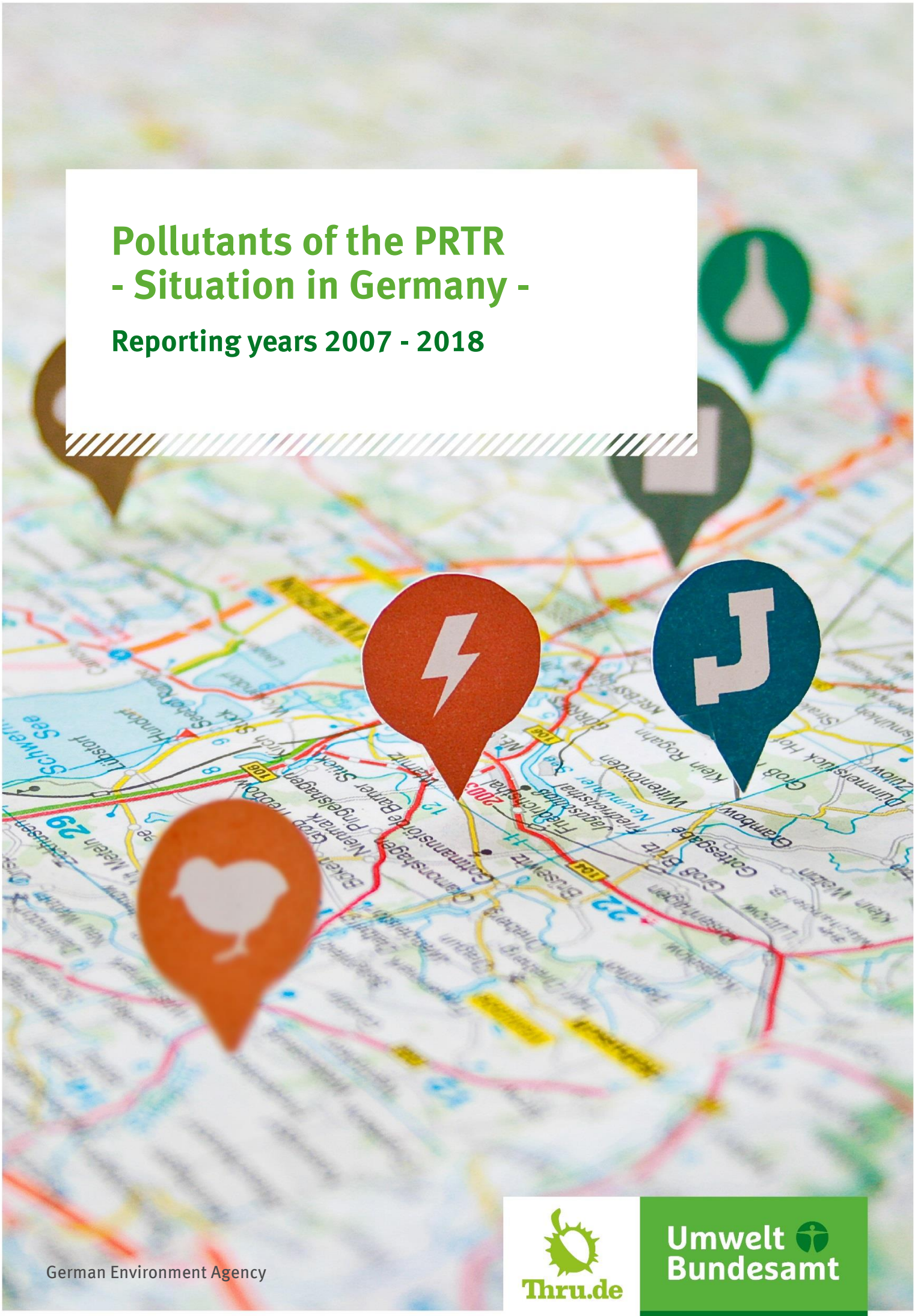
# Pollutants of the PRTR
# - Situation in Germany -

## Reporting years 2007 - 2018



German Environment Agency

Thru.de

Umwelt Bundesamt

# Imprint

**Publisher:**
Umweltbundesamt
Dept. III 2 “Sustainable Production,
Resource Conservation and Material Cycles”
Wörlitzer Platz 1
06844 Dessau-Roßlau
Germany
Tel: +49 340-2103-0
Fax: +49 340-2103-2285
info@umweltbundesamt.de
Internet: http://www.umweltbundesamt.de

/umweltbundesamt.de
/umweltbundesamt

**Image source:**
Titel page: Matthias Honert
Introduction: Robert Göckeritz (UBA), Falk Hilliges (UBA)

**Date of creation:**
2020-06-04

**Edited by:**
Robert Göckeritz (UBA), Sabine Grimm (UBA), Ulrike Schüler (UBA)

**Conception and realisation of first edition 2017:**
Robert Göckeritz (UBA), Joachim Heidemeier (UBA), Falk Hilliges (UBA)

# Contents

# 1 Introduction

Germany, as well as the European Union and its Member States signed the UN ECE PRTR Protocol[1] requiring 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)[2] and the German PRTR-Gesetz (SchadRegProtAG)[3]. The PRTR compiles annual releases of pollutants into the air, water, land and the off-site transfers in waste water[4] and the off-site transfer of hazardous and non-hazardous waste stemming from certain industrial activities. A report about these releases becomes due, if the applicable tresholds for releases or waste were exceeded[5]. The E-PRTR Regulation lists 91 pollutants[6]. German PRTR data are regularly published on the Internet www.thru.de.


The present volume contains a brief overview of each pollutant listed in the Regulation. Details are compiled in tables and figures grouped according to the releases into the 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[7]. The table shows a subdivision of total amounts of pollutants by industrial sectors[8] 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.

