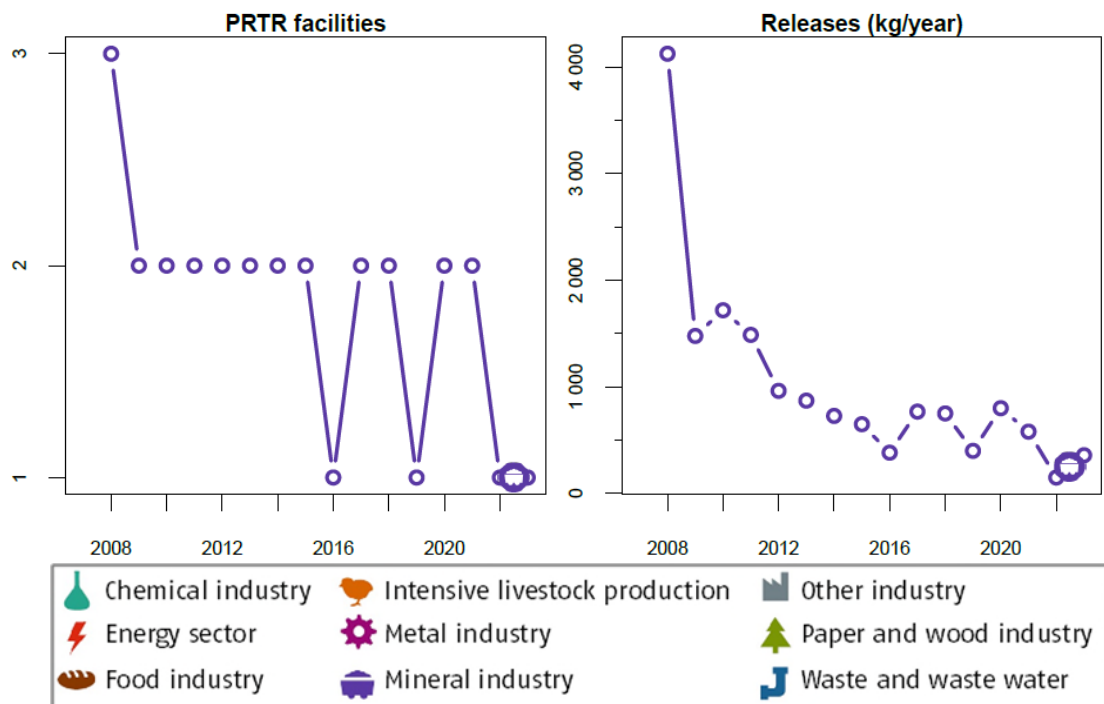
2.57.3 Releases to Land

The threshold is **100 kg “Zinc and compounds (as Zn)” per year**. Releases to **Land** above this value have to be reported according to the E-PRTR Regulation.

Table 75: For the reporting year 2023 -Number of facilities and their releases of the pollutant “Zinc and compounds (as Zn)” to Land of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Mineral industry	1	100	358	100
Total	1	100	358	100

Figure 75: Annual number of facilities (left) and their releases (right) of the pollutant “Zinc and compounds (as Zn)” to Land, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

3 Off-site transfer in waste water

The following chapters cover only off-site transfer of pollutants in waste water.

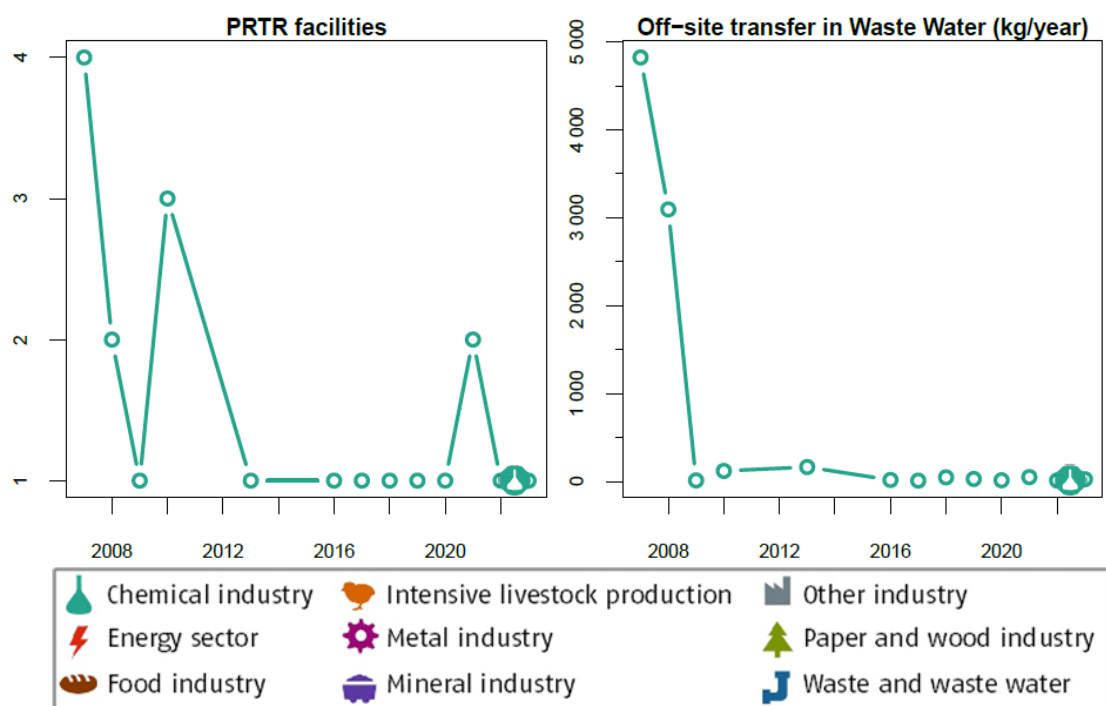
3.1 1,2-Dichlorethane (EDC)

The threshold is **10 kg “1,2-dichloroethane (EDC)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 76: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “1,2-dichloroethane (EDC)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	1	100	26.8	100
Total	1	100	26.8	100

Figure 76: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “1,2-dichloroethane (EDC)”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

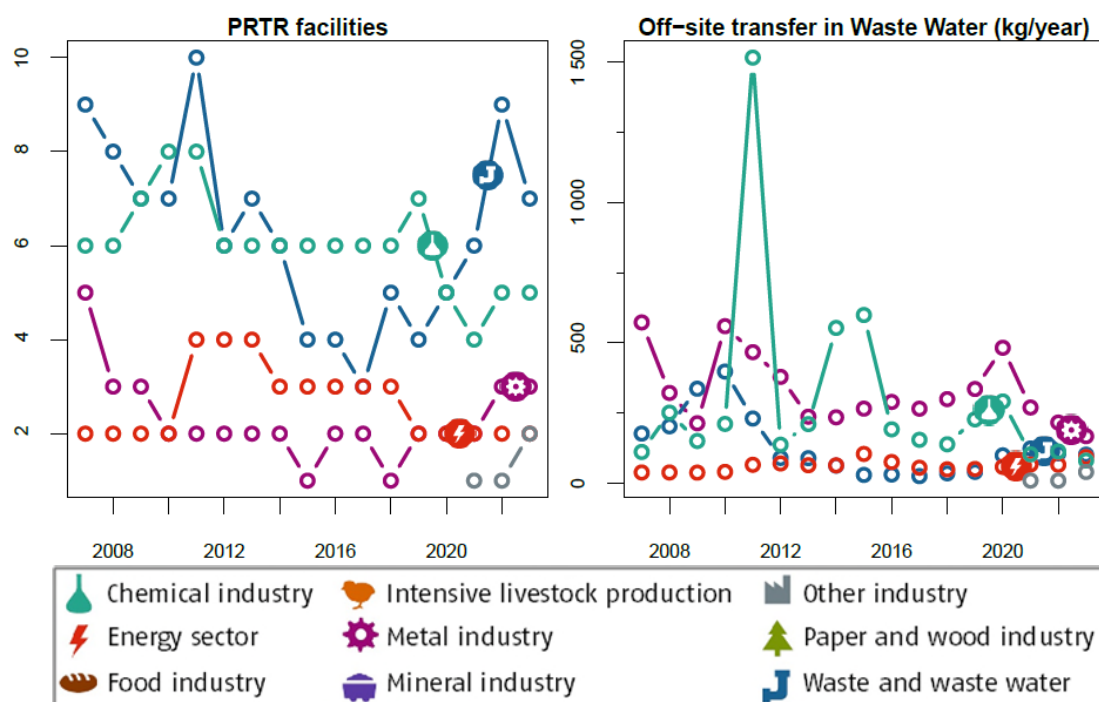
3.2 Arsenic and compounds (as As)

The threshold is **5 kg “Arsenic and compounds (as As)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 77: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Arsenic and compounds (as As)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Metal industry	3	15	167	35.4
Waste and waste water management	7	35	101	20.8
Energy sector	2	10	92	19
Chemical industry	5	25	79.6	16.5
Other industry	2	10	39	8.07
Mineral industry	1	5	5.73	1.18
Total	20	100	484	100

Figure 77: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Arsenic and compounds (as As)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

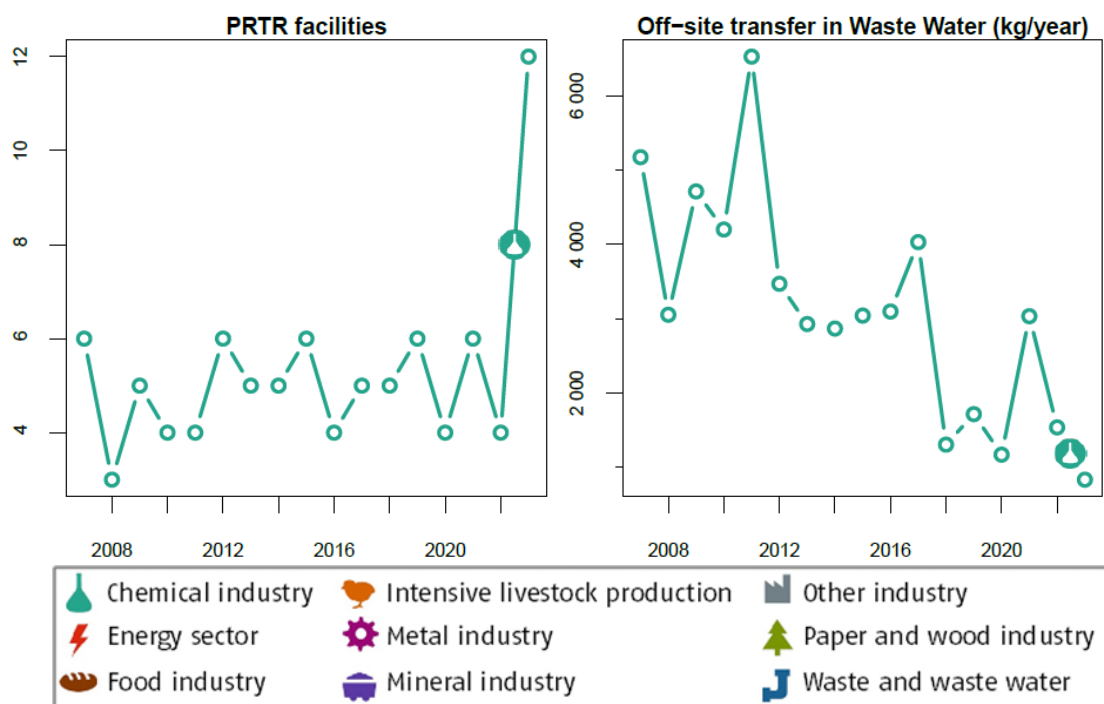
3.3 Benzene

The threshold is **200 kg “Benzene” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 78: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Benzene” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	12	100	835	100
Total	12	100	835	100

Figure 78: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Benzene”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

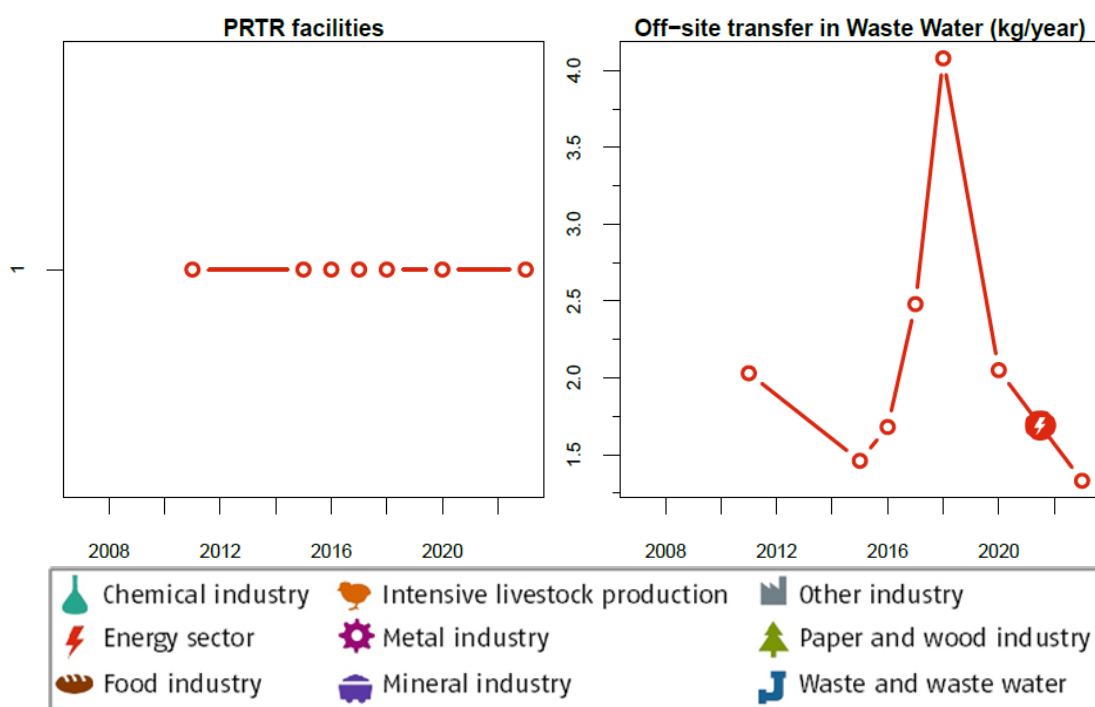
3.4 Benzo(g,h,i)perylene

The threshold is **1 kg “Benzo(g,h,i)perylene” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 79: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Benzo(g,h,i)perylene” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Energy sector	1	100	1.33	100
Total	1	100	1.33	100

