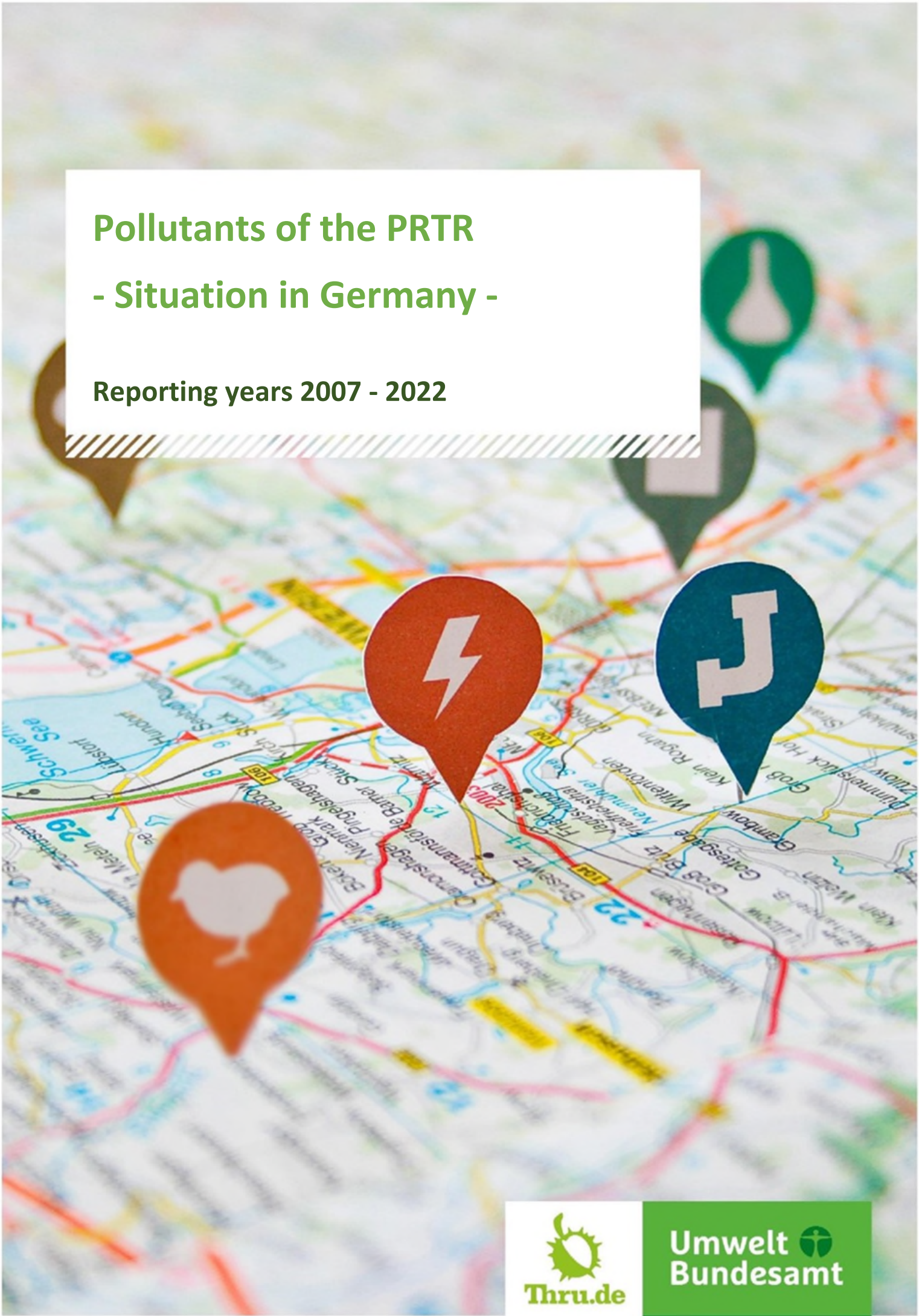
Pollutants of the PRTR

- Situation in Germany -

Reporting years 2007 - 2022



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Contents

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 tresholds 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 threshholds. However, there is also the possibility of voluntarily reporting pollutants below the threshold value. Only a few reporting operators make use of fit.

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.

2 Releases to air, water and land

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

2.1 1,2-dichlorethane (EDC)

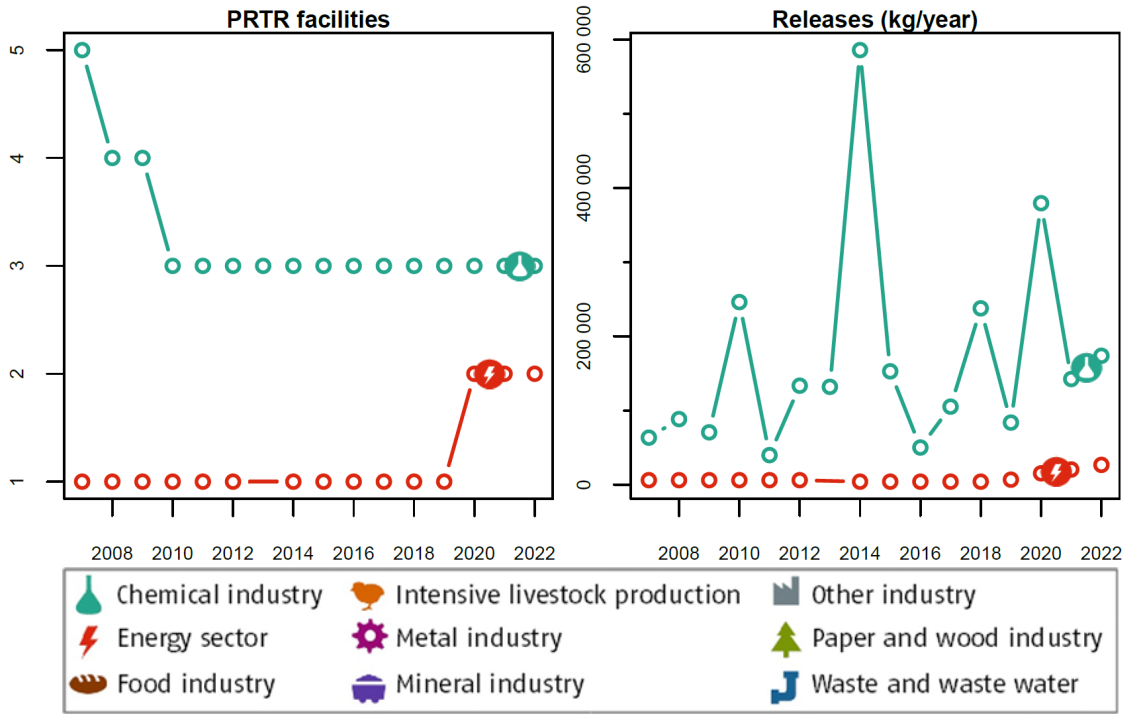
2.1.1 Releases to Air

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 1: For the reporting year 2022 -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	60	173 840	86.7
Energy sector	2	40	26 760	13.3
Total	**5**	**100**	**200 600**	**100**

Figure 1: 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 2022.



Source: own illustration, Umweltbundesamt

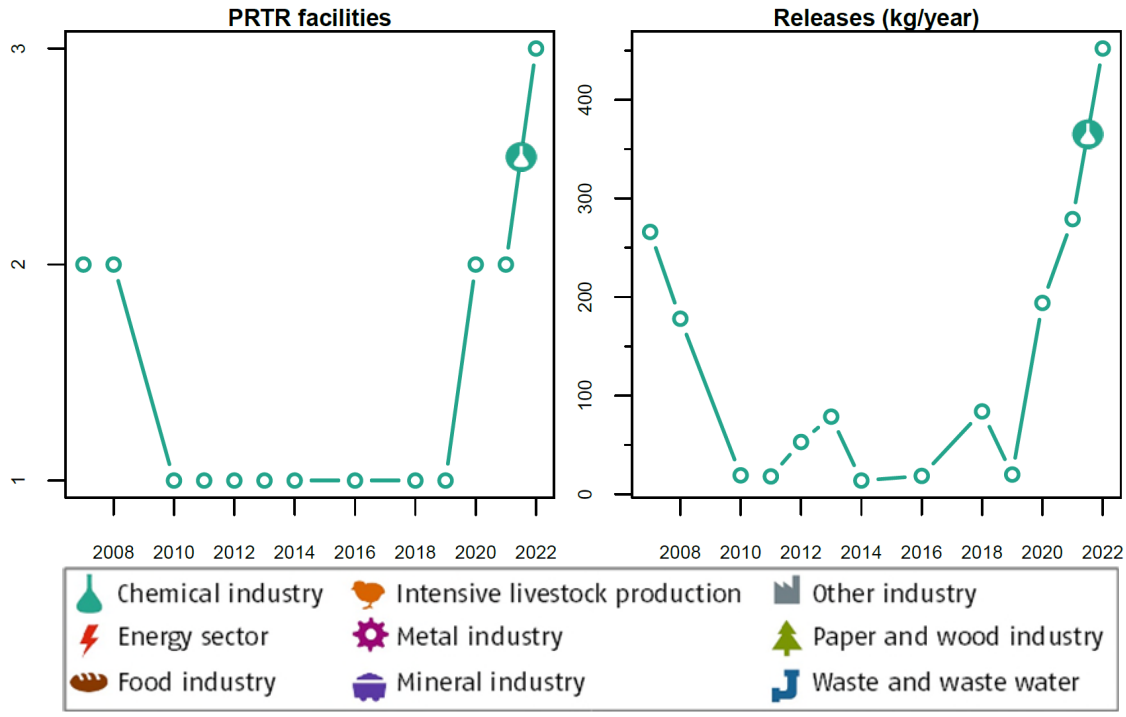
2.1.2 Releases to Water

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 2: For the reporting year 2022 -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	3	100	452	100
Total	**3**	**100**	**452**	**100**

Figure 2: 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 2022.



Source: own illustration, Umweltbundesamt

2.1.3 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 **2022**.

2.2 1,2,3,4,5,6- hexachlorocyclohexane (HCH)

2.2.1 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 **2022**.

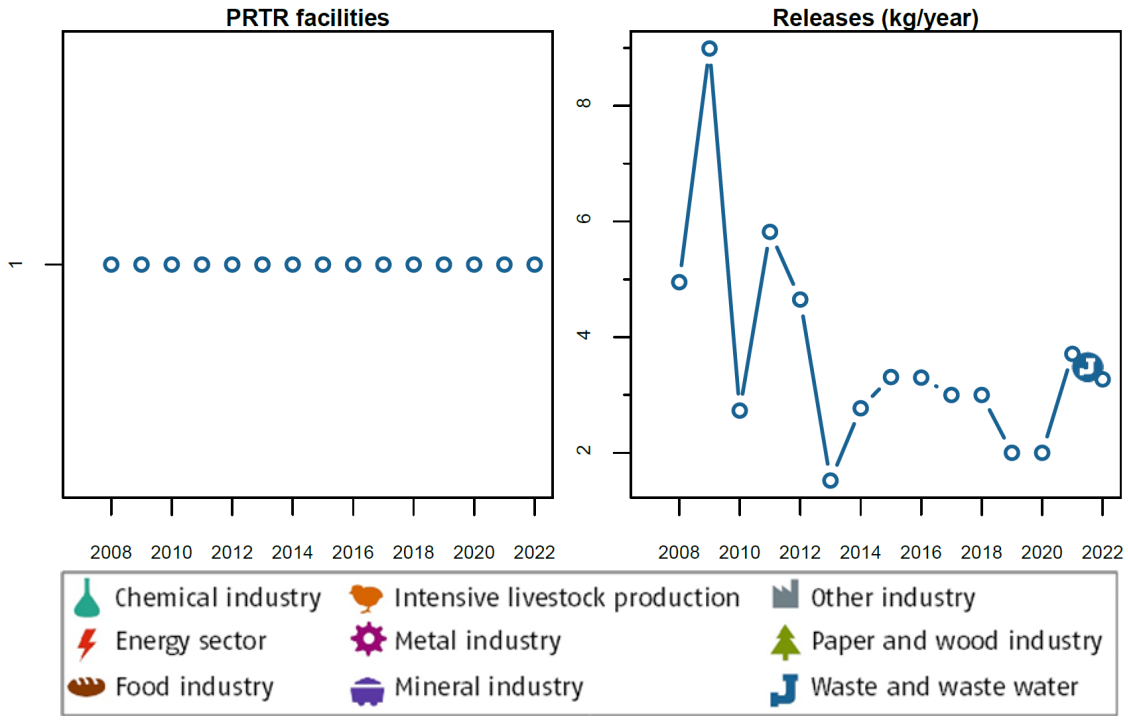
2.2.2 Releases to Water

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 3: For the reporting year 2022 -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	3.27	100
Total	**1**	**100**	**3.27**	**100**

Figure 3: 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 2022.



Source: own illustration, Umweltbundesamt

2.2.3 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 **2022**.

2.3 Ammonia (NH3)

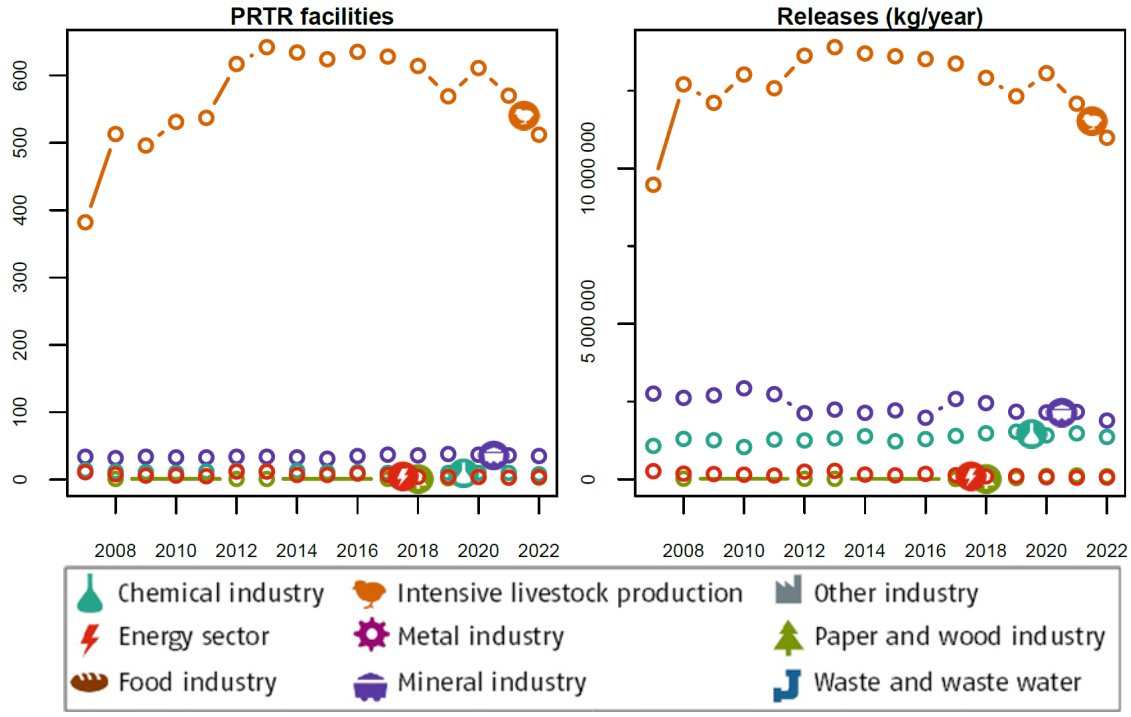
2.3.1 Releases to Air

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 4: For the reporting year 2022 -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	512	90.3	10 988 900	75.8
Mineral industry	35	6.17	1 889 300	13.1
Chemical industry	8	1.41	1 361 300	9.41
Paper and wood industry	3	0.529	96 900	0.670
Energy sector	4	0.705	56 700	0.392
Food industry	3	0.529	44 500	0.308
Waste and waste water management	2	0.353	25 400	0.176
Total	**567**	**100**	**14 463 000**	**100**

Figure 4: 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 2022.



Source: own illustration, Umweltbundesamt

2.4 Arsenic and compounds (as As)

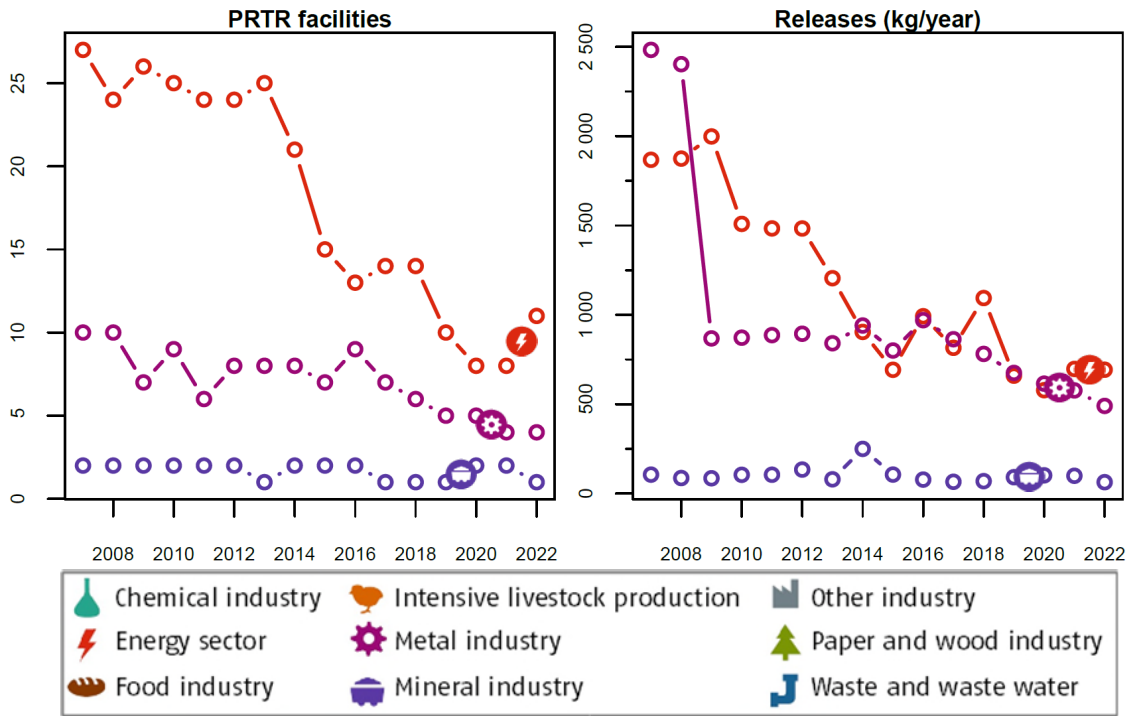
2.4.1 Releases to Air

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 5: For the reporting year 2022 -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)	(%)
Energy sector	11	68.8	693	55.6
Metal industry	4	25.0	490	39.3
Mineral industry	1	6.25	63.5	5.09
Total	**16**	**100**	**1 247**	**100**

Figure 5: 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 2022.



Source: own illustration, Umweltbundesamt

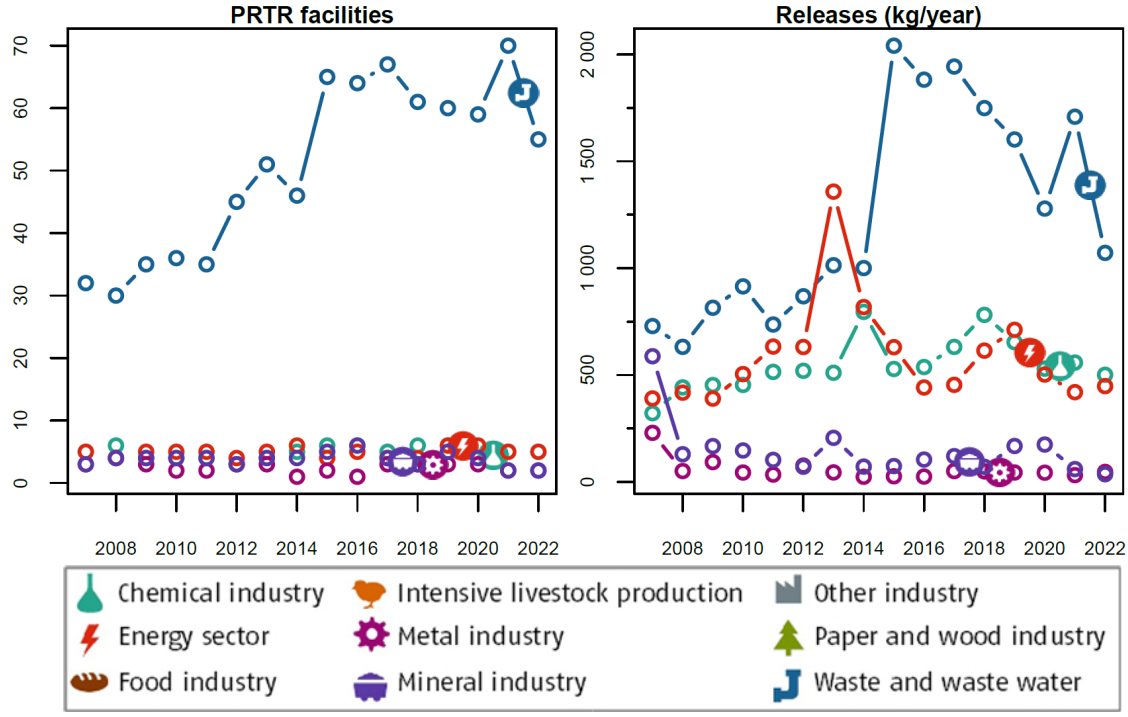
2.4.2 Releases to Water

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 6: For the reporting year 2022 -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	55	78.6	1 072	50.7
Chemical industry	5	7.14	501	23.7
Energy sector	5	7.14	448	21.1
Metal industry	2	2.86	46.7	2.21
Mineral industry	2	2.86	36	1.7
Paper and wood industry	1	1.43	9.6	0.454
Total	**70**	**100**	**2 113**	**100**

Figure 6: 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 2022.



Source: own illustration, Umweltbundesamt

2.4.3 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 **2022**.

2.5 Atrazine

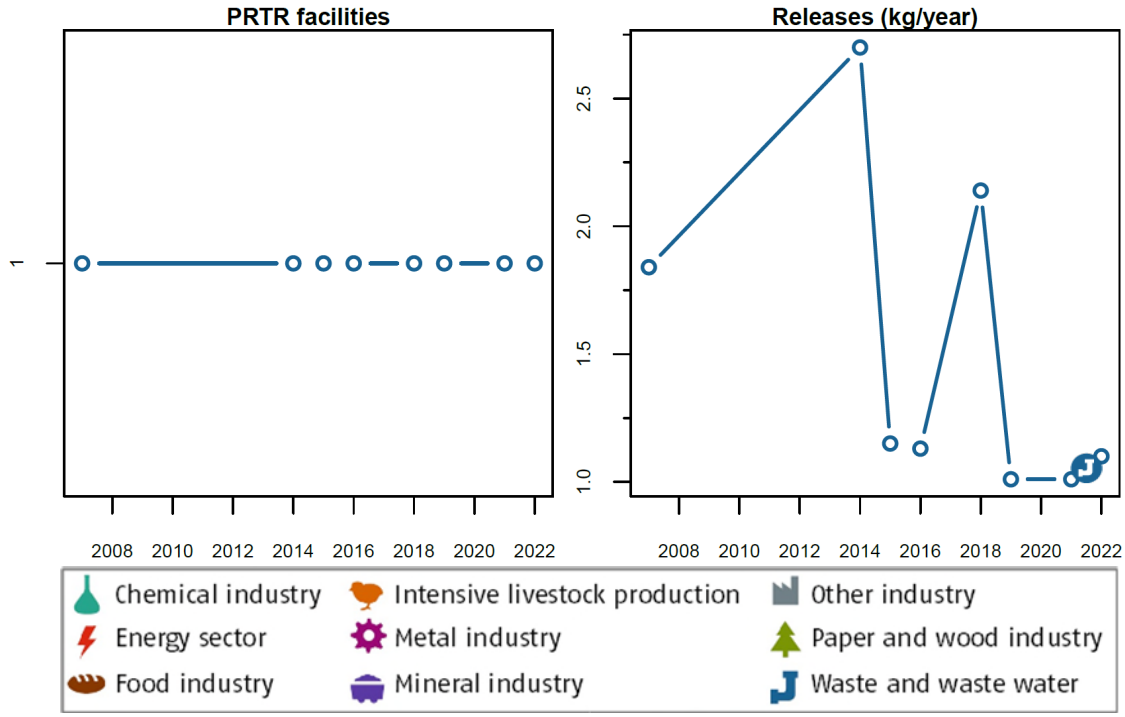
2.5.1 Release to Water

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 7: For the reporting year 2022 -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	1.1	100
Total	**1**	**100**	**1.1**	**100**

Figure 7: 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 2022.



Source: own illustration, Umweltbundesamt

2.5.2 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 **2022**.

2.6 Benzene

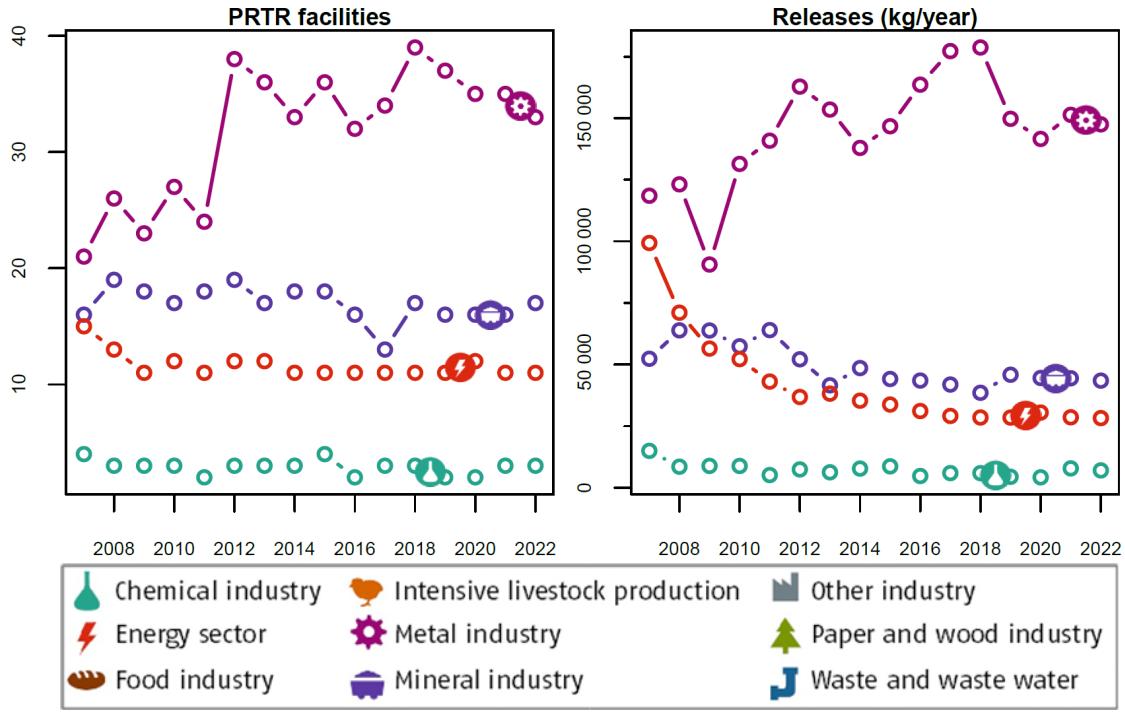
2.6.1 Releases to Air

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 8: For the reporting year 2022 -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	33	51.6	147 500	65.2
Mineral industry	17	26.6	43 470	19.2
Energy sector	11	17.2	28 260	12.5
Chemical industry	3	4.69	7 020	3.1
Total	**64**	**100**	**226 250**	**100**

Figure 8: 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 2022.



Source: own illustration, Umweltbundesamt

2.6.2 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 **2022**.

2.6.3 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 **2022**.

2.7 Cadmium and compounds (as Cd)

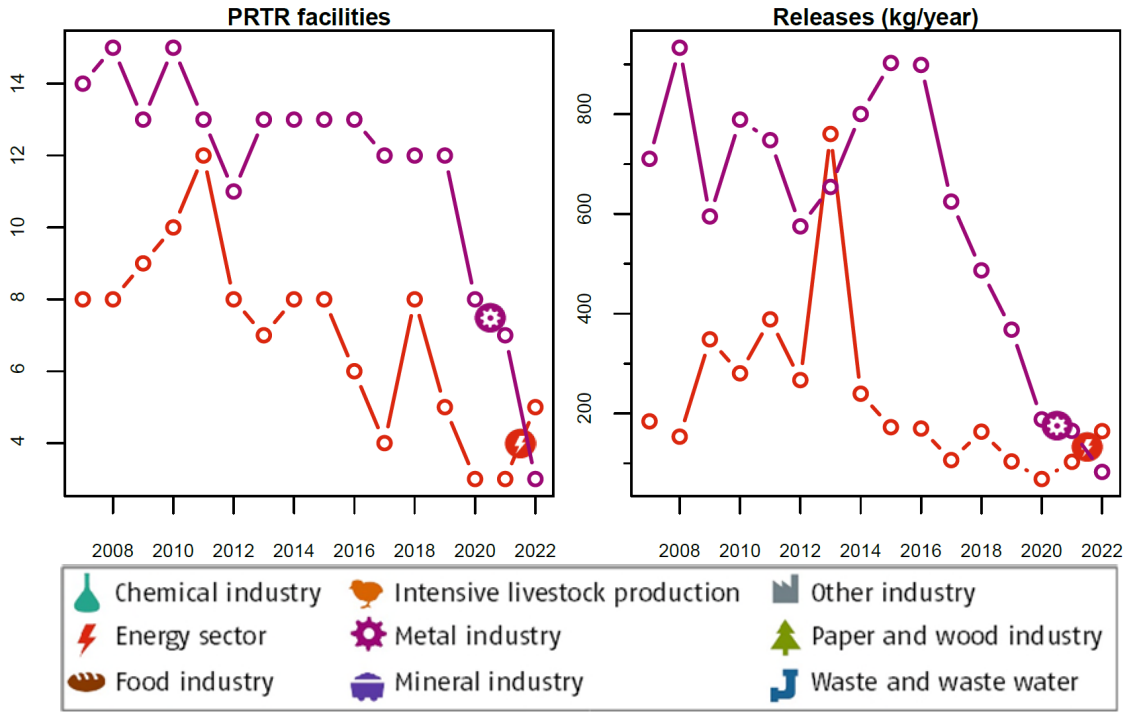
2.7.1 Releases to Air

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 9: For the reporting year 2022 -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	62.5	164	66.5
Metal industry	3	37.5	82.8	33.5
Total	**8**	**100**	**247**	**100**

Figure 9: Annual number of facilities (left) and their releases (right) of the pollutant "Cadmium and compounds (as Cd)" to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.7.2 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.

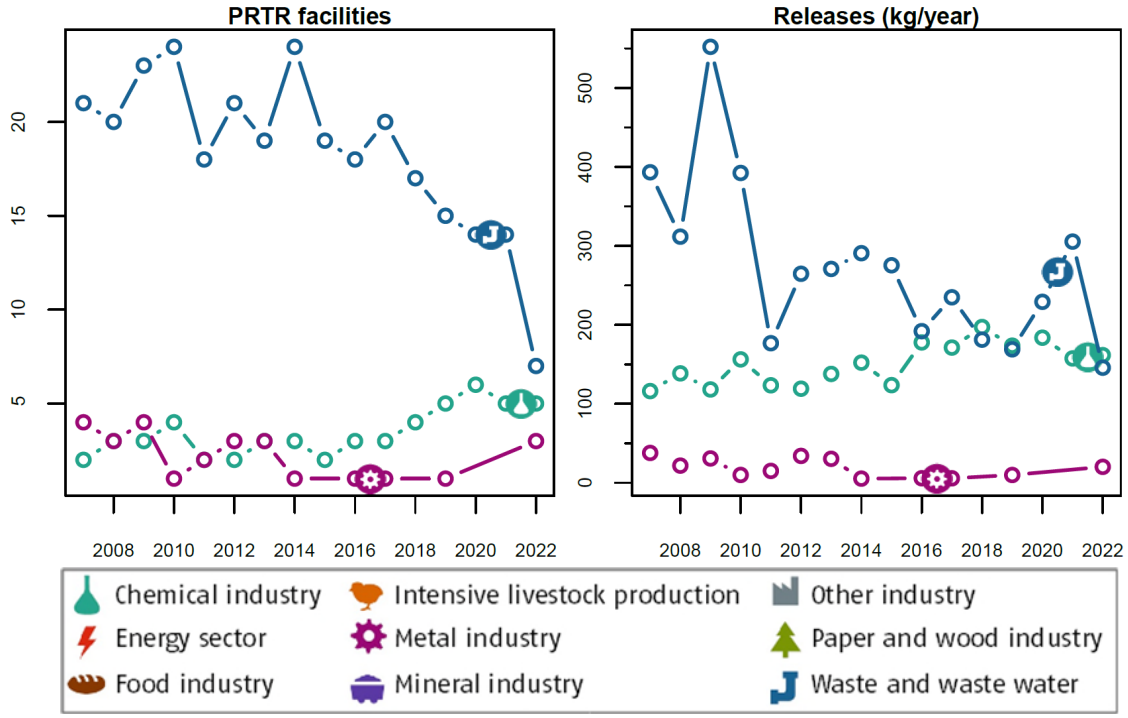
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Cadmium and compounds. The reduction in pollutant quantities (from 2022) can be partly based on this.

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

Table 10: For the reporting year 2022 -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	5	33.3	162	49.4
Waste and waste water management	7	46.7	146	44.5
Metal industry	3	20	20.1	6.15
Total	**15**	**100**	**327**	**100**

Figure 10: 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 2022.



Source: own illustration, Umweltbundesamt

2.7.3 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 **2022**.

2.8 Carbon dioxide (CO2)

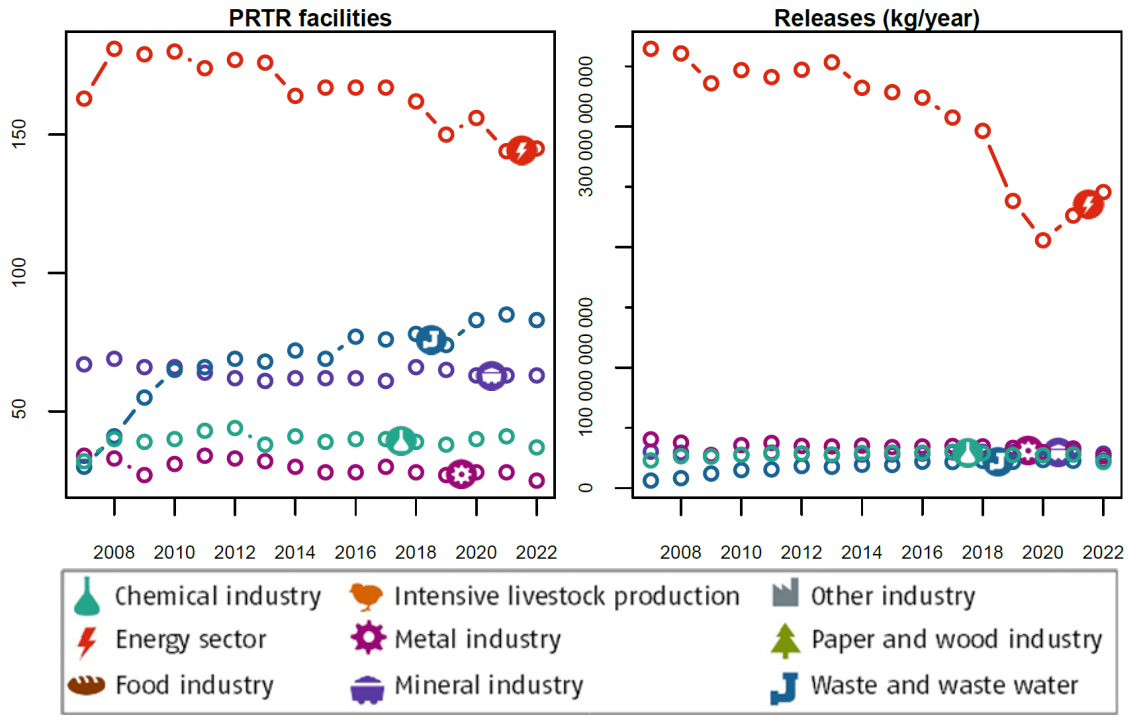
2.8.1 Releases to Air

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 11: For the reporting year 2022 -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	145	37.6	245 690 000 000	69.4
Mineral industry	63	16.3	28 519 000 000	8.06
Metal industry	25	6.48	26 423 000 000	7.47
Waste and waste water management	83	21.5	22 856 000 000	6.46
Chemical industry	37	9.59	21 577 000 000	6.1
Paper- and wood industry	22	5.7	7 183 000 000	2.03
Food industry	8	2.07	1 111 000 000	0.314
Other industry	3	0.777	487 000 000	0.138
Total	**386**	**100**	**353 846 000 000**	**100**

Figure 11: 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 2022.