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[9]. Information about the European PRTR is available at http://prtr.ec.europa.eu.

This volume is updated regularly as new data becomes available. All numbers are given with at least 3 significant digits. Please send questions or feedback to mail(at)thru.de.

[1] https://www.unece.org/fileadmin/DAM/PRTR_Protocol_e.pdf
[2] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:033:0001:0017:EN:PDF
[3] http://www.gesetze-im-internet.de/bundesrecht/schadregprot/gesamt.pdf
[4] https://wiki.prtr.bund.de/wiki/Definitionen#Verbringung_von_Abwasser_au.C3.9Ferhalb_des_Standortes
[5] http://www.thru.de/fileadmin/SITE_MASTER/content/Dokumente/Downloads/E_PRTR_VO_Anhang_II.pdf
[6] https://www.thru.de/3/thrude/knowledge/pollutants-waste-industrial-sectors
[7] https://wiki.prtr.bund.de/wiki/Definitionen#Freisetzungen_in_den_Boden
[8] https://www.thru.de/3/thrude/knowledge/pollutants-waste-industrial-sectors/
[9] http://www.thru.de/thrude/downloads/

# 2 Releases to air, water and land

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

## 2.1 1,1,1-trichloroethane

### 2.1.1 Releases to Air

The threshold is **100 kg "1,1,1-trichloroethane" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 1 | 100 | 121 | 100 |
| **TOTAL** | 1 | 100 | 121 | 100 |

**Table 1:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"1,1,1-trichloroethane"** to **Air** of the different industrial sectors including the corresponding shares.

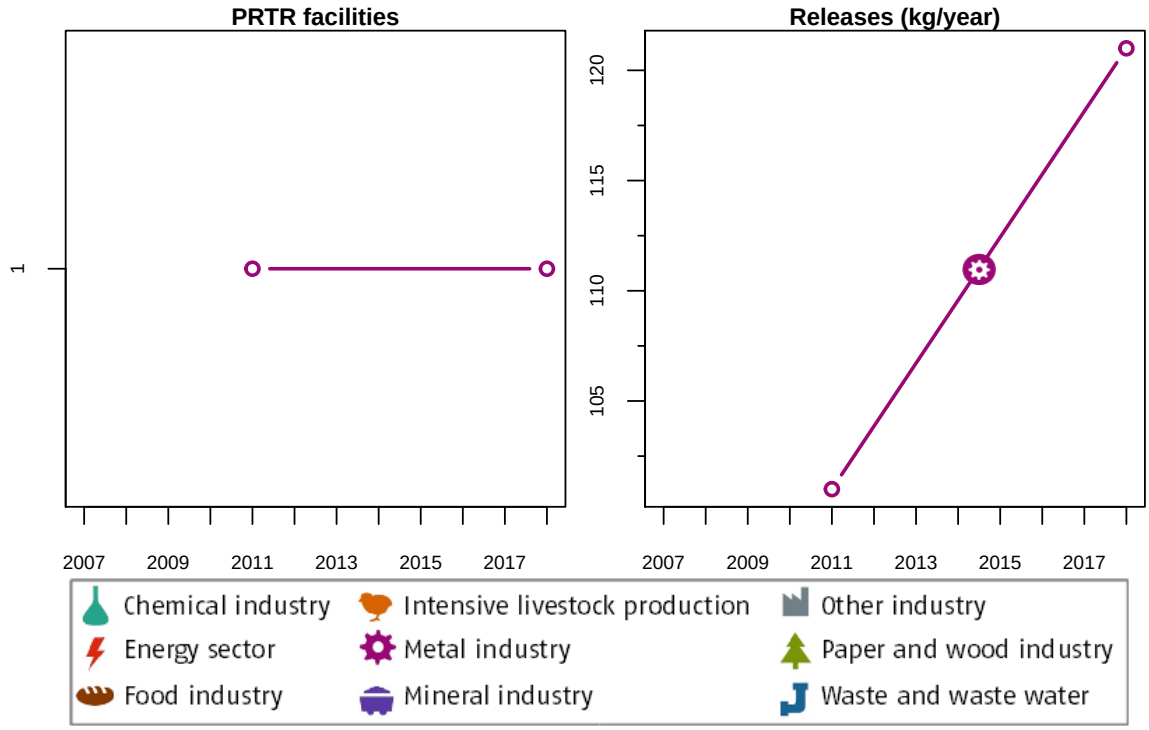



**Figure 1:** Annual number of facilities (left) and their releases (right) of the pollutant **"1,1,1-trichloroethane"** to **Air**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.2 1,2-dichloroethane (DCE)

### 2.2.1 Releases to Air

The threshold is **1 000 kg "1,2-dichloroethane (DCE)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 3 | 75 | 237 760 | 98.3 |
| Energy sector | 1 | 25 | 4 130 | 1.71 |
| **TOTAL** | 4 | 100 | 241 890 | 100 |

**Table 2:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"1,2-dichloroethane (DCE)"** to **Air** of the different industrial sectors including the corresponding shares.