Figure 79: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Benzo(g,h,i)perylene”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

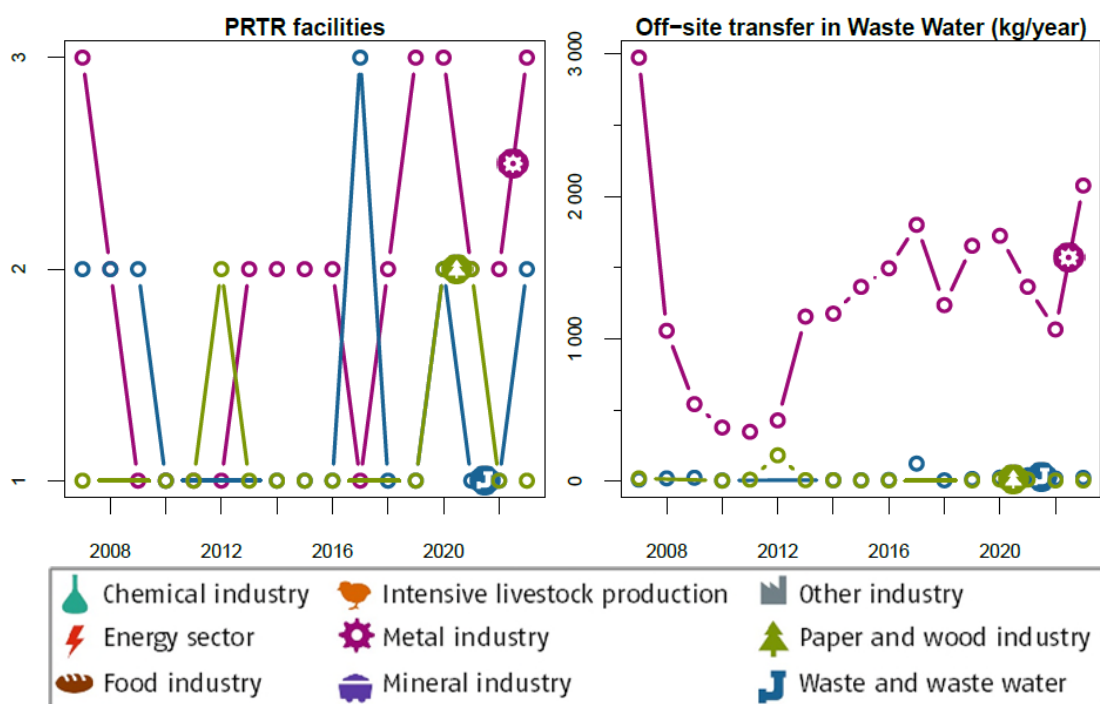
3.5 Cadmium and compounds (as Cd)

The threshold is **5 kg “Cadmium and compounds (as Cd)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 80: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Cadmium and compounds (as Cd)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Metal industry	3	50	2 067	98.5
Waste and waste water management	2	33.3	25	1.19
Paper- and wood industry	1	16.7	6.9	0.327
Total	6	100	2 108	100

Figure 80: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Cadmium and compounds (as Cd)”, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

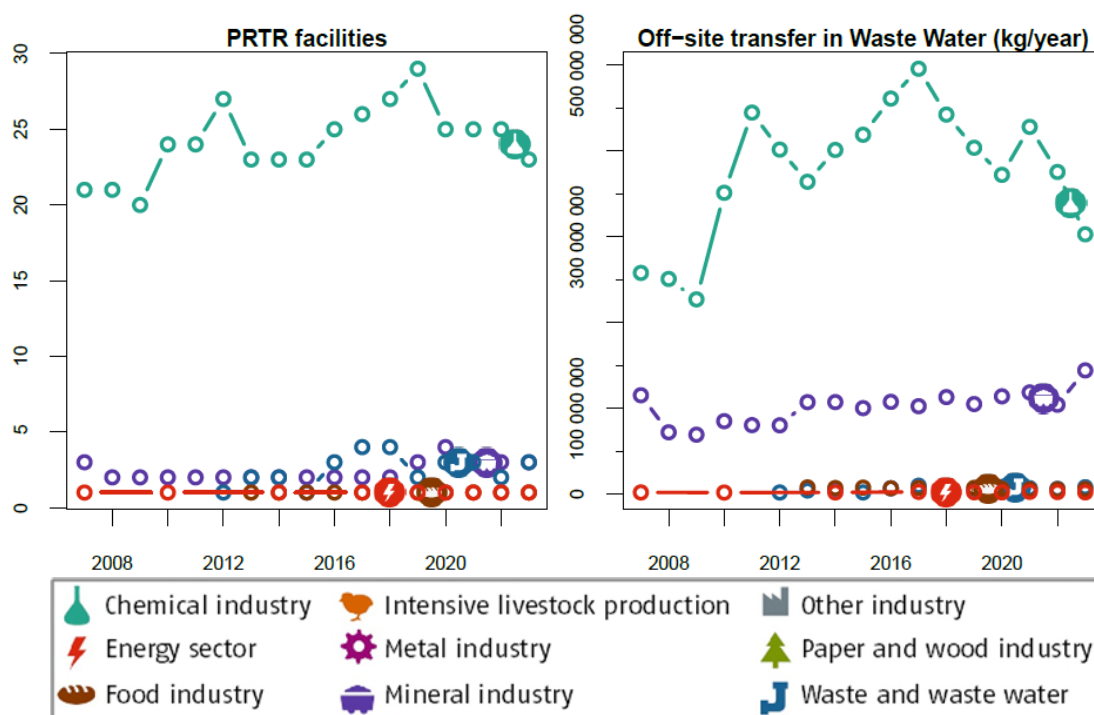
3.6 Chlorides (as total Cl)

The threshold is **2 000 000 kg “Chlorides (as total Cl)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 81: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Chlorides (as total Cl)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	23	74.2	303 010 000	65.3
Mineral industry	3	9.68	144 360 000	31.1
Waste and waste water management	3	9.68	8 190 000	1.77
Food industry	1	3.23	5 970 000	1.29
Energy sector	1	3.23	2 220 000	0.479
Total	31	100	463 750 000	100

Figure 81: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Chlorides (as total Cl)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

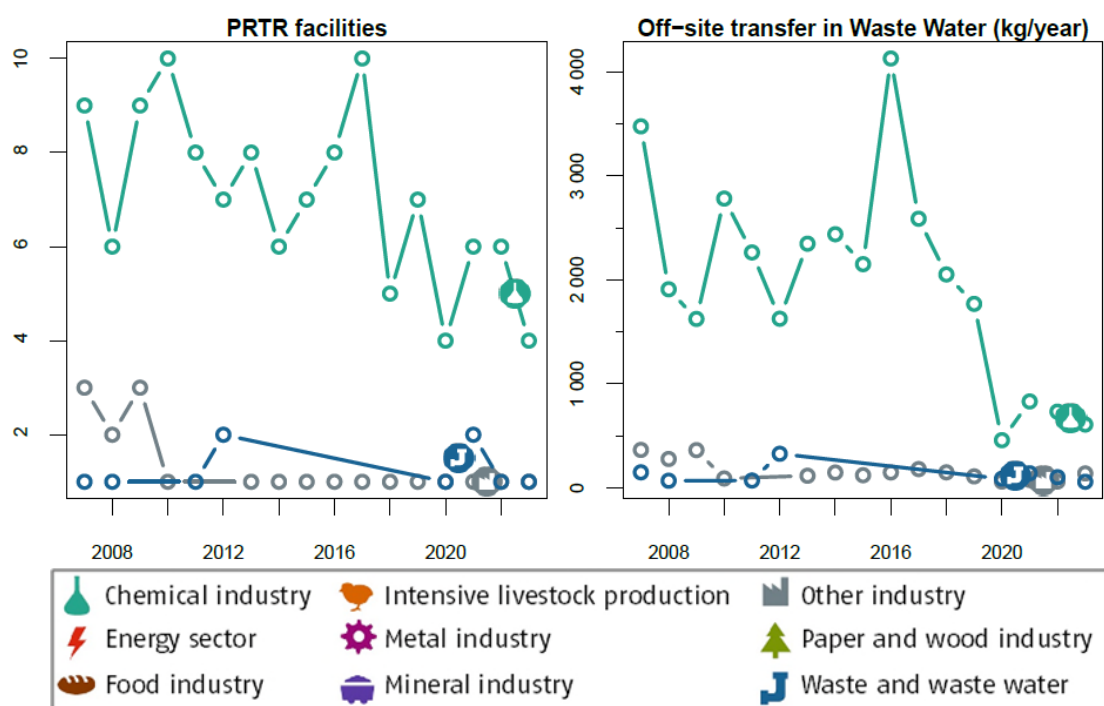
3.7 Chromium and compounds (as Cr)

The threshold is **50 kg “Chromium and compounds (as Cr)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 82: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Chromium and compounds (as Cr)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	4	66.7	608	75.8
Other industry	1	16.7	137	17.1
Waste and waste water management	1	16.7	57	7.11
Total	6	100	892	100

Figure 82: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Chromium and compounds (as Cr)”, each by the 3 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

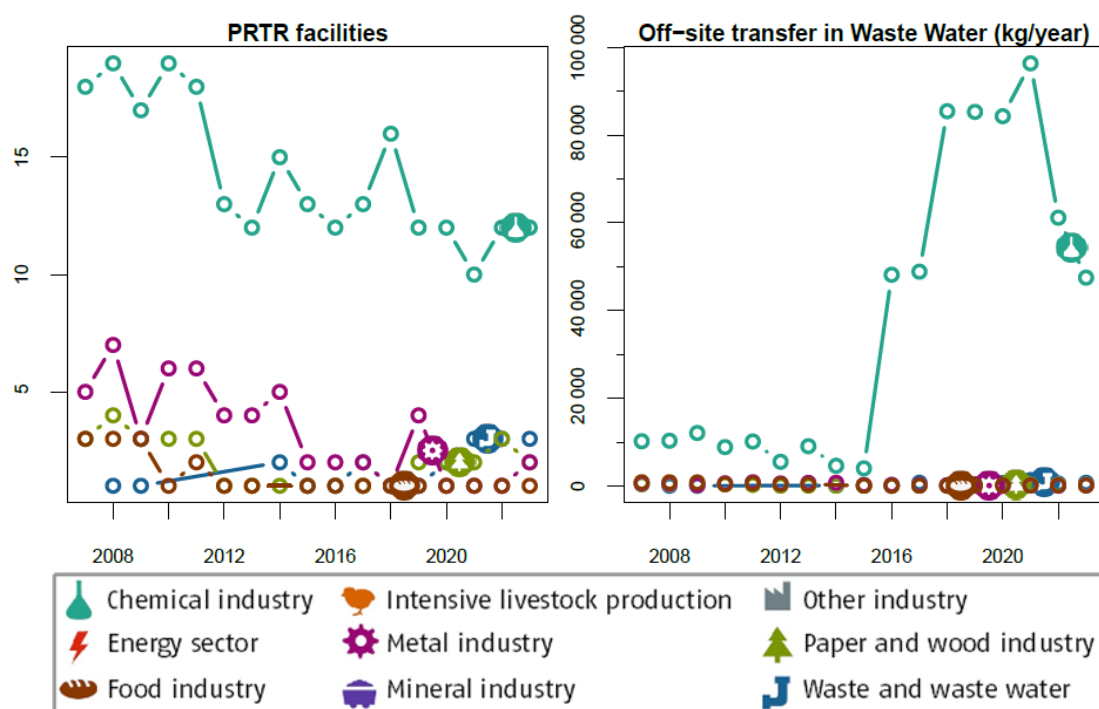
3.8 Copper and compounds (as Cu)

The threshold is **50 kg “Copper and compounds (as Cu)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 83: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Copper and compounds (as Cu)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	12	57.1	47 504	97.2
Waste and waste water management	3	14.3	728	1.49
Paper- and wood industry	2	9.52	272	0.556
Metal industry	2	9.52	159	0.326
Food industry	1	4.76	118	0.242
Other industry	1	4.76	75.7	0.155
Total	21	100	62 417	100

Figure 83: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Copper and compounds (as Cu)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