Source: own illustration, Umweltbundesamt

2.9 Carbon monoxide (CO)

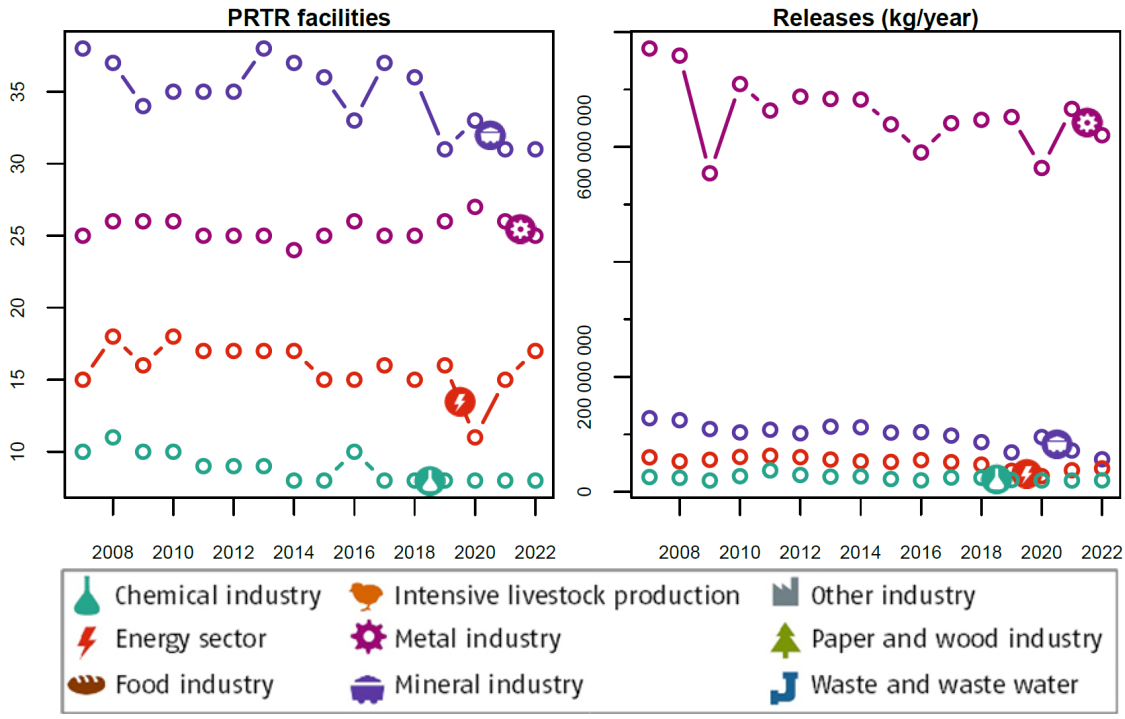
2.9.1 Releases to Air

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 12: For the reporting year 2022 -Number of facilities and their releases of the pollutant "Carbon monoxide (CO2)" to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	25	30.9	620 436 000	84.1
Mineral industry	31	38.3	56 712 000	7.68
Energy sector	17	21	40 867 000	5.54
Chemical industry	8	9.88	20 120 000	2.73
Total	**81**	**100**	**738 135 000**	**100**

Figure 12: Annual number of facilities (left) and their releases (right) of the pollutant "Carbon monoxide (CO2)" to Air, each by the 4 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.10 Chlorides (as total Cl)

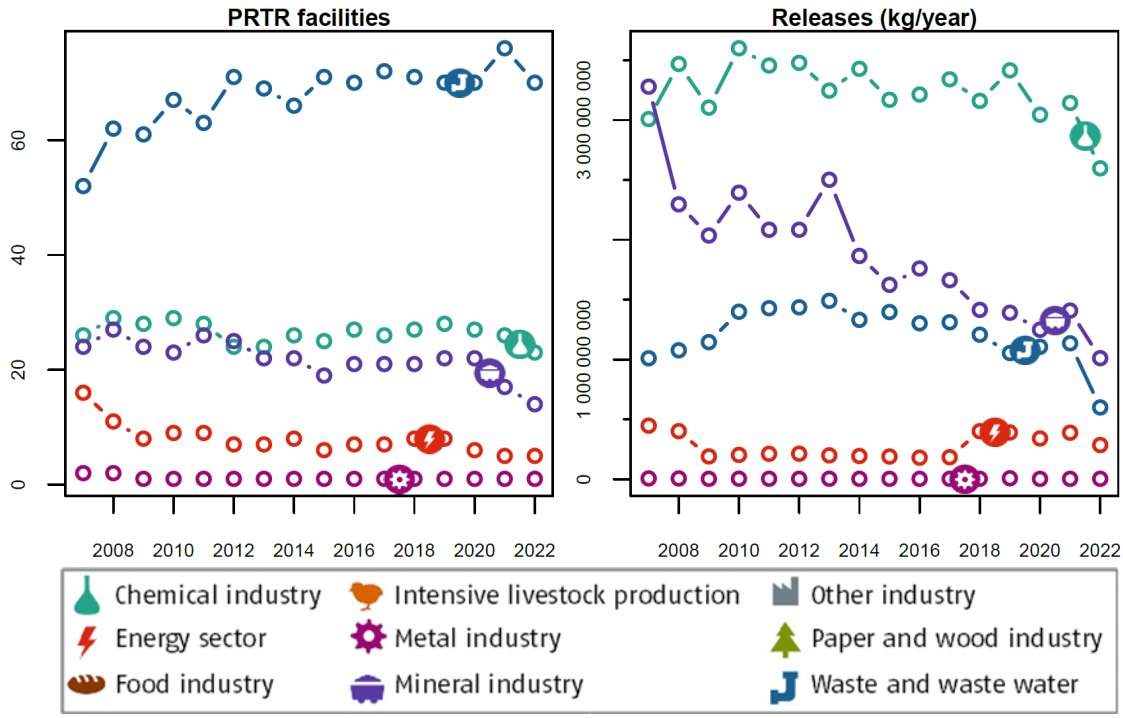
2.10.1 Releases to Water

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 13: For the reporting year 2022 -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	23	20.4	2 597 710 000	57.7
Mineral industry	14	12.4	1 011 540 000	22.5
Waste and waste water management	70	61.9	599 820 000	13.3
Energy sector	5	4.42	285 860 000	6.35
Metal industry	1	0.885	3 510 000	0.078
Total	**113**	**100**	**4 498 440 000**	**100**

Figure 13: 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 2022.



Source: own illustration, Umweltbundesamt

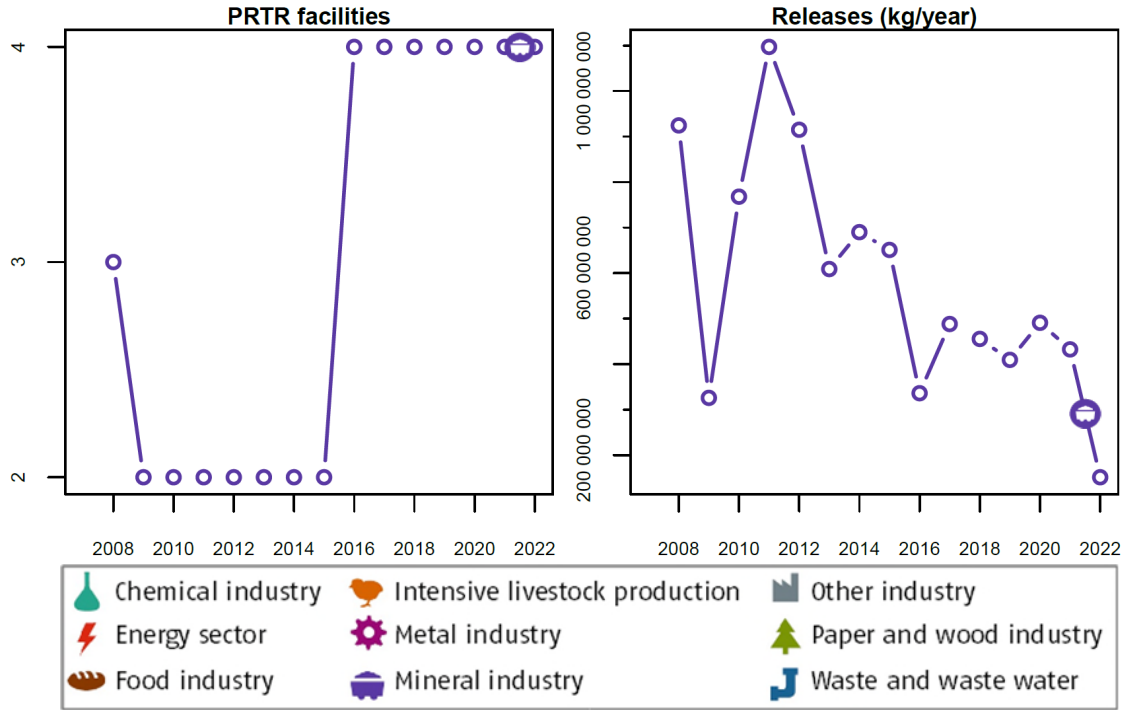
2.10.2 Releases to Land

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 14: For the reporting year 2022 -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	151 600 000	100
Total	**4**	**100**	**151 600 000**	**100**

Figure 14: 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 2022.



Source: own illustration, Umweltbundesamt

2.11 Chlorine and inorganic compounds (as HCl)

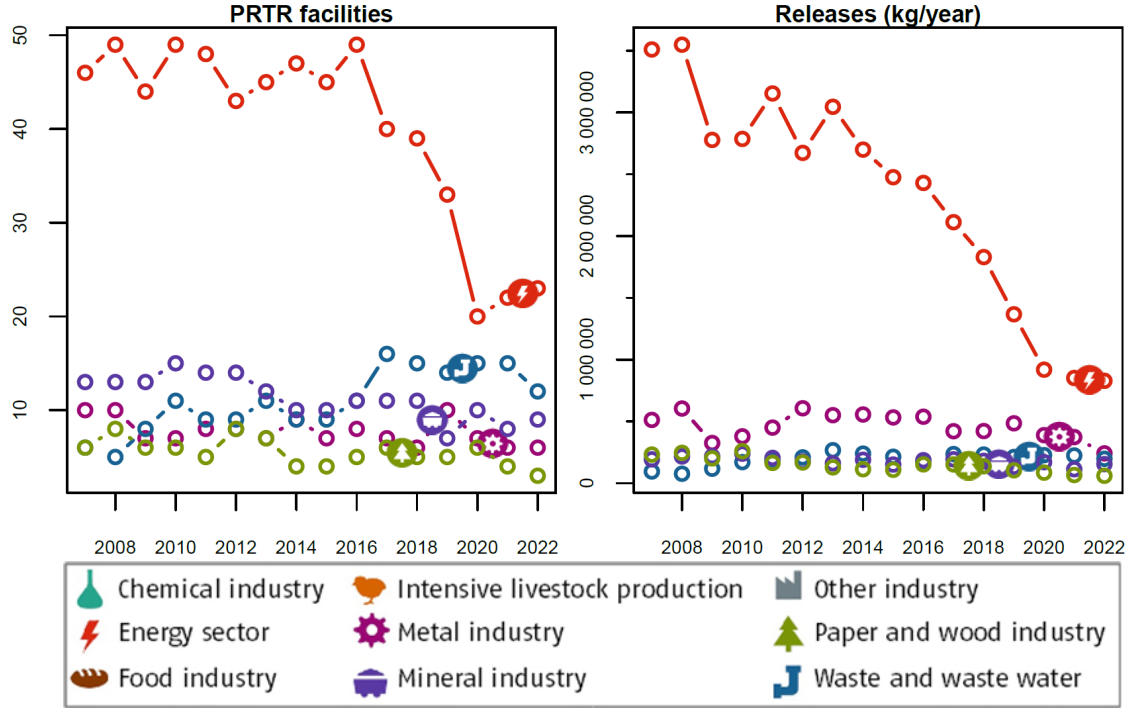
2.11.1 Releases to Air

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 15: For the reporting year 2022 -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	23	43.4	828 000	55.9
Metal industry	6	11.3	241 000	16.3
Waste and waste water management	12	22.6	197 800	13.3
Mineral industry	9	17	154 800	10.4
Paper- and wood industry	3	5.66	60 500	4.08
Total	**53**	**100**	**1 483 700**	**100**

Figure 15: 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 2022.



Source: own illustration, Umweltbundesamt

2.12 Chloro-alkanes, C10-C13

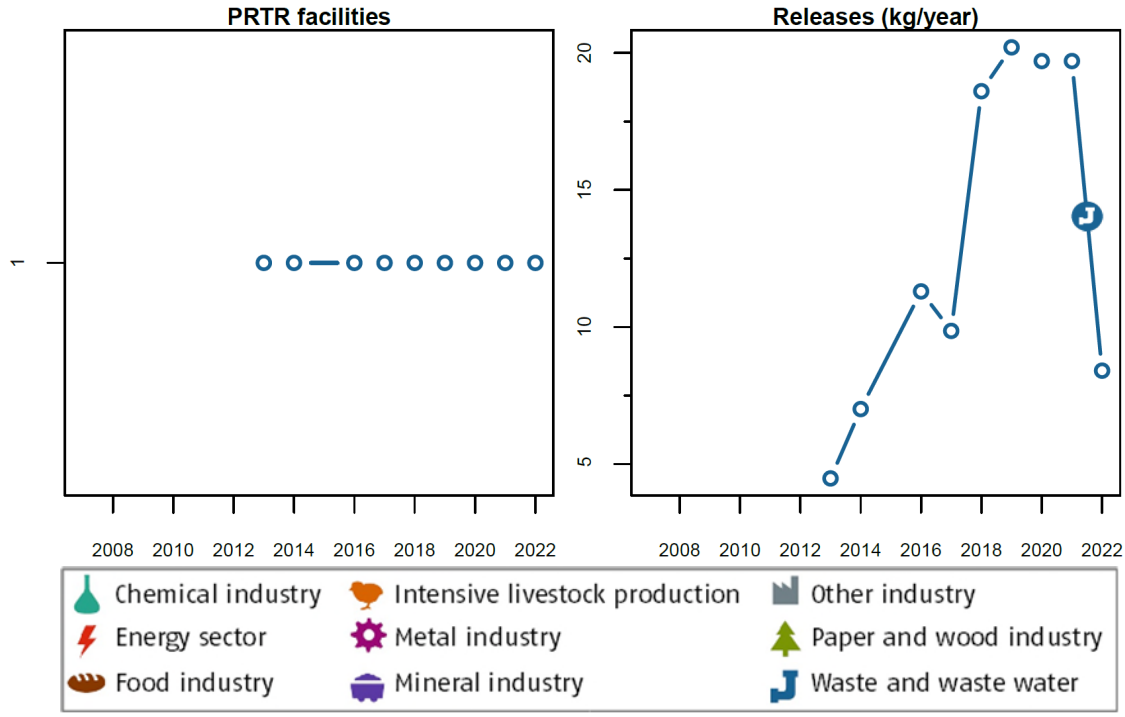
2.12.1 Releases to Water

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 16: For the reporting year 2022 -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	8.41	100
Total	**1**	**100**	**8.41**	**100**

Figure 16: 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 2022.



Source: own illustration, Umweltbundesamt

2.12.2 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 **2022**.

2.13 Chlorofluorocarbons (CFCs)

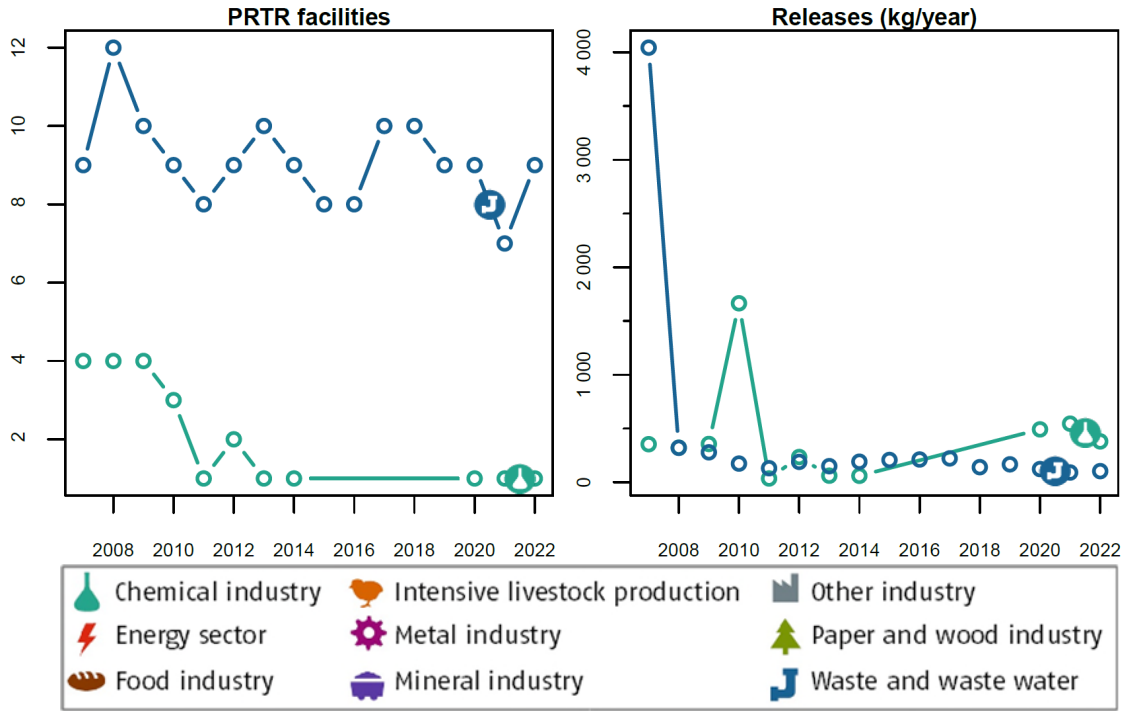
2.13.1 Releases to Air

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 17: For the reporting year 2022 -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	25	625	87.9
Waste and waste water management	6	75	86,2	12.1
Total	**8**	**100**	**711**	**100**

Figure 17: 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 2022.



Source: own illustration, Umweltbundesamt

2.14 Chromium and compounds (as Cr)

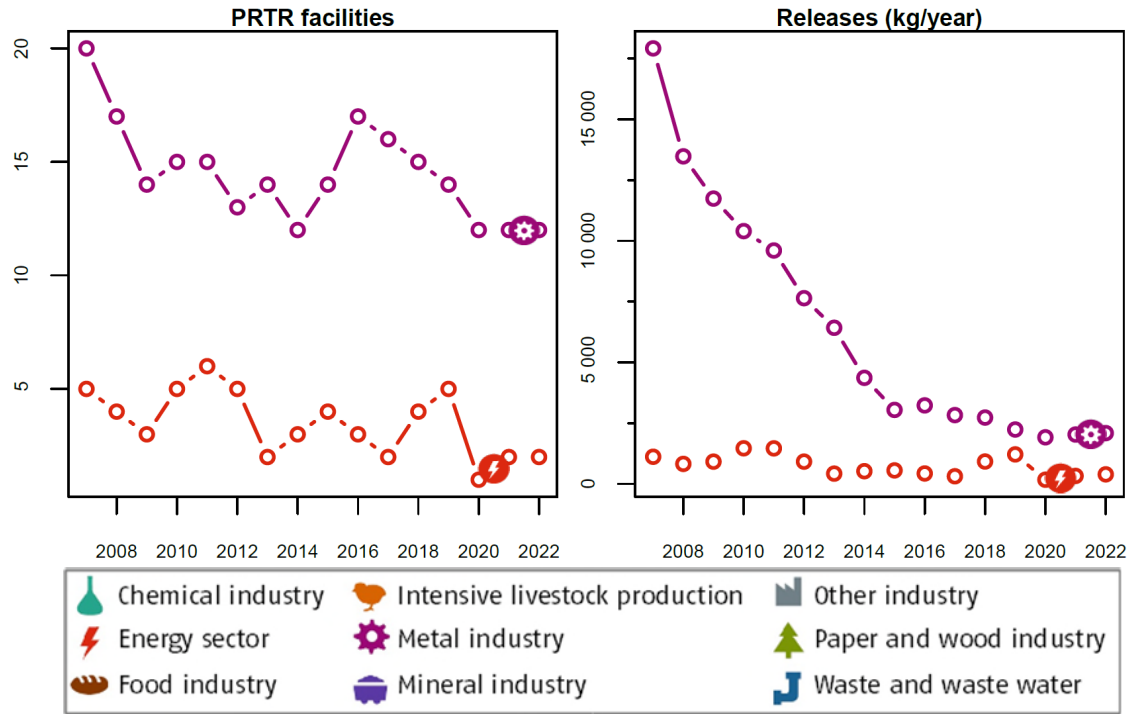
2.14.1 Releases to Air

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 18: For the reporting year 2022 -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	12	85.7	2 090	84.2
Energy sector	2	14.3	393	15.8
Total	**14**	**100**	**2 483**	**100**

Figure 18: 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 2022.



Source: own illustration, Umweltbundesamt

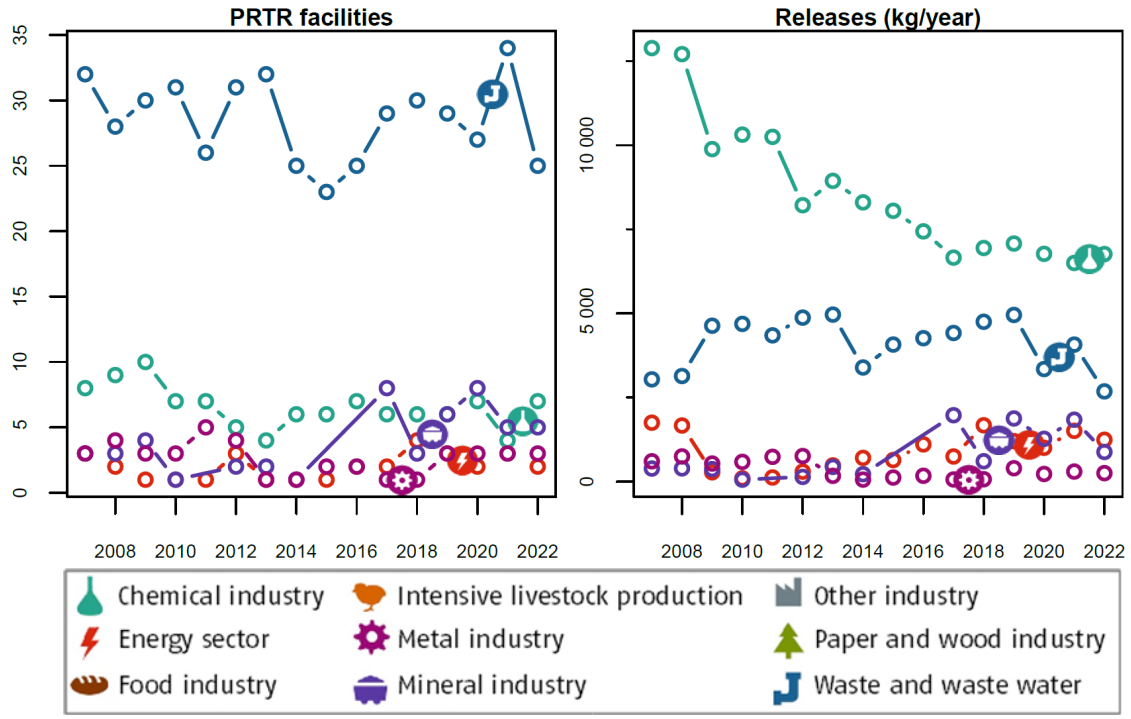
2.14.2 Releases to Water

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 19: For the reporting year 2022 -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	15.9	6 764	56.4
Waste and waste water management	25	56.8	2 682	22.4
Energy sector	2	4.55	1 245	10.4
Mineral industry	5	11.4	882	7.35
Metal industry	3	6.82	252	2.1
Other industry	1	2.27	103	0.859
Paper- and wood industry	1	2.27	62.3	0.52
Total	**44**	**100**	**11 990**	**100**

Figure 19: 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 2022.



Source: own illustration, Umweltbundesamt

2.14.3 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 **2022**.

2.15 Copper and compounds (as Cu)

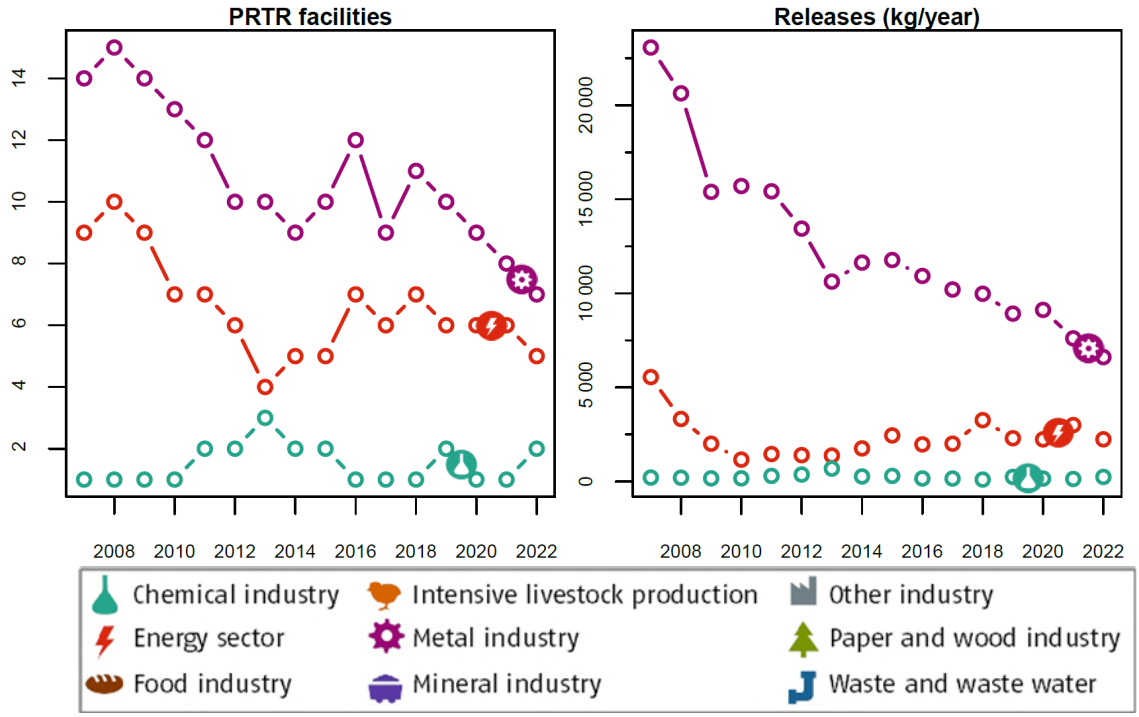
2.15.1 Releases to Air

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 20: For the reporting year 2022 -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	7	50.0	6 612	72.7
Energy sector	5	35.7	2 243	24.7
Chemical industry	2	14.3	242	2.66
Total	**14**	**100**	**9 097**	**100**

Figure 20: Annual number of facilities (left) and their releases (right) of the pollutant "Copper and compounds (as Cu)" to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

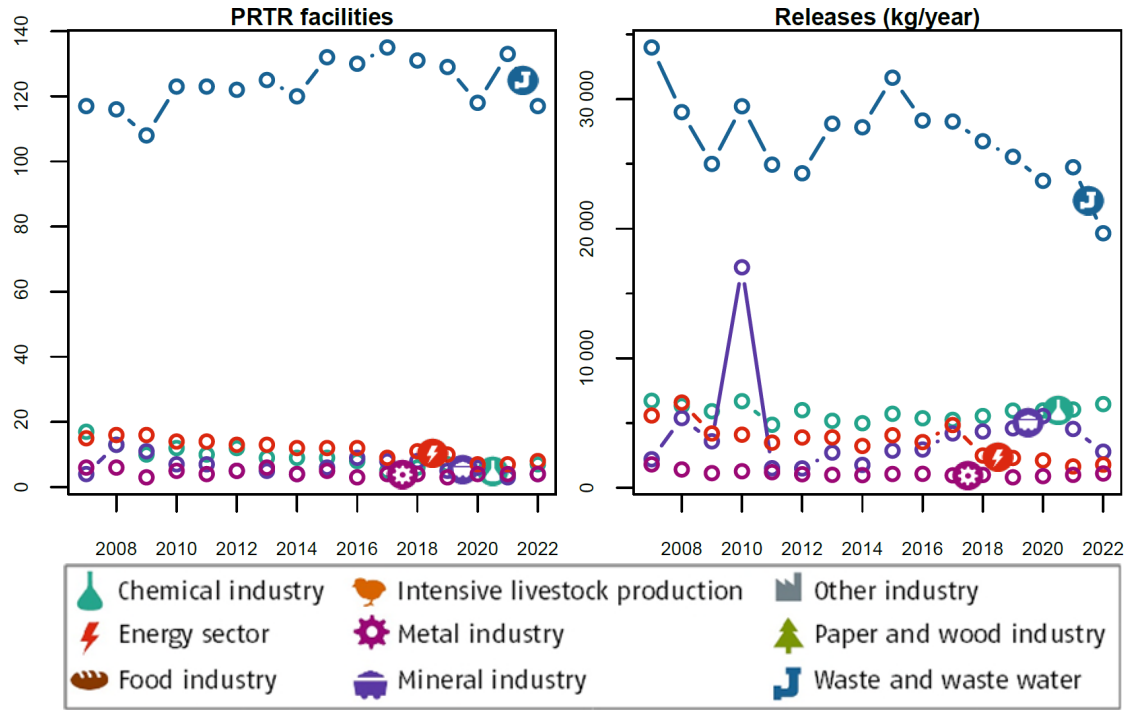
2.15.2 Releases to Water

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 21: For the reporting year 2022 -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	117	81.2	19 647	61.1
Chemical industry	7	4.86	6 458	20.1
Mineral industry	4	2.78	2 787	8.67
Energy sector	8	5.56	1 788	5.56
Metal industry	4	2.78	1 105	3.44
Paper- and wood industry	4	2.78	367	1.14
Total	**144**	**100**	**32 153**	**100**

Figure 21: 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 2022.



Source: own illustration, Umweltbundesamt

2.15.3 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.

No facility reported the release of **" Copper and compounds (as Cu)"** to **Land** in **2022**.

2.16 Cyanides (as total CN)

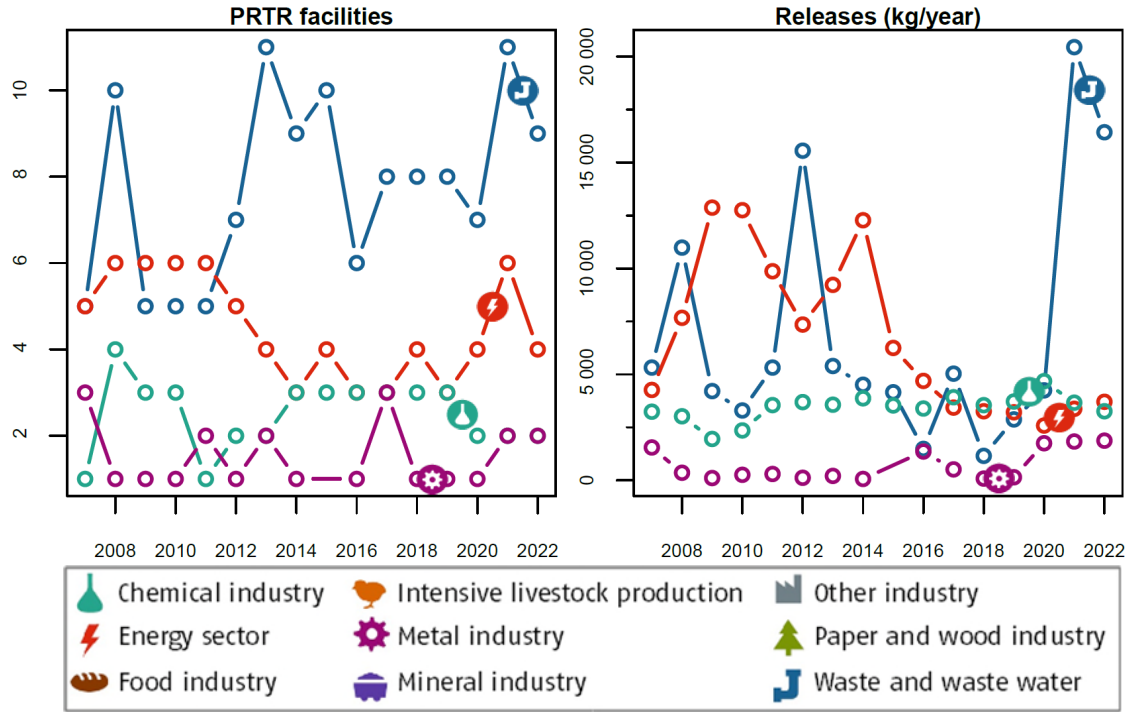
2.16.1 Releases to Water

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 22: For the reporting year 2022 -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	9	52.9	16 429	65
Energy sector	4	23.5	3 708	14.7
Chemical industry	2	11.8	3 260	12.9
Metal industry	2	11.8	1 872	7.41
Total	**17**	**100**	**25 269**	**100**

Figure 22: 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 2022.



Source: own illustration, Umweltbundesamt

2.16.2 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 **2022**.

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

2.17.1 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 **2022.**

2.17.2 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.

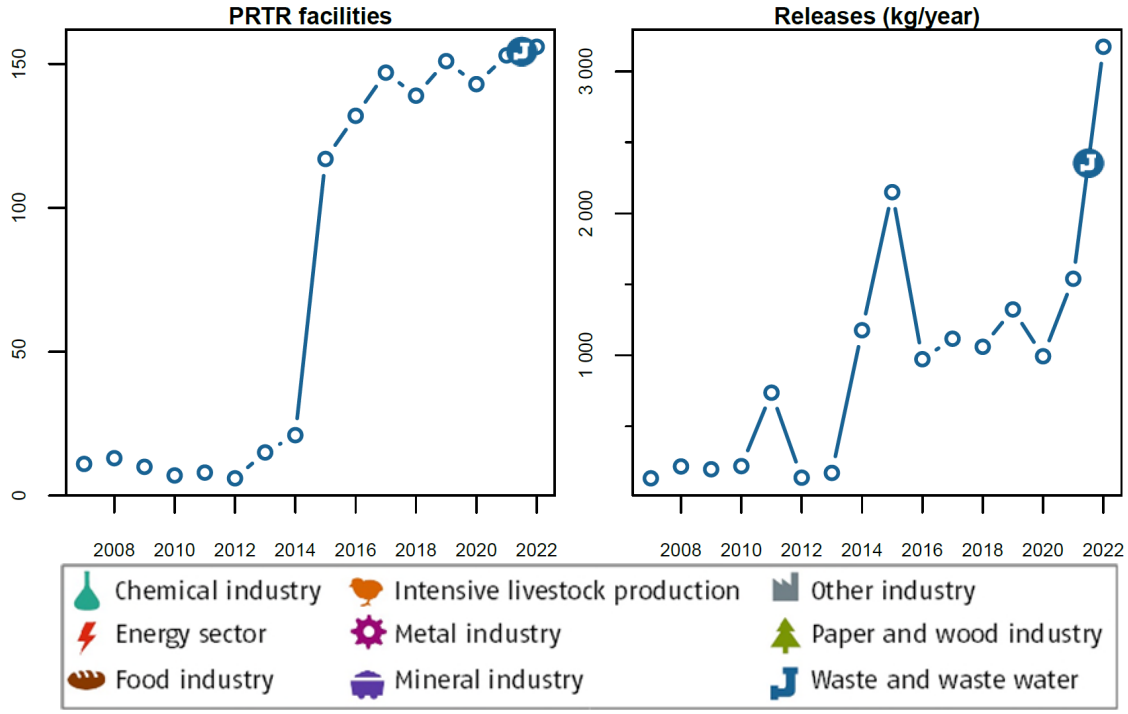
From reporting year 2022, an updated, increased emission factor or average effluent concentration will be used to calculate the pollutant quantities for Di-(2-ethyl hexyl) phthalate (DEHP). The increase in pollutant quantities (from 2022) can be partly based on this.

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

Table 23: For the reporting year 2022 -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	156	100	3 175	100
Total	**156**	**100**	**3 175**	**100**

Figure 23: 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 2022.



Source: own illustration, Umweltbundesamt

2.17.3 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 **2022**.