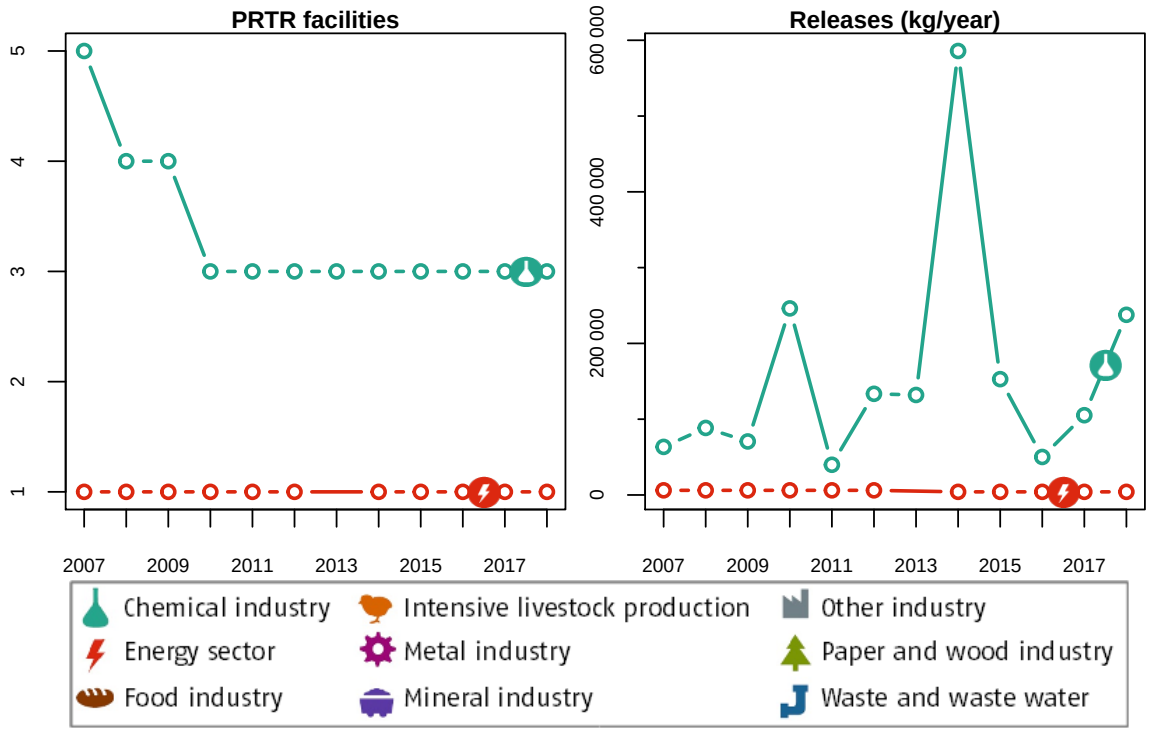



**Figure 2:** Annual number of facilities (left) and their releases (right) of the pollutant **"1,2-dichloroethane (DCE)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.2.2 Releases to Water

The threshold is **10 kg "1,2-dichloroethane (DCE)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 50 | 84 | 89.2 |
| Waste and waste water management | 1 | 50 | 10.2 | 10.8 |
| **TOTAL** | 2 | 100 | 94.2 | 100 |

**Table 3:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"1,2-dichloroethane (DCE)"** to **Water** of the different industrial sectors including the corresponding shares.

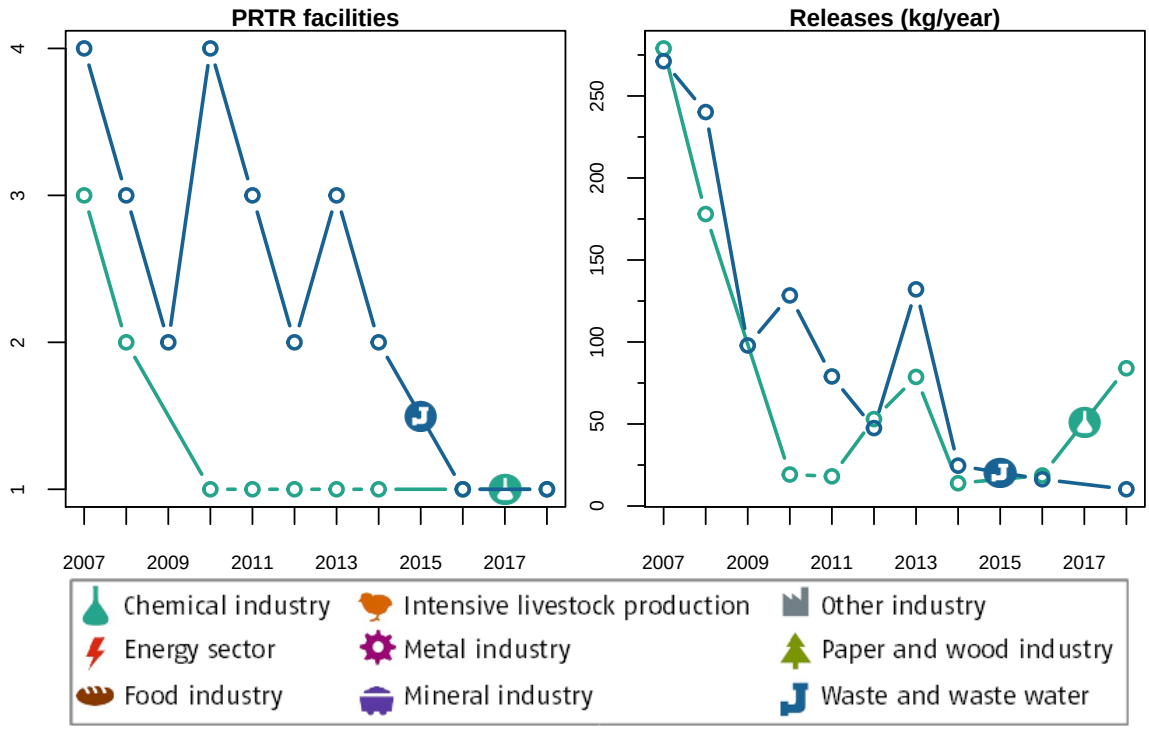



**Figure 3:** Annual number of facilities (left) and their releases (right) of the pollutant **"1,2-dichloroethane (DCE)"** to **Water**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.2.3 Releases to Land

The threshold is **10 kg "1,2-dichloroethane (DCE)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"1,2-dichloroethane (DCE)"** to **Land** in **2018**.