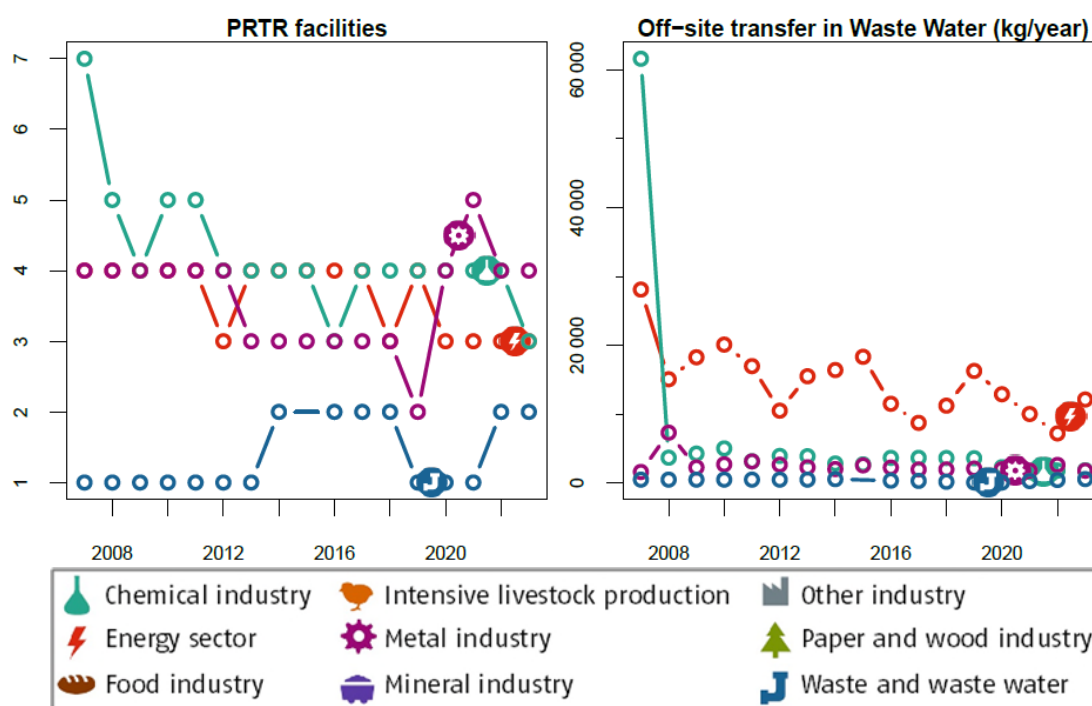
3.9 Cyanides (as total CN)

The threshold is **50 kg “Cyanides (as total CN)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 84: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Cyanides (as total CN)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Energy sector	3	25	12 156	73.7
Chemical industry	3	25	1 896	11.5
Metal industry	4	33.3	1 824	11.1
Waste and waste water management	2	16.7	609	3.69
Total	12	100	16 486	100

Figure 84: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Cyanides (as total CN)”, each by the 4 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

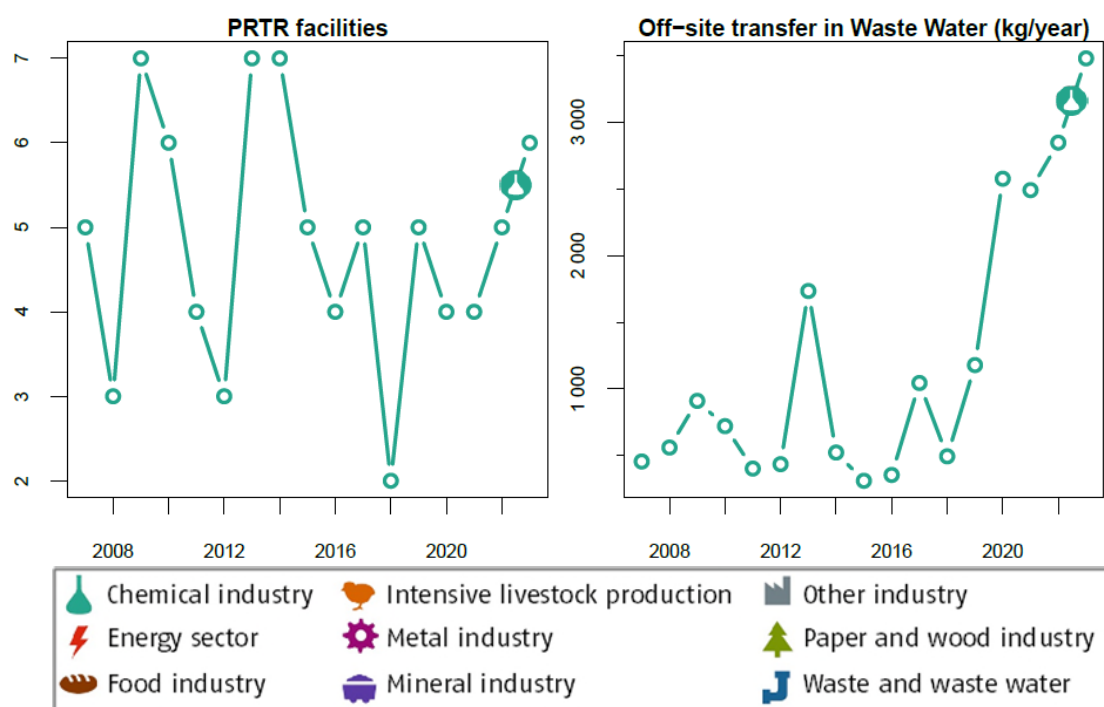
3.10 Dichloromethane (DCM)

The threshold is **10 kg “Dichloromethane (DCM)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 85: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Dichloromethane (DCM)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	6	100	3 478	100
Total	6	100	3 478	100

Figure 85: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Dichloromethane (DCM)”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

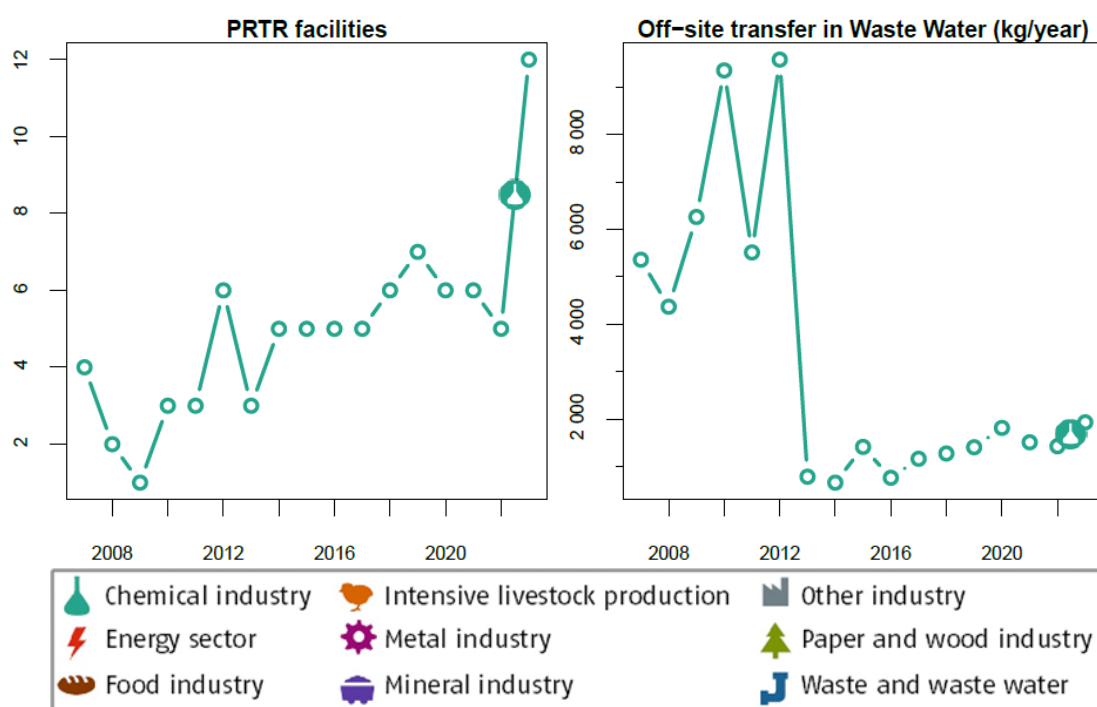
3.11 Ethyl benzene

The threshold is **200 kg “Ethylbenzene” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 86: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Ethyl benzene” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	12	100	1 929	100
Total	12	100	1 929	100

Figure 86: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Ethyl benzene”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

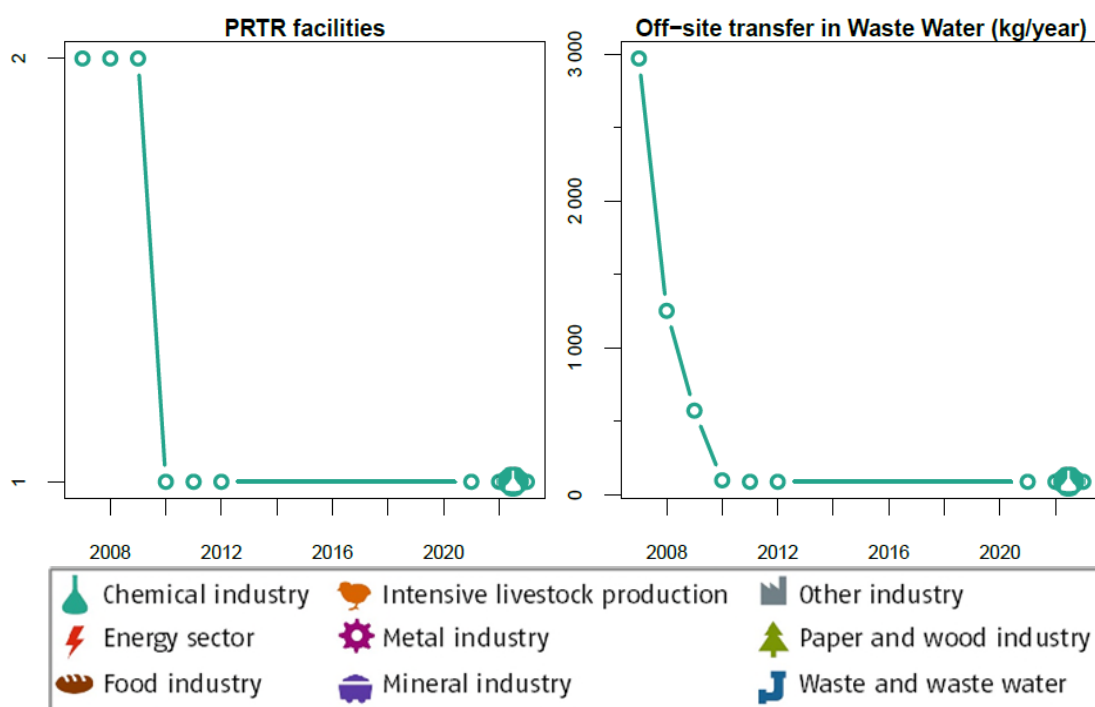
3.12 Ethylene oxide

The threshold is **10 kg “Ethylene oxide” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 87: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Ethylene oxide” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	1	100	90	100
Total	1	100	90	100

Figure 87: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Ethylene oxide”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

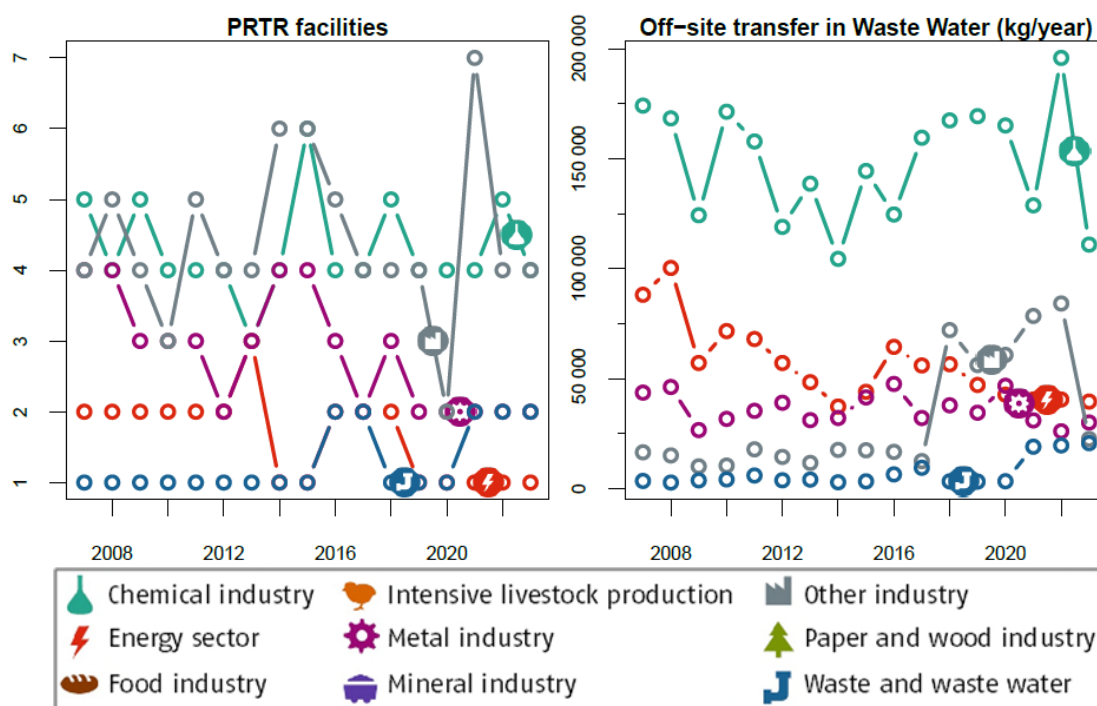
3.13 Fluorides (as total F)

The threshold is **2 000 kg “Fluorides (as total F)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 88: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Fluorides (as total F)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	4	30.8	110 920	49.6
Energy sector	1	7.69	39 550	17.7
Metal industry	2	15.4	30 030	13.4
Other industry	4	30.8	22 530	10.1
Waste and waste water management	2	15.4	20 650	9.23
Total	13	100	223 680	100

Figure 88: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Fluorides (as total F)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