2.18 Dichloromethane (DCM)

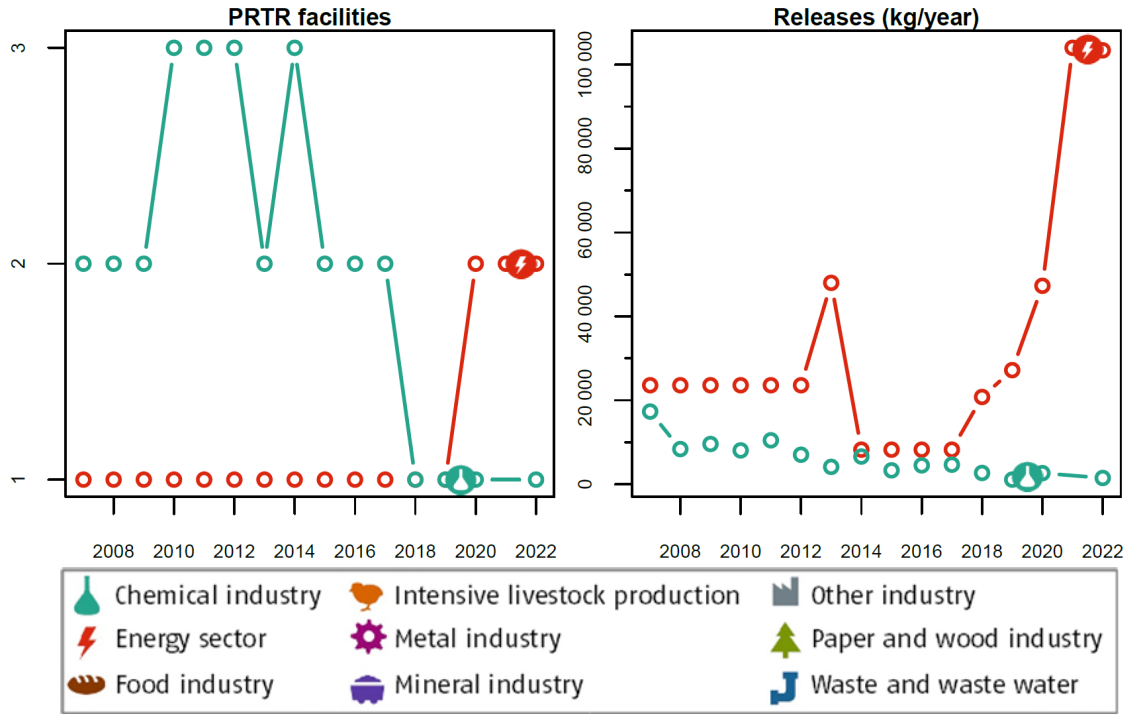
2.18.1 Releases to Air

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 24: For the reporting year 2022 -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	2	66.7	103 400	98.6
Chemical industry	1	33.3	1 500	1.43
Total	**3**	**100**	**104 900**	**100**

Figure 24: Annual number of facilities (left) and their releases (right) of the pollutant "Dichloromethane (DCM)" to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

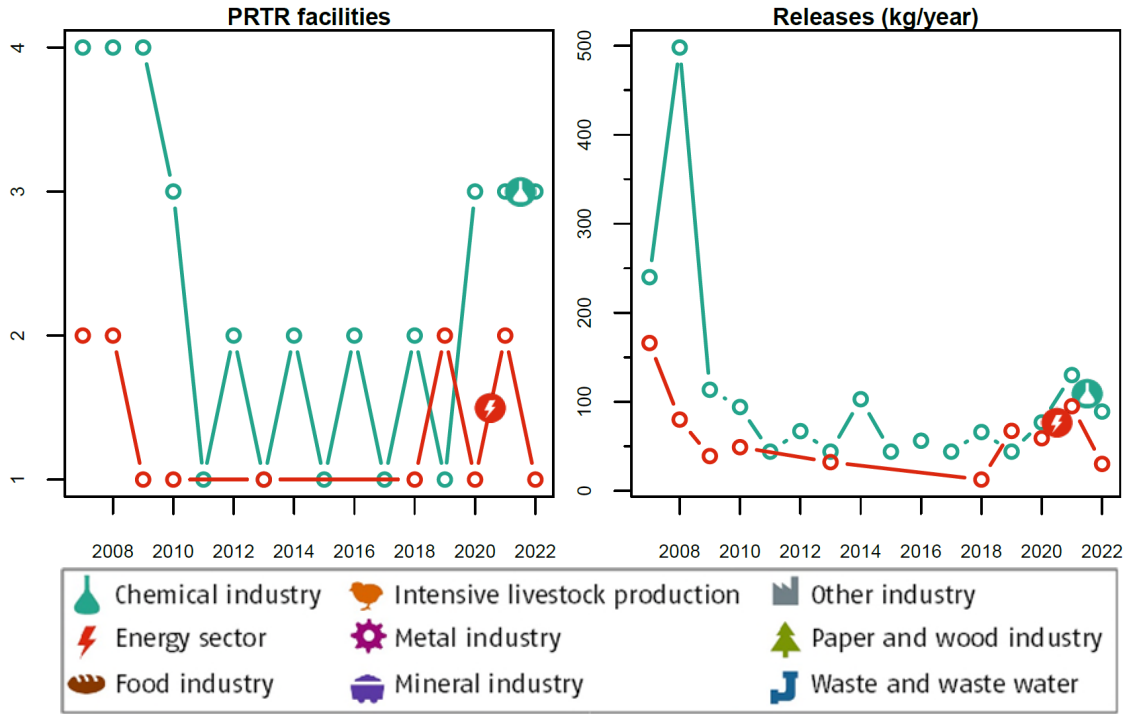
2.18.2 Releases to Water

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 25: For the reporting year 2022 -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)	(%)
Chemical industry	3	75	89	74.7
Energy sector	1	25	30.2	25.3
Total	**4**	**100**	**119**	**100**

Figure 25: Annual number of facilities (left) and their releases (right) of the pollutant "Dichloromethane (DCM)" to Water, each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.18.3 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 **2022**.

2.19 Diuron

2.19.1 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.

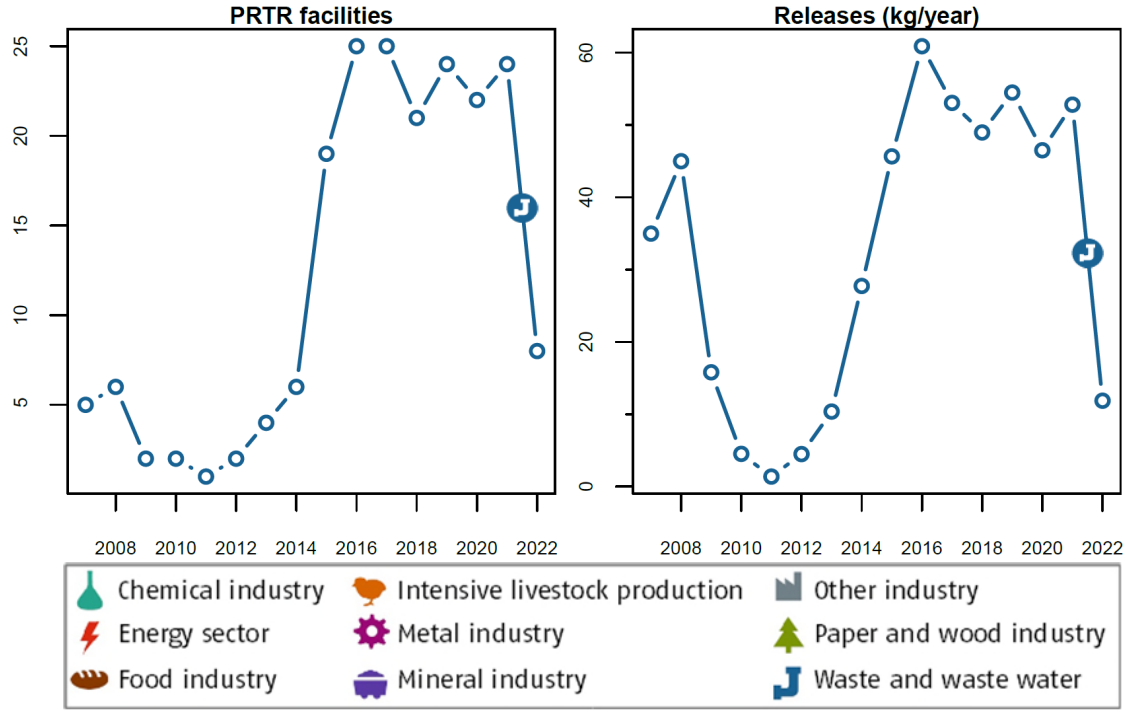
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Diuron. The reduction in pollutant quantities (from 2022) can be partly based on this.

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

Table 26: For the reporting year 2022 -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	8	100	11.9	100
Total	**8**	**100**	**11.9**	**100**

Figure 26: 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 2022.



Source: own illustration, Umweltbundesamt

2.19.2 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 **2022**.

2.20 Fluorides (as total F)

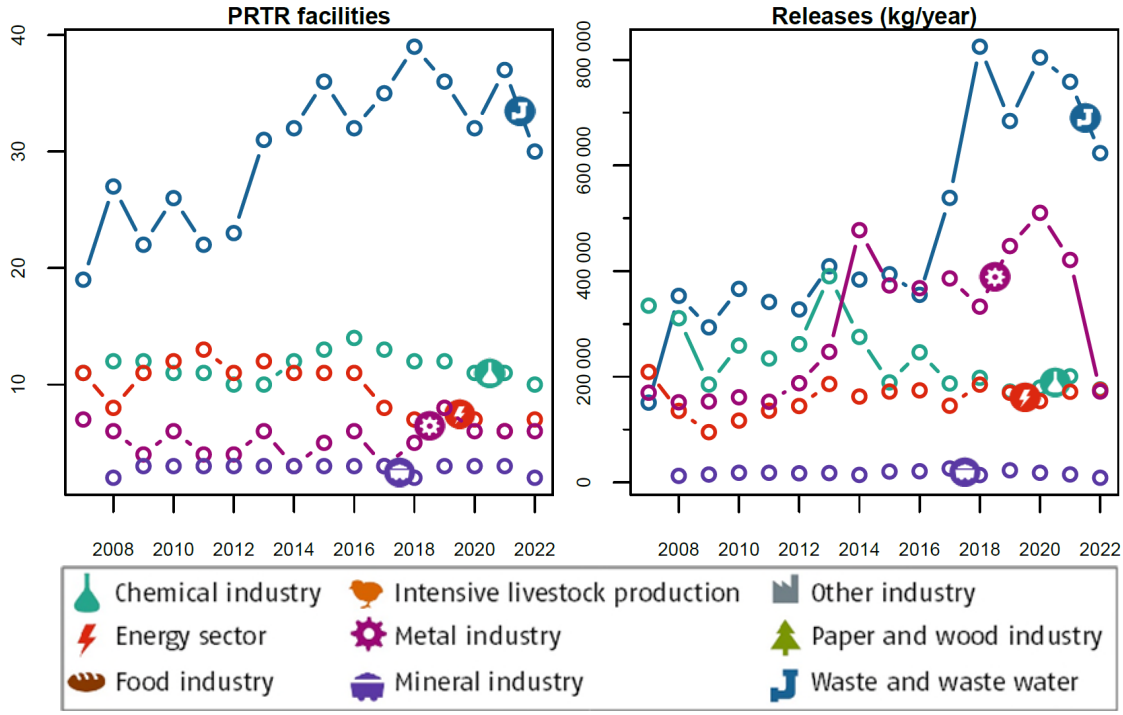
2.20.1 Releases to Water

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 27: For the reporting year 2022 -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	30	54.5	623 440	54
Chemical industry	10	18.2	176 070	15.2
Energy sector	7	12.7	174 960	15.1
Metal industry	6	10.9	172 110	14.9
Mineral industry	2	3.64	8 710	0.754
Total	**55**	**100**	**1 155 290**	**100**

Figure 27: 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 2022.



Source: own illustration, Umweltbundesamt

2.20.2 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 **2022**.

2.21 Fluorine and inorganic compounds (as HF)

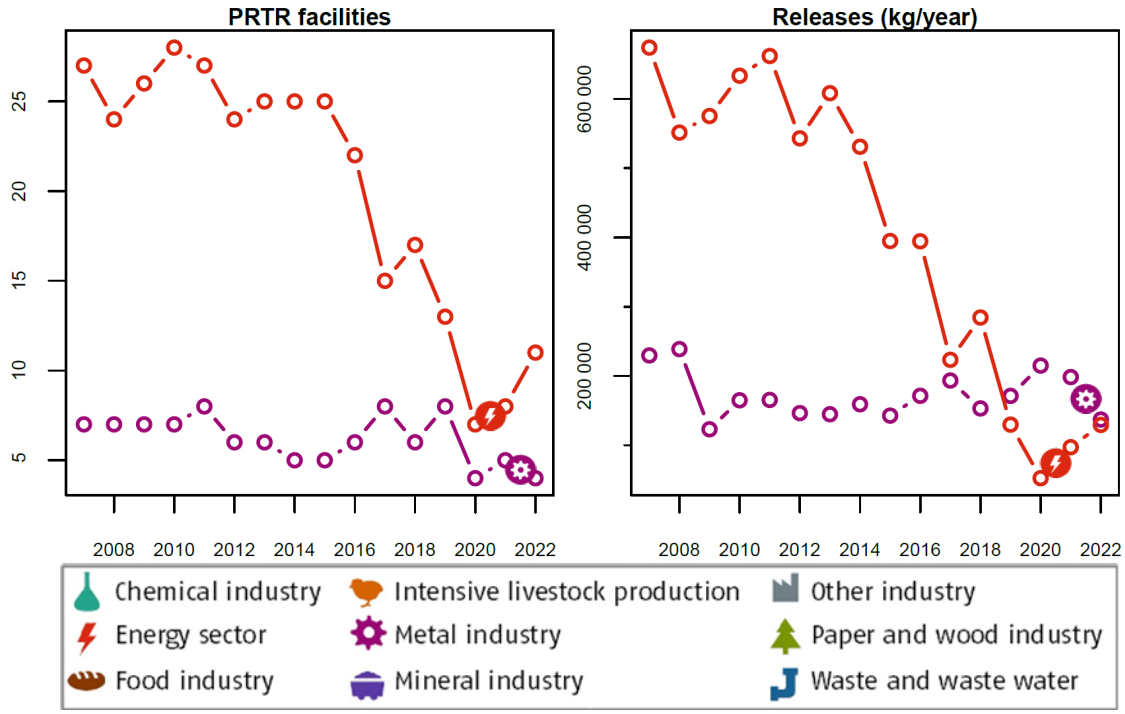
2.21.1 Releases to Air

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 28: For the reporting year 2022 -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	4	26.7	137 200	51.5
Energy sector	11	73.3	129 450	48.5
Total	**15**	**100**	**266 650**	**100**

Figure 28: 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 2022.



Source: own illustration, Umweltbundesamt

2.22 Halogenated organic compounds (as AOX)

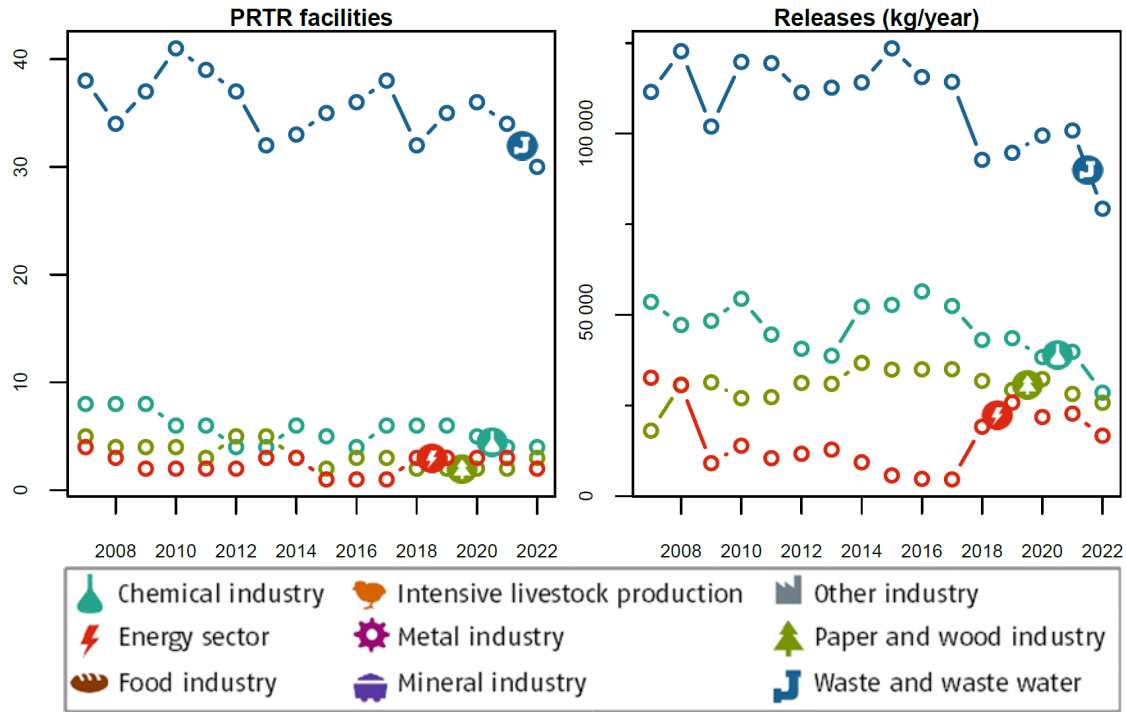
2.22.1 Releases to Water

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 29: For the reporting year 2022 -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	30	76.9	79 270	52.8
Chemical industry	4	10.3	28 550	19
Paper- and wood industry	3	7.69	25 760	17.1
Energy sector	2	5.13	16 670	11.1
Total	**39**	**100**	**150 250**	**100**

Figure 29: 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 2022.



Source: own illustration, Umweltbundesamt

2.22.2 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 **2022**.

2.23 Hydrochlorofluorocarbons (HCFCs)

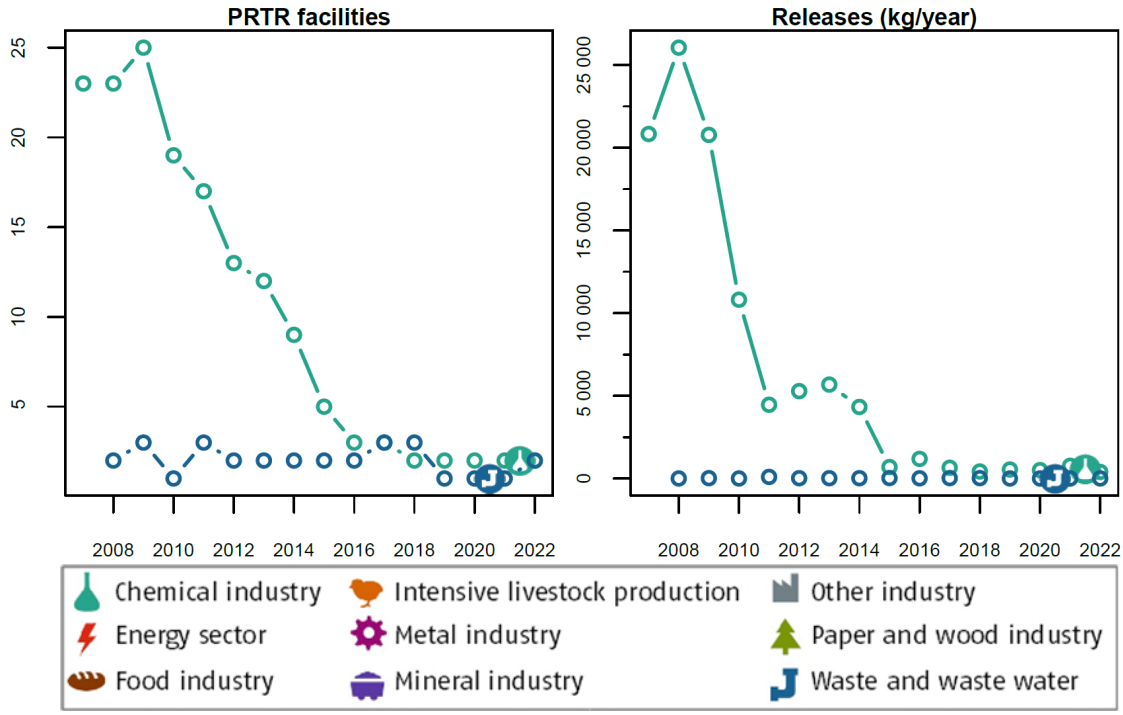
2.23.1 Releases to Air

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 30: For the reporting year 2022 -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	2	50	398	98.6
Waste and waste water management	2	50	5.66	1.4
Total	**4**	**100**	**403**	**100**

Figure 30: Annual number of facilities (left) and their releases (right) of the pollutant "Hydrochlorofluorocarbons (HCFCs)" to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.24 Hydro-fluorocarbons (HFCs)

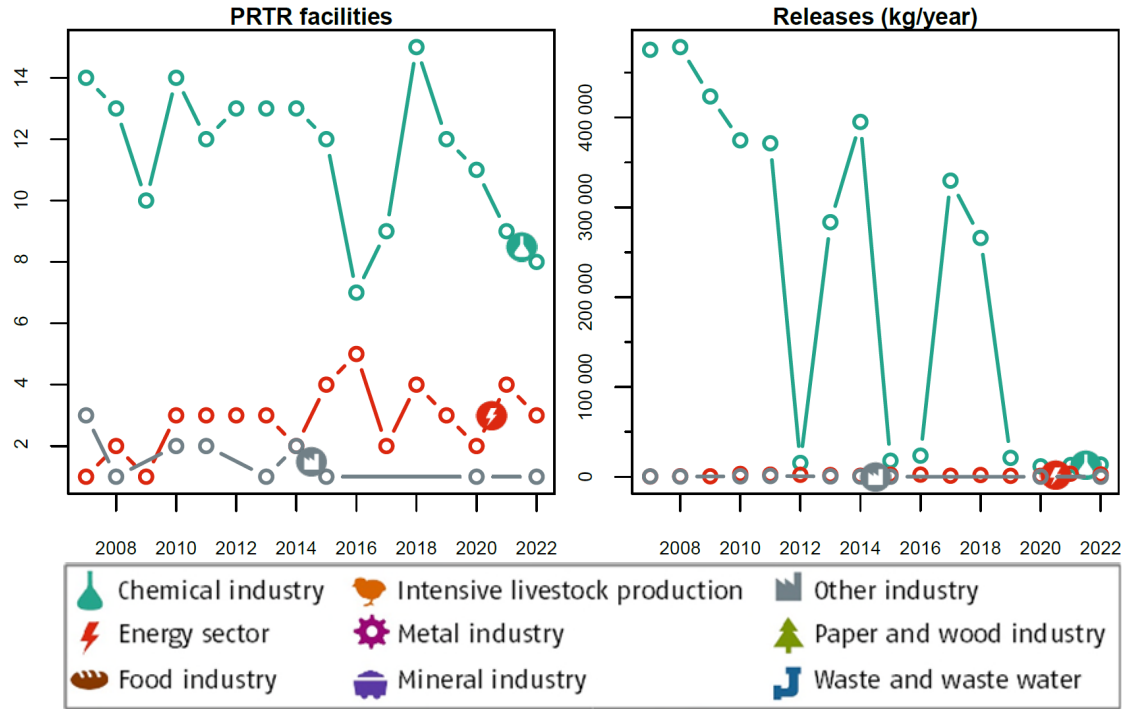
2.24.1 Umweltmedium Luft

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 31: For the reporting year 2022 -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	8	66.7	13 696	83
Energy sector	3	25	2 691	16.3
Other industry	1	8.33	106	0.643
Total	**12**	**100**	**16 493**	**100**

Figure 31: Annual number of facilities (left) and their releases (right) of the pollutant "Hydro-fluorocarbons (HFCs)" to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.25 Hydrogen cyanide (HCN)

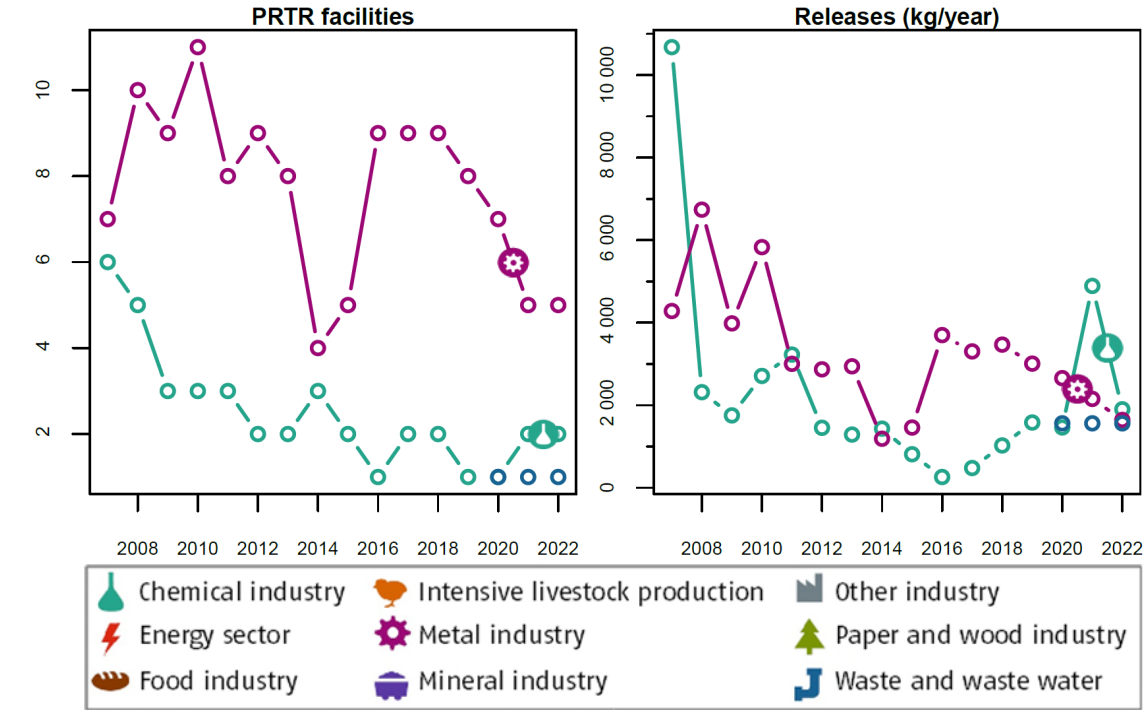
2.25.1 Releases to Air

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 32: For the reporting year 2022 -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	1 900	37.2
Metal industry	5	62.5	1 642	32.2
Waste and waste water management	1	12.5	1 560	30.6
Total	**8**	**100**	**5 102**	**100**

Figure 32: Annual number of facilities (left) and their releases (right) of the pollutant "Hydrogen cyanide (HCN)" to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.26 Isoproturon

2.26.1 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.

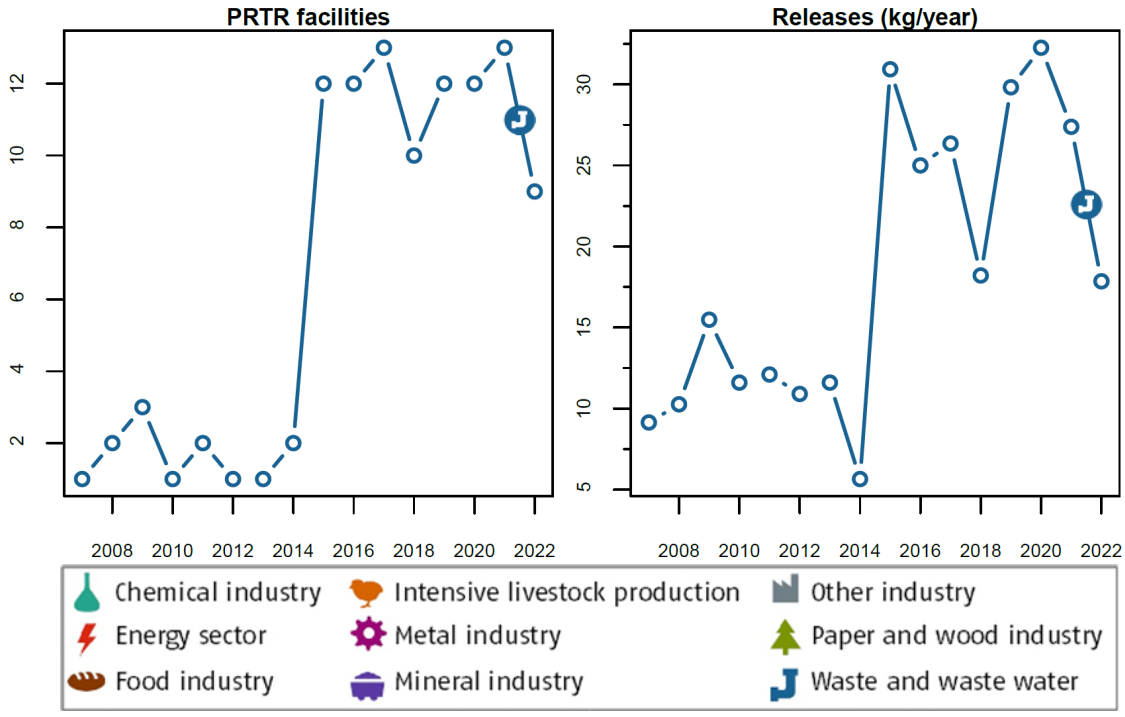
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Isoproturon. The reduction in pollutant quantities (from 2022) can be partly based on this.

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

Table 33: For the reporting year 2022 -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	9	100	17.9	100
Total	**9**	**100**	**17.9**	**100**

Figure 33: 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 2022.



Source: own illustration, Umweltbundesamt

2.26.2 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 **2022**.

2.27 Lead and compounds (as Pb)

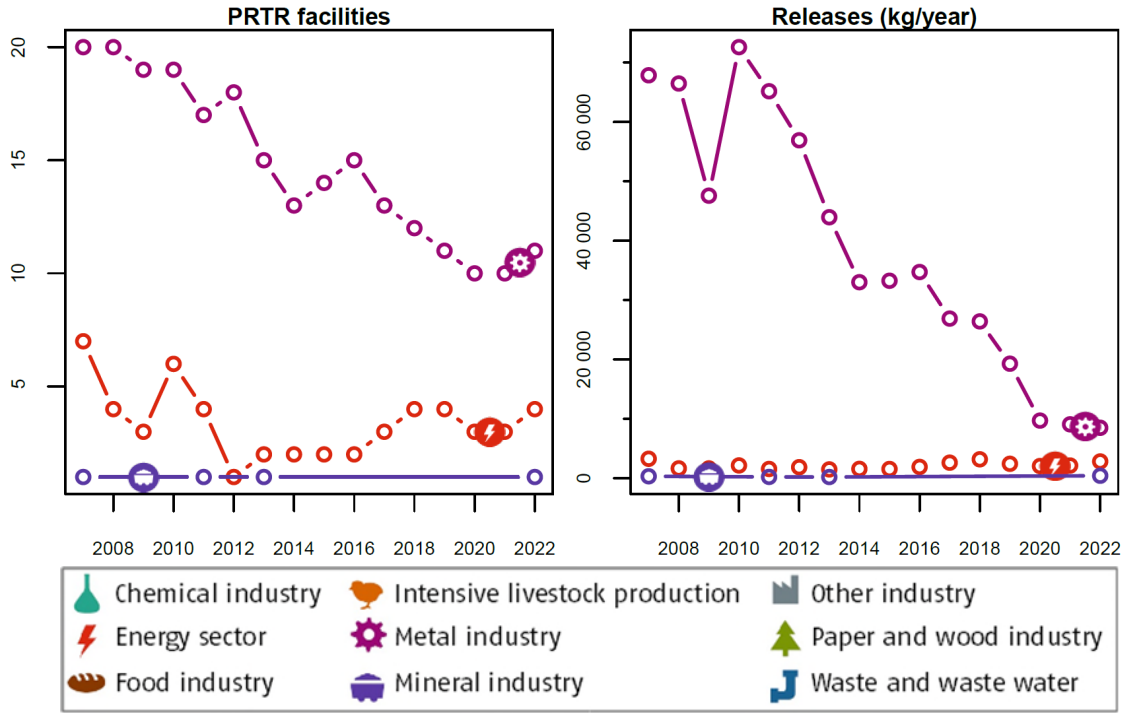
2.27.1 Releases to Air

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 34: For the reporting year 2022 -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	11	68.8	8 494	72.4
Energy sector	4	25	2 821	24
Mineral industry	1	6.25	420	3.58
Total	**16**	**100**	**11 735**	**100**

Figure 34: Annual number of facilities (left) and their releases (right) of the pollutant "Lead and compounds (as Pb)" to Air, each by the 3 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.27.2 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.

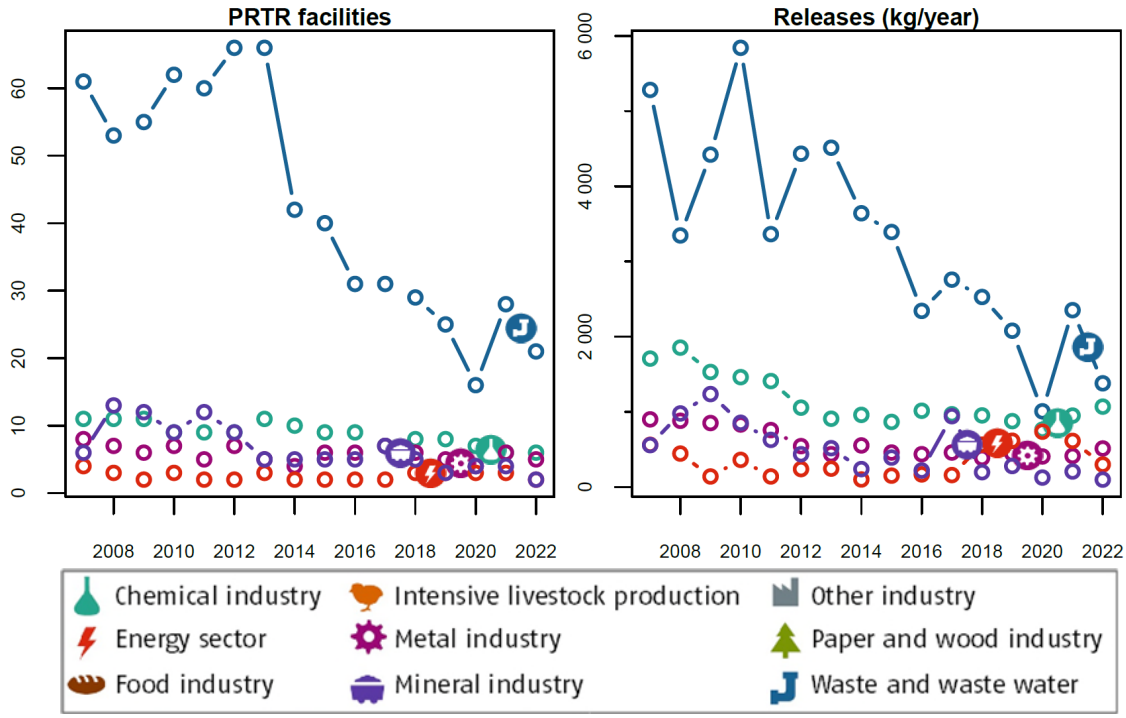
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Lead and compounds. The reduction in pollutant quantities (from 2022) can be partly based on this.

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

Table 35: For the reporting year 2022 -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	21	56.8	1 380	40.7
Chemical industry	6	16.2	1 070	31.6
Metal industry	5	13.5	513	15.1
Energy sector	2	5.41	300	8.84
Mineral industry	2	5.41	99	2.92
Paper- and wood industry	1	2.7	28.9	0.852
Total	**37**	**100**	**3 391**	**100**

Figure 35: 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 2022.



Source: own illustration, Umweltbundesamt

2.27.3 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 **2022**.

2.28 Mercury and compounds (as Hg)

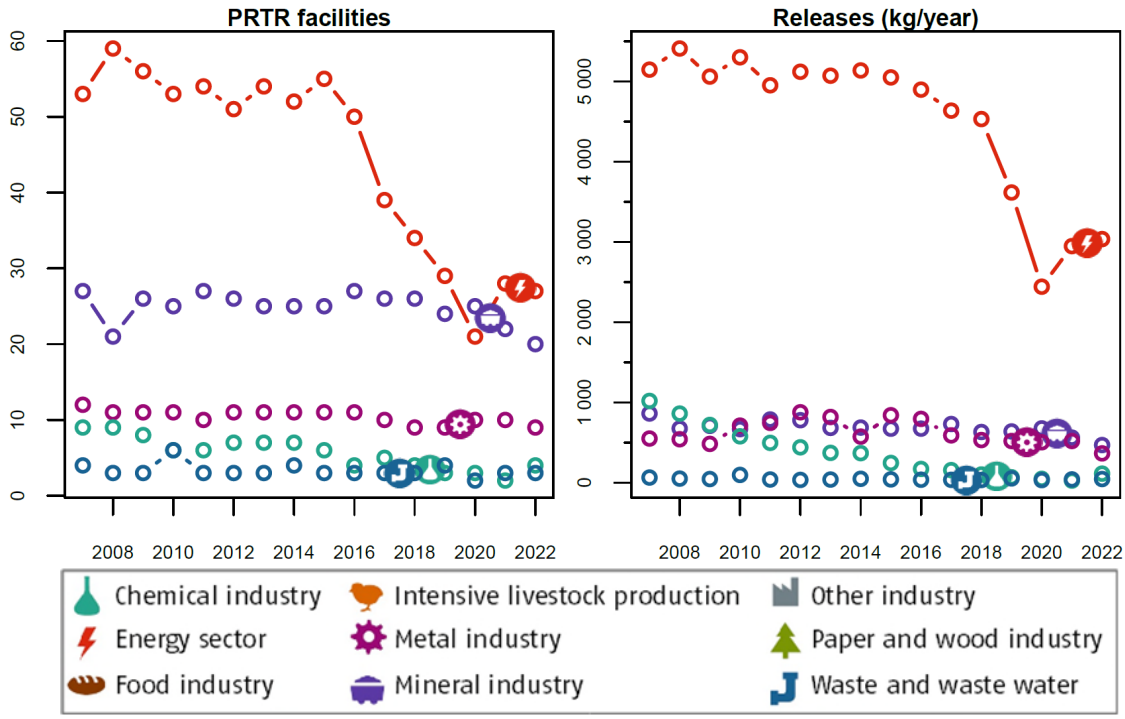
2.28.1 Releases to Air

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 36: For the reporting year 2022 -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	27	42.9	3 036	75.4
Mineral industry	20	31.7	469	11.6
Metal industry	9	14.3	365	9.06
Chemical industry	4	6.35	113	2.81
Waste and waste water management	3	4.76	45.5	1.13
Total	**63**	**100**	**4 028**	**100**

Figure 36: 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 2022.



Source: own illustration, Umweltbundesamt

2.28.2 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.

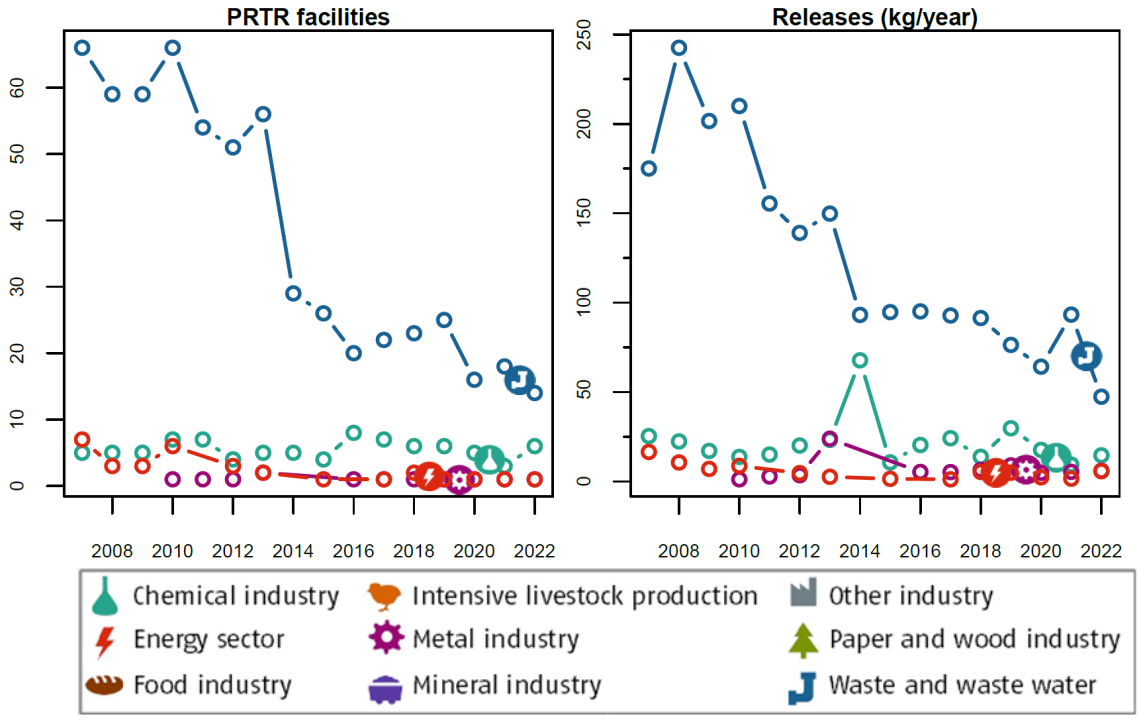
From reporting year 2022, an updated, increased emission factor or average effluent concentration will be used to calculate the pollutant quantities for Mercury and compounds. An increase in pollutant quantities (from 2022) cannot be seen or depicted in Figure 37 due to strong fluctuations in reporting facilities.