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

### 2.3.1 Releases to Air

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

No facility reported the release of **"1,2,3,4,5,6-hexachlorocyclohexane (HCH)"** to **Air** in **2018**.

### 2.3.2 Releases to Water

The threshold is **1 kg "1,2,3,4,5,6-hexachlorocyclohexane (HCH)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 1 | 100 | 3 | 100 |
| **TOTAL** | 1 | 100 | 3 | 100 |

**Table 4:** For the reporting year **2018** — 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.

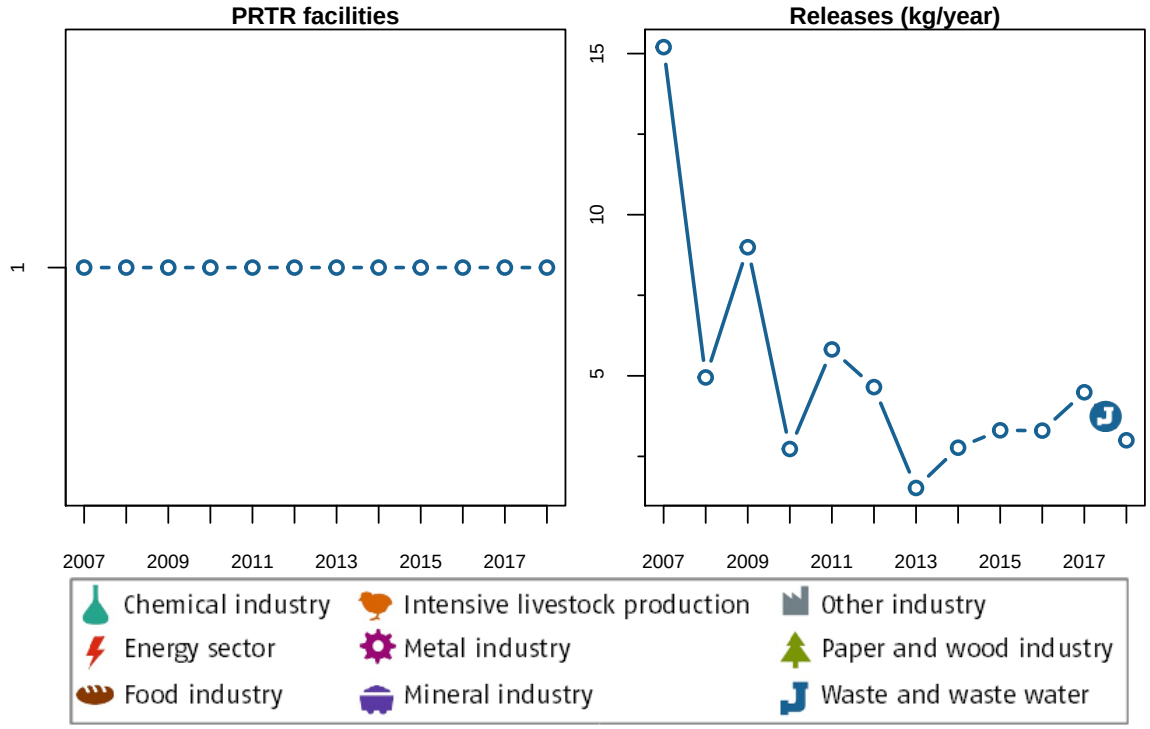



**Figure 4:** Annual number of facilities (left) and their releases (right) of the pollutant **"1,2,3,4,5,6-hexachlorocyclohexane (HCH)"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.3.3 Releases to Land

The threshold is **1 kg "1,2,3,4,5,6-hexachlorocyclohexane (HCH)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"1,2,3,4,5,6-hexachlorocyclohexane (HCH)"** to **Land** in **2018**.

## 2.4 Ammonia (NH3)

### 2.4.1 Releases to Air

The threshold is **10 000 kg "Ammonia (NH3)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Intensive livestock production and aquaculture | 593 | 91.4 | 12 977 800 | 75.7 |
| Mineral industry | 35 | 5.39 | 2 430 400 | 14.2 |
| Chemical industry | 10 | 1.54 | 1 478 600 | 8.63 |
| Waste and waste water management | 4 | 0.616 | 121 400 | 0.708 |
| Energy sector | 4 | 0.616 | 92 400 | 0.539 |
| Food industry | 3 | 0.462 | 41 500 | 0.242 |
| **TOTAL** | 649 | 100 | 17 142 100 | 100 |

**Table 5:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Ammonia (NH3)"** to **Air** of the different industrial sectors including the corresponding shares.