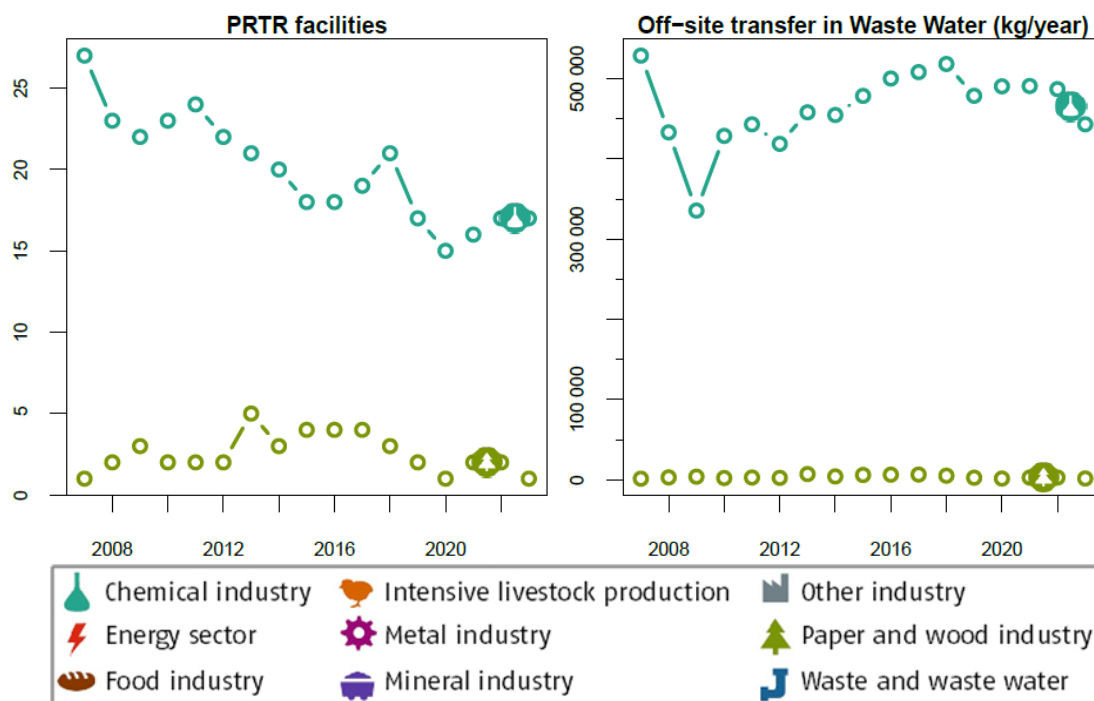
3.14 Halogenated organic compounds (as AOX)

The threshold is **1 000 kg “Halogenated organic compounds (as AOX)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 89: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Halogenated organic compounds (as AOX)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	17	94.4	443 190	99.7
Paper- and wood industry	1	5.56	1 540	0.346
Total	20	100	491 060	100

Figure 89: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Halogenated organic compounds (as AOX)”, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

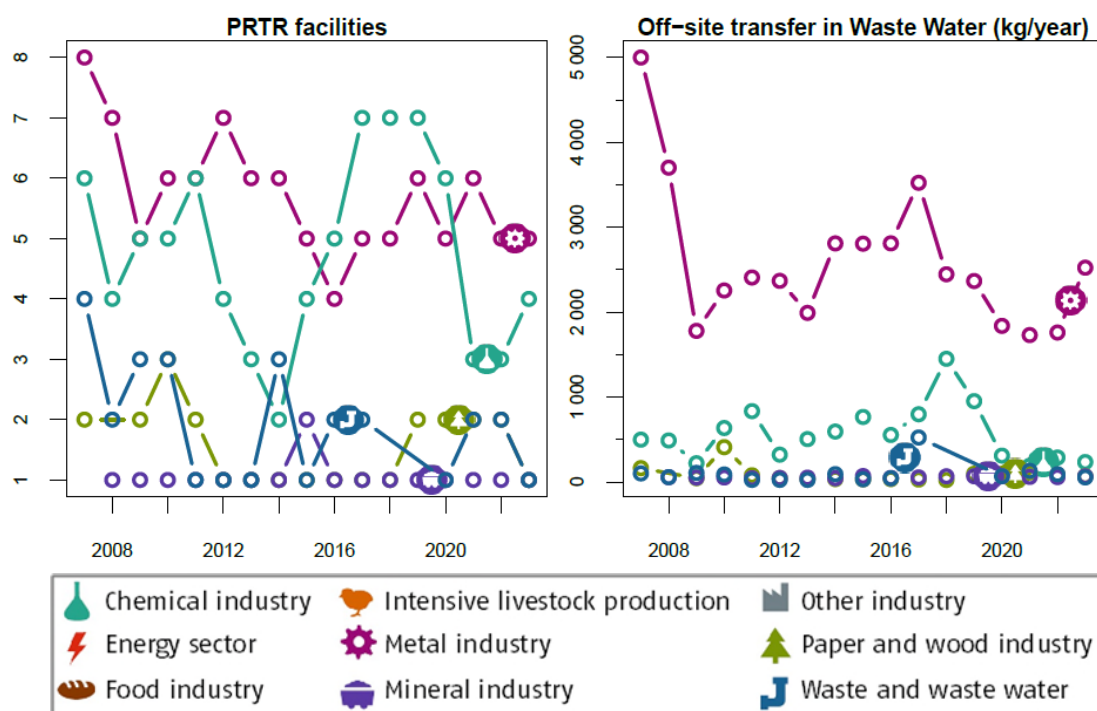
3.15 Lead and compounds (as Pb)

The threshold is **20 kg “Lead and compounds (as Pb)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 90: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Lead and compounds (as Pb)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Metal industry	5	38.5	2 524	84.6
Chemical industry	4	30.8	236	7.9
Paper- and wood industry	1	7.69	69.1	2.32
Mineral industry	1	7.69	67.2	2.25
Waste and waste water management	1	7.69	55	1.84
Other industry	1	7.69	31.9	1.07
Total	13	100	2 983	100

Figure 90: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Lead and compounds (as Pb)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

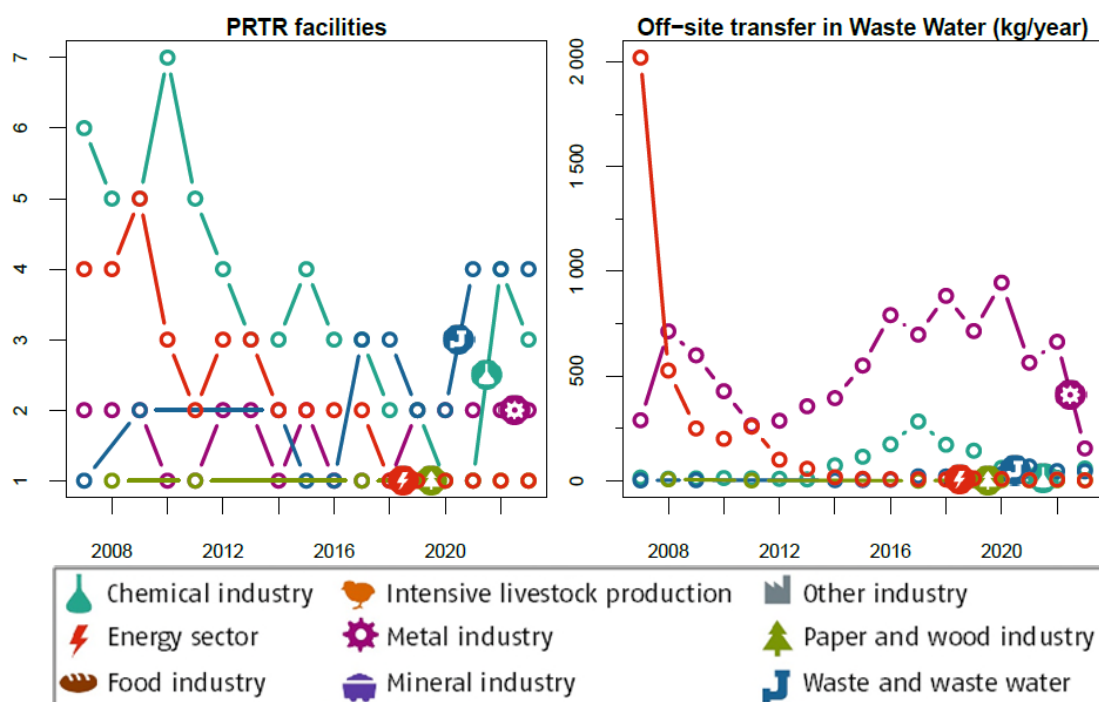
3.16 Mercury and compounds (as Hg)

The threshold is **1 kg “Mercury and compounds (as Hg)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 91: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Mercury and compounds (as Hg)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Metal industry	2	16.7	155	57.9
Chemical industry	3	25	59	22.1
Waste and waste water management	4	33.3	45.7	17.1
Paper- and wood industry	1	8.33	3.5	1.31
Energy sector	1	8.33	2.8	1.05
Other industry	1	8.33	1.59	0.594
Total	12	100	268	100

Figure 91: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Mercury and compounds (as Hg)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

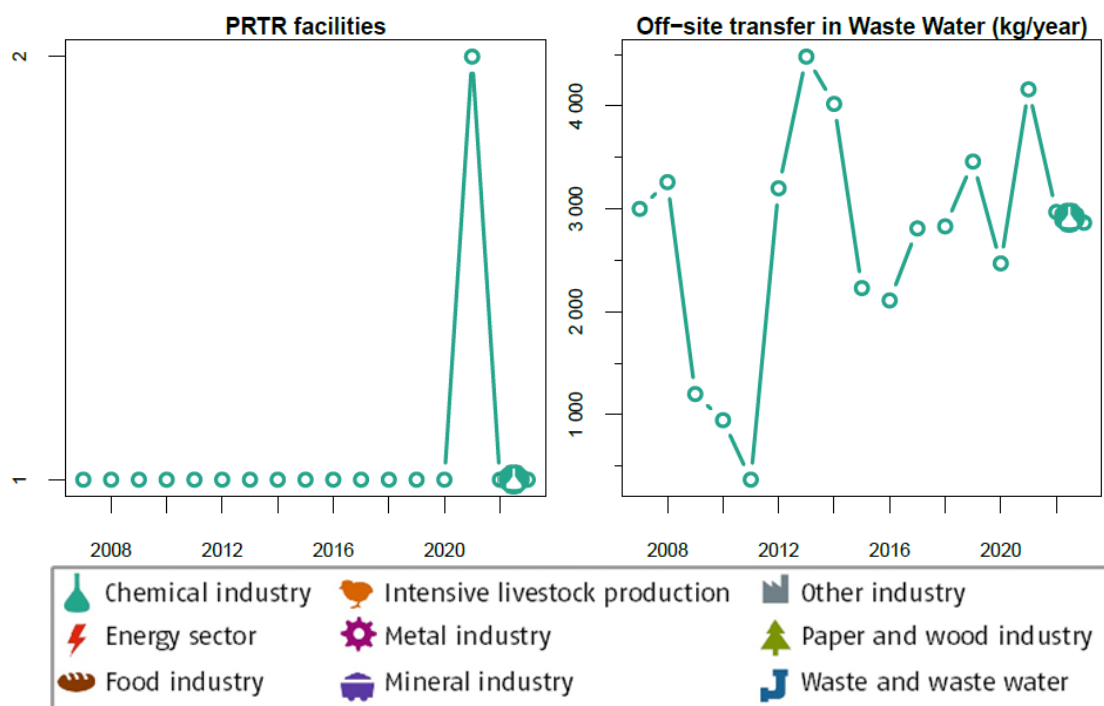
3.17 Naphthalene

The threshold is **10 kg “Naphthalene” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 92: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Naphthalene” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	1	100	2 864	100
Total	1	100	2 864	100

Figure 92: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Naphthalene”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

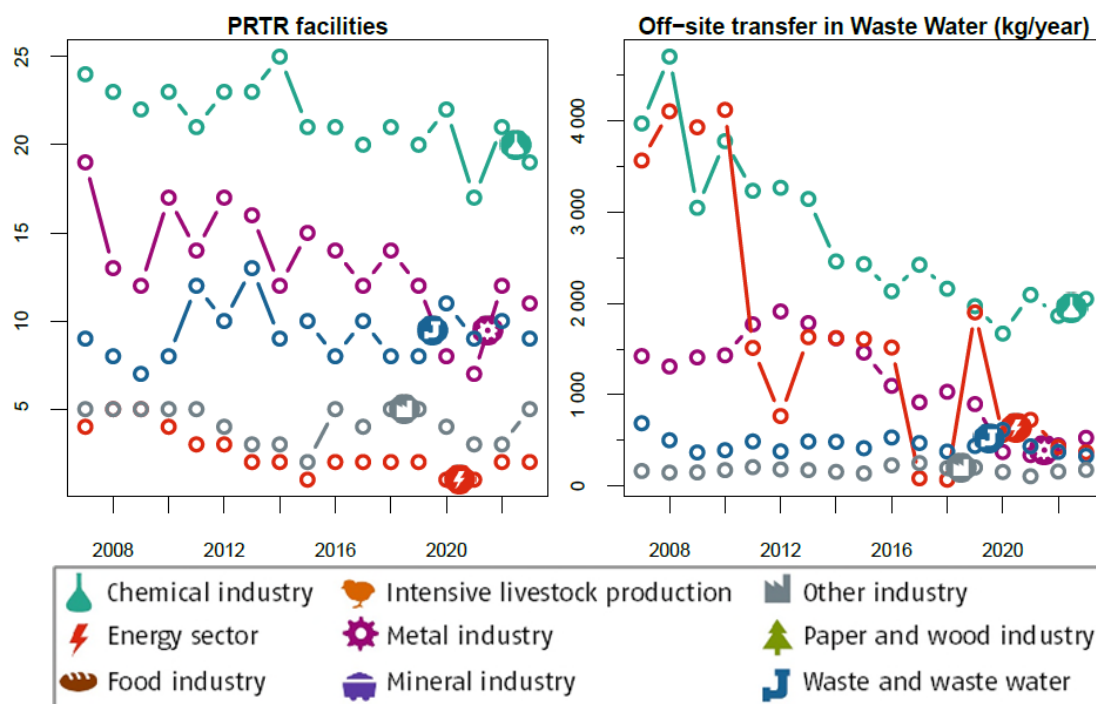
3.18 Nickel and compounds (as Ni)