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

Table 37: For the reporting year 2022 -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	14	63.6	47.4	64.3
Chemical industry	6	27.3	14.6	19.8
Metal industry	1	4.55	6	8.13
Energy sector	1	4.55	5.73	7.77
Total	**22**	**100**	**103**	**100**

Figure 37: 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 2022.



Source: own illustration, Umweltbundesamt

2.28.3 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 **2022**.

2.29 Methane (CH4)

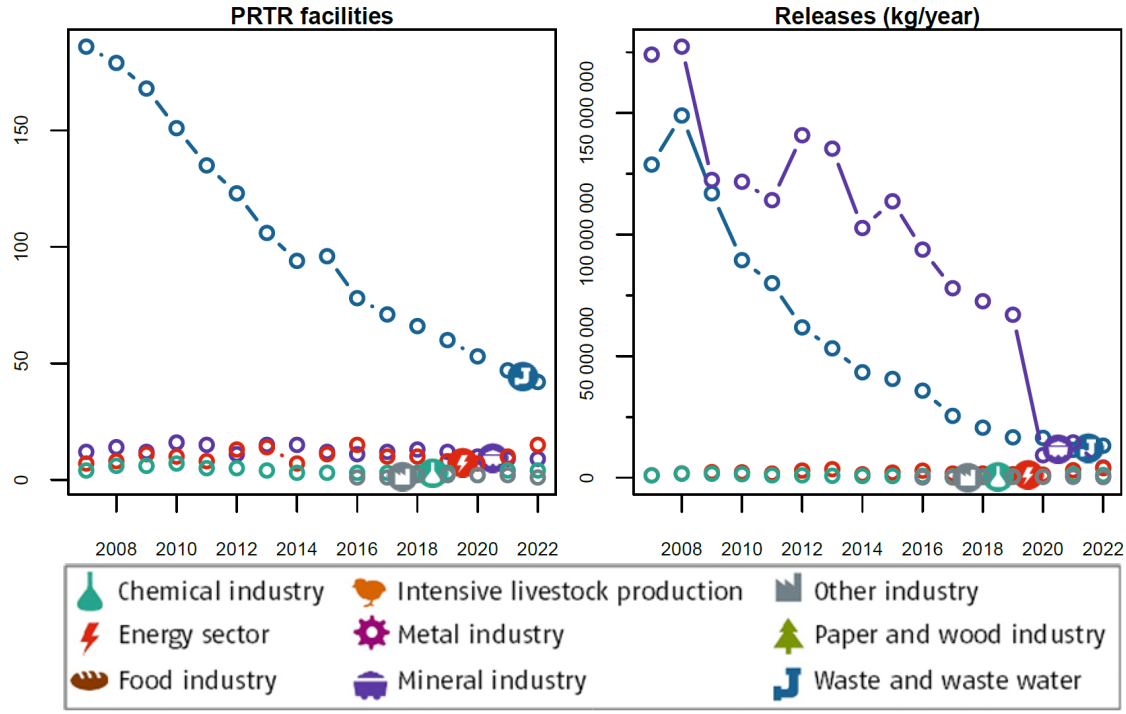
2.29.1 Umweltmedium Luft

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 38: For the reporting year 2022 -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	42	59.2	13 199 000	57.9
Mineral industry	9	12.7	4 232 000	18.6
Energy sector	15	21.1	3 967 000	17.4
Chemical Industry	4	5.63	1 134 000	4.98
Other Industry	1	1.41	255 000	1.12
Total	**71**	**100**	**22 787 000**	**100**

Figure 38: 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 2022.



Source: own illustration, Umweltbundesamt

2.30 Naphthalene

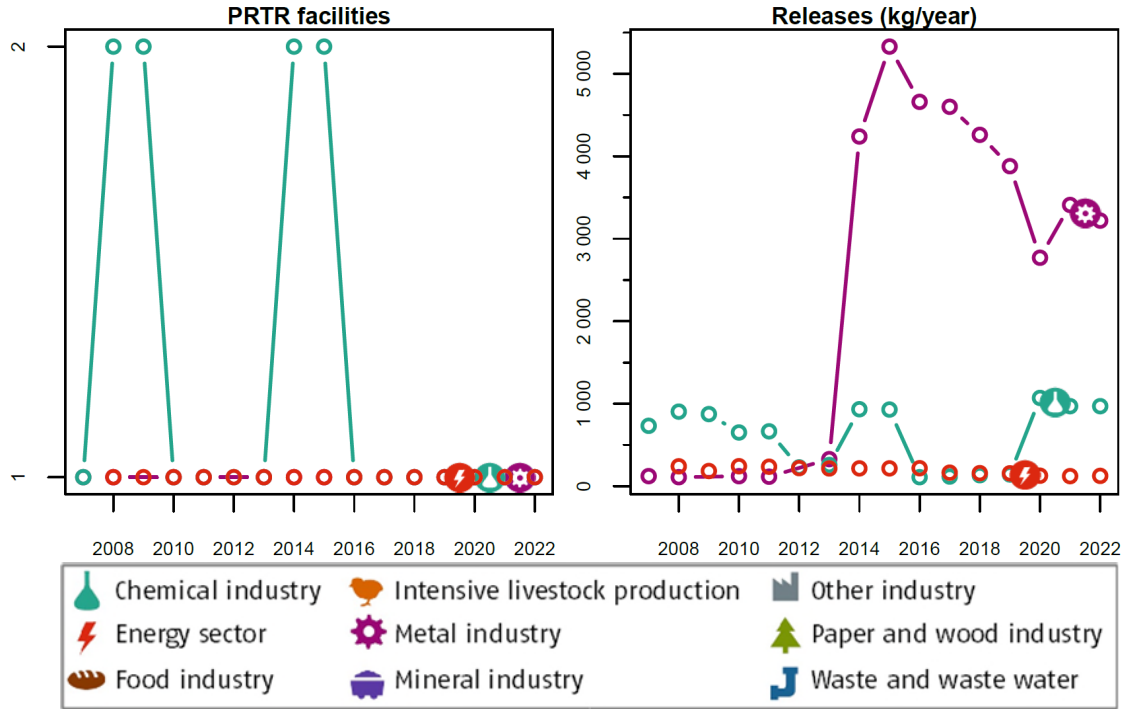
2.30.1 Releases to Air

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 39: For the reporting year 2022 -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	3 220	74.6
Chemical industry	1	33.3	970	22.5
Energy sector	1	33.3	125	2.9
Total	**3**	**100**	**4 315**	**100**

Figure 39: 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 2022.



Source: own illustration, Umweltbundesamt

2.30.2 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 **2022**.

2.30.3 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 **2022**.

2.31 Nickel and compounds (as Ni)

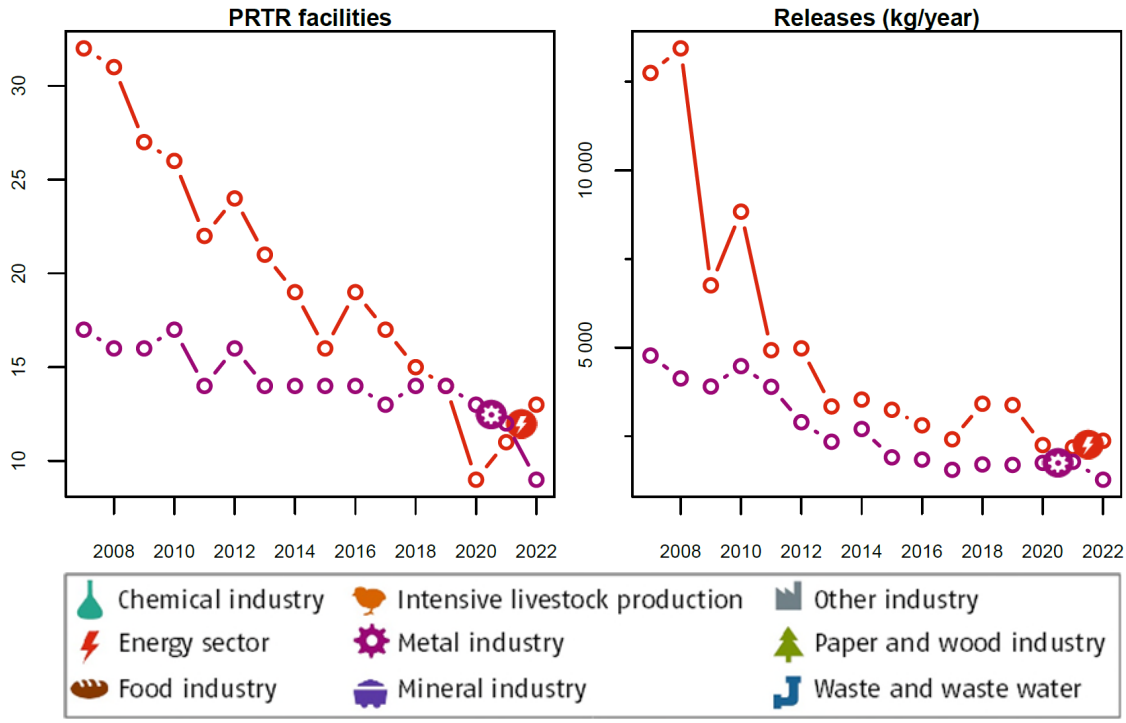
2.31.1 Releases to Air

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 40: For the reporting year 2022 -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	13	59.1	2 372	65.1
Metal industry	9	40.9	1 273	34.9
Total	**22**	**100**	**3.644**	**100**

Figure 40: Annual number of facilities (left) and their releases (right) of the pollutant "Nickel and compounds (as Ni)" to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.31.2 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.

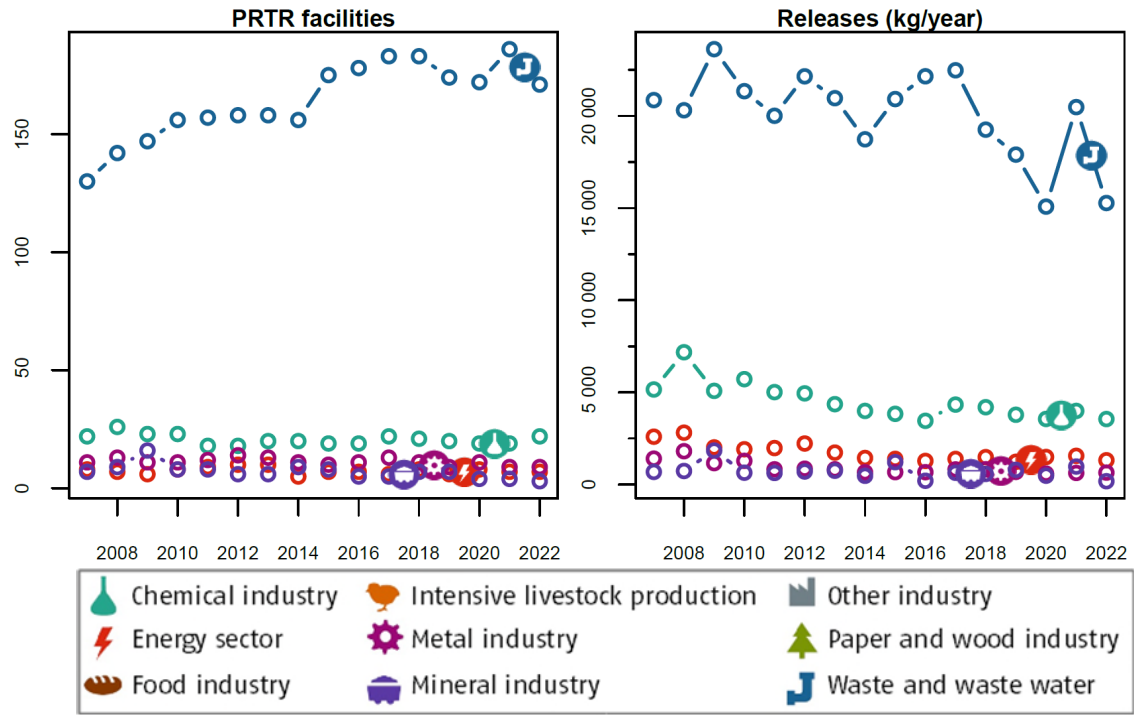
From reporting year 2022, an updated, increased emission factor or average effluent concentration will be used to calculate the pollutant quantities for Nickel and compounds. An increase in pollutant quantities (from 2022) cannot be seen or depicted in Figure 41 due to strong fluctuations in reporting facilities.

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

Table 41: For the reporting year 2022 -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	171	79.5	15 276	72.3
Chemical industry	22	10.2	3 550	16.8
Energy sector	7	3.26	1 313	6.21
Metal industry	9	4.19	643	3.04
Mineral industry	3	14	176	0.831
Paper- and wood industry	2	0.93	161	0.76
Other industry	1	0.465	0.465	0.109
Total	**215**	**100**	**21 141**	**100**

Figure 41: 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 2022.



Source: own illustration, Umweltbundesamt

2.31.3 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.

No facility reported the release of **" Nickel and compounds (as Ni)"** to **Land** in **2022**.

2.32 Nitrogen oxides (NOx/NO2)

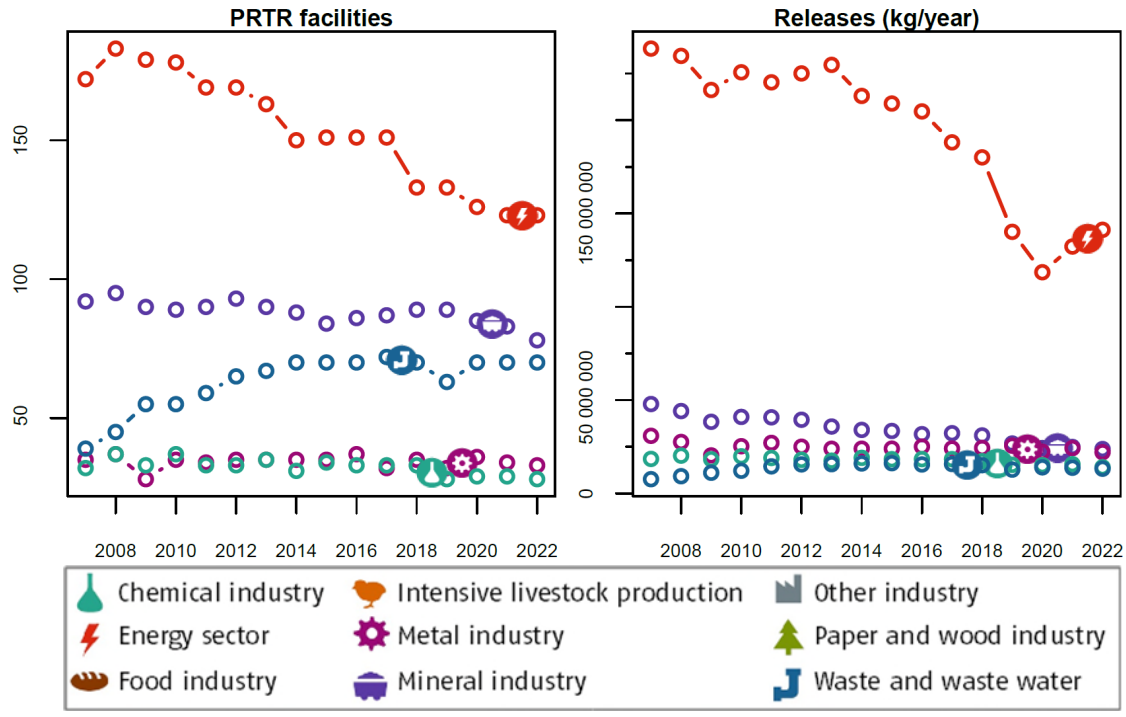
2.32.1 Releases to Air

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

Table 42: For the reporting year 2022 -Number of facilities and their releases of the pollutant "Nitrogen oxides (NOx/NO2)" to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	123	32.9	141 267 000	62.8
Mineral industry	78	20.9	23 808 000	10.6
Metal industry	33	8.82	22 108 000	9.82
Chemical industry	28	7.49	14 044 000	6.24
Waste and waste water management	70	18.7	13 274 000	5.9
Paper- and wood industry	31	8.29	8 615 000	3.83
Food industry	7	1.87	1 408 000	0.626
Other industry	4	1.07	527 000	0.234
Total	**374**	**100**	**225 051 000**	**100**

Figure 42: Annual number of facilities (left) and their releases (right) of the pollutant "Nitrogen oxides (NOx/NO2)" to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.33 Nitrous oxide (N2O)

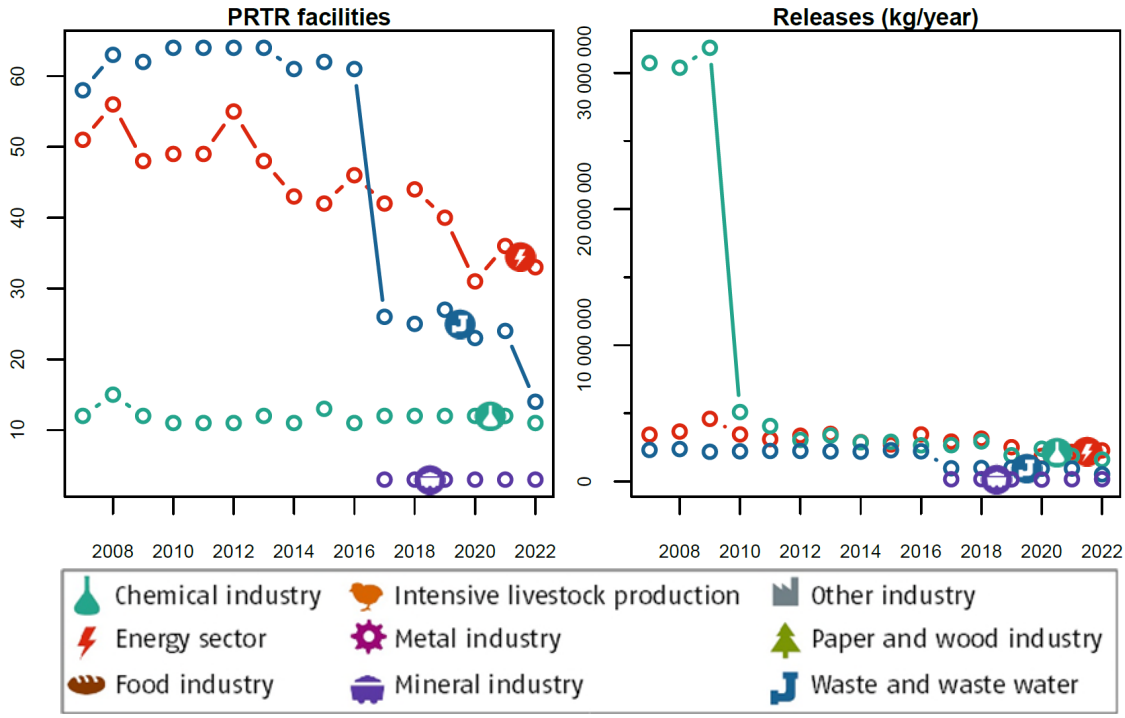
2.33.1 Releases to Air

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 43: For the reporting year 2022 -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	33	54.1	2 280 100	49.8
Chemical industry	11	18	1 605 200	35.1
Waste and waste water management	14	23	525 200	11.5
Mineral industry	3	4.92	165 400	3.61
Total	**61**	**100**	**4 575 900**	**100**

Figure 43: 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 2022.



Source: own illustration, Umweltbundesamt

2.34 Non-methane volatile organic compounds (NMVOC)

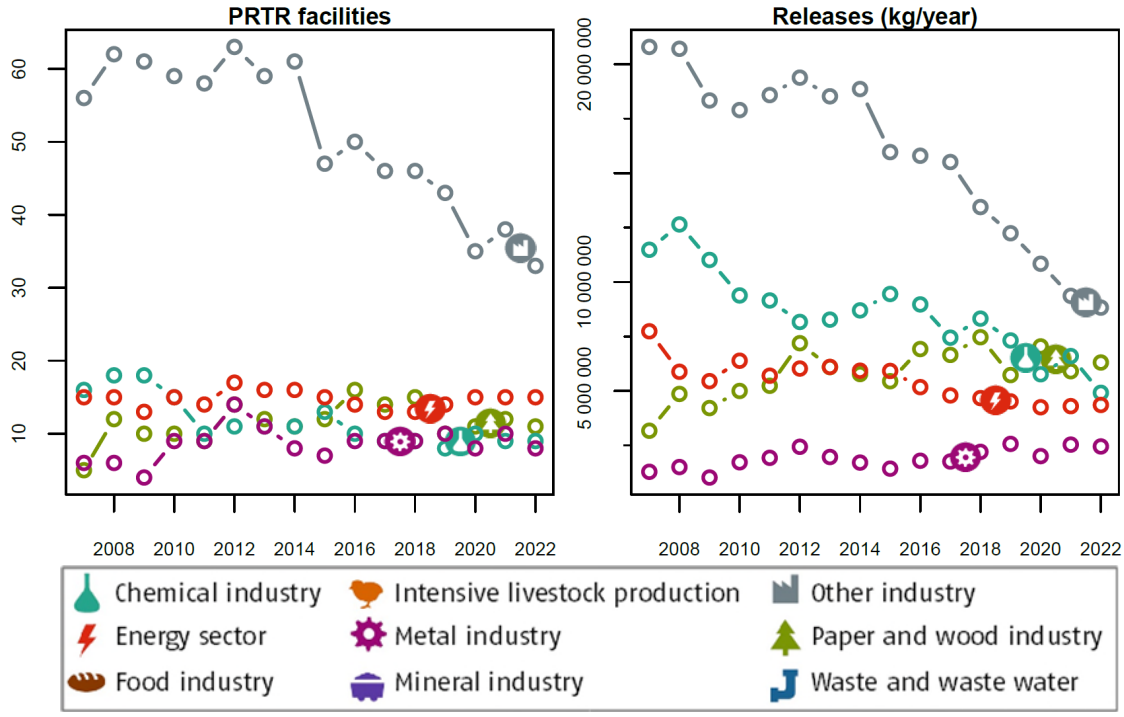
2.34.1 Releases to Air

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 44: For the reporting year 2022 -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	33	37.9	8 823 000	30
Paper- and wood industry	11	12.6	6 303 000	21.4
Chemical industry	9	10.3	4 912 000	16.7
Energy sector	15	17.2	4 354 000	14.8
Metal industry	8	9.2	2 448 000	8.32
Food industry	10	11.5	2 422 000	8.23
Mineral industry	1	1.15	170 000	0.578
Total	**87**	**100**	**29 432 000**	**100**

Figure 44: 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 2022.



Source: own illustration, Umweltbundesamt

2.35 Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)

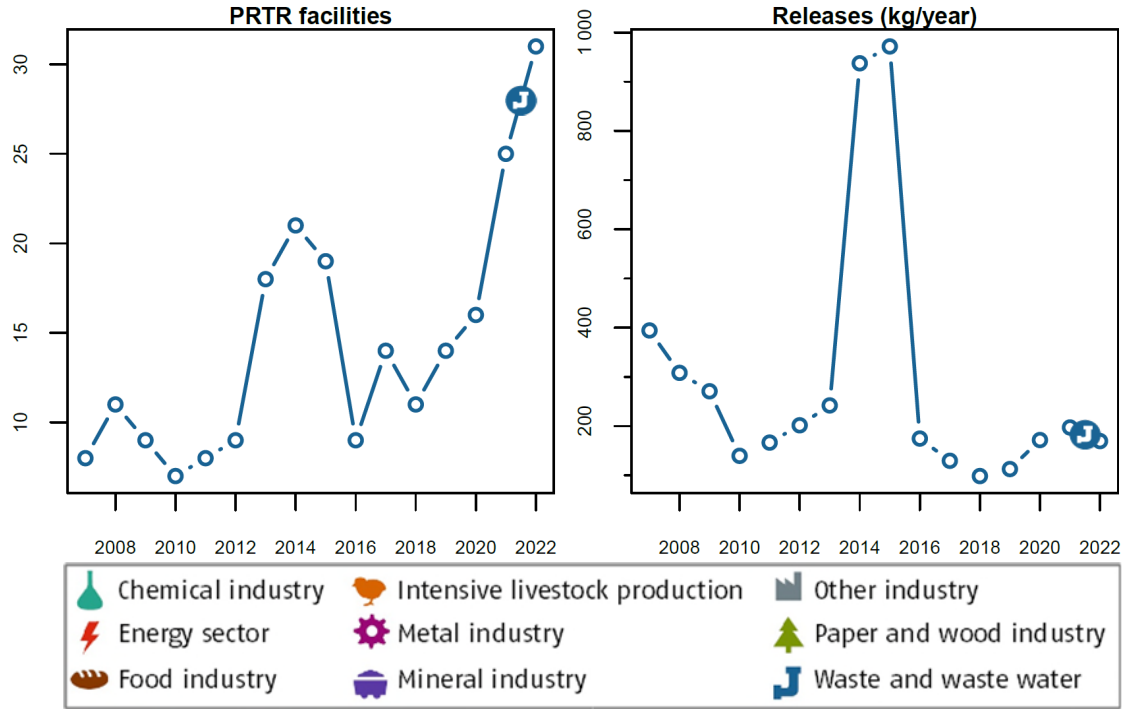
2.35.1 Releases to Water

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 45: For the reporting year 2022 -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	31	100	169	100
Total	**31**	**100**	**169**	**100**

Figure 45: 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 2022.



Source: own illustration, Umweltbundesamt

2.35.2 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 **2022**.

2.36 Octylphenols and Octylphenol ethoxylates

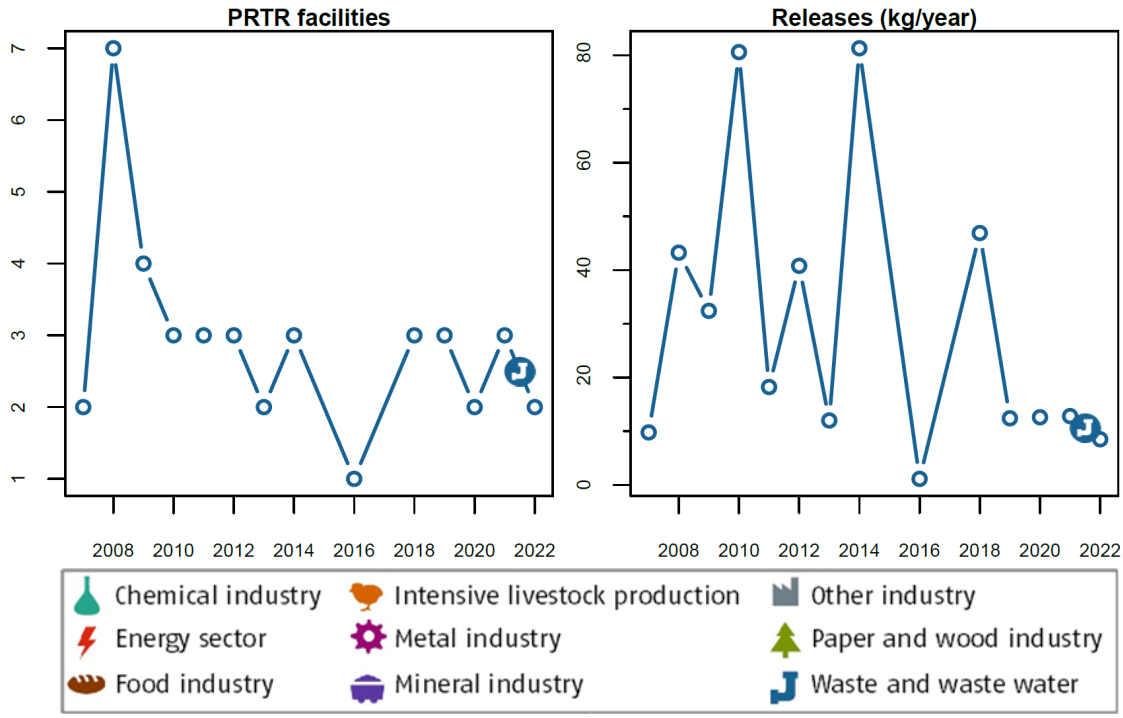
2.36.1 Releases to Water

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 46: For the reporting year 2022 -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)	(%)
Waste and waste water management	2	100	8.5	100
Total	**2**	**100**	**8.5**	**100**

Figure 46: Annual number of facilities (left) and their releases (right) of the pollutant "Octylphenols and Octylphenol ethoxylates" to Water, each by the 1 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.37 Particulate matter (PM10)

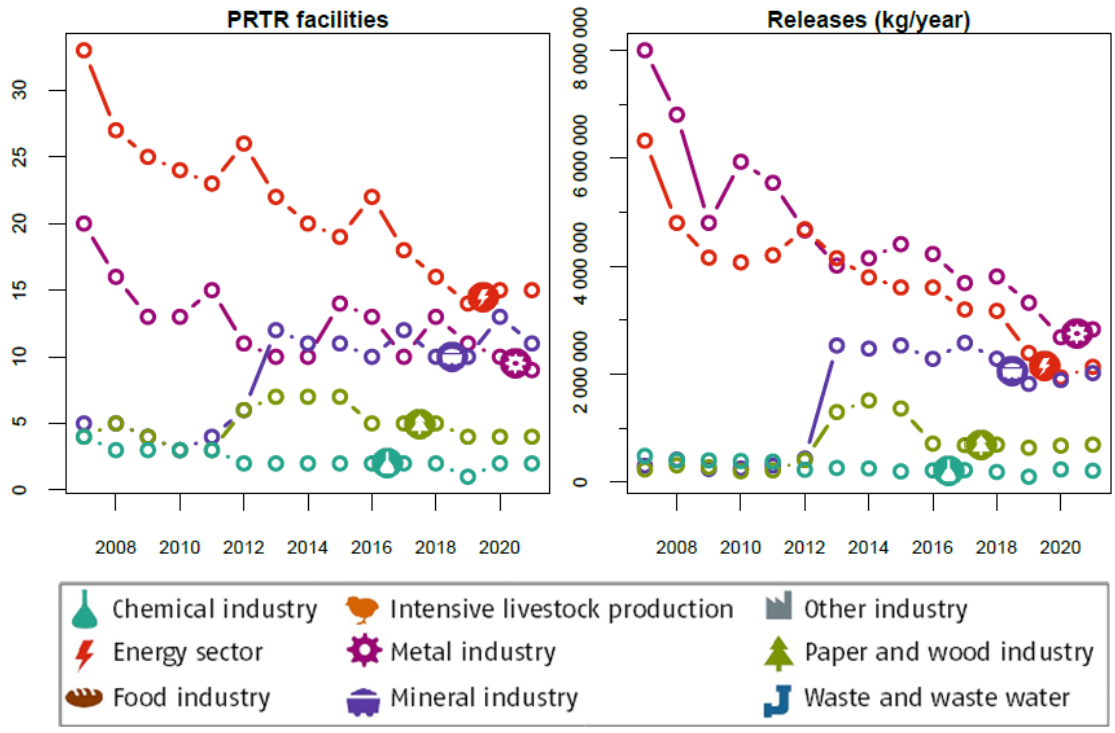
2.37.1 Releases to Air

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 47: For the reporting year 2022 -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)	(%)
Energy sector	15	34.9	2 503 400	32.5
Mineral industry	12	27.9	2 198 800	28.5
Metal industry	7	16.3	2 050 000	26.6
Paper- andwood industry	4	9.3	590 800	7.66
Intensive livestock production and aquaculture	3	6.98	190 500	2.47
Chemical industry	2	4.65	175 300	2.27
Total	**43**	**100**	**7 708 800**	**100**

Figure 47: 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 2022.



Source: own illustration, Umweltbundesamt

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

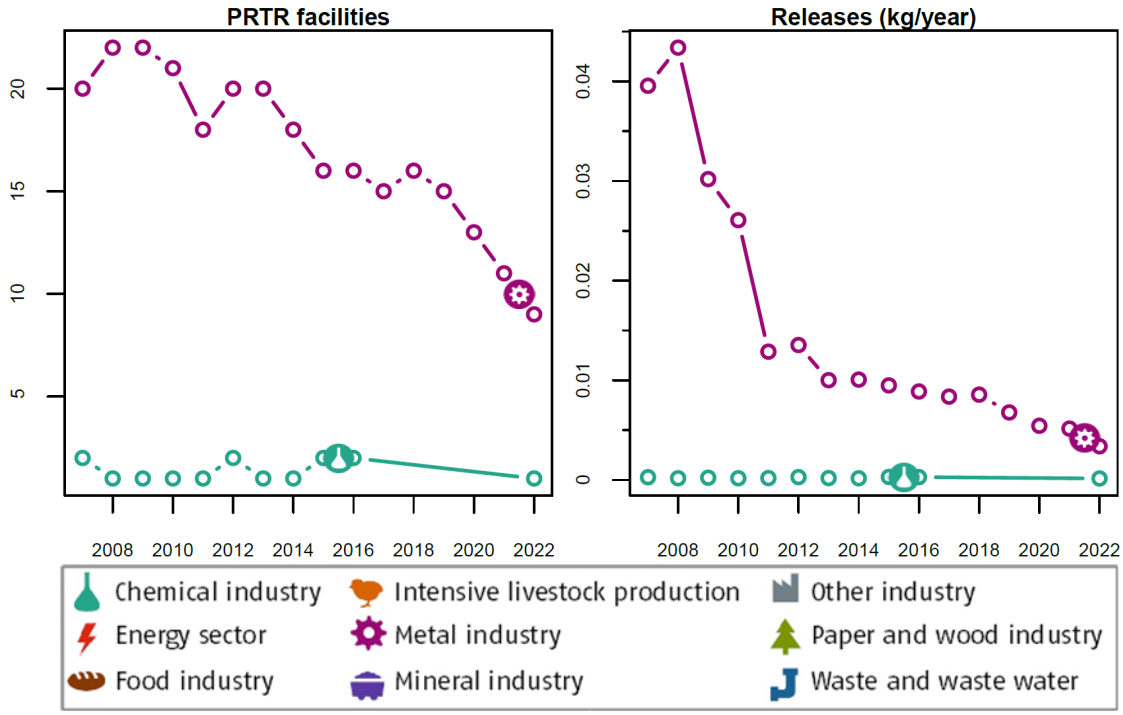
2.38.1 Releases to Air

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 48: For the reporting year 2022 -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	0.00337	96
Chemical industry	1	10	0.000142	4.04
Total	**10**	**100**	**0.00352**	**100**

Figure 48: 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 2022.



Source: own illustration, Umweltbundesamt

2.38.2 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 **2022**.

2.38.3 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 **2022**.

2.39 Pentachlorophenol (PCP)

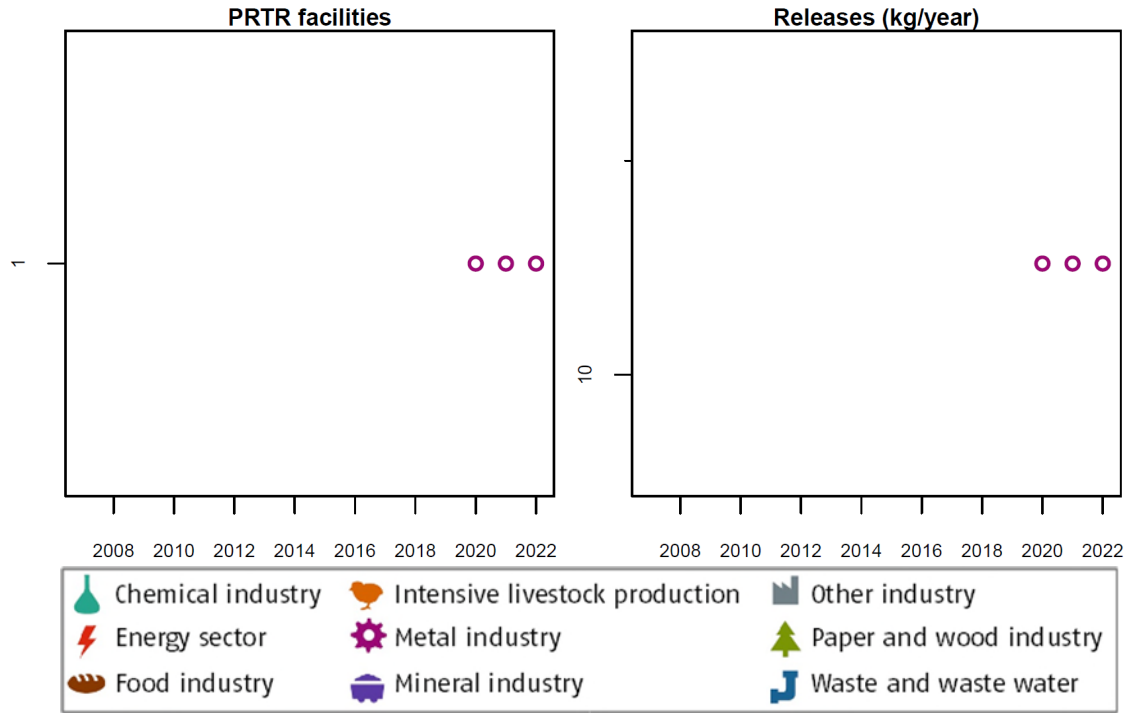
2.39.1 Releases to Air

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.