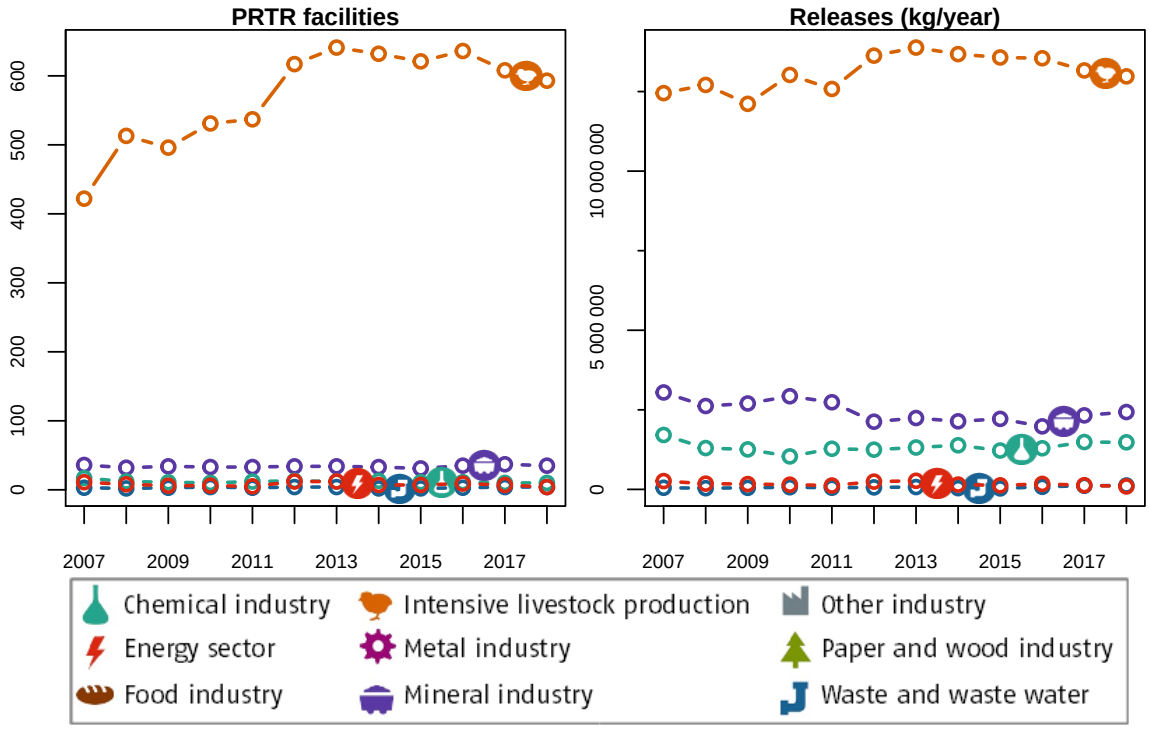



**Figure 5:** Annual number of facilities (left) and their releases (right) of the pollutant **"Ammonia (NH3)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.5 Arsenic and compounds (as As)

### 2.5.1 Releases to Air

The threshold is **20 kg "Arsenic and compounds (as As)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 14 | 63.6 | 1 094 | 55.3 |
| Metal industry | 6 | 27.3 | 782 | 39.5 |
| Mineral industry | 1 | 4.55 | 69.4 | 3.51 |
| Chemical industry | 1 | 4.55 | 34.5 | 1.74 |
| **TOTAL** | 22 | 100 | 1 980 | 100 |

**Table 6:** For the reporting year **2018** — 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.

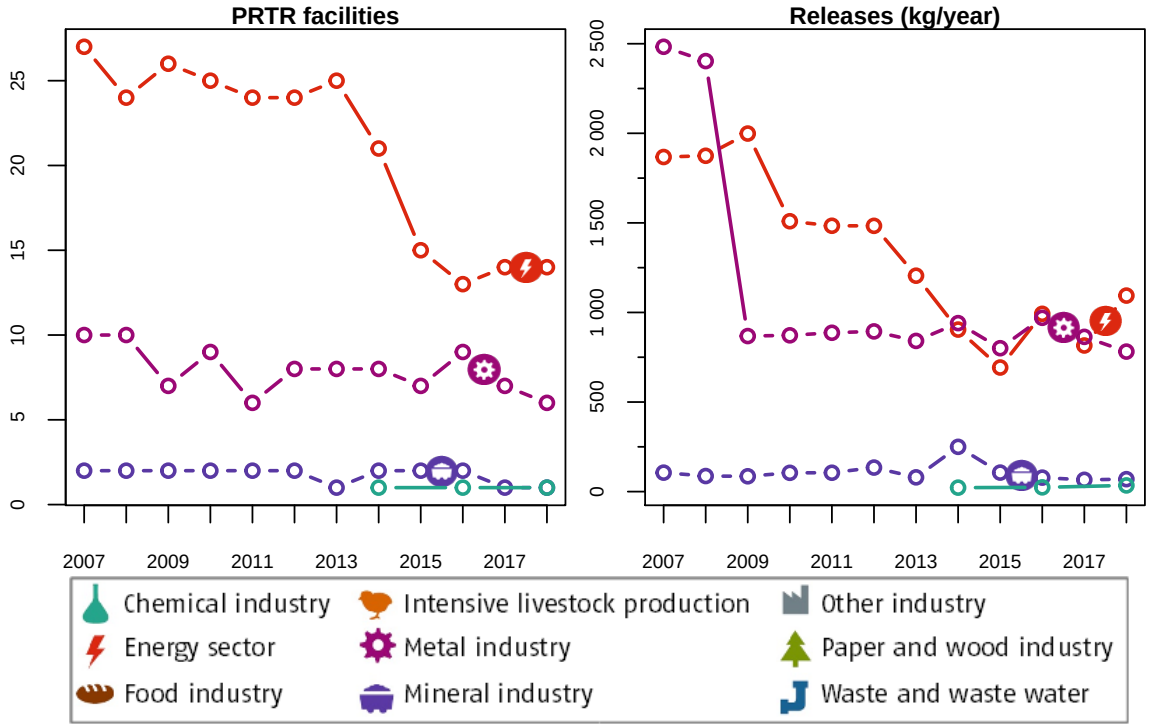



**Figure 6:** Annual number of facilities (left) and their releases (right) of the pollutant **"Arsenic and compounds (as As)"** to **Air**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

### 2.5.2 Releases to Water

The threshold is **5 kg "Arsenic and compounds (as As)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 59 | 80.8 | 1 718 | 54.1 |
| Chemical industry | 6 | 8.22 | 782 | 24.6 |
| Energy sector | 4 | 5.48 | 614 | 19.3 |
| Metal industry | 3 | 4.11 | 49.3 | 1.55 |
| Mineral industry | 1 | 1.37 | 13.8 | 0.434 |
| **TOTAL** | 73 | 100 | 3 177 | 100 |