The threshold is **20 kg “Nickel and compounds (as Ni)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 93: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Nickel and compounds (as Ni)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	19	37.3	2 049	54.7
Metal industry	11	21.6	529	14.1
Energy sector	2	3.92	369	9.87
Waste and waste water management	9	17.6	332	8.86
Other industry	5	9.8	178	4.76
Paper- and wood industry	3	5.88	130	3.48
Mineral industry	1	1.96	113	3.03
Food industry	1	1.96	43.2	1.15
Total	51	100	3 744	100

Figure 93: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Nickel and compounds (as Ni)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

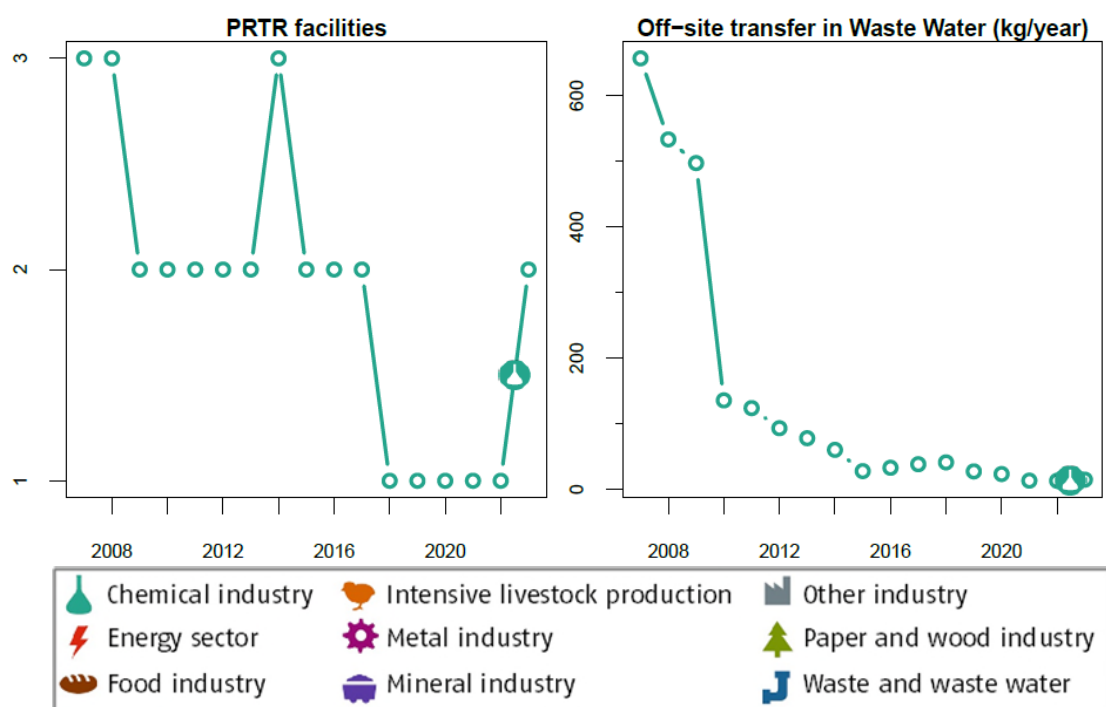
3.19 Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)

The threshold is **1 kg “Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 94: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	2	100	15.1	100
Total	2	100	15.1	100

Figure 94: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

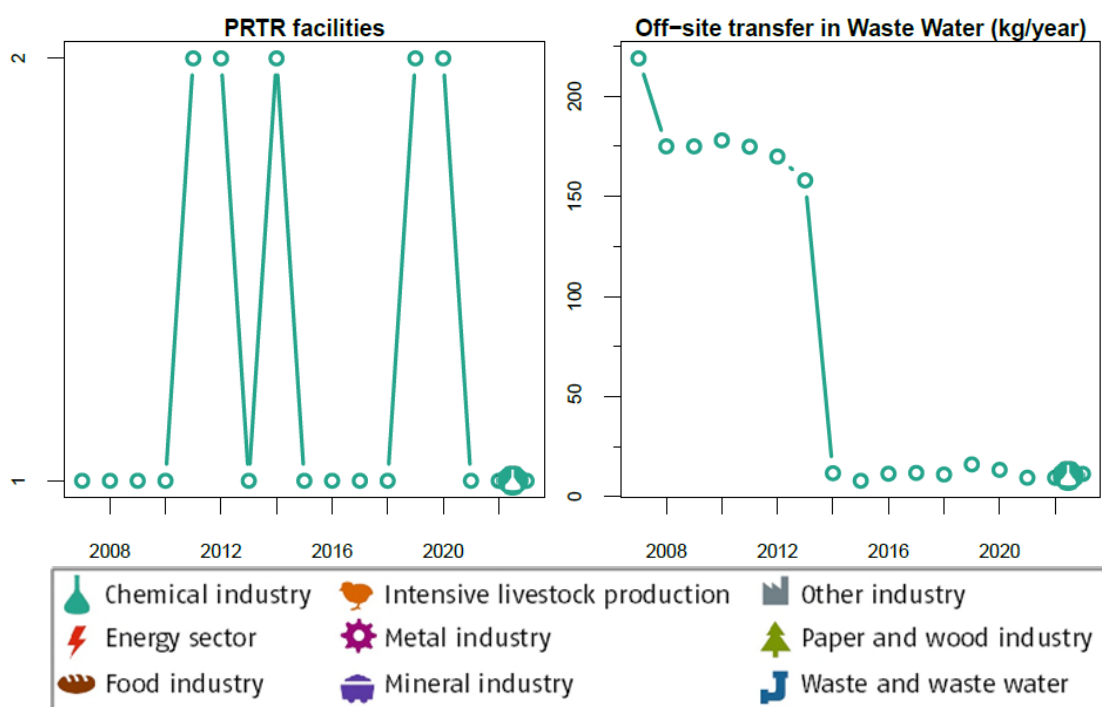
3.20 Octylphenols and Octylphenol ethoxylates

The threshold is **1 kg “Octylphenols and Octylphenol ethoxylates” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 95: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Octylphenols and Octylphenol ethoxylates” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	1	100	11.3	100
Total	1	100	11.3	100

Figure 95: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Octylphenols and Octylphenol ethoxylates”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

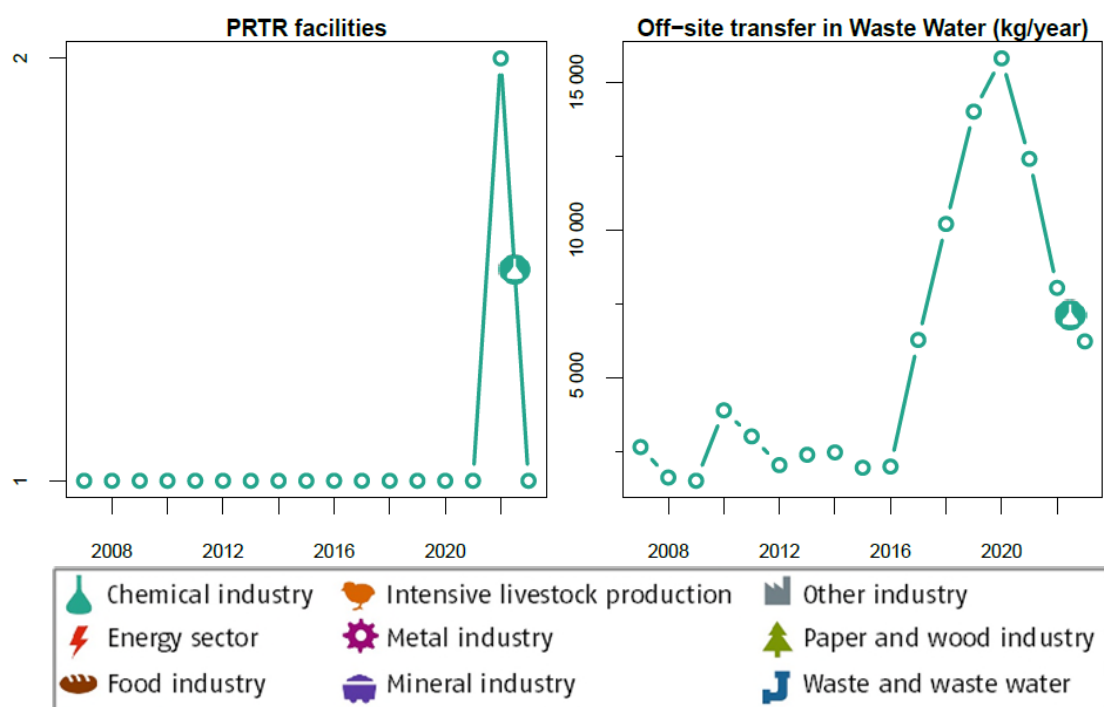
3.21 Organotin compounds (as total Sn)

The threshold is **50 kg “Organotin compounds (as total Sn)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 96: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Organotin compounds (as total Sn)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	1	100	6 232	100
Total	1	100	6 232	100

Figure 96: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Organotin compounds (as total Sn)”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

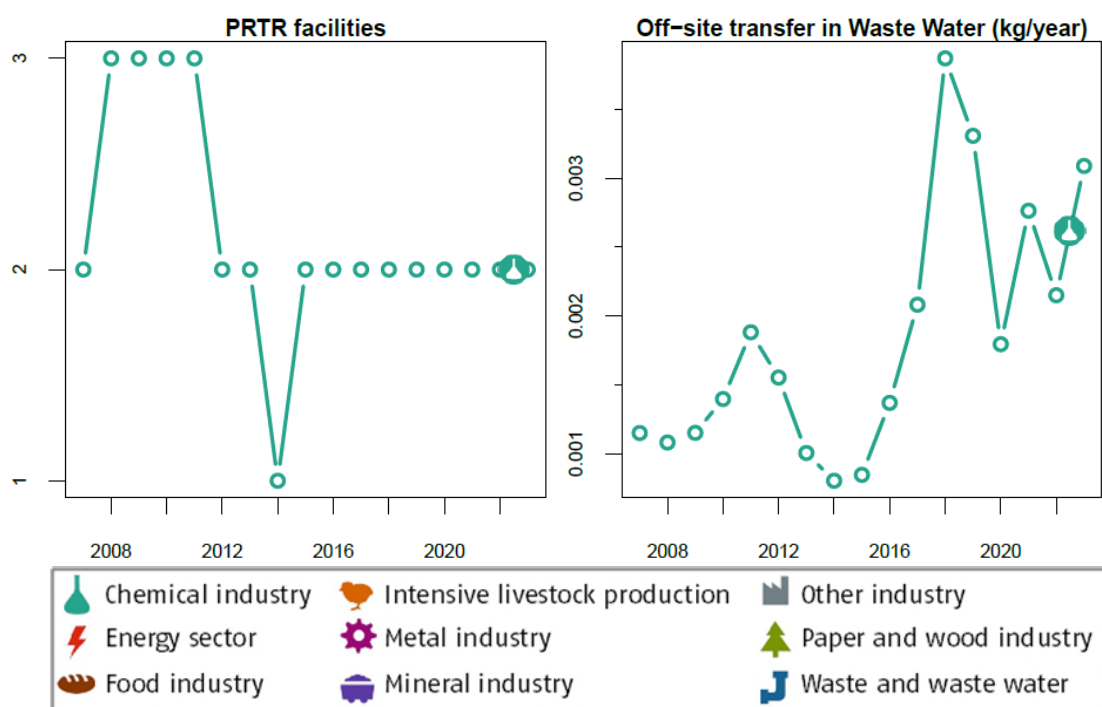
3.22 PCDD + PCDF (dioxins + furans) (as Teq)

The threshold is **0.0001 kg “PCDD + PCDF (dioxins + furans) (as Teq)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 97: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “PCDD + PCDF (dioxins + furans) (as Teq)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	2	100	0.00309	100
Total	2	100	0.00309	100

Figure 97: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “PCDD + PCDF (dioxins + furans) (as Teq)”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