Table 49: For the reporting year 2022 -Number of facilities and their releases of the pollutant "Pentachlorophenol (PCP)" to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Metal industry	1	100	12.6	100
Total	**1**	**100**	**12.6**	**100**

Figure 49: Annual number of facilities (left) and their releases (right) of the pollutant "Pentachlorophenol (PCP)" to Air, each by the 1 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

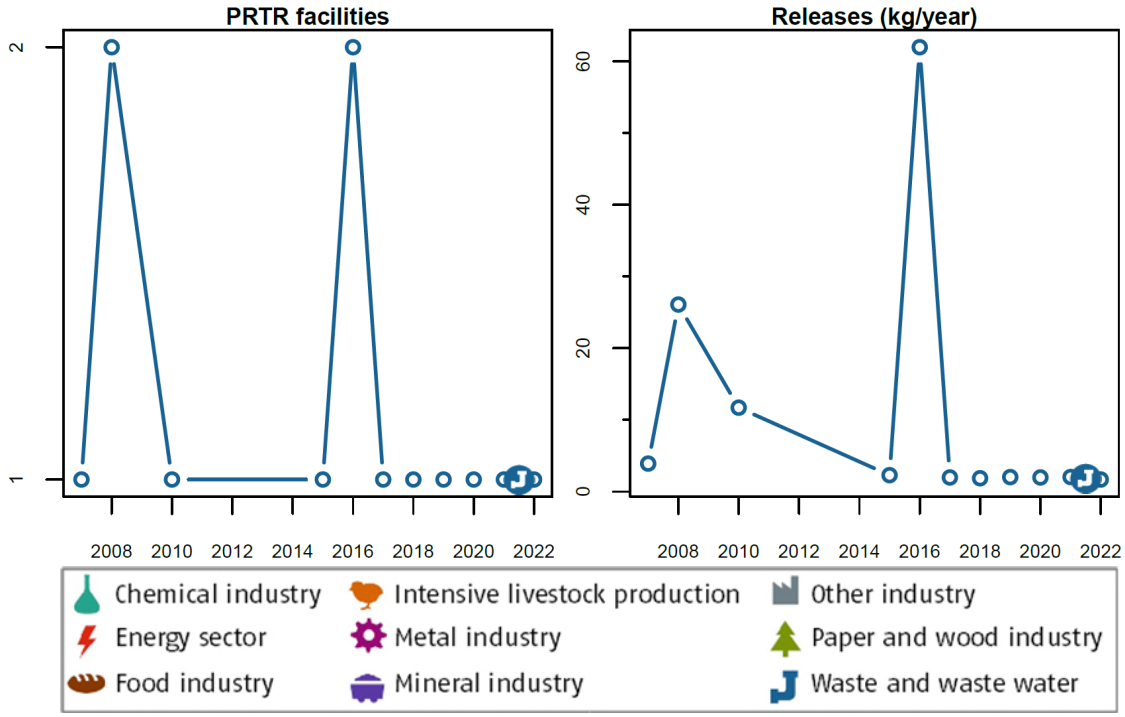
2.39.2 Releases to Water

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 50: For the reporting year 2022 -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	1.68	100
Total	**1**	**100**	**1.68**	**100**

Figure 50: 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 2022.



Source: own illustration, Umweltbundesamt

2.39.3 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 **2022**.

2.40 Perfluorocarbons (PFCs)

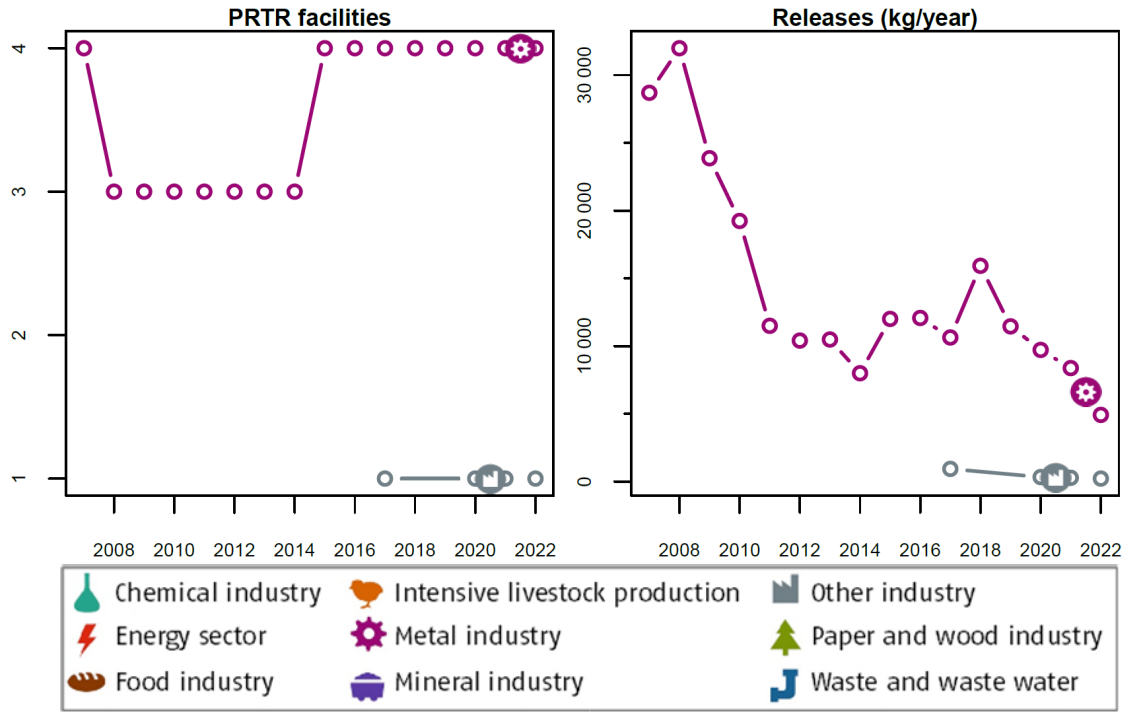
2.40.1 Releases to Air

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 51: For the reporting year 2022 -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	80	4 926	95.7
Other industry	1	20	224	4.35
Total	**5**	**100**	**5 150**	**100**

Figure 51: Annual number of facilities (left) and their releases (right) of the pollutant "Perfluorocarbons (PFCs)" to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.41 Phenols (as total C)

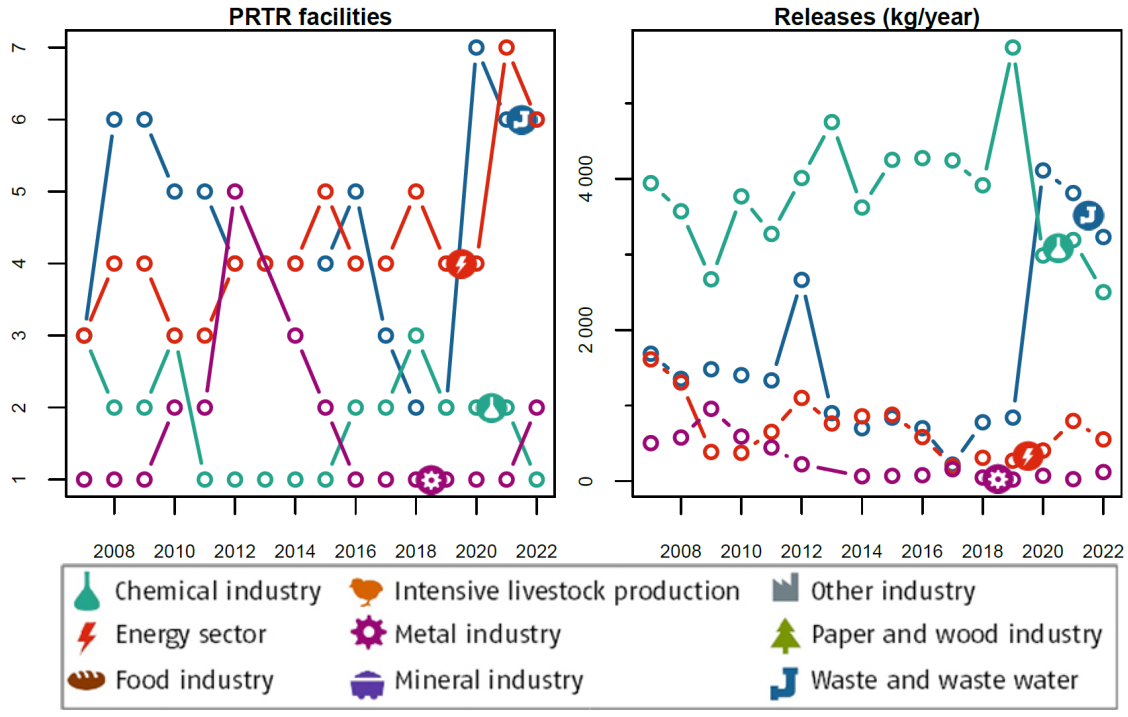
2.41.1 Releases to Water

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 52: For the reporting year 2022 -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	6	40	3 229	50.4
Chemical industry	1	6.67	2 500	39.1
Energy sector	6	40	552	8.63
Metal industry	2	13.3	120	1.87
Total	**15**	**100**	**6 401**	**100**

Figure 52: 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 2022.



Source: own illustration, Umweltbundesamt

2.41.2 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 **2022**.

2.42 Polycyclic aromatic hydrocarbons (PAHs)

2.42.1 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.

No facility reported the release of **" Polycyclic aromatic hydrocarbons (PAHs)"** to **Air** in **2022**.

2.42.2 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.

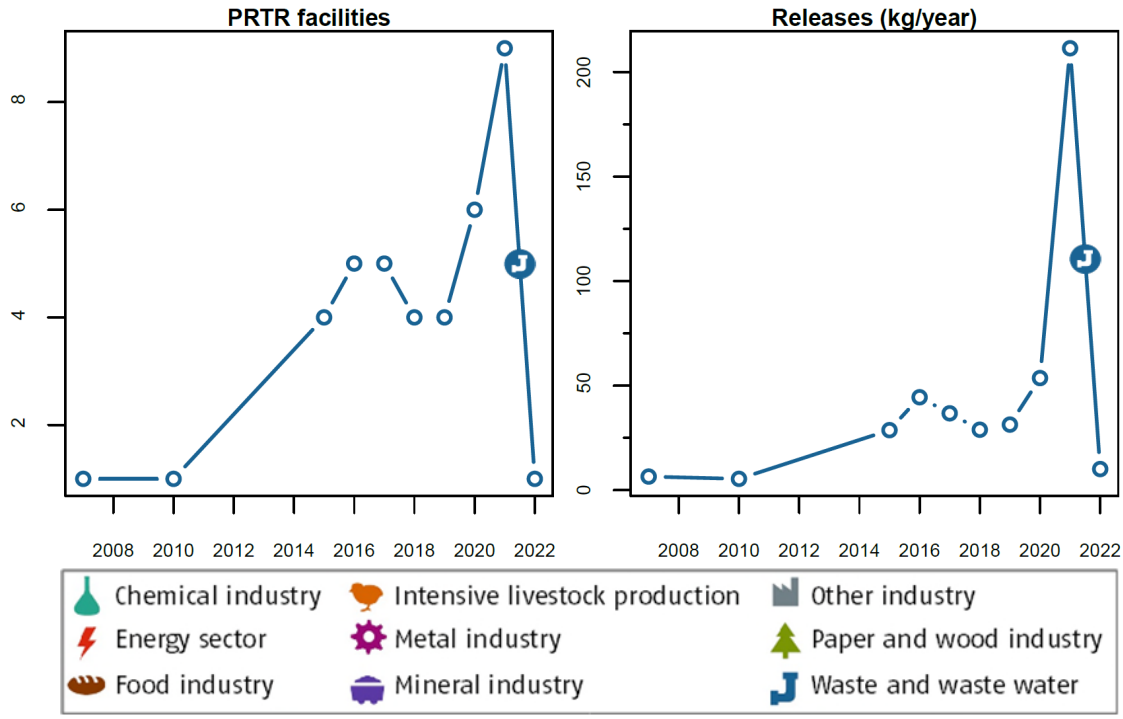
From reporting year 2022, an updated, reduced emission factor or average effluent concentration will be used to calculate the pollutant quantities for Polycyclic aromatic hydrocarbons (PAHs). The reduction in pollutant quantities (from 2022) can be partly based on this.

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

Table 53: For the reporting year 2022 -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)	(%)
Waste and waste water management	1	100	10.1	100
Total	**1**	**100**	**10.1**	**100**

Figure 53: 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 2022.



Source: own illustration, Umweltbundesamt

2.42.3 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 **2022**.

2.43 Simazine

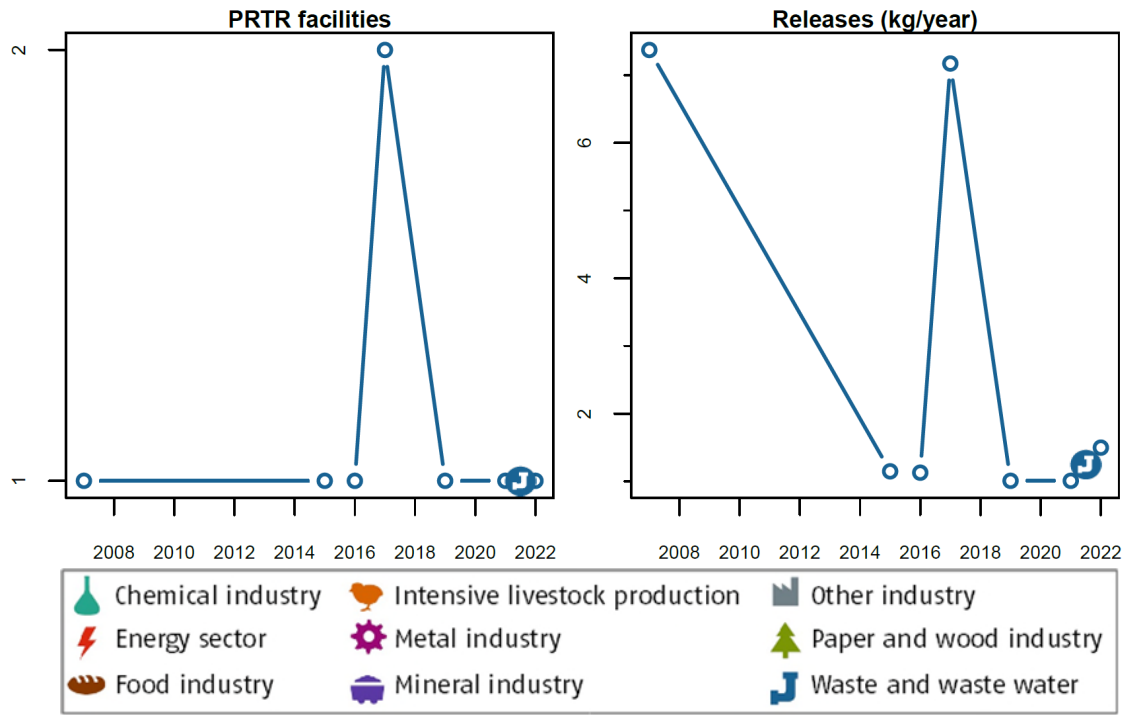
2.43.1 Releases to Water

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 54: For the reporting year 2022 -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	1	100	1.5	100
Total	**1**	**100**	**1.5**	**100**

Figure 54: 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 2022.



Source: own illustration, Umweltbundesamt

2.43.2 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 **2022**.

2.44 Sulphur hexafluoride (SF6)

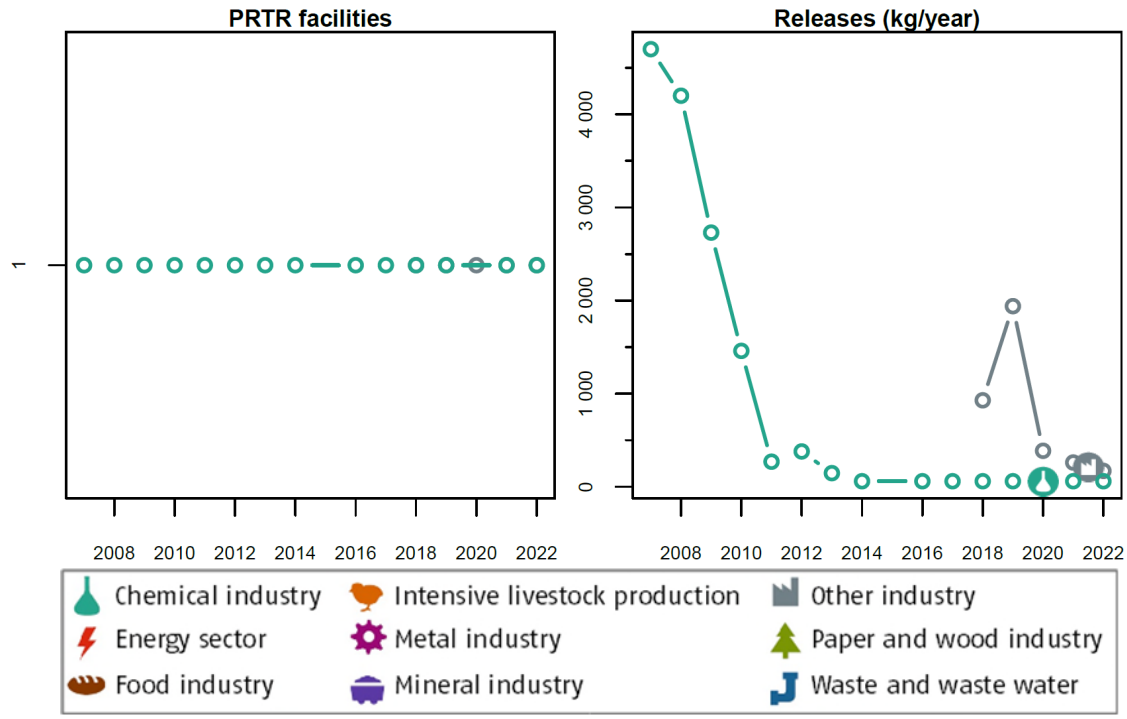
2.44.1 Releases to Air

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 55: For the reporting year 2022 -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)	(%)
Other industry	1	50	171	74
Chemical industry	1	50	60	26
Total	**1**	**100**	**231**	**100**

Figure 55: Annual number of facilities (left) and their releases (right) of the pollutant "Sulphur hexafluoride (SF6)" to Air, each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.45 Sulphur oxides (SOx/SO2)

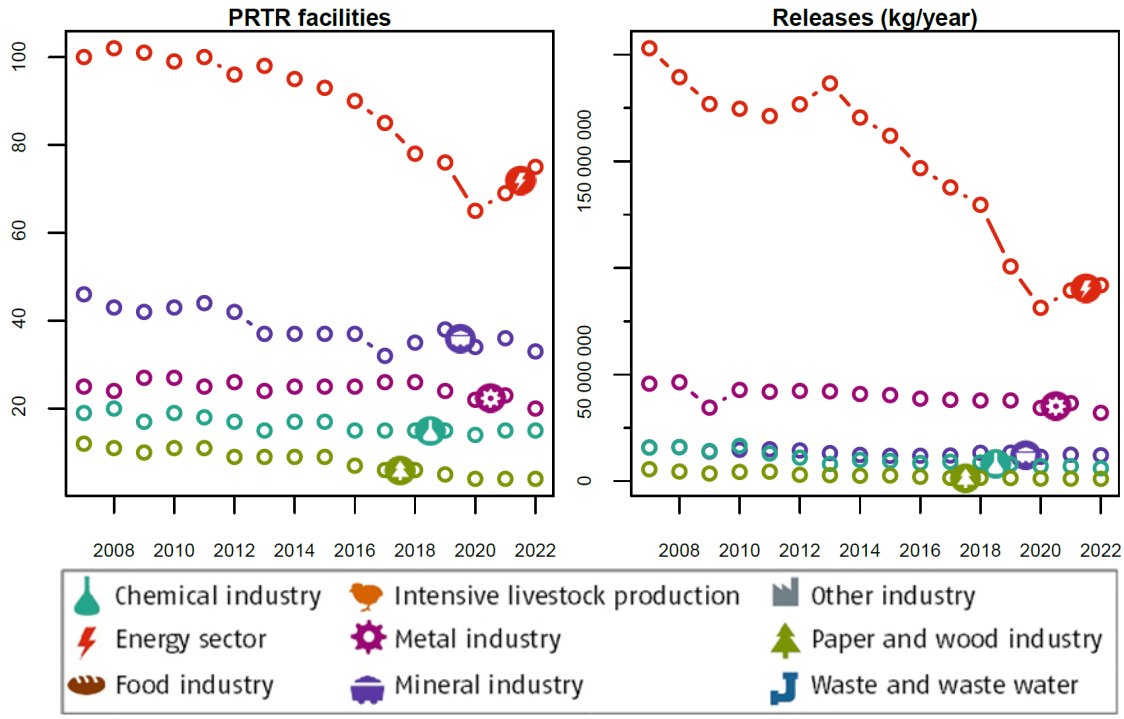
2.45.1 Releases to Air

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

Table 56: For the reporting year 2022 -Number of facilities and their releases of the pollutant "Sulphur oxides (SOx/SO2)" to Air of the different industrial sectors including the corresponding shares.

Industrial sector	Facilities	(%)	Releases (kg/year)	(%)
Energy sector	75	50.3	91 898 000	64
Metal industry	20	13.4	32 022 000	22.3
Mineral industry	33	22.1	12 120 000	8.45
Chemical industry	15	10.1	5 987 000	4.17
Paper- and wood industry	4	2.68	1 049 000	0.731
Food industry	2	1.34	416 000	0.29
Total	**149**	**100**	**143 492 000**	**100**

Figure 56: Annual number of facilities (left) and their releases (right) of the pollutant "Sulphur oxides (SOx/SO2)" to Air, each by the 5 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.46 Tetrachloroethylen (PER)

2.46.1 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 **2022**.

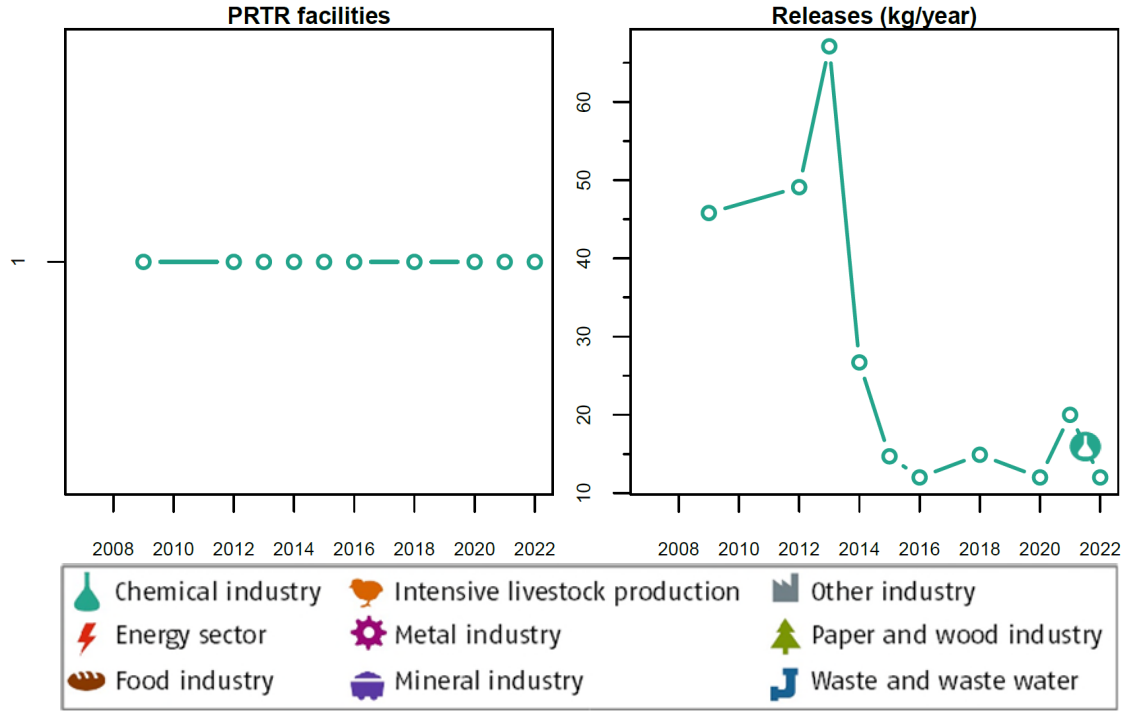
2.46.2 Releases to Water

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 57: For the reporting year 2022 -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 57: 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 2022.



Source: own illustration, Umweltbundesamt

2.47 Tetrachloromethane (TCM)

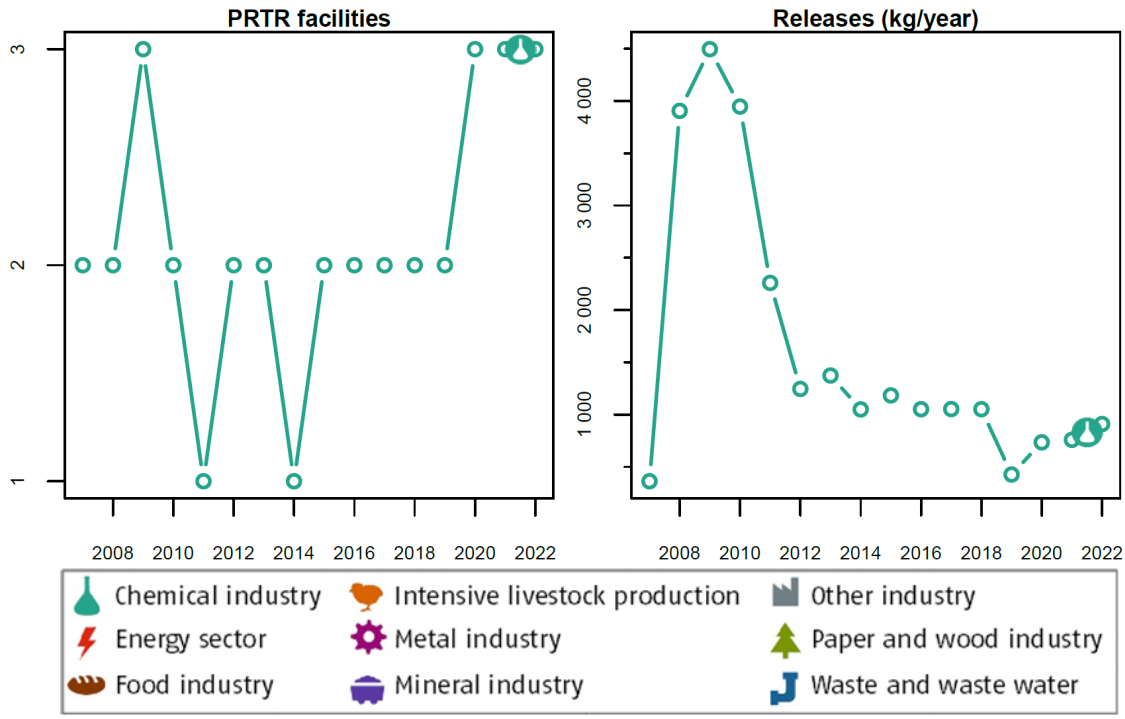
2.47.1 Releases to Air

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 58: For the reporting year 2022 -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	3	100	910	100
Total	**3**	**100**	**910**	**100**

Figure 58: Annual number of facilities (left) and their releases (right) of the pollutant "Tetrachloromethane (TCM)" to Air, each by the 1 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.47.2 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 **2022**.

2.48 Total nitrogen

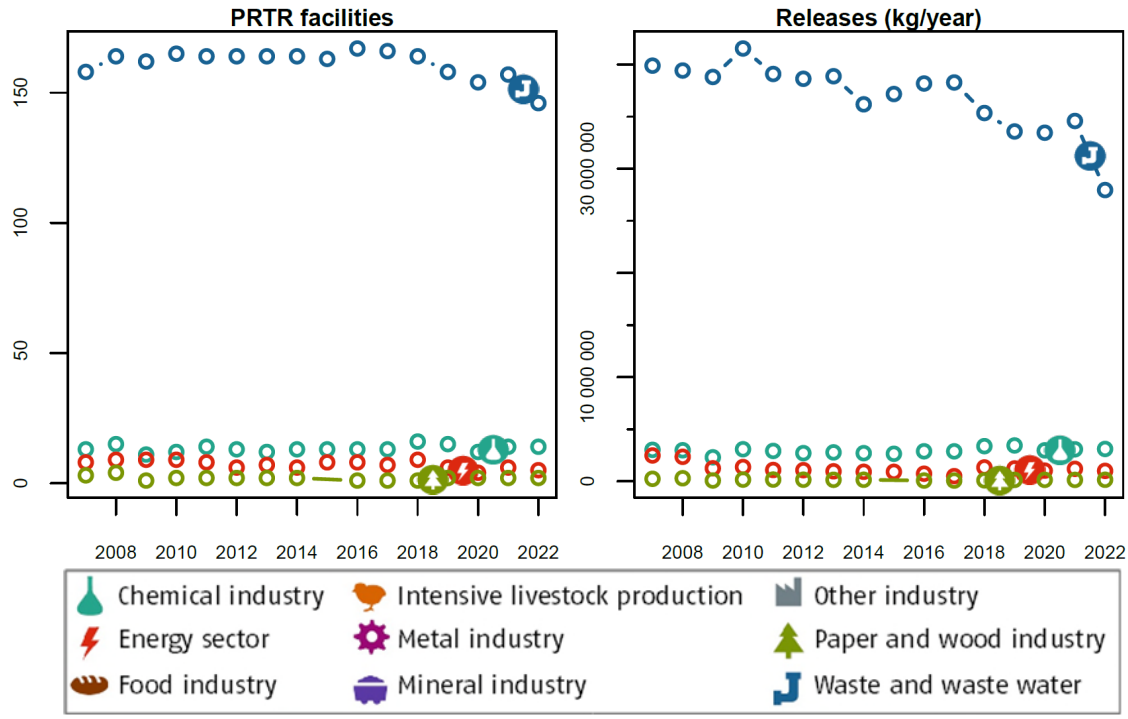
2.48.1 Releases to Water

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 59: For the reporting year 2022 -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	146	87.4	27 956 200	86.8
Chemical industry	14	8.38	3 101 700	9.63
Energy sector	5	2.99	996 600	3.1
Paper- and wood industry	2	1.2	144 600	0.449
Total	**167**	**100**	**32 199 100**	**100**

Figure 59: Annual number of facilities (left) and their releases (right) of the pollutant "Total nitrogen" to Water, each by the 4 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.48.2 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.

No facility reported the release of **" Total nitrogen"** to **Land** in **2022**.

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

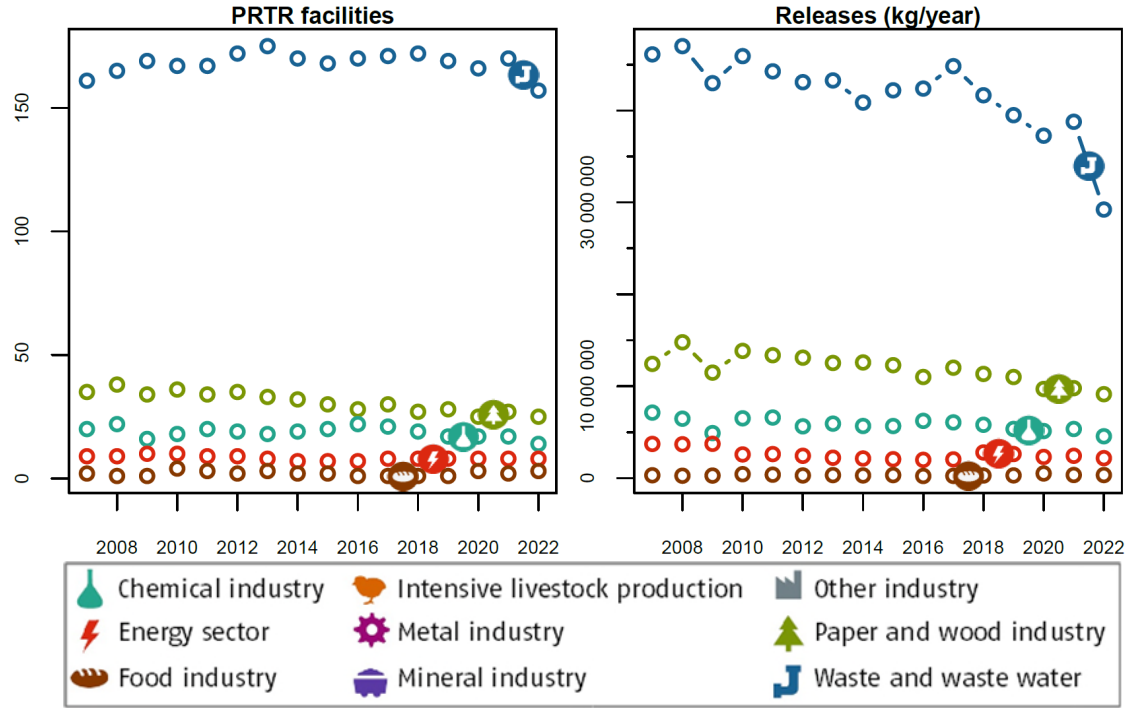
2.49.1 Releases to Water

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 60: For the reporting year 2022 -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	157	75.1	29 226 400	64
Paper- and wood industry	25	12	9 133 700	20
Chemical industry	14	6.7	4 555 900	9,98
Energy sector	8	3.83	2 173 800	4.76
Food industry	3	1.44	335 200	0.734
Metal industry	1	0.478	138 000	0.302
Other industry	1	0.478	101 000	0.221
Total	**209**	**100**	**45 664 000**	**100**

Figure 60: 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 2022.



Source: own illustration, Umweltbundesamt

2.50 Total phosphorus

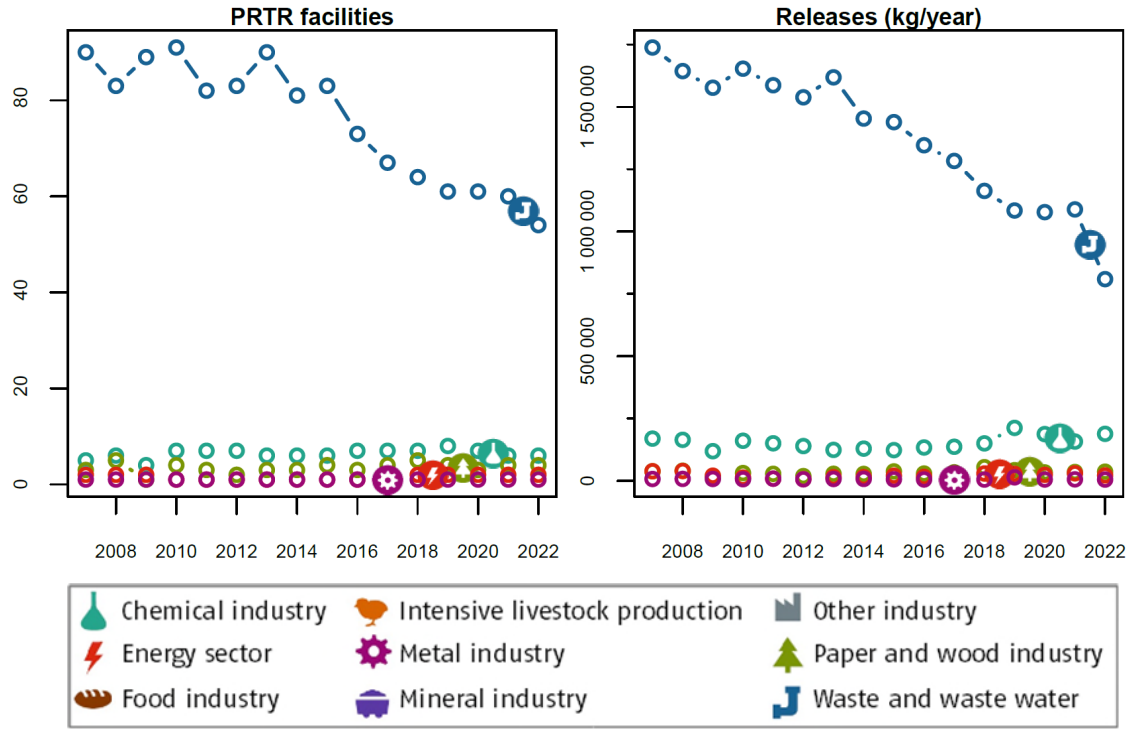
2.50.1 Releases to Water

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 61: For the reporting year 2022 -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	54	80.6	809 100	76.2
Chemical industry	6	8.96	188 590	17.8
Paper- and wood industry	4	5.97	36 740	3.46
Energy sector	2	2.99	21 800	2.05
Metal industry	1	1.49	5 140	0.484
Total	**67**	**100**	**1 061 370**	**100**

Figure 61: Annual number of facilities (left) and their releases (right) of the pollutant "Total phosphorus" to Water, each by the 5 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

2.50.2 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 **2022**.