**Table 7:** For the reporting year **2018** — 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.

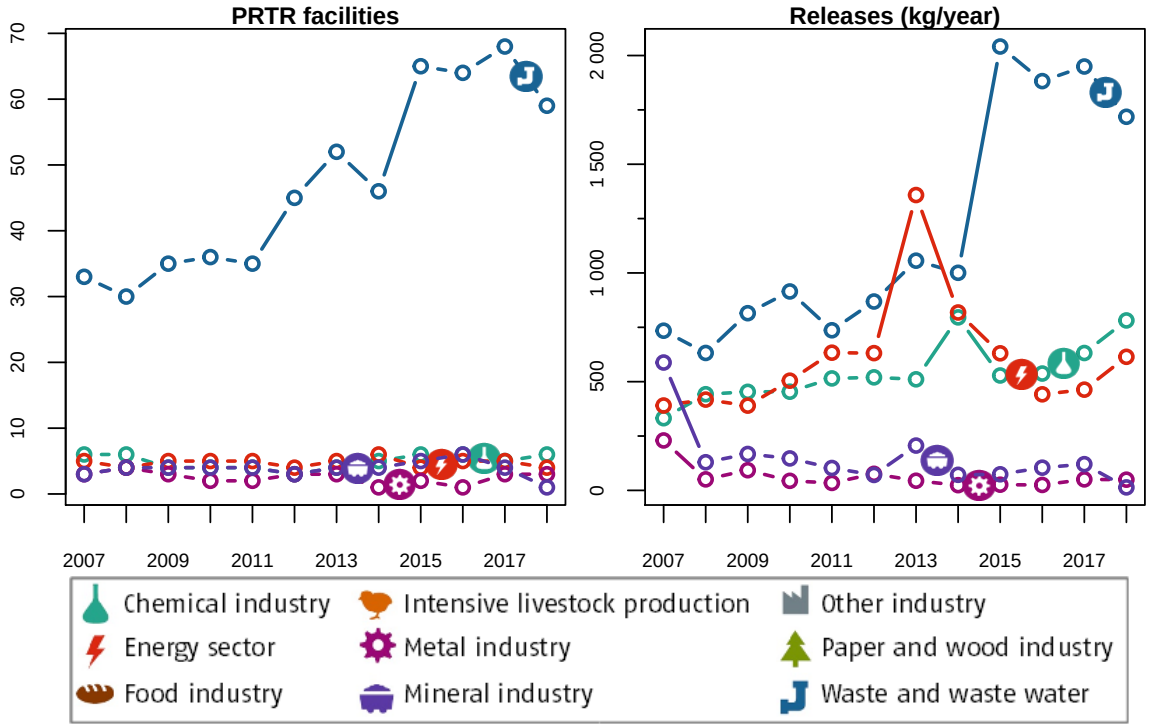



**Figure 7:** Annual number of facilities (left) and their releases (right) of the pollutant **"Arsenic and compounds (as As)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.5.3 Releases to Land

The threshold is **5 kg "Arsenic and compounds (as As)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Arsenic and compounds (as As)"** to **Land** in **2018**.

## 2.6 Atrazine

### 2.6.1 Releases to Water

The threshold is **1 kg "Atrazine" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 1 | 100 | 2.14 | 100 |
| **TOTAL** | 1 | 100 | 2.14 | 100 |

**Table 8:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Atrazine"** to **Water** of the different industrial sectors including the corresponding shares.

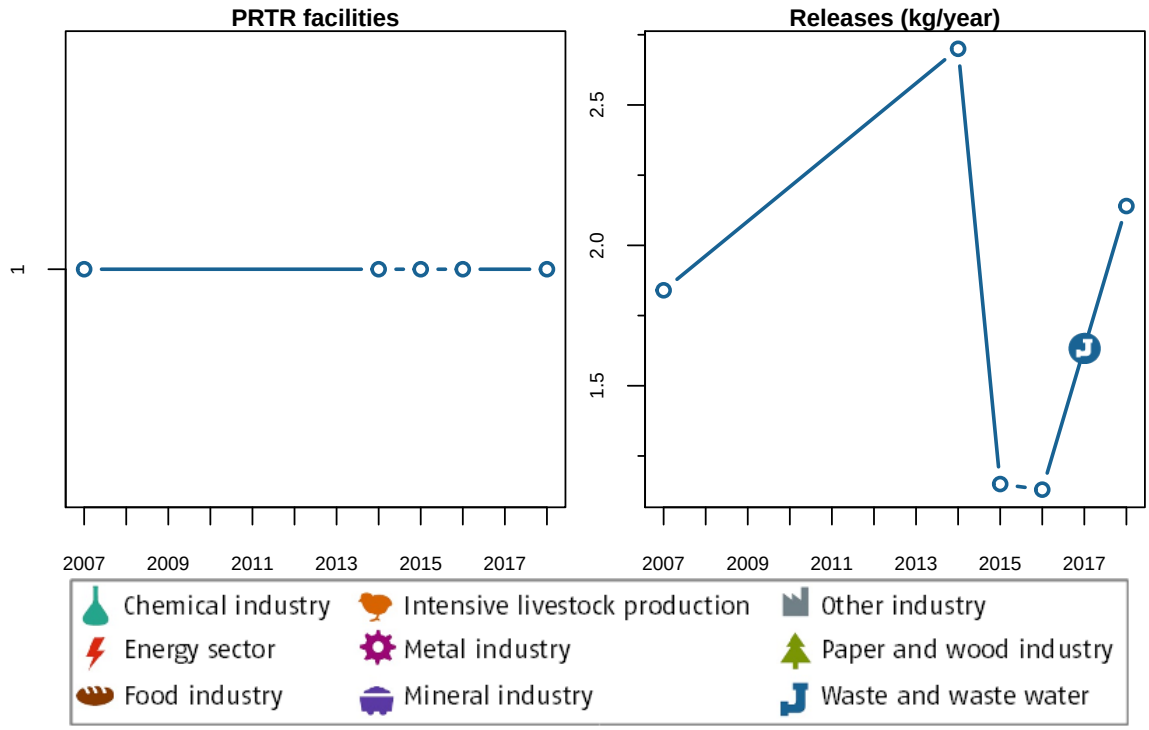



**Figure 8:** Annual number of facilities (left) and their releases (right) of the pollutant **"Atrazine"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.6.2 Releases to Land

The threshold is **1 kg "Atrazine" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Atrazine"** to **Land** in **2018**.