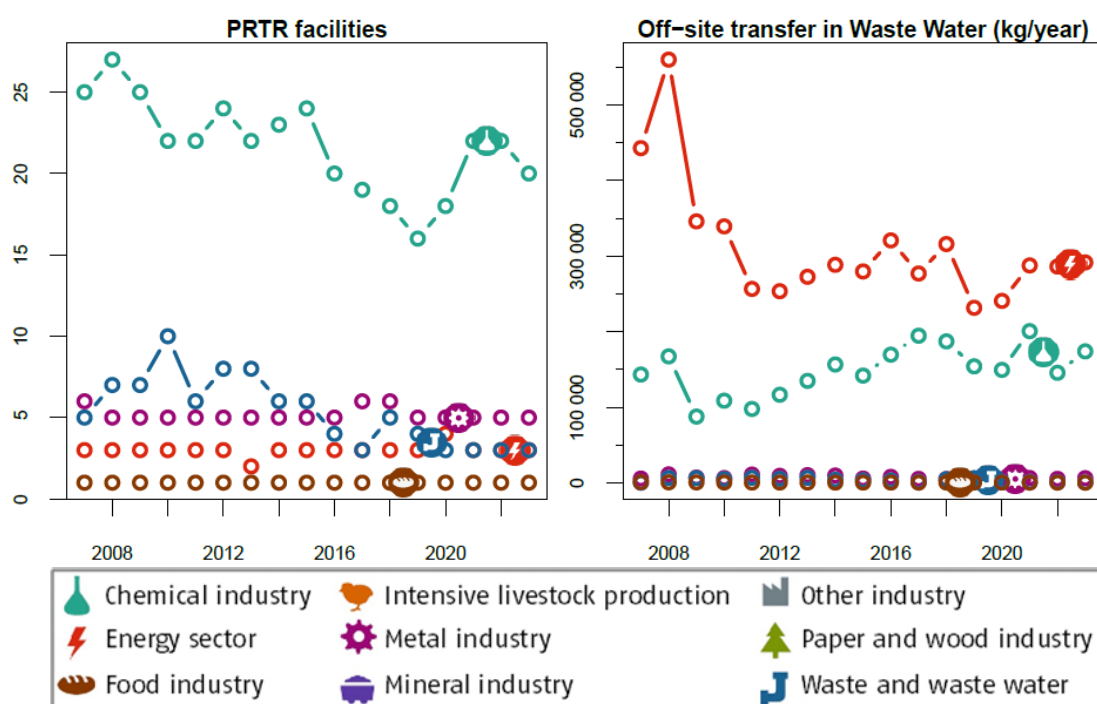
3.23 Phenols (as total C)

The threshold is **20 kg “Phenols (as total C)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 98: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Phenols (as total C)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Energy sector	3	8.57	291 627	61.5
Chemical industry	20	57.1	174 079	36.7
Metal industry	5	14.3	6 463	1.36
Waste and waste water management	3	8.57	981	0.207
Food industry	1	2.86	613	0.129
Other industry	3	8.57	334	0.0705
Total	35	100	474 097	100

Figure 98: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Phenols (as total C)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

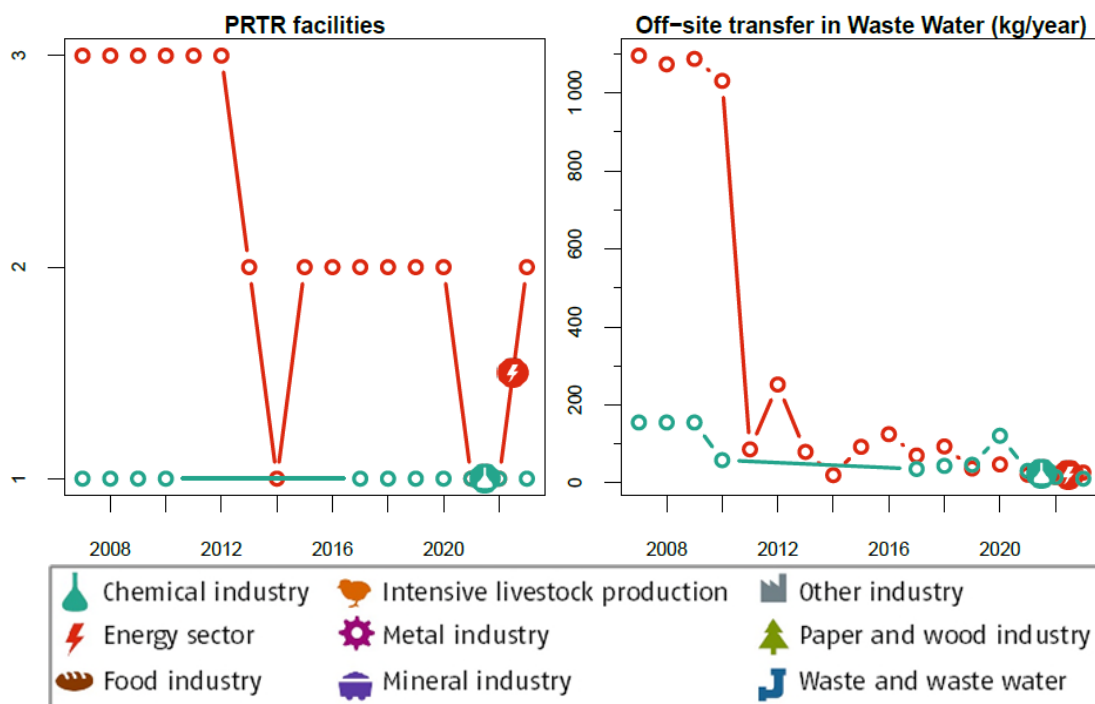
3.24 Polycyclic aromatic hydrocarbons (PAHs)

The threshold is **5 kg “Polycyclic aromatic hydrocarbons (PAHs)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 99: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Polycyclic aromatic hydrocarbons (PAHs)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Energy sector	2	66.7	26.8	70.7
Chemical industry	1	33.3	11.1	29.3
Total	3	100	37.9	100

Figure 99: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Polycyclic aromatic hydrocarbons (PAHs)”, each by the 2 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

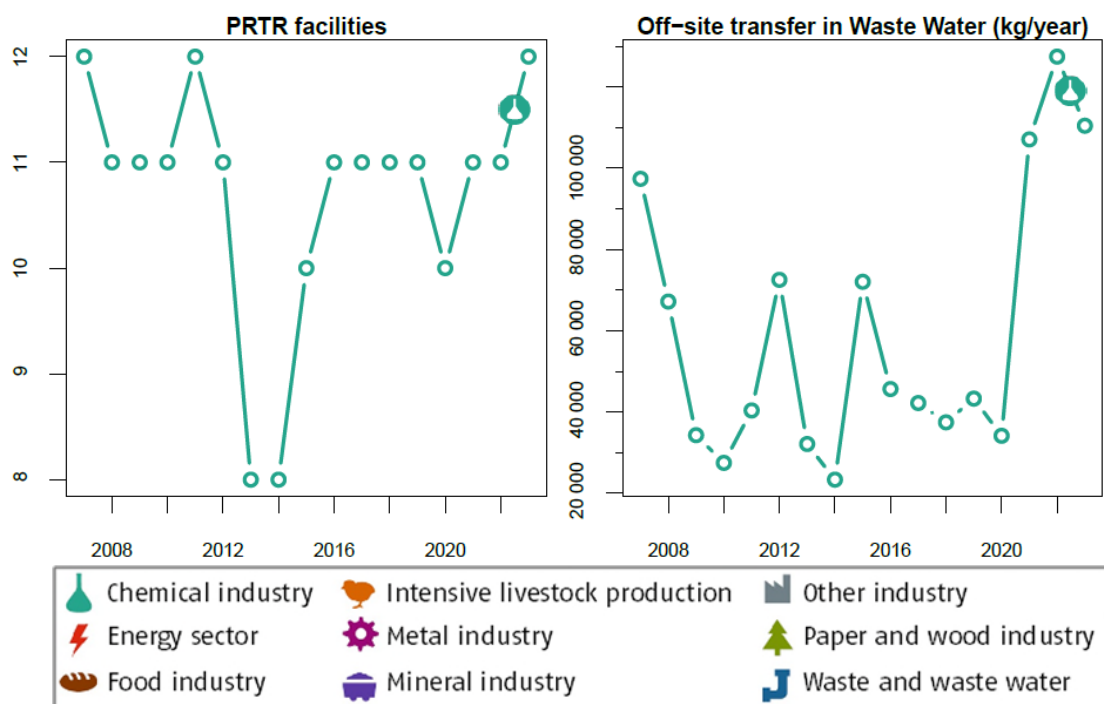
3.25 Toluene

The threshold is **200 kg “Toluene” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 100: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Toluene” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	12	100	110 443	100
Total	12	100	110 443	100

Figure 100: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Toluene”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

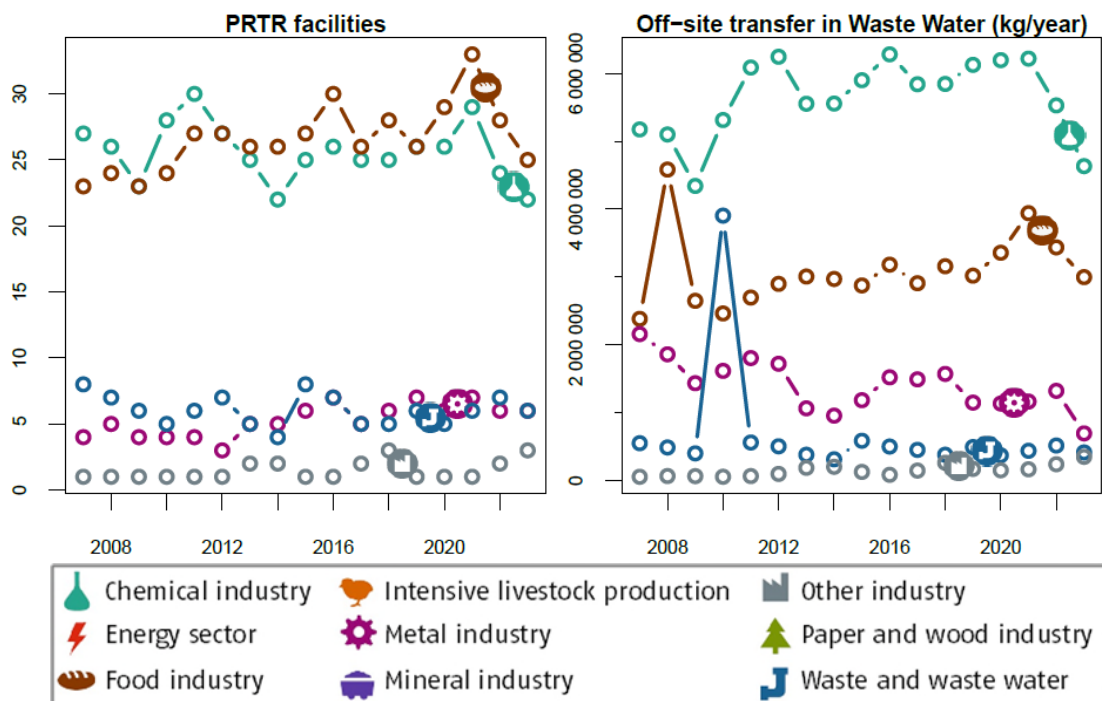
3.26 Total nitrogen

The threshold is **50 000 kg “Total nitrogen” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 101: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Total nitrogen” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	22	31.9	4 633 400	48.2
Food industry	25	36.2	2 997 300	31.2
Metal industry	6	8.7	693 800	7.21
Waste and waste water management	6	8.7	413 400	4.3
Other industry	3	4.35	348 000	3.62
Paper- and wood industry	4	5.8	278 700	2.9
Energy sector	3	4.35	253 000	2.63
Total	69	100	9 617 600	100

Figure 101: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Total nitrogen”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

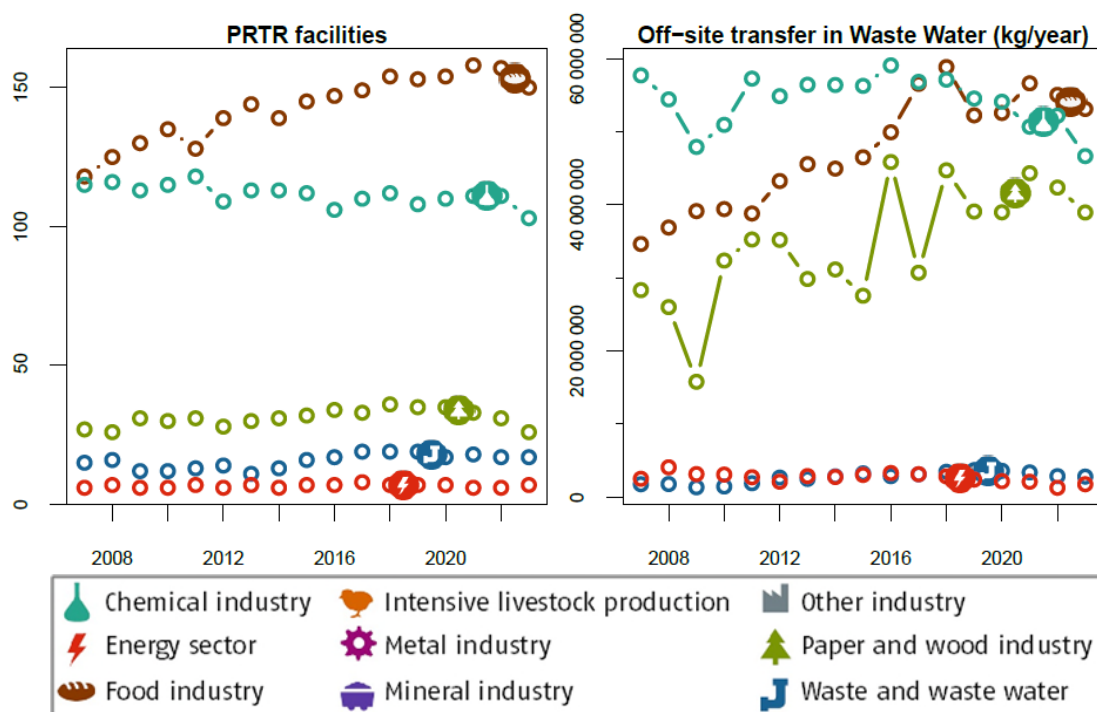
3.27 Total organic carbon (TOC) (as total C or COD/3)

The threshold is **50 000 kg “Total organic carbon (TOC) (as total C or COD/3)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 102: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Total organic carbon (TOC) (as total C or COD/3)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Food industry	150	46.7	53 104 100	36.4
Chemical industry	103	32.1	46 659 500	32
Paper- and wood industry	26	8.1	38 939 300	26.7
Waste and waste water management	17	5.3	2 784 700	1.91
Energy sector	7	2.18	1 743 600	1.2
Other industry	11	3.43	1 720 900	1.18
Metal industry	7	2.18	878 800	0.603
Total	321	100	145 830 900	100