2.51 Trichlormethane

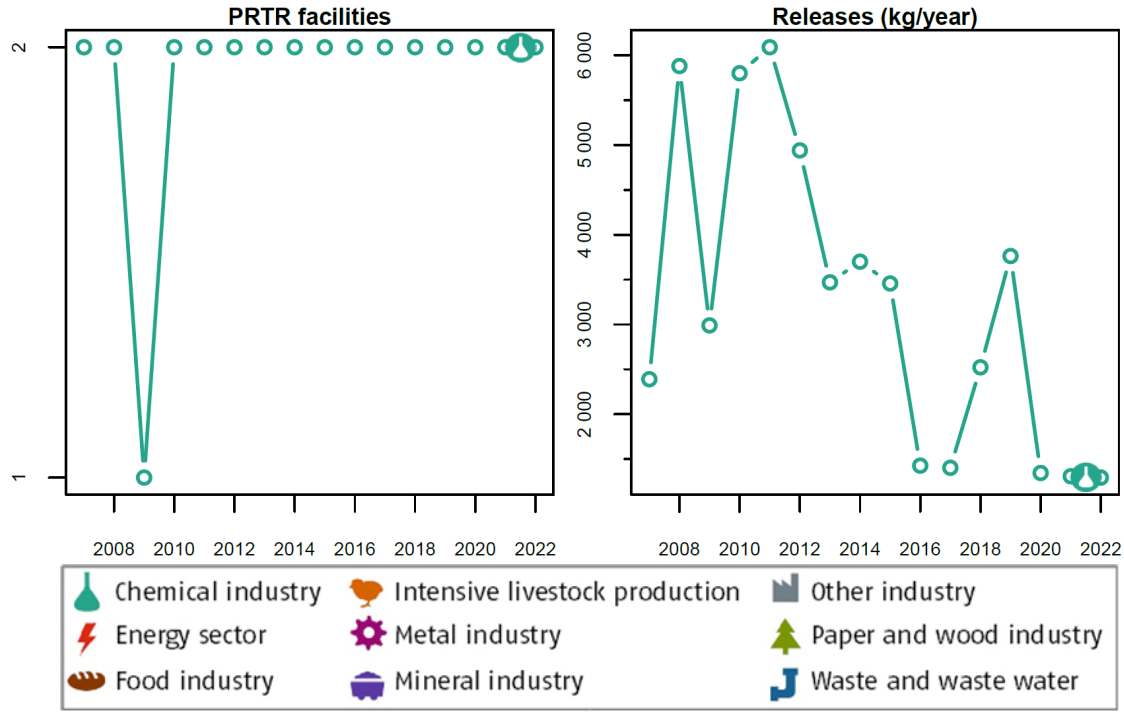
2.51.1 Releases to Air

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 62: For the reporting year 2022 -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	1 294	100
Total	**2**	**100**	**1 294**	**100**

Figure 62: 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 2022.



Source: own illustration, Umweltbundesamt

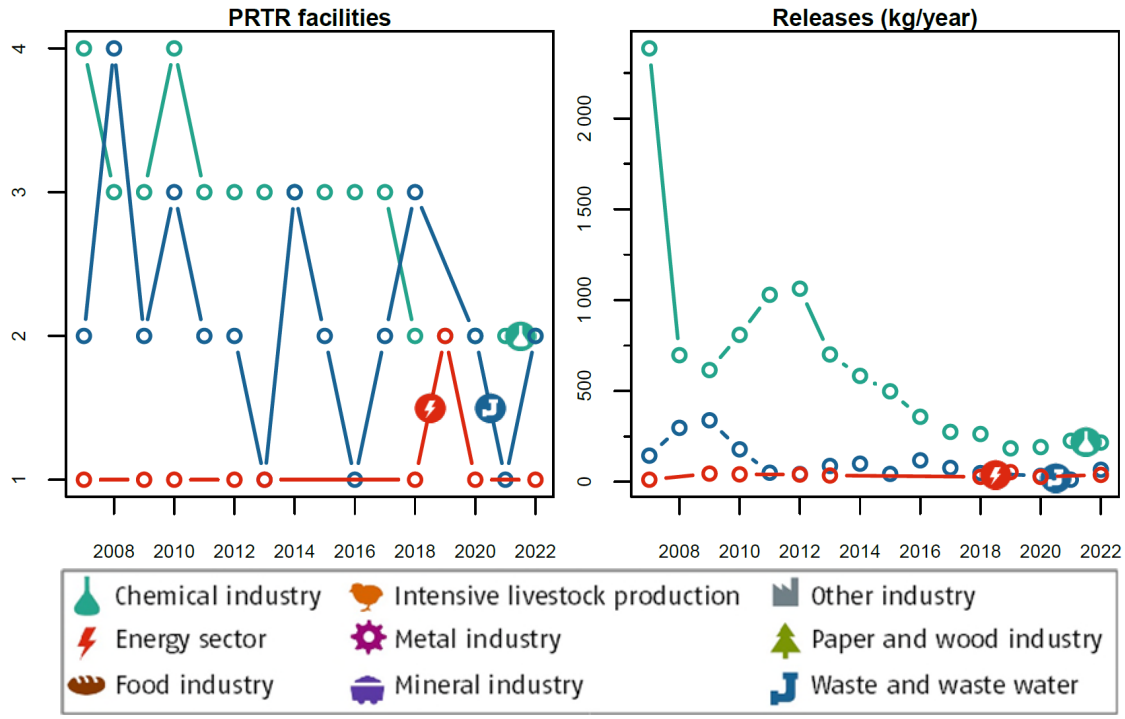
2.51.2 Releases to Water

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 63: For the reporting year 2022 -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	216	67.4
Waste and waste water management	2	40	66.3	20.7
Energy sector	1	10	28.3	11.9
Total	**5**	**100**	**321**	**100**

Figure 63: 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 2022.



Source: own illustration, Umweltbundesamt

2.52 Vinyl chloride

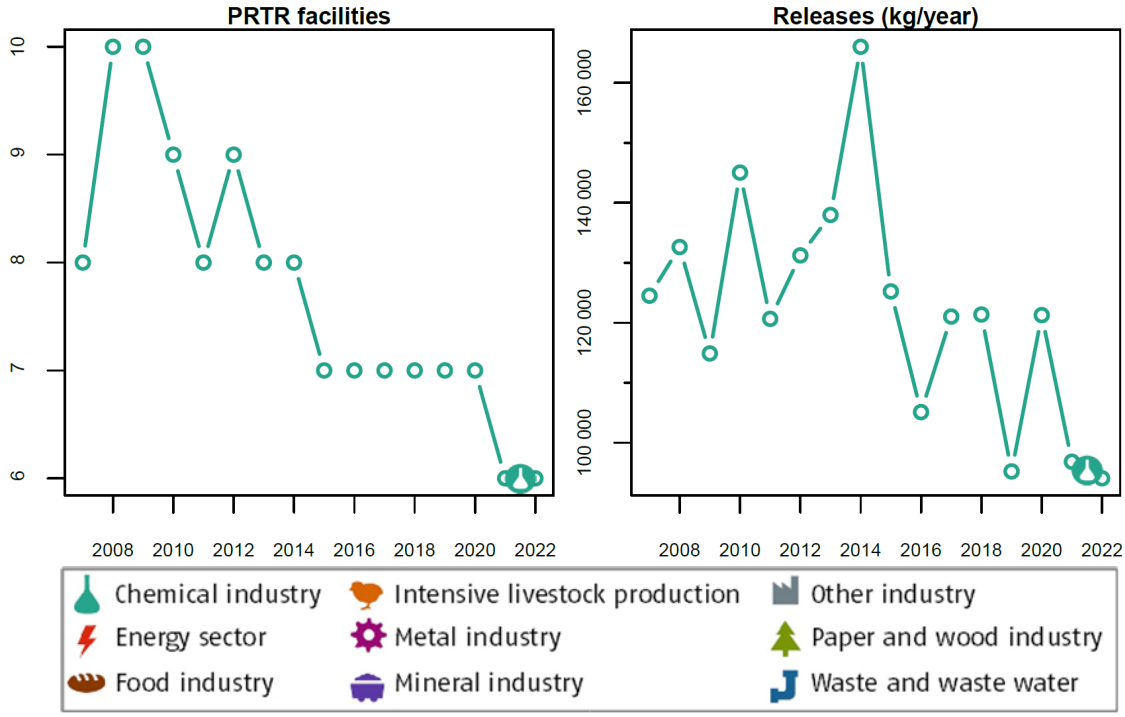
2.52.1 Releases to Air

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 64: For the reporting year 2022 -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	94 060	100
Total	**6**	**100**	**94 060**	**100**

Figure 64: 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 2022.



Source: own illustration, Umweltbundesamt

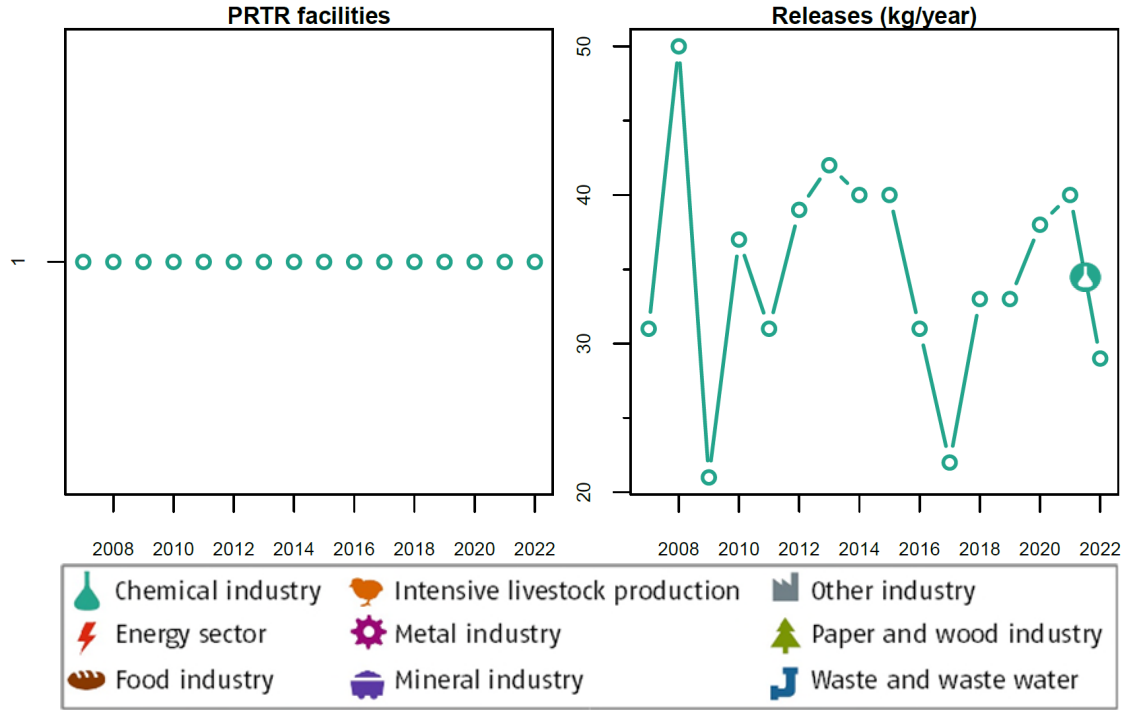
2.52.2 Releases to Water

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 65: For the reporting year 2022 -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	29	100
Total	**1**	**100**	**29**	**100**

Figure 65: 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 2022.



Source: own illustration, Umweltbundesamt

2.52.3 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 **2022**.

2.53 Zinc and compounds (as Zn)

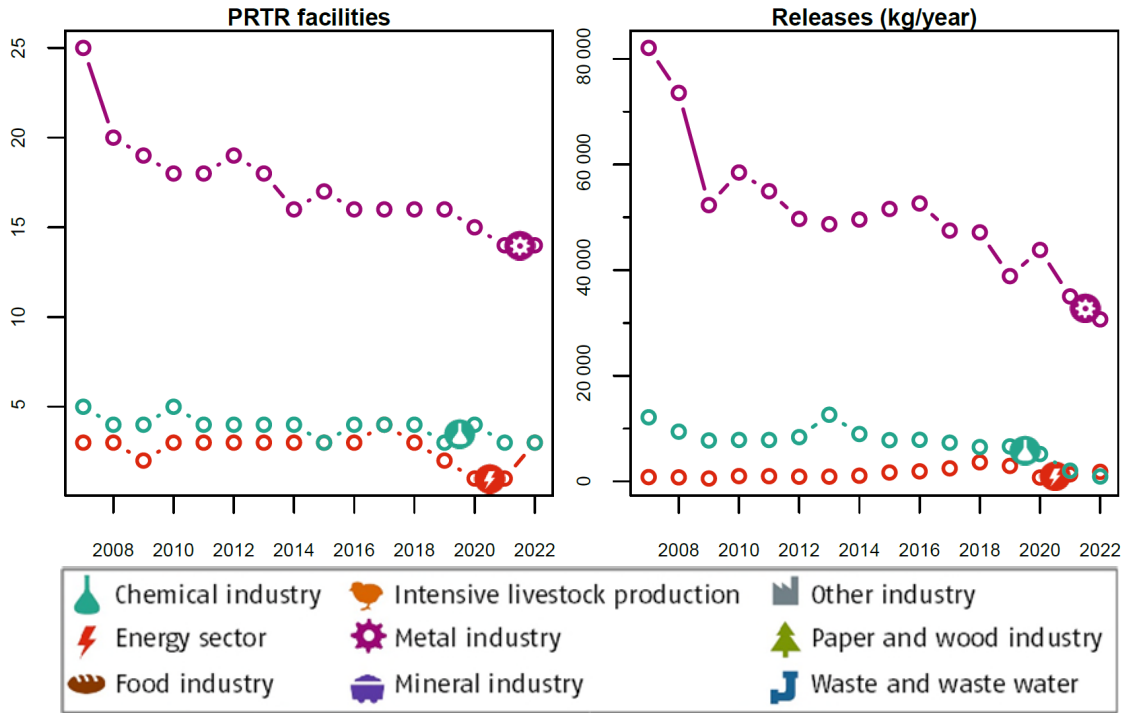
2.53.1 Releases to Air

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 66: For the reporting year 2022 -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	14	70	30 676	91.9
Energy sector	3	15	1 800	5.39
Chemical industry	3	15	916	2.74
Total	**20**	**100**	**33 392**	**100**

Figure 66: 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 2022.



Source: own illustration, Umweltbundesamt

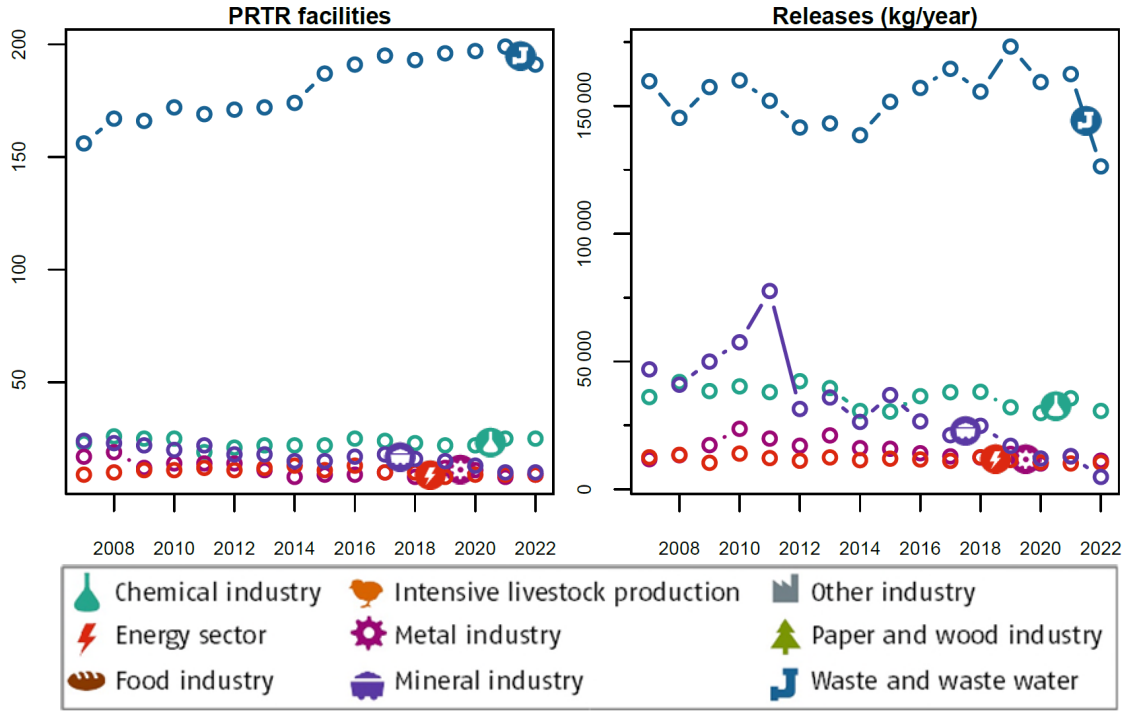
2.53.2 Releases to Water

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 67 For the reporting year 2022 -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	191	78.3	126 341	68.8
Chemical industry	25	10.2	30 674	16.7
Metal industry	9	3.69	11 204	6.1
Energy sector	9	3.69	10 456	5.7
Mineral industry	10	4.1	4 862	2.65
Total	**244**	**100**	**183 537**	**100**

Figure 67: 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 2022.



Source: own illustration, Umweltbundesamt

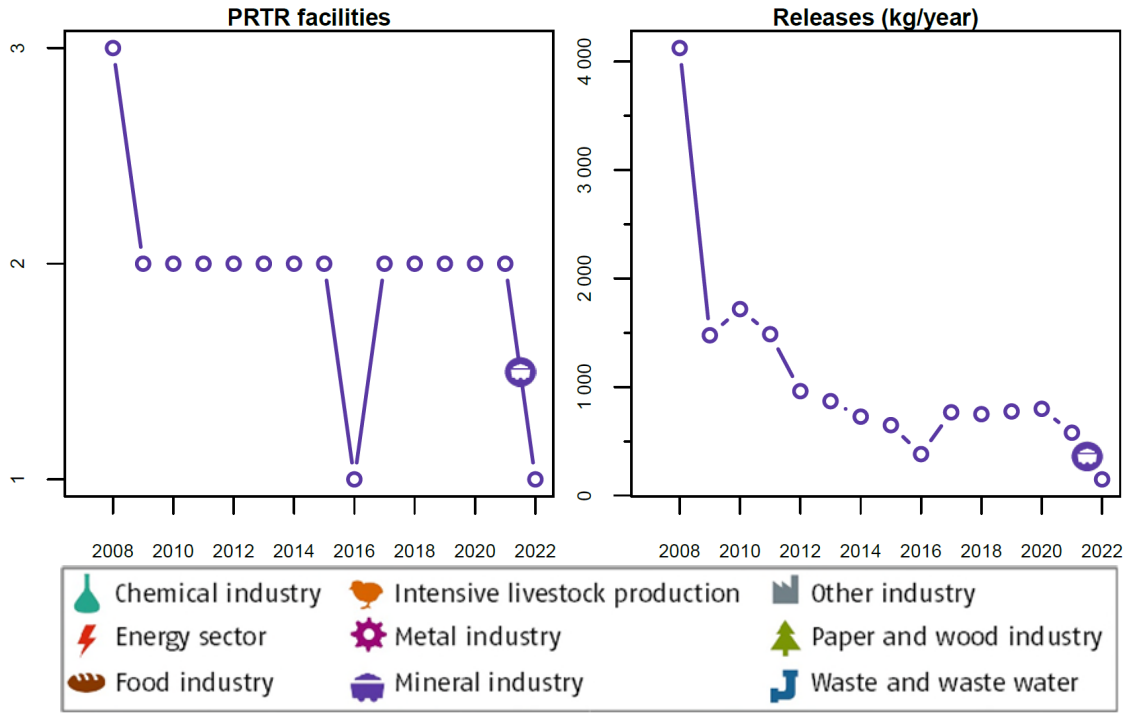
2.53.3 Releases to Land

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 68: For the reporting year 2022 -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	149	100
Total	**1**	**100**	**149**	**100**

Figure 68: 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 2022.



Source: own illustration, Umweltbundesamt

3 Off-site transfer in waste water

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

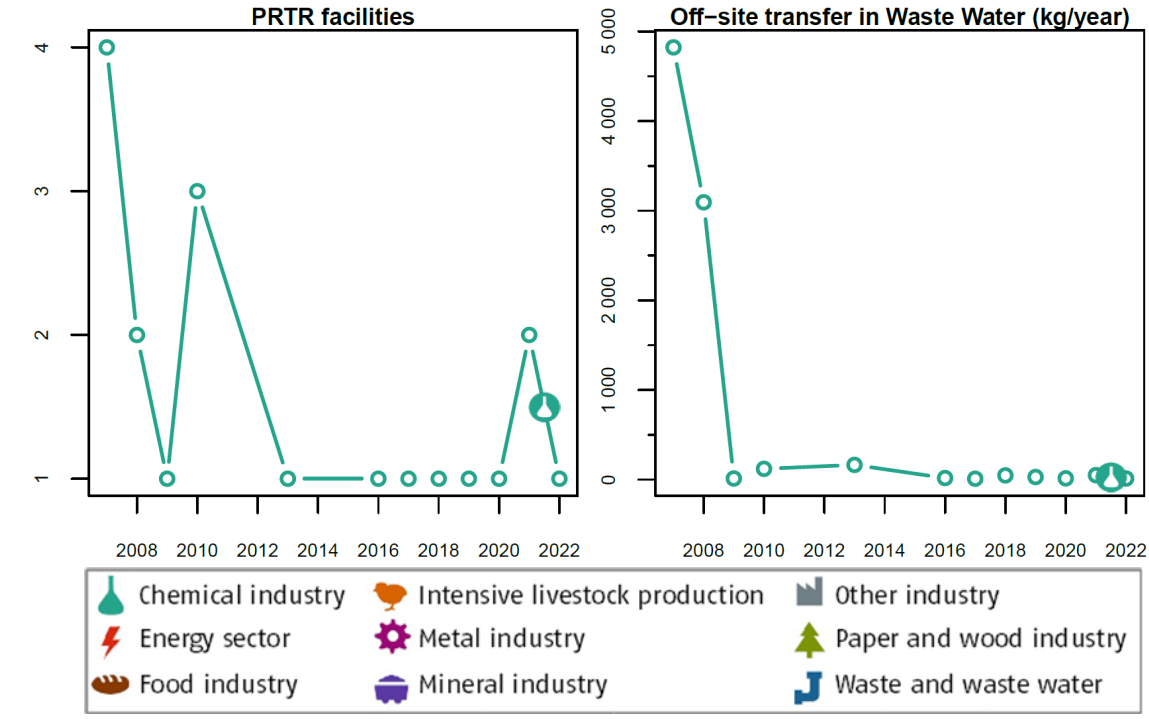
3.1 1,2-Dichlorethane (EDC)

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 69: For the reporting year 2022 -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	12.8	100
Total	**1**	**100**	**12.8**	**100**

Figure 69: 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 2022.



Source: own illustration, Umweltbundesamt

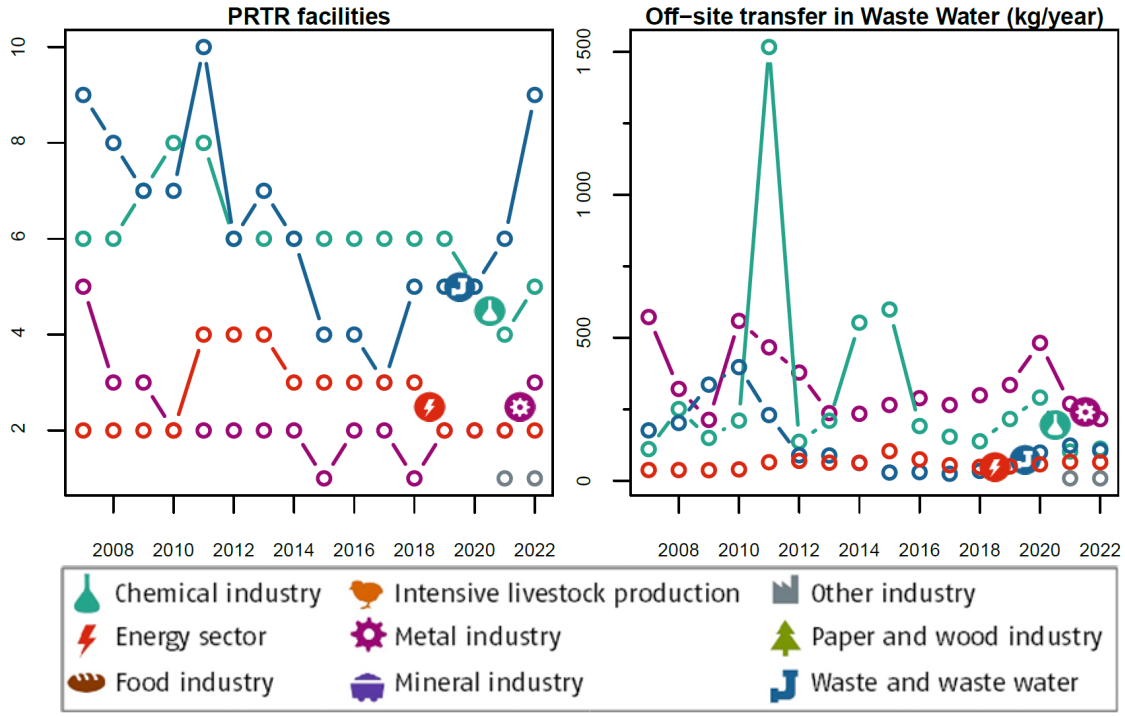
3.2 Arsenic and compounds (as As)

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 70: For the reporting year 2022 -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	215	42.6
Chemical industry	5	25	112	22.2
Waste and waste water management	9	45	105	20.8
Energy sector	2	10	64.6	12.8
Other industry	1	5	8.11	1.6
Total	**20**	**100**	**506**	**100**

Figure 70: 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 2022.



Source: own illustration, Umweltbundesamt

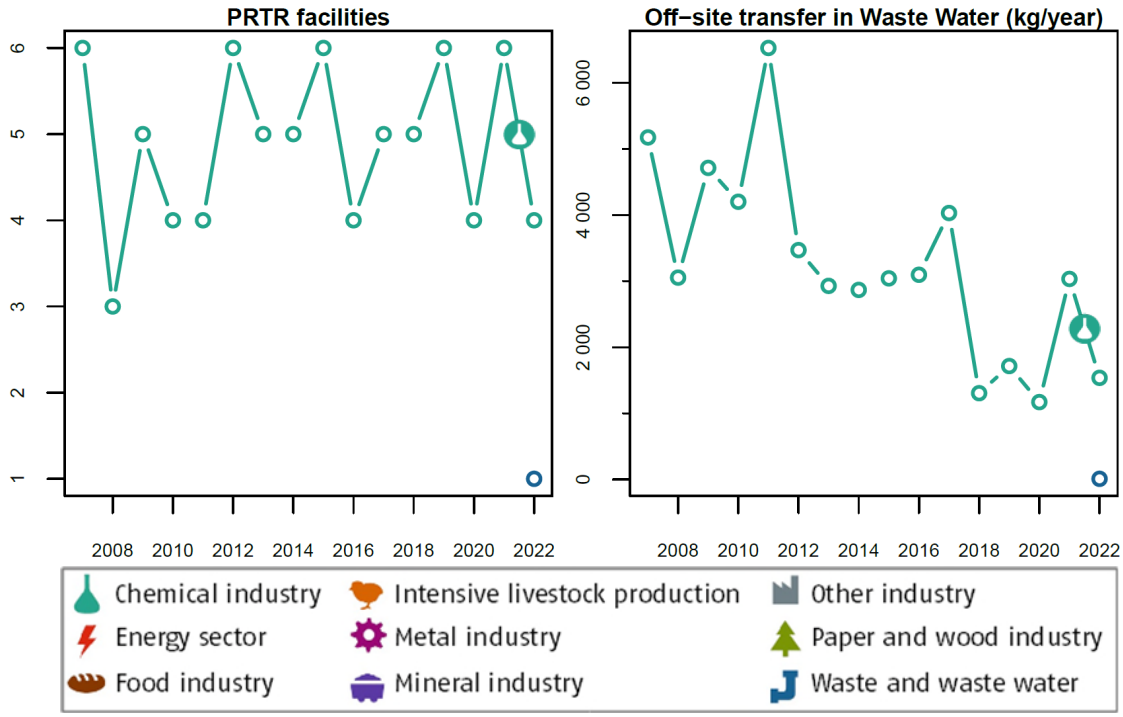
3.3 Benzene

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 71: For the reporting year 2022 -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	4	80	1 538	99.3
Waste and waste water management	1	20	11	0.71
Total	**5**	**100**	**1 549**	**100**

Figure 71: 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 2022.



Source: own illustration, Umweltbundesamt

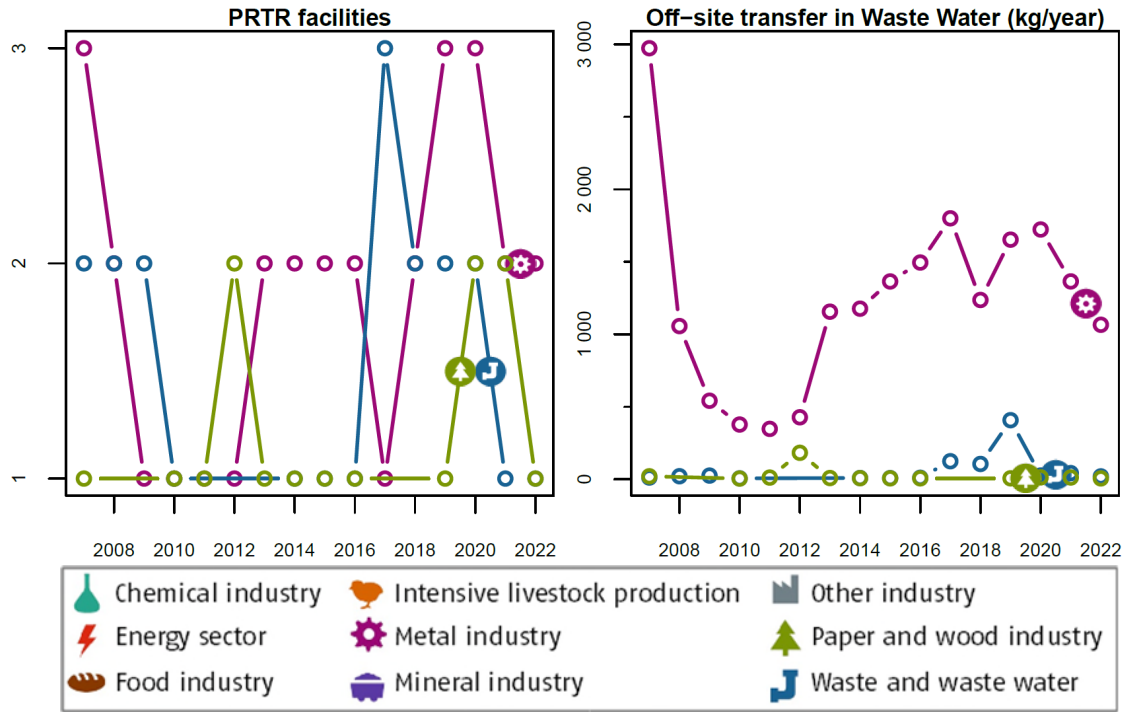
3.4 Cadmium and compounds (as Cd)

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 72: For the reporting year 2022 -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	2	50	1 066	97.5
Waste and waste water management	1	25	20.2	1.85
Paper- and wood industry	1	25	6.6	0.604
Total	**4**	**100**	**1 093**	**100**

Figure 72: 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 2022.



Source: own illustration, Umweltbundesamt

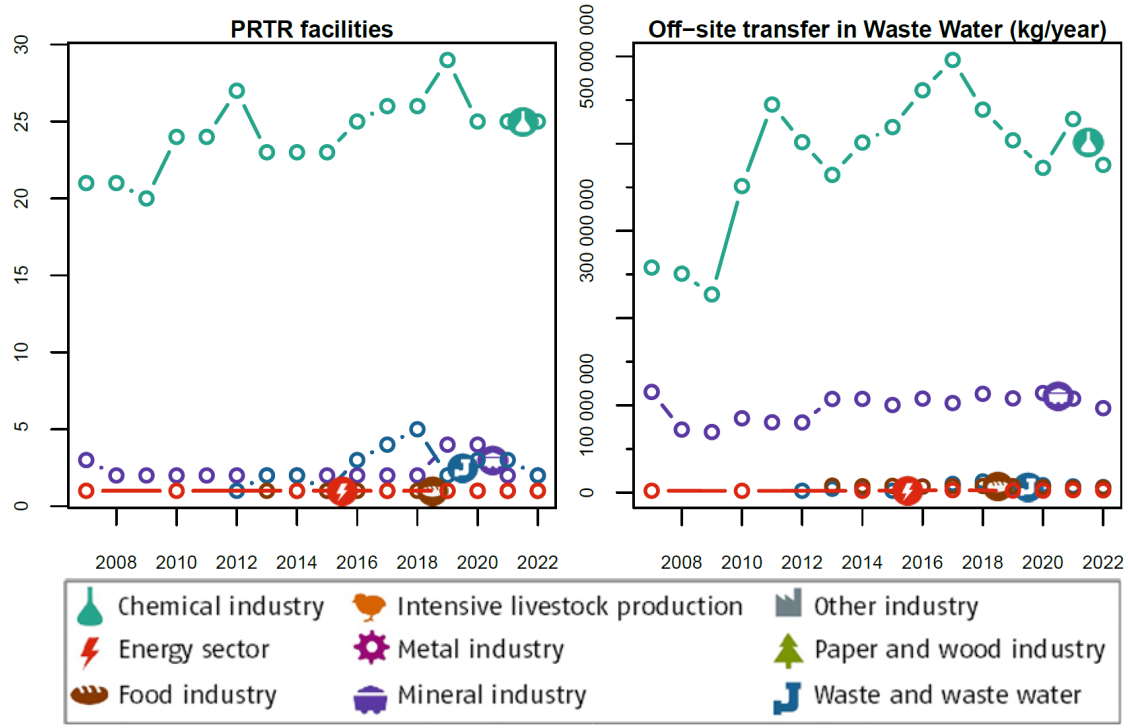
3.5 Chlorides (as total Cl)

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 73: For the reporting year 2022 -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	25	78.1	375 670 000	76.8
Mineral industry	2	6.25	96 790 000	19.8
Waste and waste water management	2	6.25	6 330 000	1.29
Food industry	1	3.12	5 720 000	1.17
Energy sector	1	3.12	2 590 000	0.529
Paper- and wood industry	1	3.12	2 260 000	0.462
Total	**32**	**100**	**489 360 000**	**100**

Figure 73: 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 2022.



Source: own illustration, Umweltbundesamt

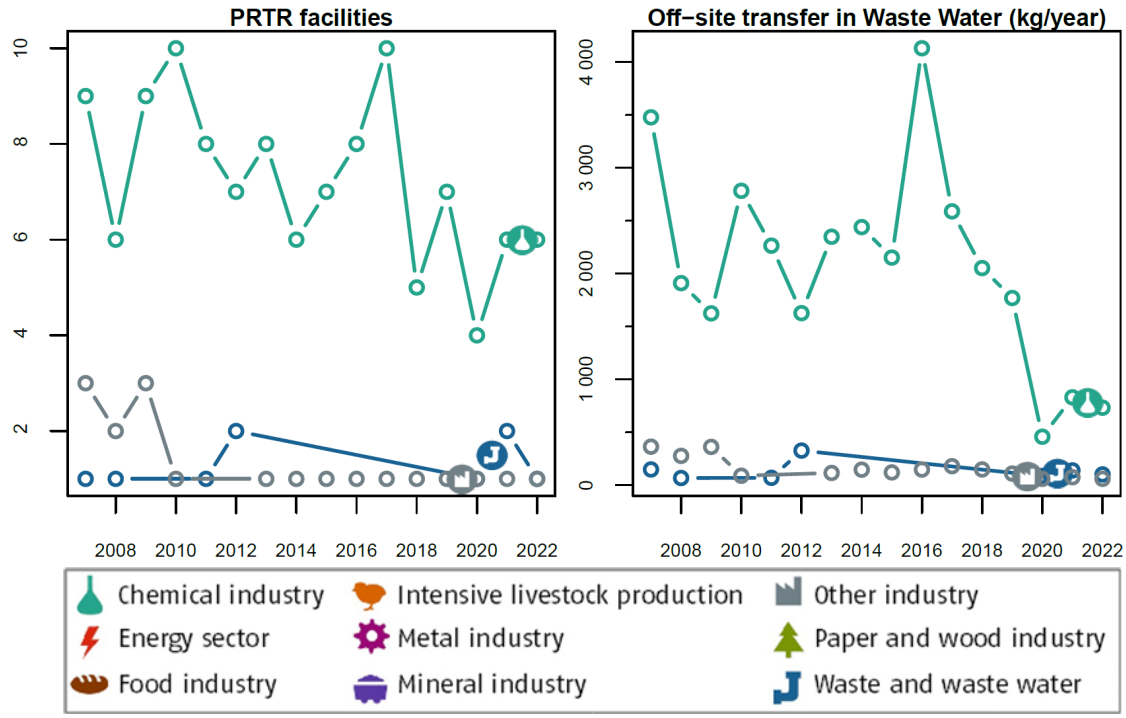
3.6 Chromium and compounds (as Cr)

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 74: For the reporting year 2022 -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	6	75.0	732	82
Waste and waste water management	1	12.5	101	11.3
Other industry	1	12.5	59.5	6.67
Total	**8**	**100**	**892**	**100**

Figure 74: 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 2022.