## 2.7 Benzene

### 2.7.1 Releases to Air

The threshold is **1 000 kg "Benzene" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 39 | 56.5 | 178 720 | 71.6 |
| Mineral industry | 16 | 23.2 | 36 540 | 14.6 |
| Energy sector | 11 | 15.9 | 28 510 | 11.4 |
| Chemical industry | 3 | 4.35 | 5 920 | 2.37 |
| **TOTAL** | 69 | 100 | 249 690 | 100 |

**Table 9:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Benzene"** to **Air** of the different industrial sectors including the corresponding shares.

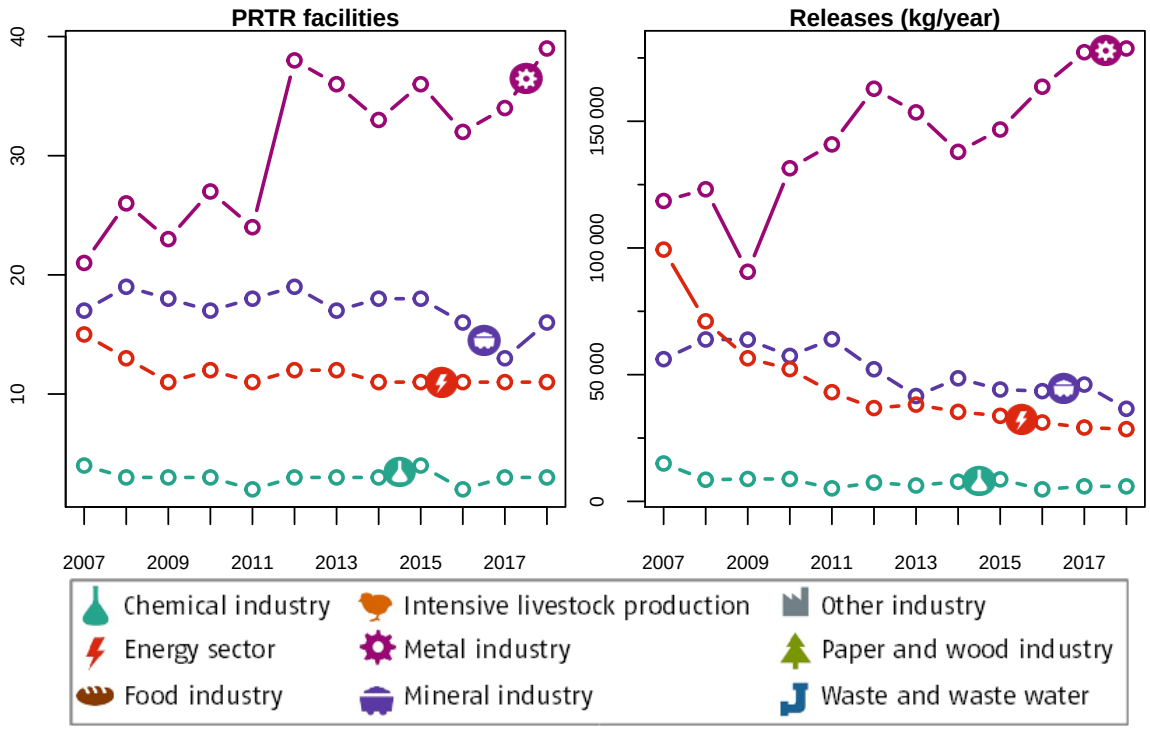



**Figure 9:** Annual number of facilities (left) and their releases (right) of the pollutant **"Benzene"** to **Air**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

### 2.7.2 Releases to Water

The threshold is **200 kg "Benzene" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Benzene"** to **Water** in **2018**.

### 2.7.3 Releases to Land

The threshold is **200 kg "Benzene" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Benzene"** to **Land** in **2018**.

## 2.8 Benzo(g,h,i)perylene

### 2.8.1 Releases to Water

The threshold is **1 kg "Benzo(g,h,i)perylene" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 1 | 100 | 1.98 | 100 |
| **TOTAL** | 1 | 100 | 1.98 | 100 |

**Table 10:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Benzo(g,h,i)perylene"** to **Water** of the different industrial sectors including the corresponding shares.