Figure 102: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Total organic carbon (TOC) (as total C or COD/3)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

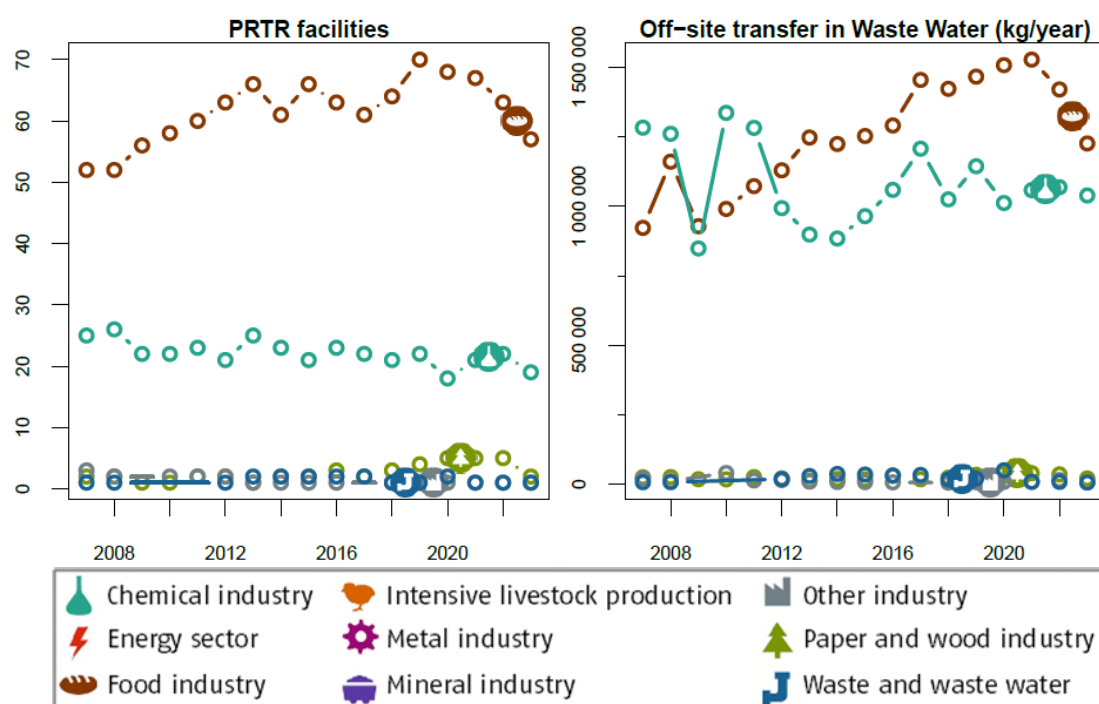
3.28 Total phosphorus

The threshold is **5 000 kg “Total phosphorus” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 103: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Total phosphorus” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Food industry	57	70.4	1 226 280	53.2
Chemical industry	19	23.5	1 039 170	45.1
Paper- and wood industry	2	2.47	20 650	0.896
Other industry	1	1.23	7 190	0.312
Waste and waste water management	1	1.23	6 300	0.273
Energy sector	1	1.23	5 490	0.238
Total	81	100	2 305 080	100

Figure 103: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Total phosphorus”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

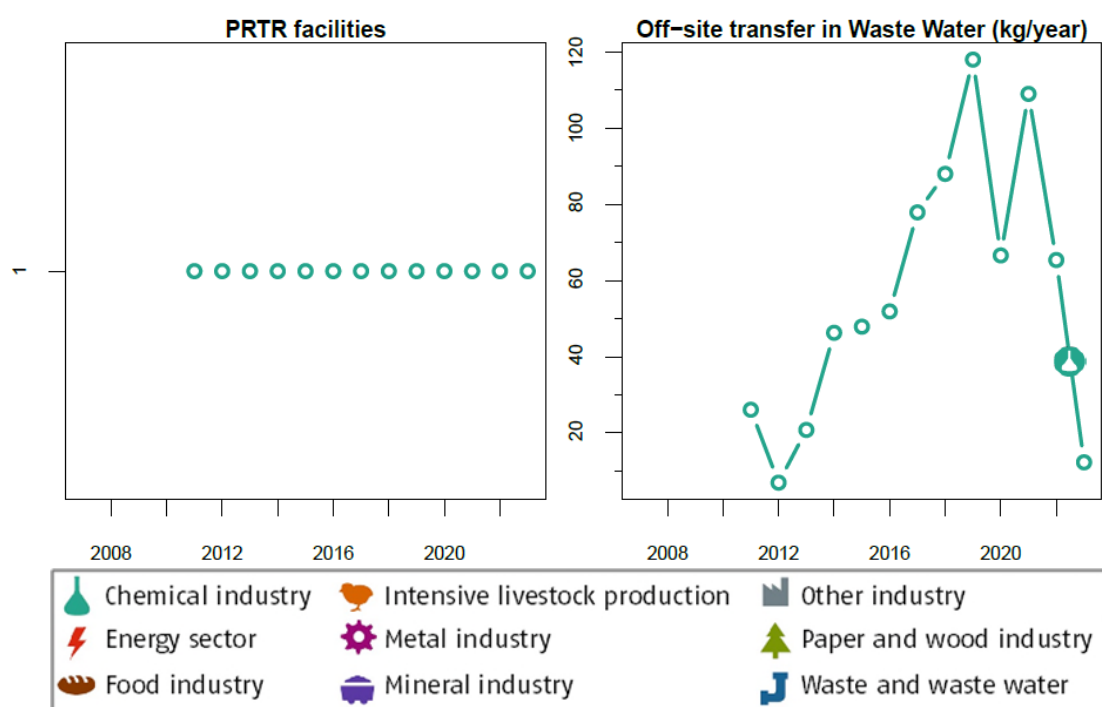
3.29 Trichlorobenzenes (TCBs) (all isomers)

The threshold is **1 kg “Trichlorobenzenes (TCBs) (all isomers)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 104: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Trichlorobenzenes (TCBs) (all isomers)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	1	100	12.3	100
Total	1	100	12.3	100

Figure 104: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Trichlorobenzenes (TCBs) (all isomers)”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

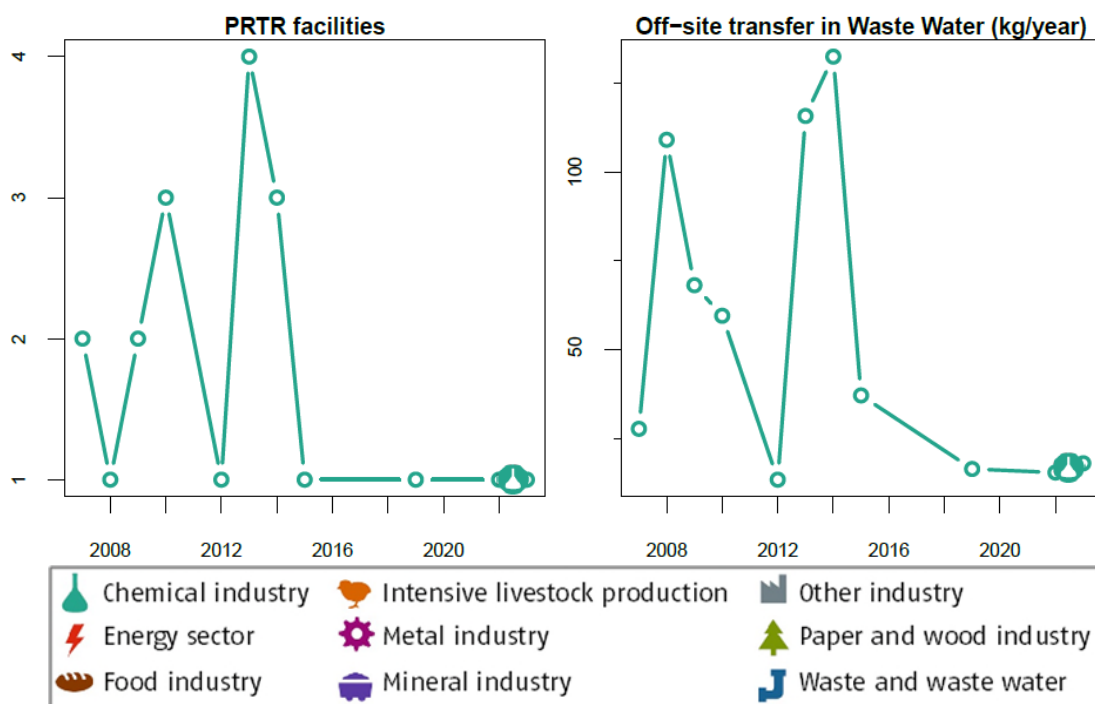
3.30 Trichloromethane

The threshold is **10 kg “Trichloromethane” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 105: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Trichloromethane” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	1	100	18	100
Total	1	100	18	100

Figure 105: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Trichloromethane”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

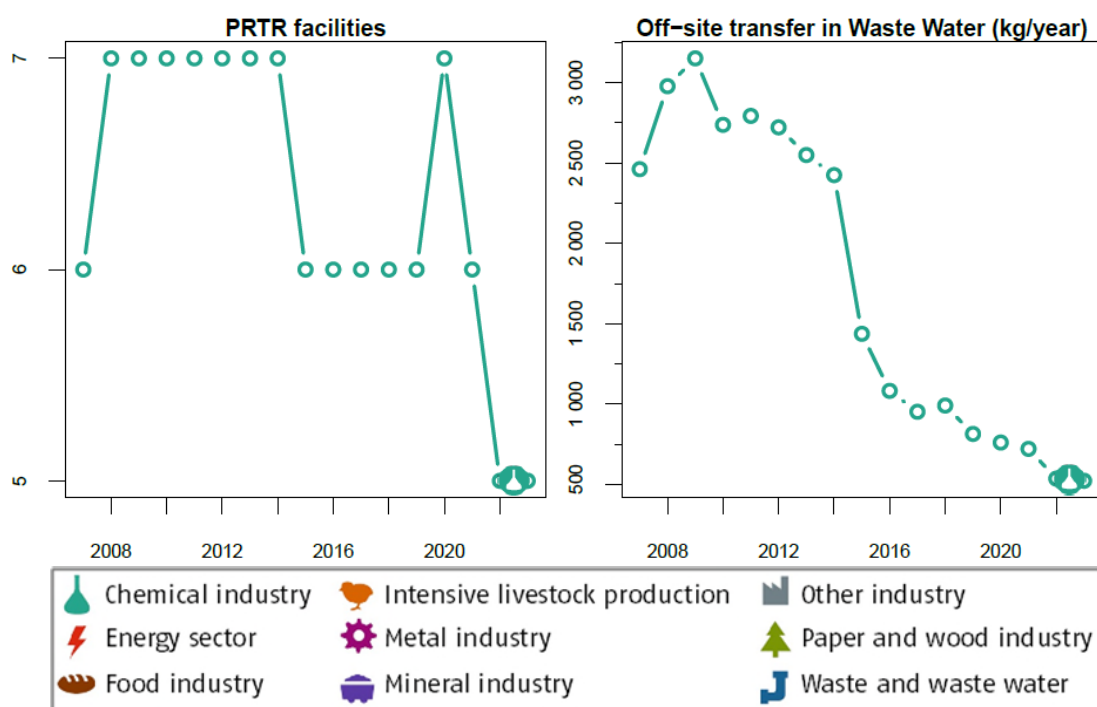
3.31 Vinyl chloride

The threshold is **10 kg “Vinyl chloride” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 106: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Vinyl chloride” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	5	100	523	100
Total	5	100	523	100

Figure 106: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Vinyl chloride”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

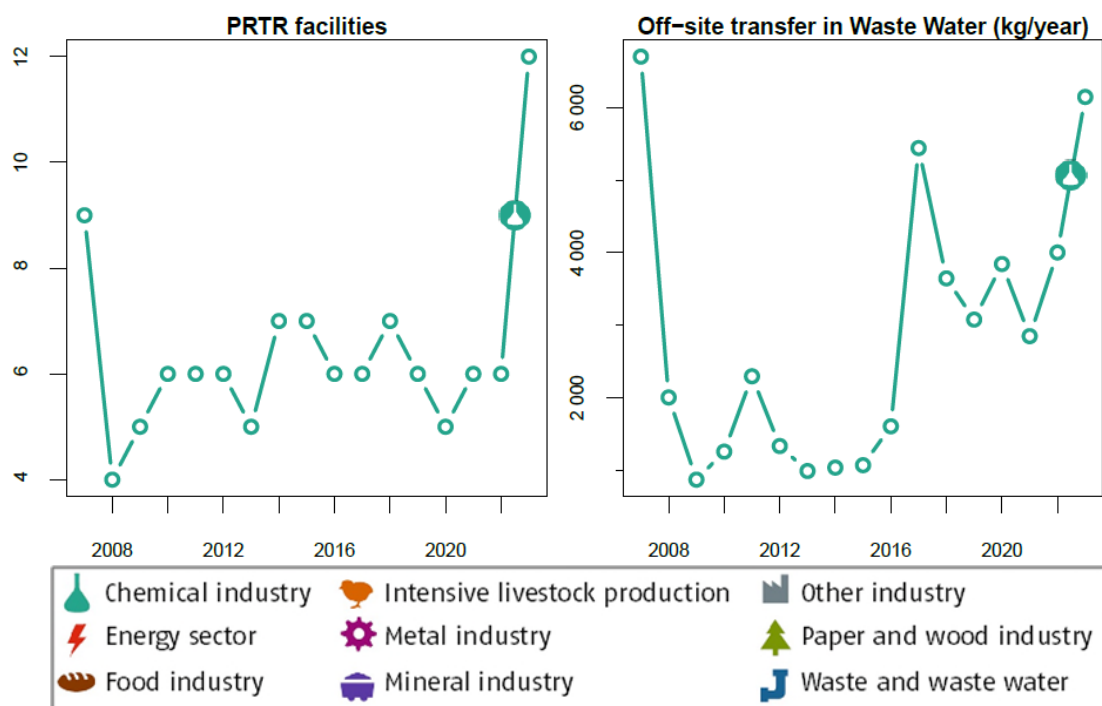
3.32 Xylenes

The threshold is **200 kg “Xylenes” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 107: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Xylenes” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Chemical industry	6	100	6 147	100
Total	6	100	6 147	100