Source: own illustration, Umweltbundesamt

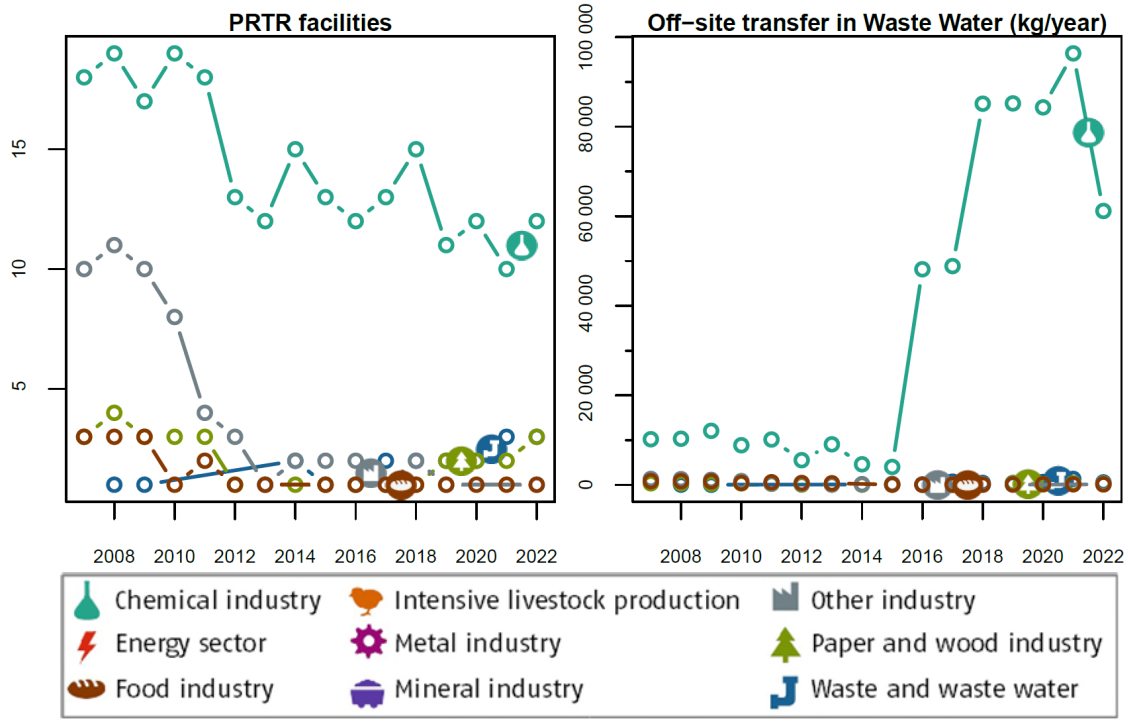
3.7 Copper and compounds (as Cu)

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 75: For the reporting year 2022 -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	61 180	98
Waste and waste water management	3	14.3	570	0.913
Paper- and wood industry	3	14.3	316	0.505
Other industry	1	4.76	148	0.237
Food industry	1	4.76	135	0.216
Metal industry	1	4.76	69	0.111
Total	**21**	**100**	**62 417**	**100**

Figure 75: 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 2022.



Source: own illustration, Umweltbundesamt

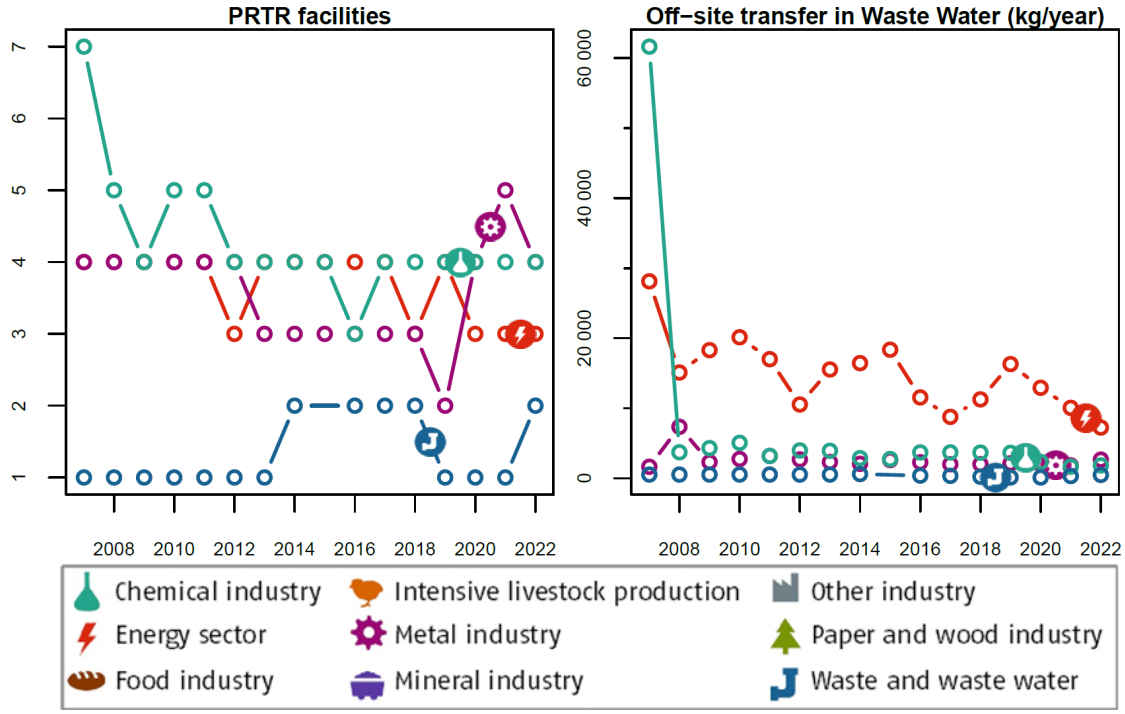
3.8 Cyanides (as total CN)

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 76: For the reporting year 2022 -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	23.1	7 238	59.3
Metal industry	4	30.8	2 657	21.8
Chemical industry	4	30.8	1 830	15
Waste and waste water management	2	15.4	477	3.91
Total	**13**	**100**	**12 202**	**100**

Figure 76: 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 2022.



Source: own illustration, Umweltbundesamt

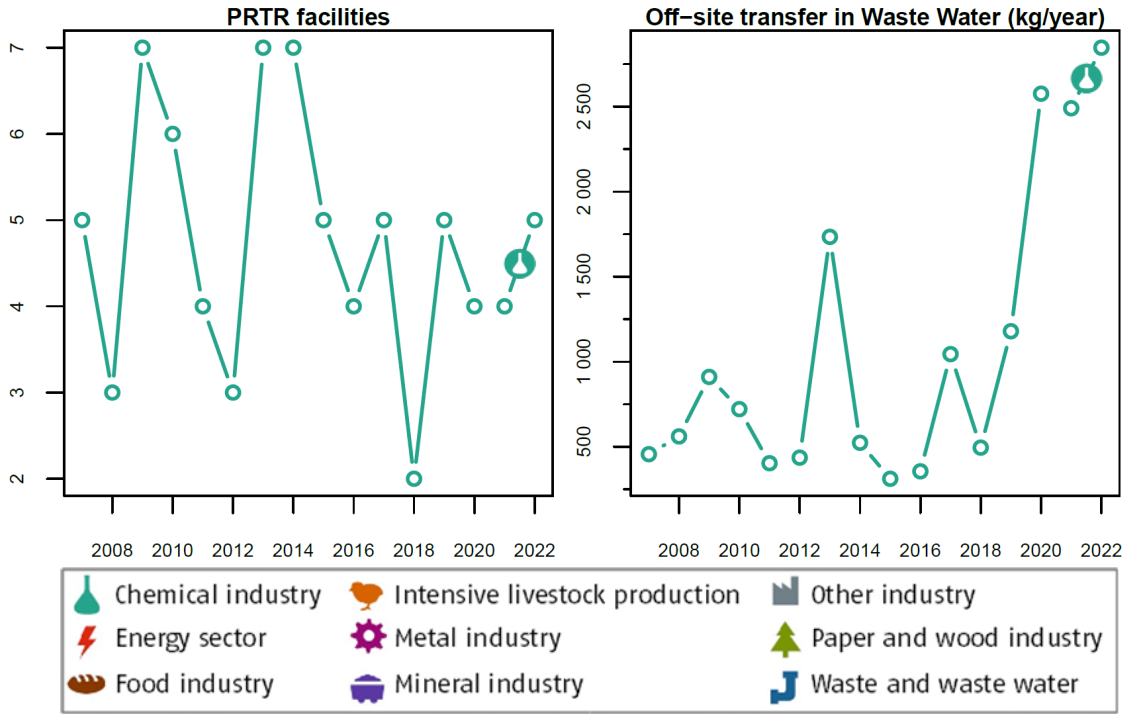
3.9 Dichloromethane (DCM)

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 77: For the reporting year 2022 -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	5	100	2 846	100
Total	**5**	**100**	**2 846**	**100**

Figure 77: 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 2022.



Source: own illustration, Umweltbundesamt

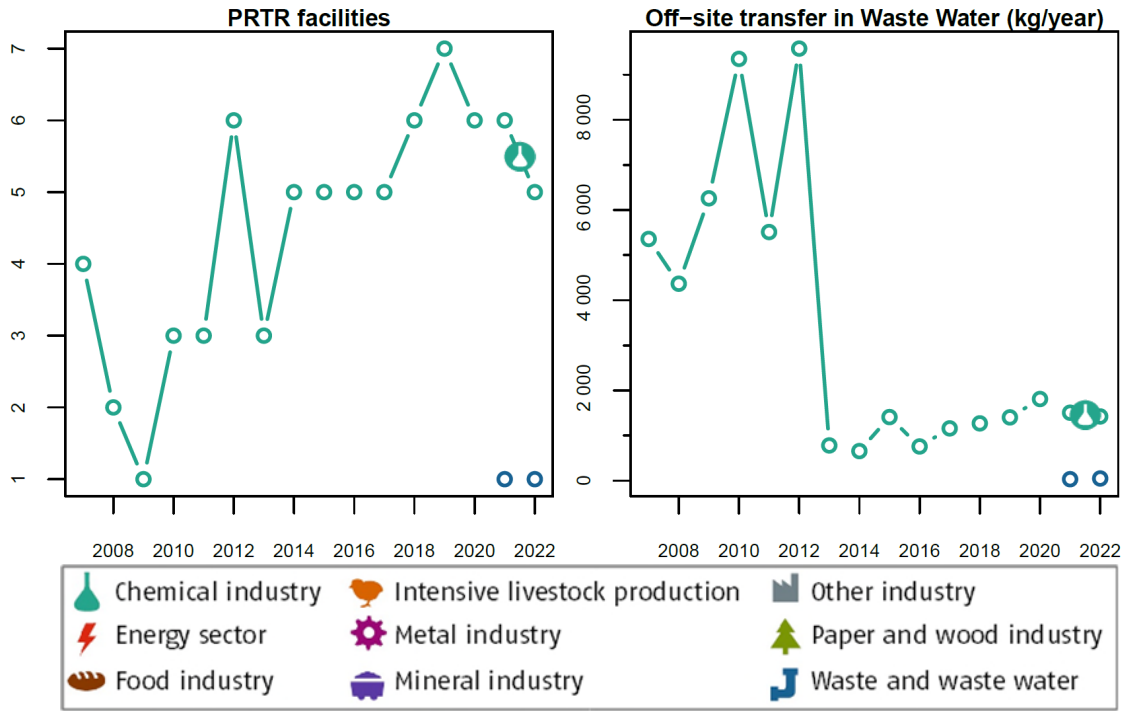
3.10 Ethyl benzene

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 78: For the reporting year 2022 -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	5	83.3	1 425	96.6
Waste and waste water management	1	16.7	50	3.39
Total	**6**	**100**	**1 475**	**100**

Figure 78: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant "Ethyl benzene", each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

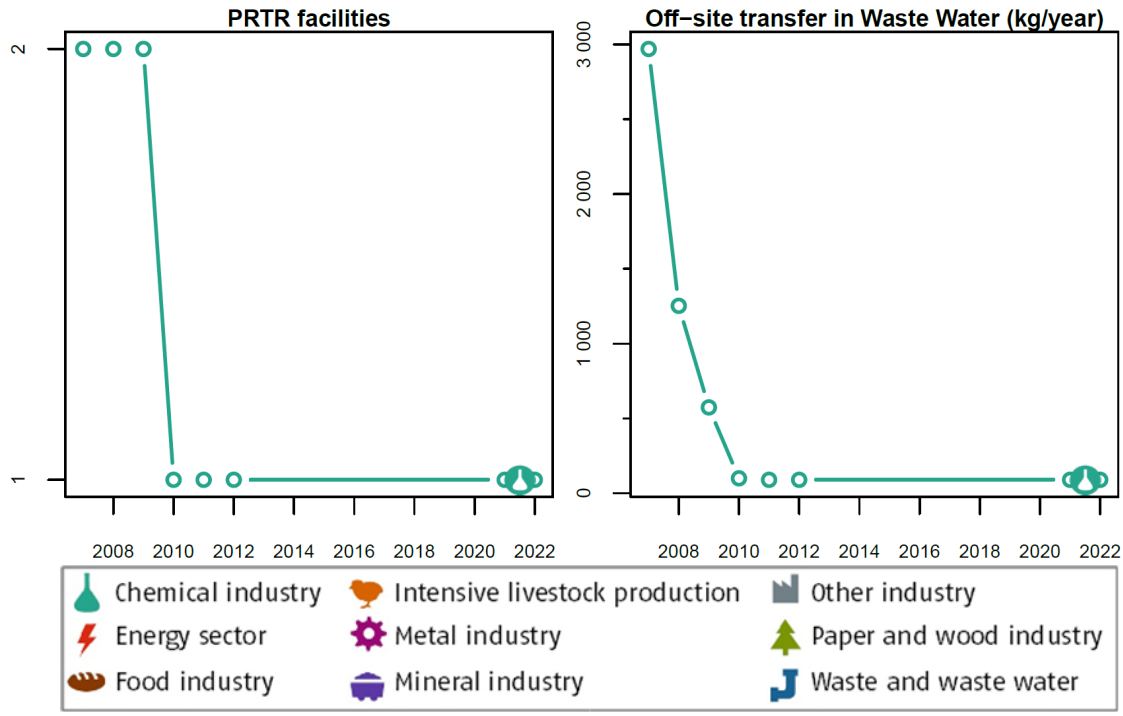
3.11 Ethylene oxide

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 79: For the reporting year 2022 -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 79: 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 2022.



Source: own illustration, Umweltbundesamt

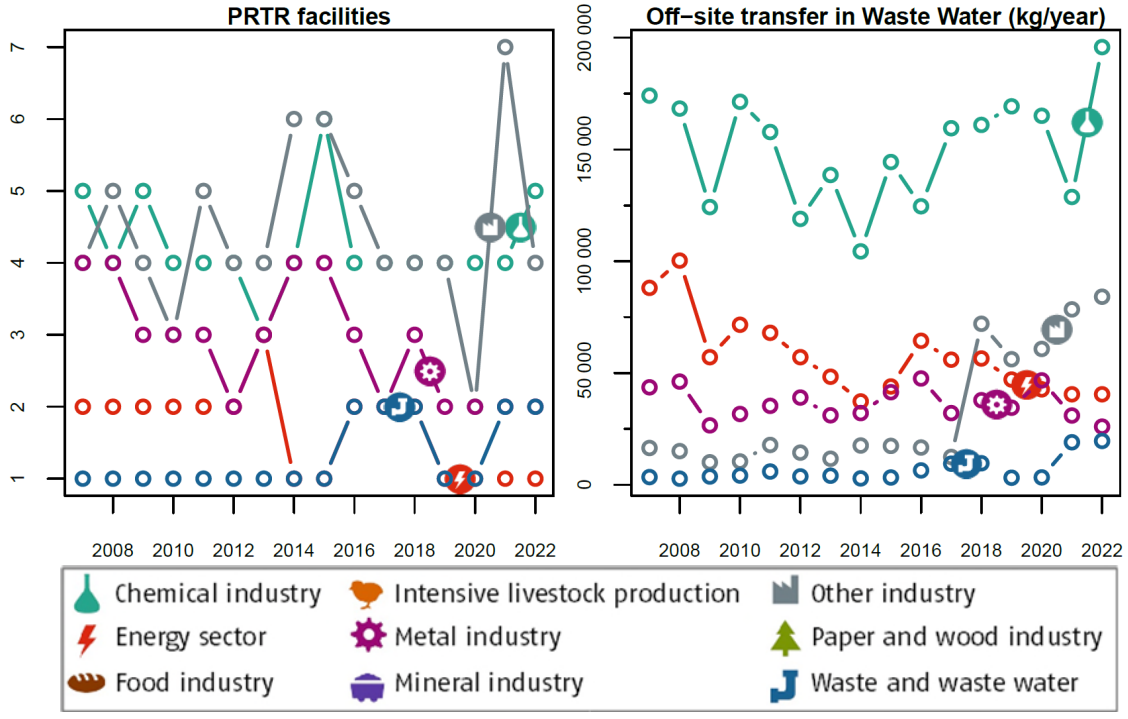
3.12 Fluorides (as total F)

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 80: For the reporting year 2022 -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	5	35.7	195 800	53.5
Other industry	4	28.6	84 140	23
Energy sector	1	7.14	40 500	11.1
Metal industry	2	14.3	26 040	7.11
Waste and waste water management	2	14.3	19 620	5.36
Total	**14**	**100**	**366 100**	**100**

Figure 80: 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 2022.



Source: own illustration, Umweltbundesamt

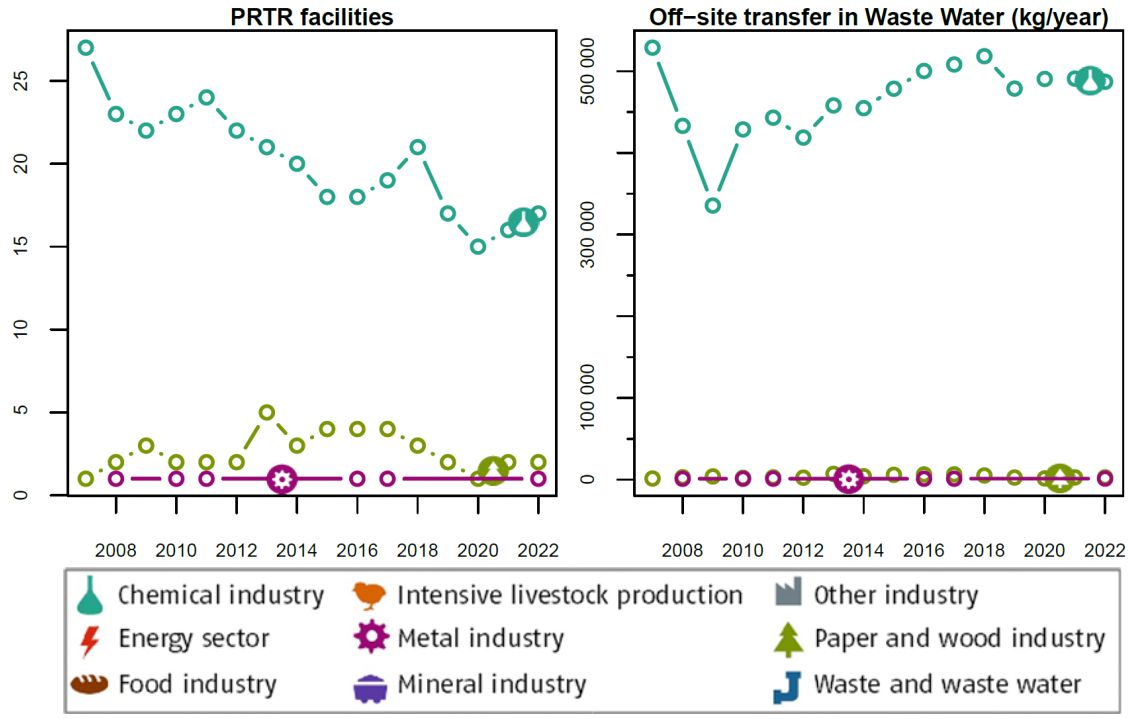
3.13 Halogenated organic compounds (as AOX)

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 81: For the reporting year 2022 -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	85	487 070	99.2
Paper- and wood industry	2	10	2 780	0.566
Metal industry	1	5	1 210	0.246
Total	**20**	**100**	**491 060**	**100**

Figure 81: 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 3 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

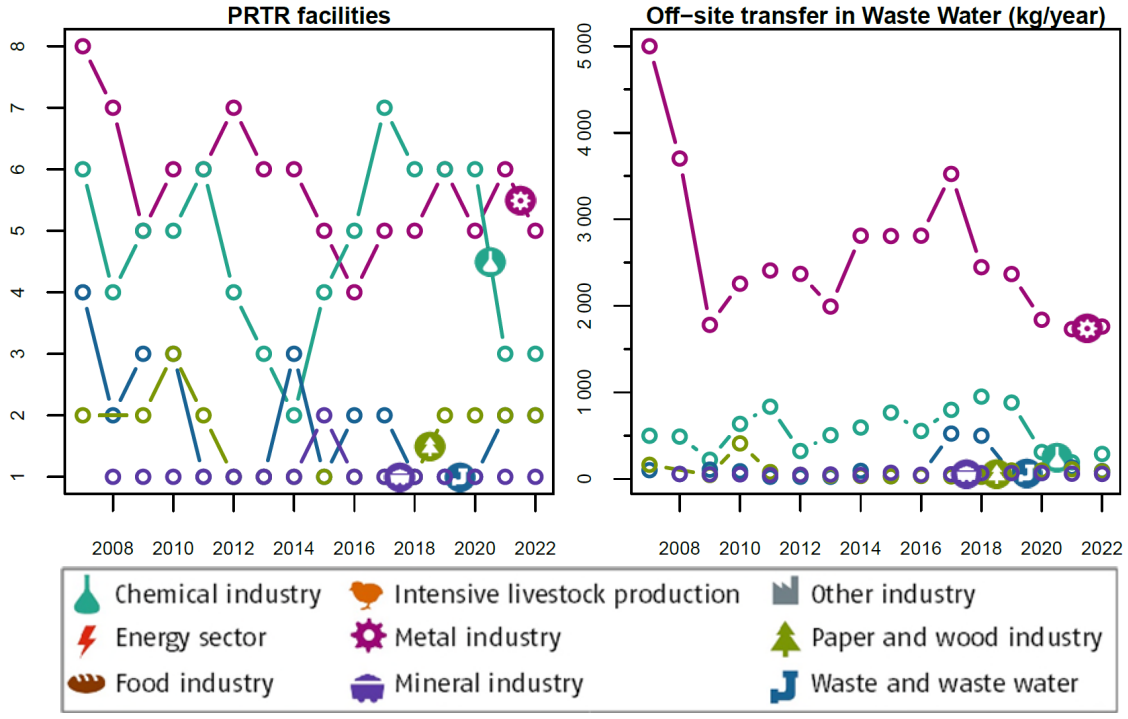
3.14 Lead and compounds (as Pb)

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 82: For the reporting year 2022 -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	35.7	1 761	75.5
Chemical industry	3	21.4	289	12.4
Waste and waste water management	2	14.3	92.3	3.96
Paper- and wood industry	2	14.3	87.9	3.77
Mineral industry	1	7.14	58.7	2.52
Energy sector	1	7.14	43	1.84
Total	**14**	**100**	**2 332**	**100**

Figure 82: 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 2022.



Source: own illustration, Umweltbundesamt

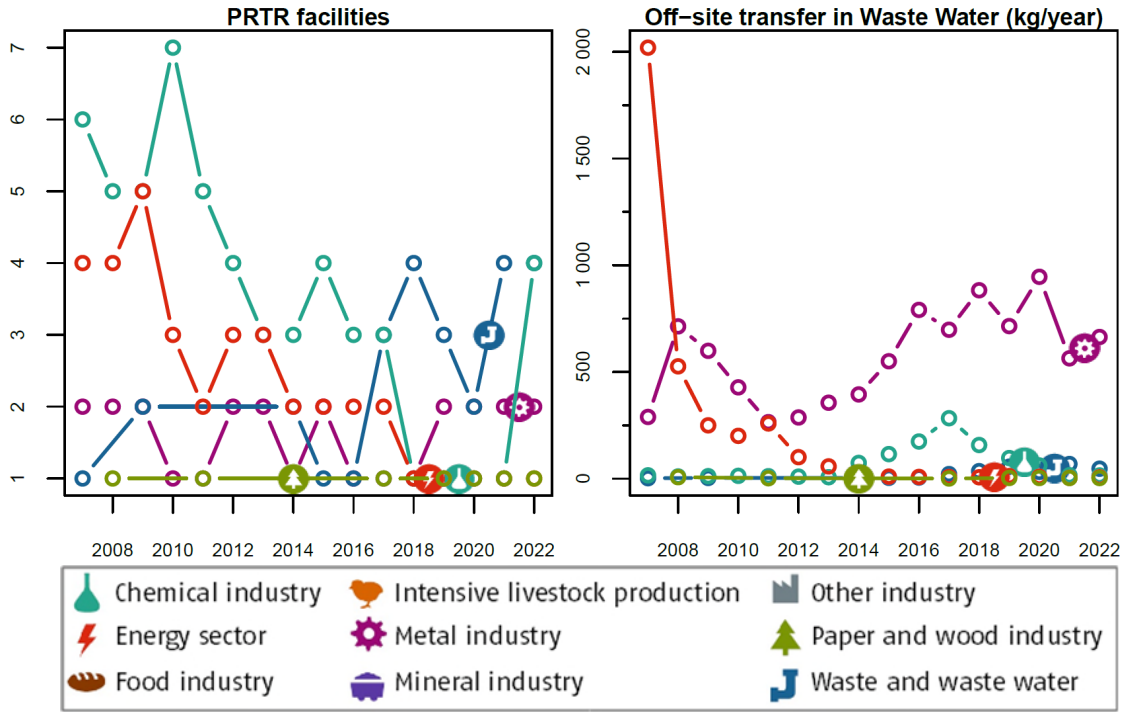
3.15 Mercury and compounds (as Hg)

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 83: For the reporting year 2022 -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	664	90.2
Waste and waste water management	4	33.3	47	6.39
Chemical industry	4	33.3	15.1	2.05
Energy sector	1	8.33	6.56	0.891
Paper- and wood industry	1	8.33	3.3	0.448
Total	**12**	**100**	**736**	**100**

Figure 83: 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 2022.



Source: own illustration, Umweltbundesamt

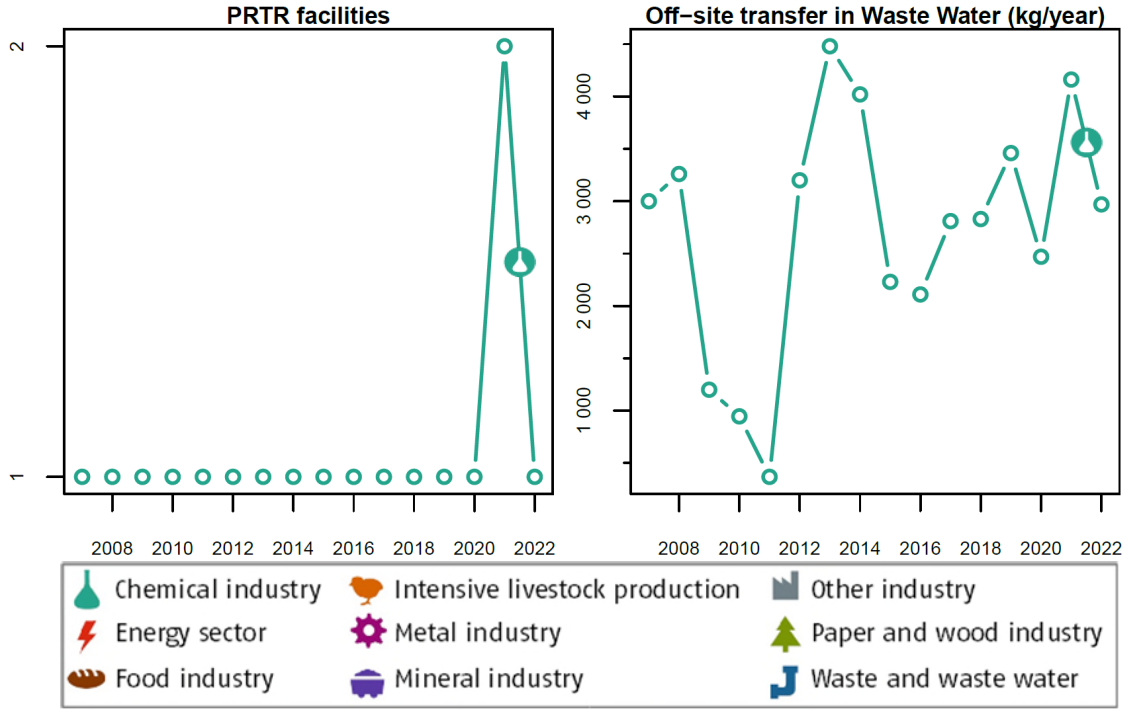
3.16 Naphthalene

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 84: For the reporting year 2022 -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	2 970	100
Total	**1**	**100**	**2 970**	**100**

Figure 84: 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 2022.



Source: own illustration, Umweltbundesamt

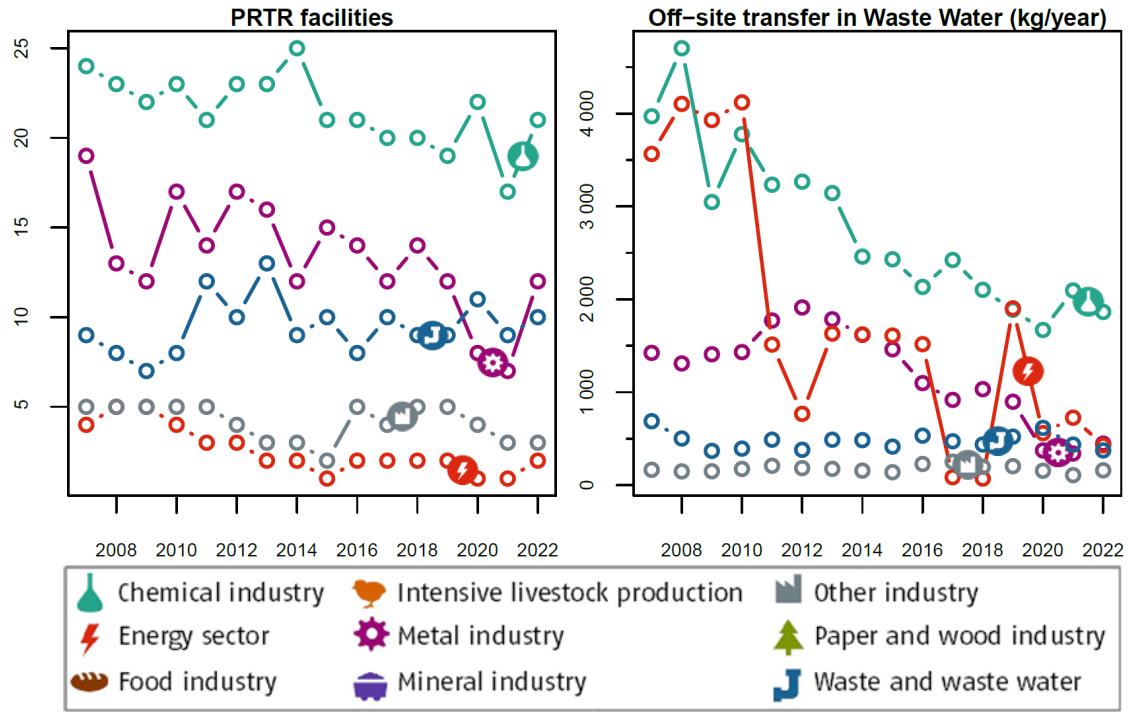
3.17 Nickel and compounds (as Ni)

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 85: For the reporting year 2022 -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	21	39.6	1 864	52.8
Metal industry	12	22.6	447	12.7
Energy sector	2	3.77	429	12.1
Waste and waste water management	10	18.9	374	10.6
Other industry	3	5.66	160	4.52
Paper- and wood industry	3	5.66	134	3.81
Mineral industry	1	1.89	84	2.38
Food industry	1	1.89	38.8	1.1
Total	**53**	**100**	**3 531**	**100**

Figure 85: 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 2022.



Source: own illustration, Umweltbundesamt

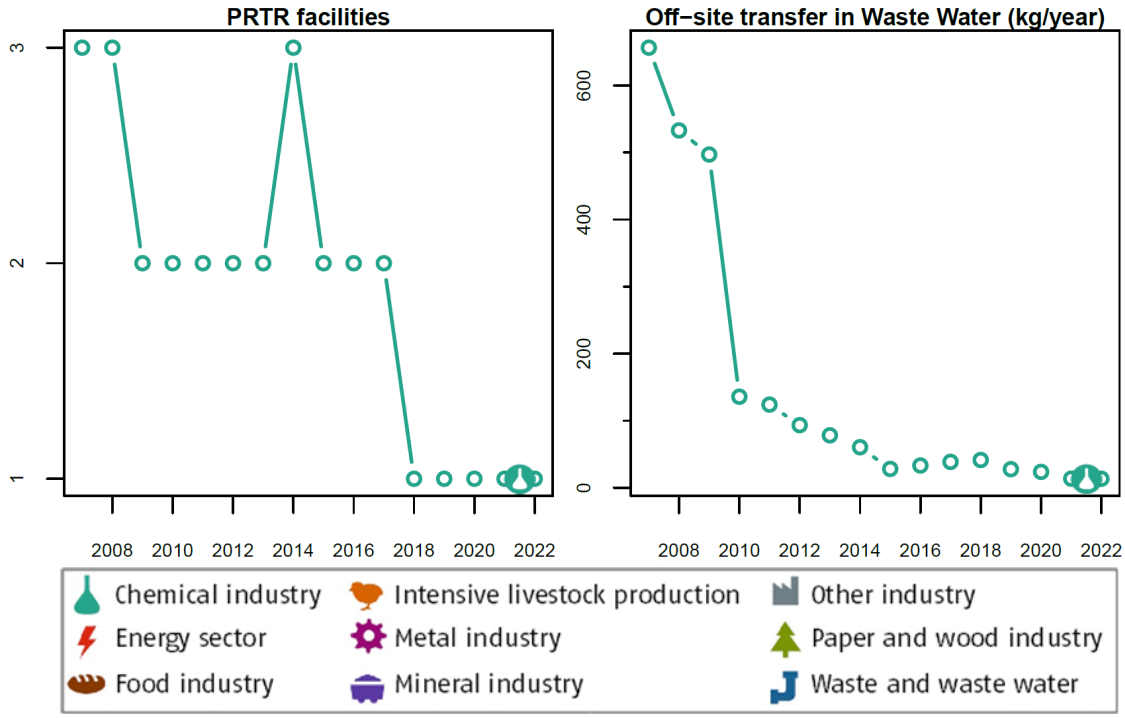
3.18 Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)

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 86: For the reporting year 2022 -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	1	100	13.4	100
Total	**1**	**100**	**13.4**	**100**

Figure 86: 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 2022.



Source: own illustration, Umweltbundesamt

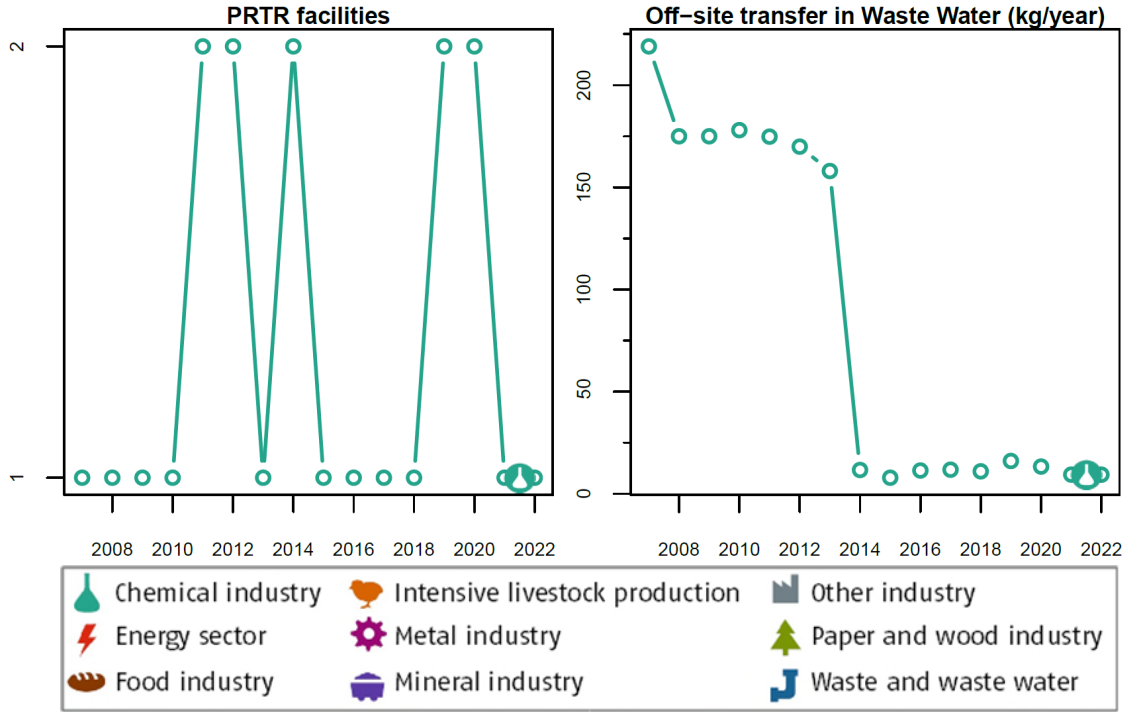
3.19 Octylphenols and Octylphenol ethoxylates

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 87: For the reporting year 2022 -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	9.37	100
Total	**1**	**100**	**9.37**	**100**

Figure 87: 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 2022.



Source: own illustration, Umweltbundesamt

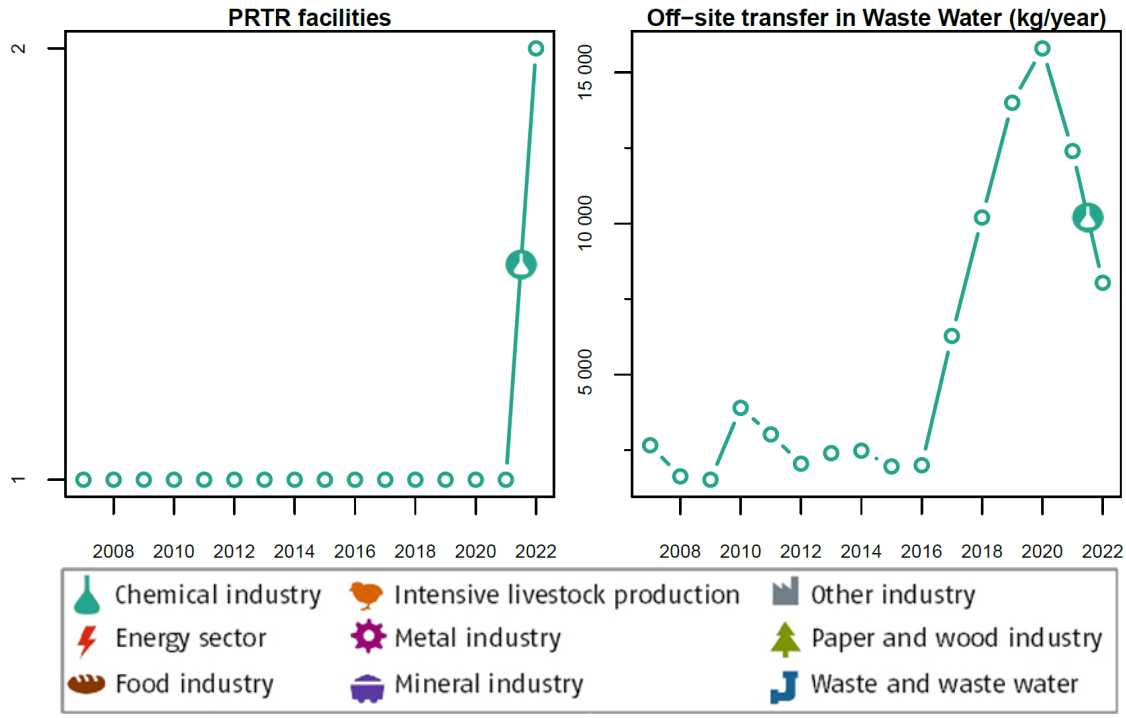
3.20 Organotin compounds (as total Sn)

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 88: For the reporting year 2022 -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	2	100	8 040	100
Total	**2**	**100**	**8 040**	**100**

Figure 88: 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 2022.



Source: own illustration, Umweltbundesamt

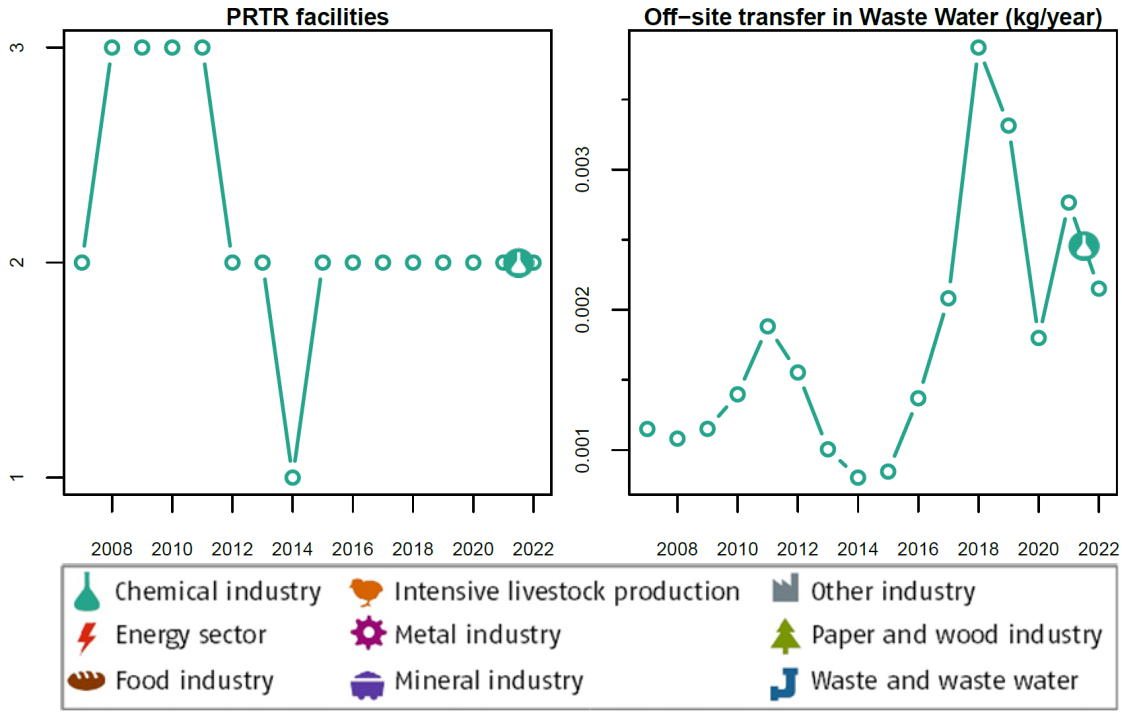
3.21 PCDD + PCDF (dioxins + furans) (as Teq)

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 89: For the reporting year 2022 -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	0.00215	100
Total	**2**	**100**	**0.00215**	**100**

Figure 89: 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 2022.



Source: own illustration, Umweltbundesamt

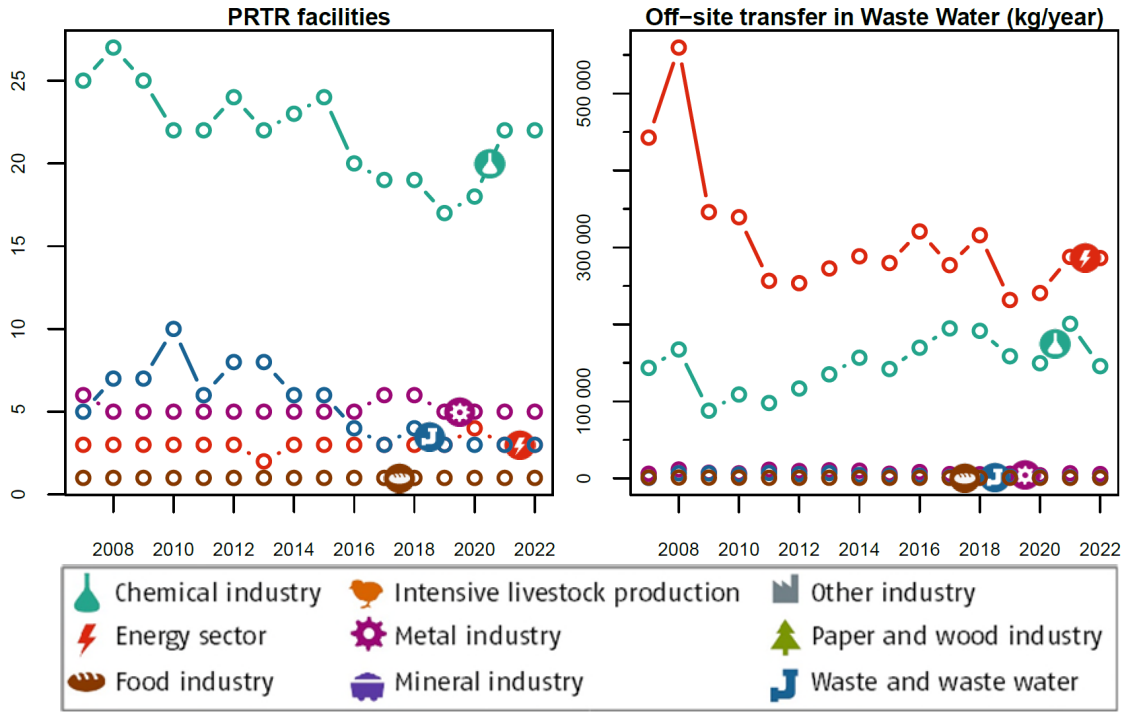
3.22 Phenols (as total C)

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 90: For the reporting year 2022 -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	8.33	286 206	65.1
Chemical industry	22	61.1	145 783	33.2
Metal industry	5	13.9	5 606	1.28
Waste and waste water management	3	8.33	1 115	0.254
Food industry	1	2.78	675	0.154
Other industry	2	5.56	71	0.0162
Total	**36**	**100**	**439 456**	**100**

Figure 90: 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 2022.



Source: own illustration, Umweltbundesamt

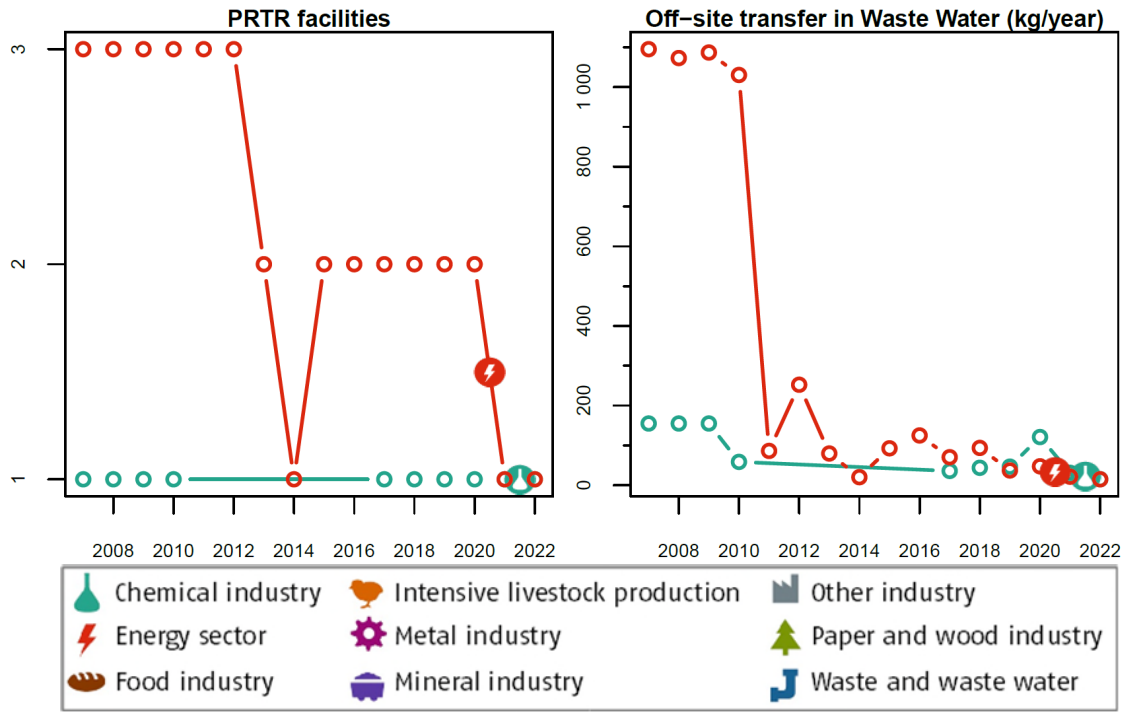
3.23 Polycyclic aromatic hydrocarbons (PAHs)

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 91: For the reporting year 2022 -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)	(%)
Chemical industry	1	50	15.2	50.5
Energy sector	1	50	14.9	49.5
Total	**2**	**100**	**30.1**	**100**

Figure 91: 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 2022.



Source: own illustration, Umweltbundesamt

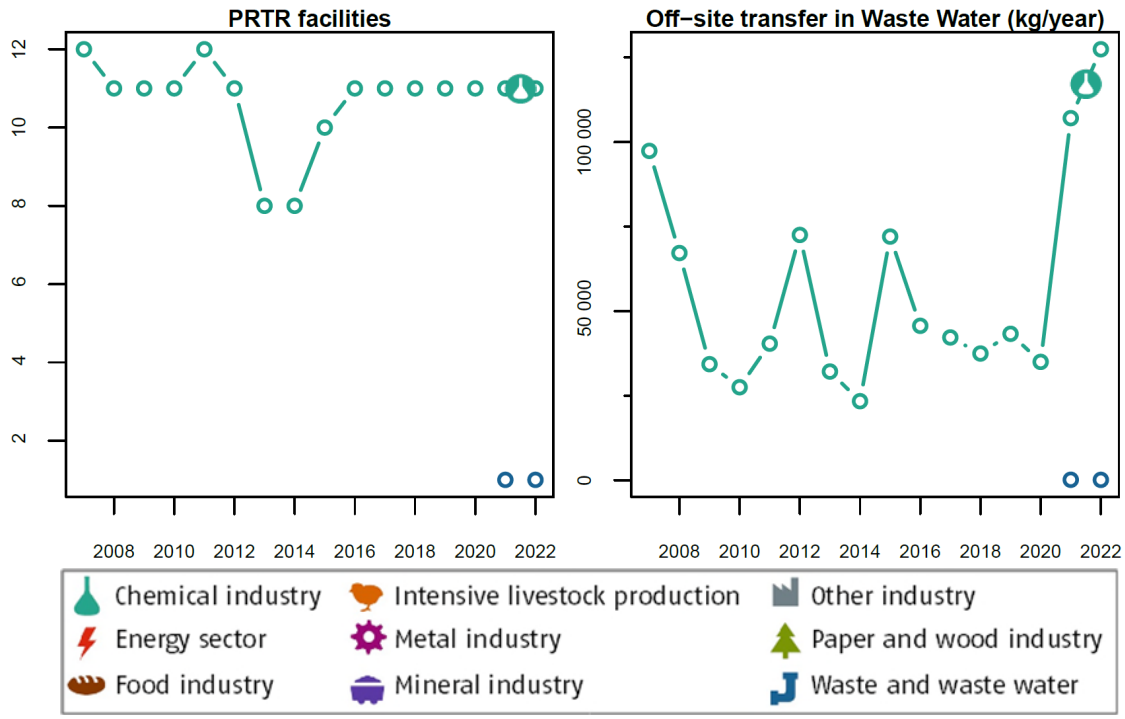
3.24 Toluene

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 92: For the reporting year 2022 -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	11	91.7	127 441	99.9
Waste and waste water management	1	8.33	102	0.08
Total	**11**	**100**	**127 543**	**100**

Figure 92: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant "Toluene", each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

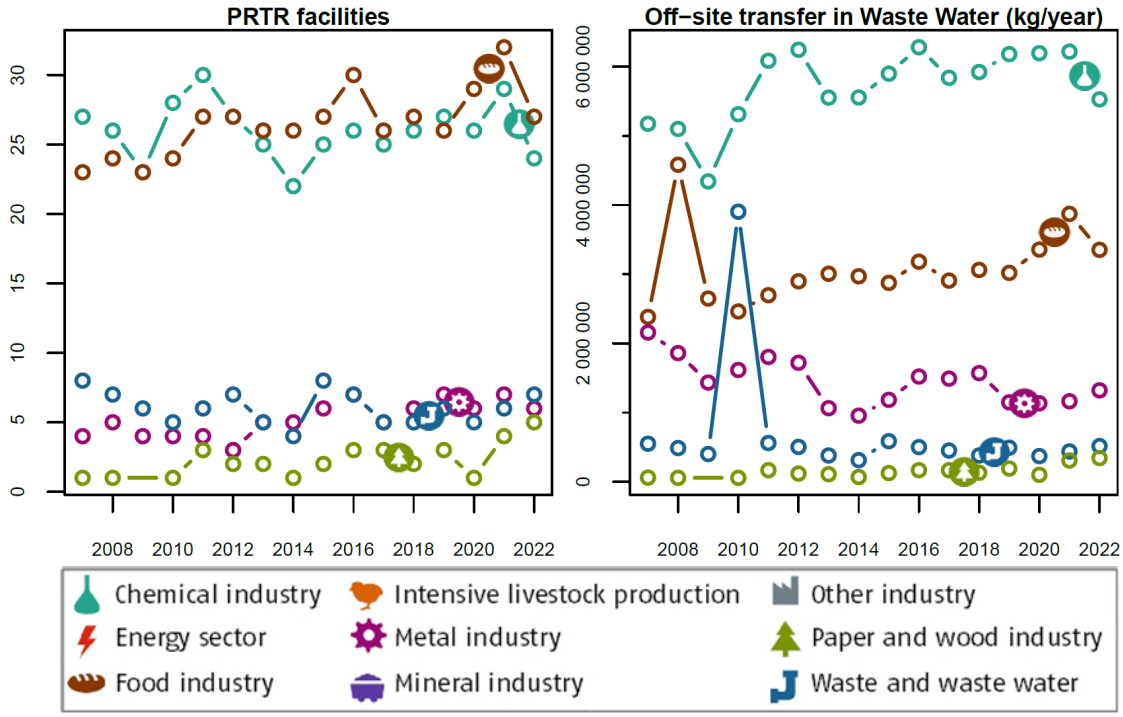
3.25 Total nitrogen

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 93: For the reporting year 2022 -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	24	32.9	5 528 300	49.0
Food industry	27	37	3 352 400	31.0
Metal industry	6	8.22	1 320 800	9.16
Waste and waste water management	7	9.59	514 900	3.44
Paper- and wood industry	5	6.85	342 000	2.41
Other industry	2	2.74	238 800	1.29
Energy sector	2	2.74	192 500	3.77
Total	**73**	**100**	**11 489 700**	**100**

Figure 93: 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 2022.



Source: own illustration, Umweltbundesamt

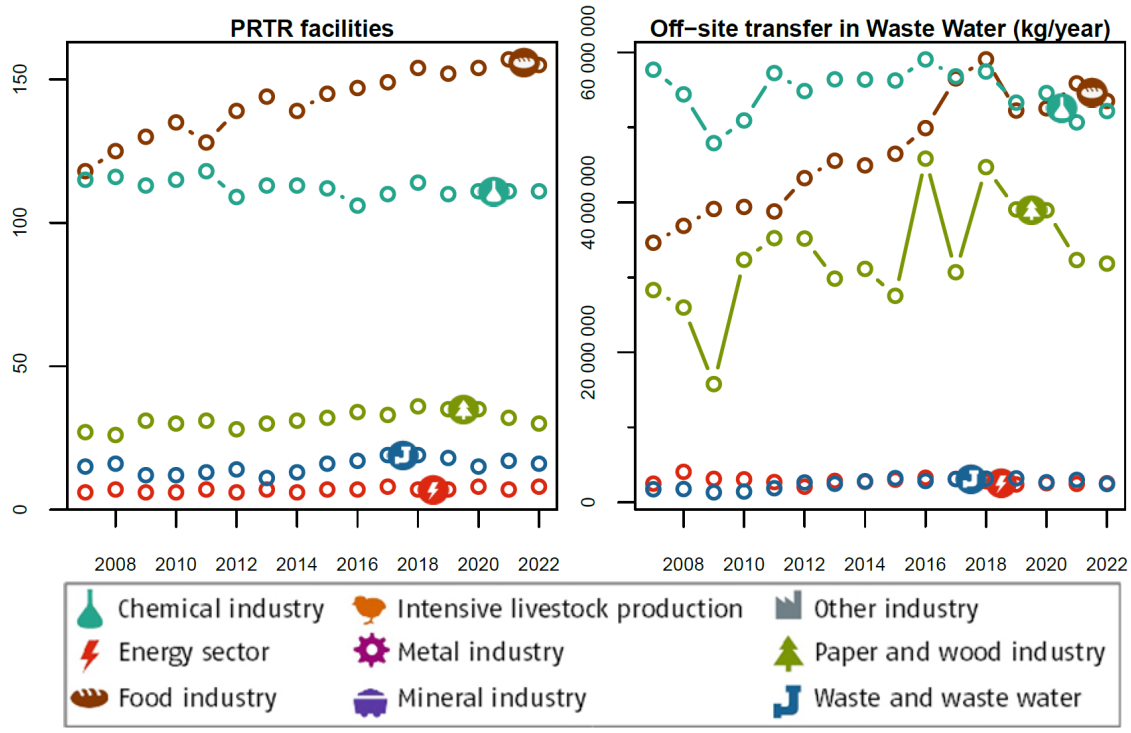
3.26 Total organic carbon (TOC) (as total C or COD/3)

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 94: For the reporting year 2022 -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	155	46.4	53 535 100	36.8
Chemical industry	111	33.2	52 191 500	35.9
Paper- and wood industry	30	8.98	31 844 700	21.9
Energy sector	8	2.4	2 546 100	1.75
Waste and waste water management	16	4.79	2 442 100	1.68
Other industry	9	2.69	2 271 000	1.56
Metal industry	5	1.5	743 800	0.511
Total	**334**	**100**	**145 574 300**	**100**

Figure 94: 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 2022.



Source: own illustration, Umweltbundesamt

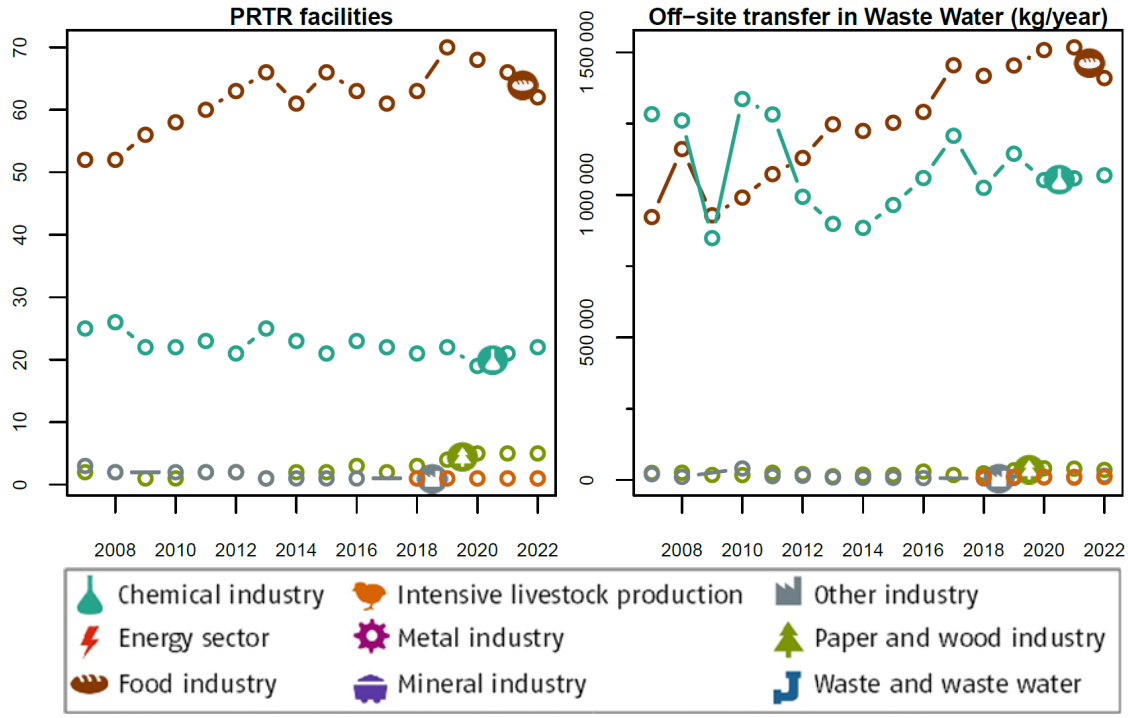
3.27 Total phosphorus

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 95: For the reporting year 2022 -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	62	66.7	1 409.800	55.2
Chemical industry	22	23.7	1 068 800	41.8
Paper- and wood industry	5	5.38	35 440	1.39
Other industry	1	1.08	15 100	0.591
Intensive livestock production and aquaculture	1	1.08	10 900	0.427
Waste and waste water management	1	1.08	8 450	0.331
Energy sector	1	1.08	5 740	0.225
Total	**93**	**100**	**2 554 230**	**100**

Figure 95: 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 2022.



Source: own illustration, Umweltbundesamt

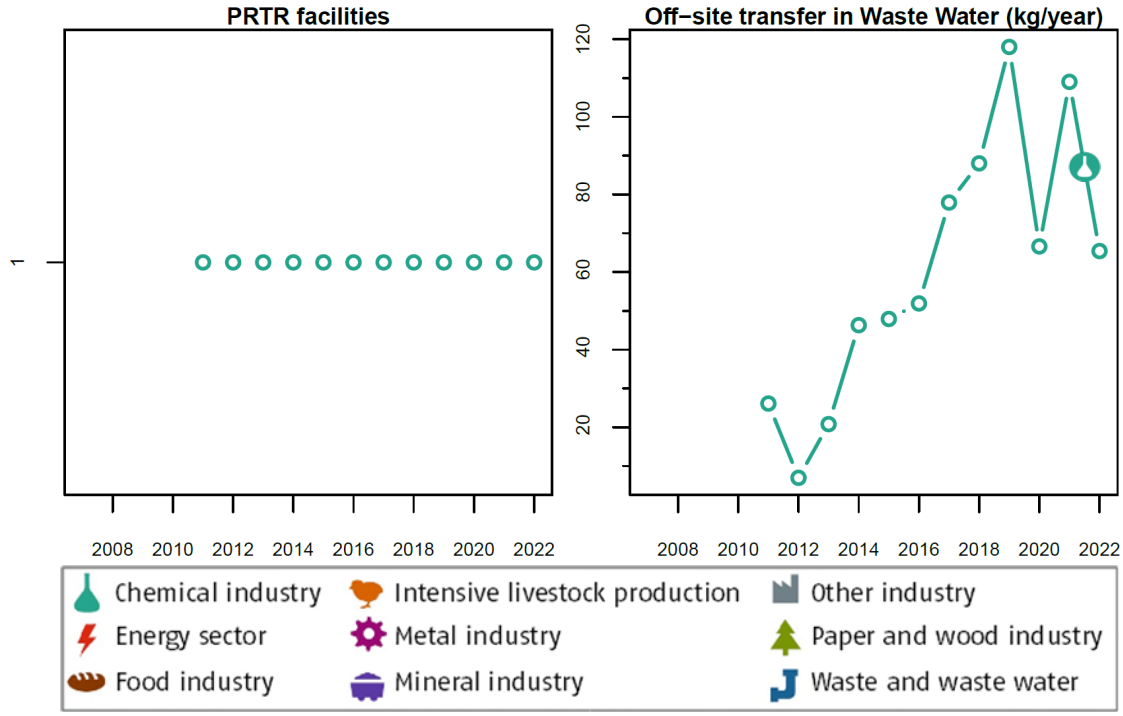
3.28 Trichlorobenzenes (TCBs) (all isomers)

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 96: For the reporting year 2022 -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	65.4	100
Total	**1**	**100**	**65.4**	**100**

Figure 96: 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 2022.



Source: own illustration, Umweltbundesamt

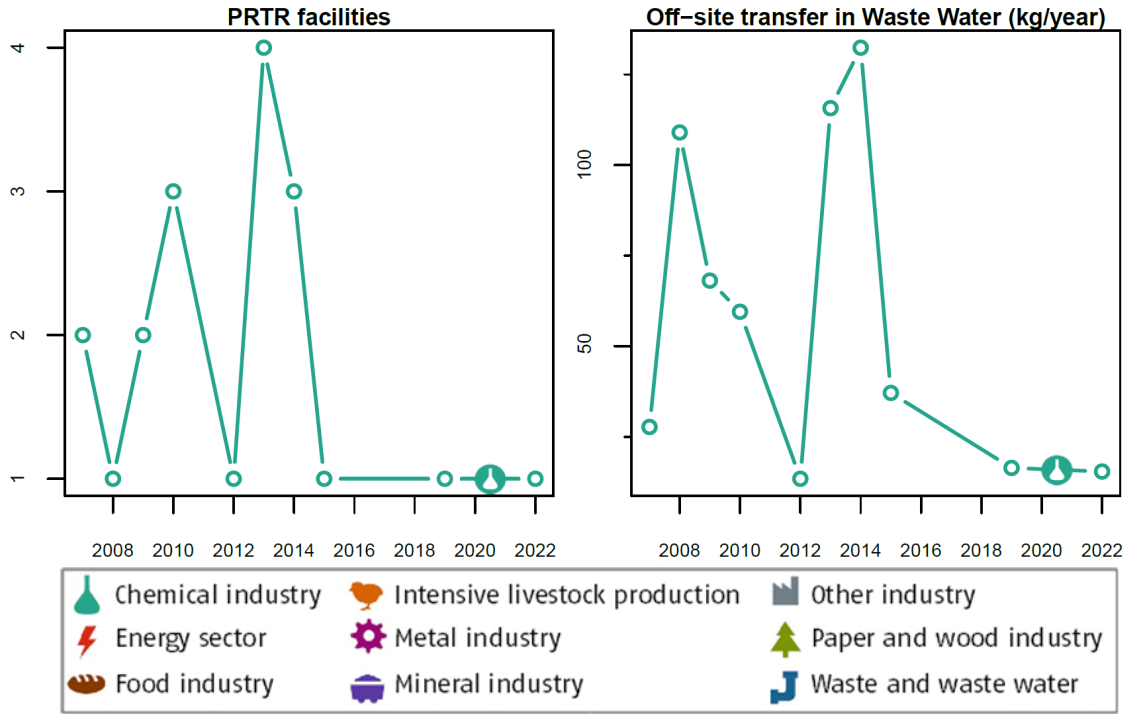
3.29 Trichloromethane

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 97: For the reporting year 2022 -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	15.4	100
Total	**1**	**100**	**15.4**	**100**

Figure 97: 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 2022.



Source: own illustration, Umweltbundesamt

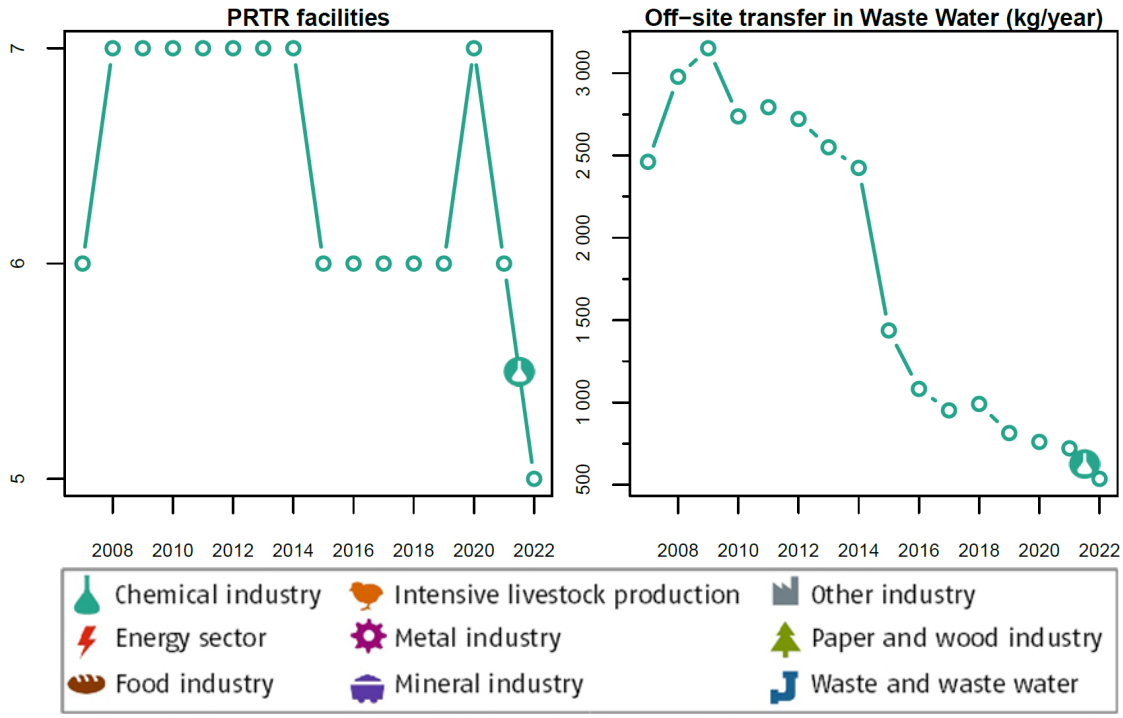
3.30 Vinyl chloride

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 98: For the reporting year 2022 -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	536	100
Total	**5**	**100**	**536**	**100**

Figure 98: 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 2022.



Source: own illustration, Umweltbundesamt

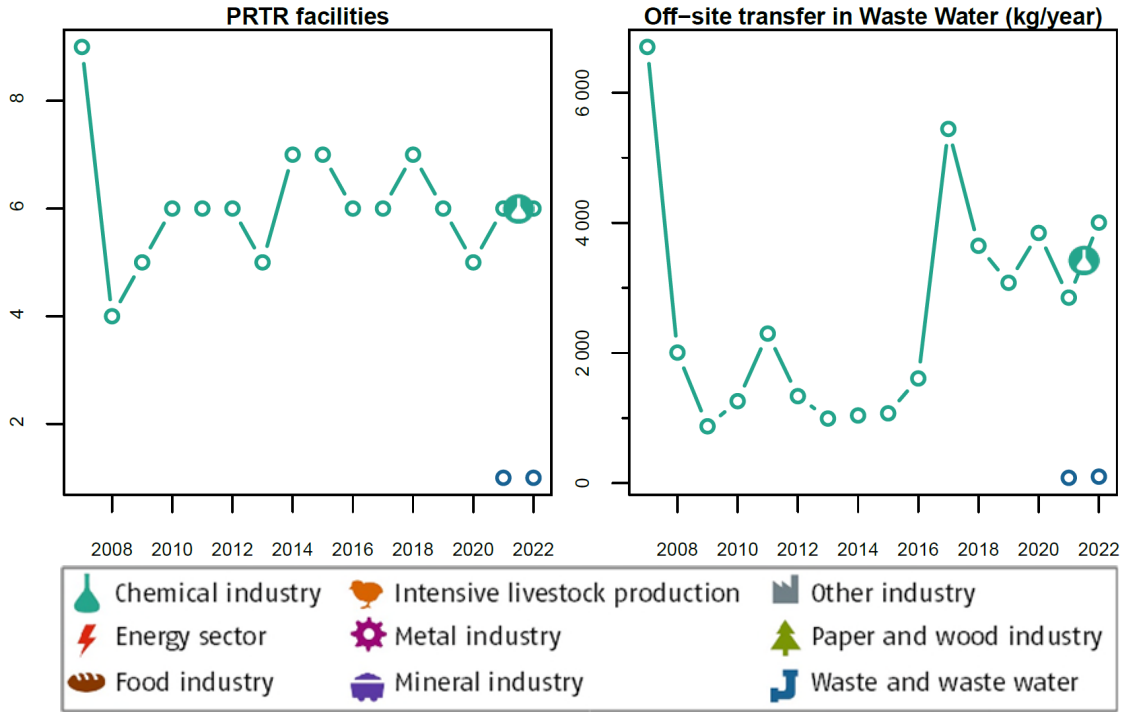
3.31 Xylenes

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 99: For the reporting year 2022 -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	85.7	4 004	97.6
Waste and waste water management	1	14.3	100	2.44
Total	**7**	**100**	**4 104**	**100**

Figure 99: Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant "Xylenes", each by the 2 industrial sector(s) with the highest emissions in the year 2022.



Source: own illustration, Umweltbundesamt

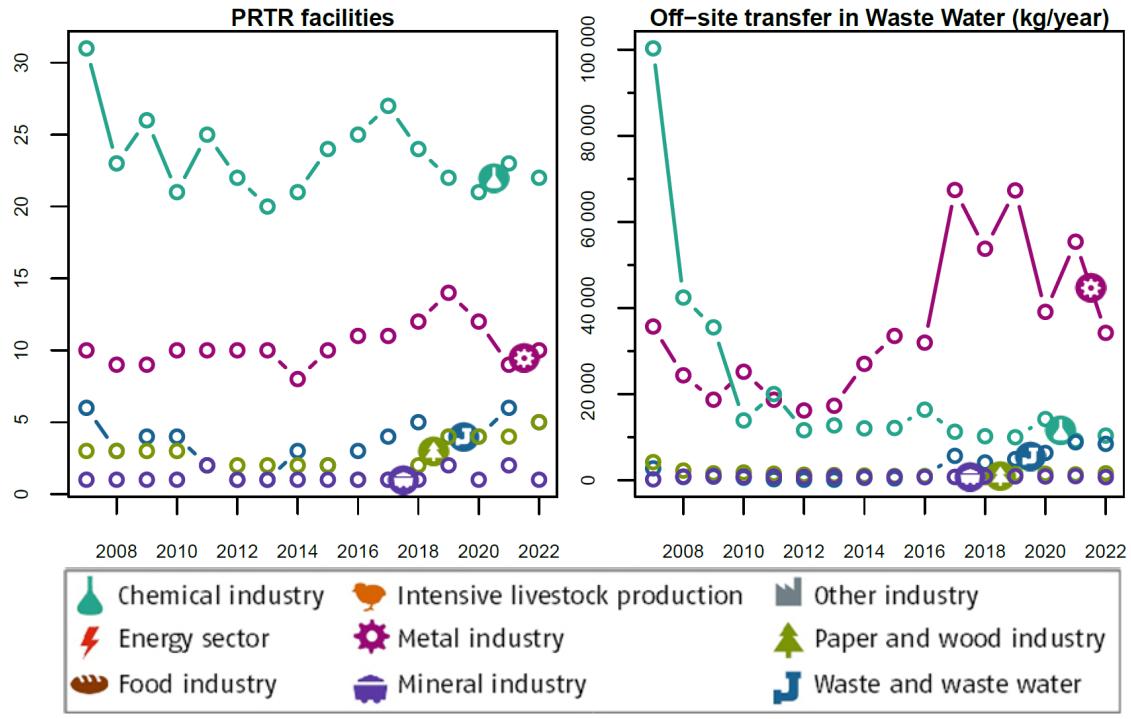
3.32 Zinc and compounds (as Zn)

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 100: For the reporting year 2022 -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	21.3	34 242	61.1
Chemical industry	22	46.8	10 383	18.5
Waste and waste water management	5	10.6	8 461	15.1
Paper- and wood industry	5	10.6	1 612	2.88
Mineral industry	1	2.13	730	1.3
Energy sector	1	2.13	233	0.416
Other industry	2	4.26	220	0.393
Food industry	1	2.13	132	0.236
Total	**47**	**100**	**56 013**	**100**

Figure 100: 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 2022.



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 coverd 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 (CH4)	100 000	(2)	-
2	630-08-0	Carbon monoxide (CO)	500 000	-	-
3	124-38-9	Carbon dioxide (CO2)	100 000 000	-	-
4		Hydro-fluorocarbons (HFCs) (3)	100	-	-
5	10024-97-2	Nitrous oxide (N2O)	10 000	-	-
6	7664-41-7	Ammonia (NH3)	10 000	-	-
7		Non-methane volatile organic compounds (NMVOC)	100 000	-	-
8		Nitrogen oxides (NOx/NO2)	100 000	-	-
9		Perfluorocarbons (PFCs) (4)	100	-	-
10	2551-62-4	Sulphur hexafluoride (SF6)	50	-	-
11		Sulphur oxides (SOx/SO2)	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 (asAs) (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	100-41-1	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).