Figure 107: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Xylenes”, each by the 1 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

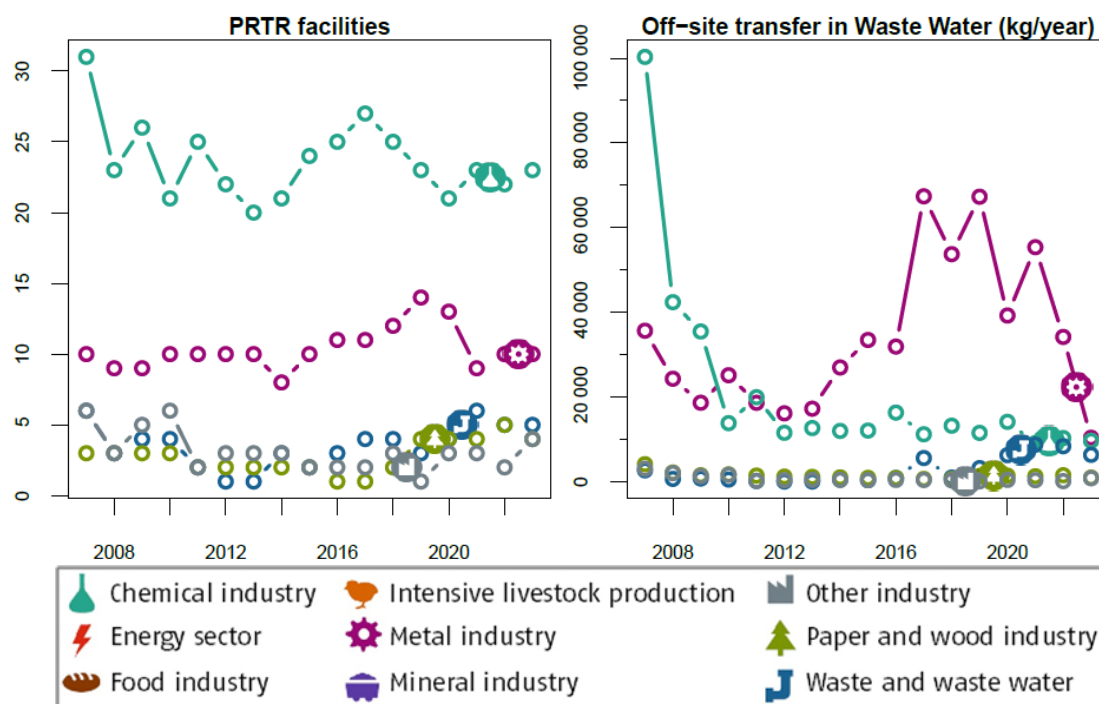
3.33 Zinc and compounds (as Zn)

The threshold is **100 kg “Zinc and compounds (as Zn)” per year**. Off-site transfer in waste water above this value have to be reported according to the E-PRTR Regulation.

Table 108: For the reporting year 2023 -Number of facilities and their off-site transfer in waste water of the pollutant “Zinc and compounds (as Zn)” of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Off-site transfer w. w. (kg/year)	(%)
Metal industry	10	20.4	10 451	35.2
Chemical industry	23	46.9	9 728	32.8
Waste and waste water management	5	10.2	6 435	21.7
Paper- and wood industry	4	8.16	1 064	3.58
Other industry	4	8.16	903	3.04
Mineral industry	1	2.04	671	2.26
Energy sector	1	2.04	310	1.04
Food industry	1	2.04	119	0.401
Total	49	100	29 681	100

Figure 108: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant “Zinc and compounds (as Zn)”, each by the 5 industrial sector(s) with the highest emissions in the year 2023.



Source: own illustration, Umweltbundesamt

A Pollutants to report and threshold values

The following summary contains the threshold values separated into the environmental media of all pollutants which are covered by the E-PRTR Regulation.

Source: Annex II of the Regulation (EC) No 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC.

Table 112: Summary of the pollutants covered by the E-PRTR Regulation with the threshold values for release into the environmental media.

No.	CAS-number	Pollutant (1)	Release to air (kg/year)	Release to water (kg/year)	Release to land (kg/year)
1	74-82-8	Methane (CH ₄)	100 000	(2)	-
2	630-08-0	Carbon monoxide (CO)	500 000	-	-
3	124-38-9	Carbon dioxide (CO ₂)	100 000 000	-	-
4		Hydro-fluorocarbons (HFCs) (3)	100	-	-
5	10024-97-2	Nitrous oxide (N ₂ O)	10 000	-	-
6	7664-41-7	Ammonia (NH ₃)	10 000	-	-
7		Non-methane volatile organic compounds (NMVOC)	100 000	-	-
8		Nitrogen oxides (NO _x /NO ₂)	100 000	-	-
9		Perfluorocarbons (PFCs) (4)	100	-	-
10	2551-62-4	Sulphur hexafluoride (SF ₆)	50	-	-
11		Sulphur oxides (SO _x /SO ₂)	150 000	-	-
12		Total nitrogen	-	50 000	50 000
13		Total phosphorus	-	5 000	5 000
14		Hydrochlorofluorocarbons (HCFCs) (5)	1	-	-
15		Chlorofluorocarbons (CFCs) (6)	1	-	-
16		Halons (7)	1	-	-
17		Arsenic and compounds (as As) (8)	20	5	5
18		Cadmium and compounds (as Cd) (8)	10	5	5
19		Chromium and compounds (as Cr) (8)	100	50	50
20		Copper and compounds (as Cu) (8)	100	50	50
21		Mercury and compounds (as Hg) (8)	10	1	1
22		Nickel and compounds (as Ni) (8)	50	20	20
23		Lead and compounds (as Pb) (8)	200	20	20

No.	CAS-number	Pollutant (1)	Release to air (kg/year)	Release to water (kg/year)	Release to land (kg/year)
24		Zinc and compounds (as Zn) (8)	200	100	100
25	15972-60-8	Alachlor	-	1	1
26	309-00-2	Aldrin	1	1	1
27	1912-24-9	Atrazine	-	1	1
28	57-74-9	Chlordane	1	1	1
29	143-50-0	Chlordecone	1	1	1
30	470-90-6	Chlorfenvinphos	-	1	1
31	85535-84-8	Chloro-alkanes, C10-C13	-	1	1
32	2921-88-2	Chlorpyrifos	-	1	1
33	50-29-3	DDT	1	1	1
34	107-06-2	1,2-dichloroethane (EDC)	1 000	10	10
35	75-09-2	Dichloromethane (DCM)	1 000	10	10
36	60-57-1	Dieldrin	1	1	1
37	330-54-1	Diuron	-	1	1
38	115-29-7	Endosulphan	-	1	1
39	72-20-8	Endrin	1	1	1
40		Halogenated organic compounds (as AOX) (9)	-	1 000	1 000
41	76-44-8	Heptachlor	1	1	1
42	118-74-1	Hexachlorobenzene (HCB)	10	1	1
43	87-68-3	Hexachlorobutadiene (HCBD)	-	1	1
44	608-73-1	1,2,3,4,5, 6-hexachlorocyclohexane (HCH)	10	1	1
45	58-89-9	Lindane	1	1	1
46	2385-85-5	Mirex	1	1	1
47		PCDD + PCDF (dioxins + furans) (as Teq) (10)	0.0001	0.0001	0.0001
48	608-93-5	Pentachlorobenzene	1	1	1
49	87-86-5	Pentachlorophenol (PCP)	10	1	1
50	1336-36-3	Polychlorinated biphenyls (PCBs)	0.1	0.1	0.1
51	122-34-9	Simazine	-	1	1
52	127-18-4	Tetrachloroethylene (PER)	2 000	10	-

No.	CAS-number	Pollutant (1)	Release to air (kg/year)	Release to water (kg/year)	Release to land (kg/year)
53	56-23-5	Tetrachloromethane (TCM)	100	1	-
54	12002-48-1	Trichlorobenzenes (TCBs) (all isomers)	10	1	-
55	71-55-6	1,1,1-trichloroethane	100	-	-
56	79-34-5	1,1,2,2-tetrachloroethane	50	-	-
57	79-01-6	Trichloroethylen	2 000	10	-
58	67-66-3	Trichloromethane	500	10	-
59	8001-35-2	Toxaphene	1	1	1
60	75-01-4	Vinyl chloride	1 000	10	10
61	120-12-7	Anthracene	50	1	1
62	71-43-2	Benzene	1 000	200 (as BTEX) (11)	200 (as BTEX) (11)
63		Brominated diphenylethers (PBDE) (12)	-	1	1
64		Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	-	1	1
65	100-41-4	Ethyl benzene	-	200 (as BTEX) (11)	200 (as BTEX) (11)
66	75-21-8	Ethylene oxide	1 000	10	10
67	34123-59-6	Isopoturon	-	1	1
68	91-20-3	Naphthalene	100	10	10
69		Organotin compounds (as total Sn)	-	50	50
70	117-81-7	Di-(2-ethyl hexyl) phthalate (DEHP)	10	1	1
71	108-95-2	Phenols (as total C) (13)	-	20	20
72		Polycyclic aromatic hydrocarbons (PAHs) (14)	50	5	5
73	108-88-3	Toluene	-	200 (as BTEX) (11)	200 (as BTEX) (11)
74		Tributyltin and compounds (15)	-	1	1
75		Triphenyltin and compounds (16)	-	1	1
76		Total organic carbon (TOC) (as total C or COD/3)	-	50 000	-
77	1582-09-8	Trifluralin	-	1	1
78	1330-20-7	Xylenes (17)	-	200 (as BTEX) (11)	200 (as BTEX) (11)

No.	CAS-number	Pollutant (1)	Release to air (kg/year)	Release to water (kg/year)	Release to land (kg/year)
79		Chlorides (as total Cl)	-	2 000 000	2 000 000
80		Chlorine and inorganic compounds (as HCl)	10 000	-	-
81	1332-21-4	Asbestos	1	1	1
82		Cyanides (as total CN)	-	50	50
83		Fluorides (as total F)	-	2 000	2 000
84		Fluorine and inorganic compounds (as HF)	5 000	-	-
85	74-90-8	Hydrogen cyanide (HCN)	200	-	-
86		Particulate matter (PM10)	50 000	-	-
87	1806-26-4	Octylphenols and Octylphenol ethoxylates	-	1	-
88	206-44-0	Fluoranthene	-	1	-
89	465-73-6	Isodrin	-	1	-
90	36355-1-8	Hexabromobiphenyl	0.1	0.1	0.1
91	191-24-2	Benzo(g,h,i)perylene	-	1	-

- (1) Unless otherwise specified any pollutant specified in Annex II shall be reported as the total mass of that pollutant or, where the pollutant is a group of substances, as the total mass of the group.
- (2) A hyphen (—) indicates that the parameter and medium in question do not trigger a reporting requirement.
- (3) Total mass of hydrogen fluorocarbons: sum of HFC23, HFC32, HFC41, HFC4310mee, HFC125, HFC134, HFC134a, HFC152a, HFC143, HFC143a, HFC227ea, HFC236fa, HFC245ca, HFC365mfc.
- (4) Total mass of perfluorocarbons: sum of CF₄, C₂F₆, C₃F₈, C₄F₁₀, c-C₄F₈, C₅F₁₂, C₆F₁₄.
- (5) Total mass of substances including their isomers listed in Group VIII of Annex I to Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer (OJ L 244, 29.9.2000, p. 1). Regulation as amended by Regulation (EC) No 1804/2003 (OJ L 265, 16.10.2003, p. 1).
- (6) Total mass of substances including their isomers listed in Group I and II of Annex I to Regulation (EC) No 2037/2000.
- (7) Total mass of substances including their isomers listed in Group III and VI of Annex I to Regulation (EC) No 2037/2000.
- (8) All metals shall be reported as the total mass of the element in all chemical forms present in the release.
- (9) Halogenated organic compounds which can be adsorbed to activated carbon expressed as chloride.
- (10) Expressed as I-TEQ.
- (11) Single pollutants are to be reported if the threshold for BTEX (the sum parameter of benzene, toluene, ethyl benzene, xylenes) is exceeded.
- (12) Total mass of the following brominated diphenylethers: penta-BDE, octa-BDE and deca-BDE.
- (13) Total mass of phenol and simple substituted phenols expressed as total carbon.
- (14) Polycyclic aromatic hydrocarbons (PAHs) are to be measured for reporting of releases to air as benzo(a)pyrene (50-32-8), benzo(b)fluoranthene (205-99-2), benzo(k)fluoranthene (207-08-9), indeno(1,2,3-cd)pyrene (193-39-5) (derived from Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants (OJ L 229, 29.6.2004, p. 5)).
- (15) Total mass of tributyltin compounds, expressed as mass of tributyltin.
- (16) Total mass of triphenyltin compounds, expressed as mass of triphenyltin.
- (17) Total mass of xylene (ortho-xylene, meta-xylene, para-xylene).