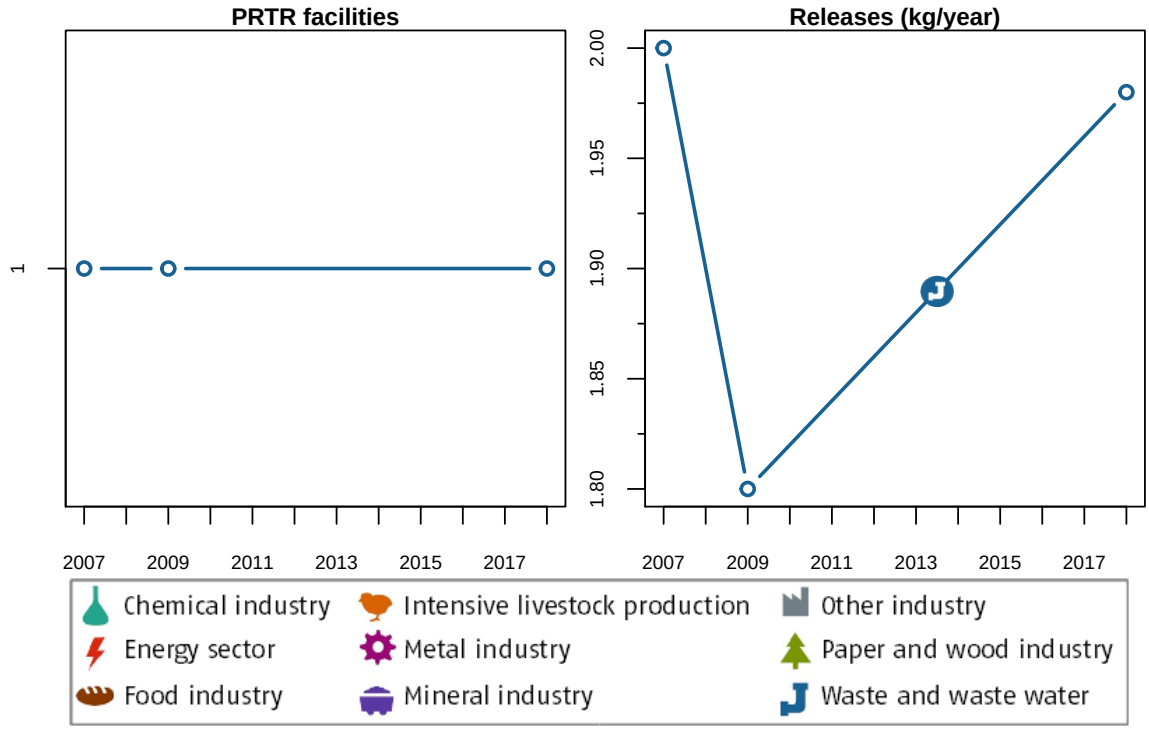



**Figure 10:** Annual number of facilities (left) and their releases (right) of the pollutant **"Benzo(g,h,i)perylene"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.9 Cadmium and compounds (as Cd)

### 2.9.1 Releases to Air

The threshold is **10 kg "Cadmium and compounds (as Cd)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 12 | 57.1 | 487 | 73.4 |
| Energy sector | 8 | 38.1 | 164 | 24.6 |
| Waste and waste water management | 1 | 4.76 | 13.4 | 2.02 |
| **TOTAL** | 21 | 100 | 664 | 100 |

**Table 11:** For the reporting year **2018** — 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.

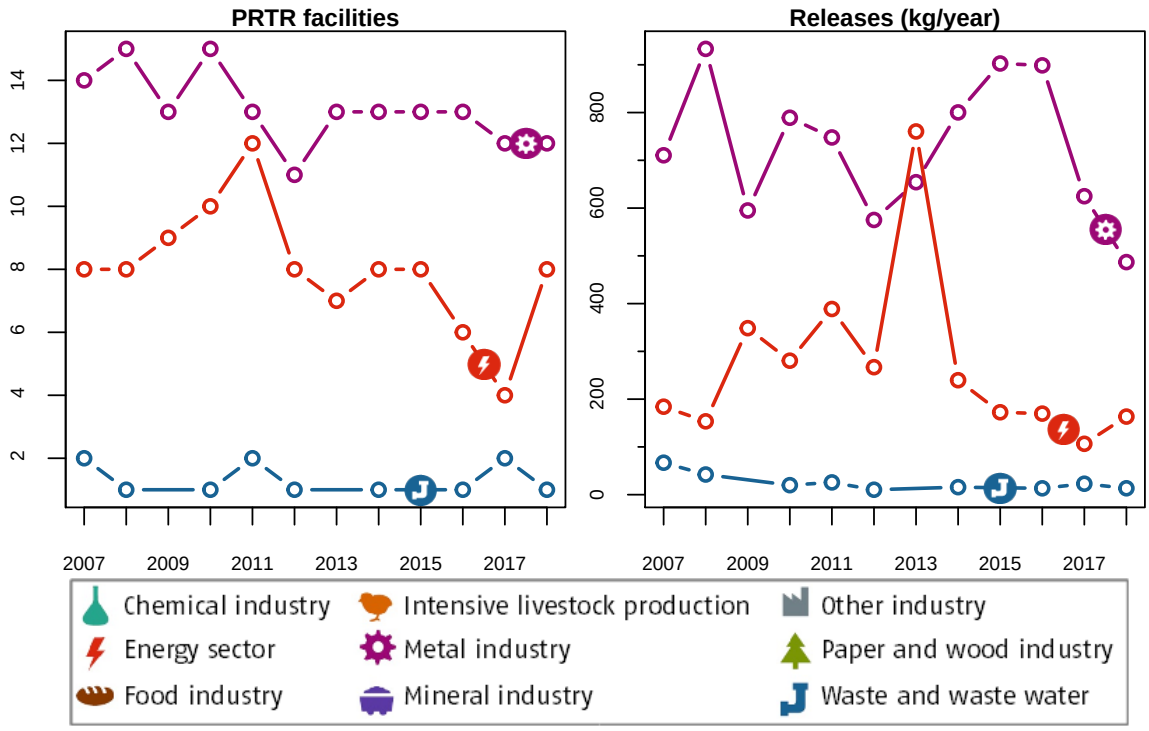



**Figure 11:** Annual number of facilities (left) and their releases (right) of the pollutant **"Cadmium and compounds (as Cd)"** to **Air**, each by the 3 industrial sector(s) with the highest emissions in the year 2018.

### 2.9.2 Releases to Water

The threshold is **5 kg "Cadmium and compounds (as Cd)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 4 | 17.4 | 197 | 48.7 |
| Waste and waste water management | 16 | 69.6 | 171 | 42.1 |
| Mineral industry | 2 | 8.7 | 24.4 | 6.01 |
| Paper- and wood industry | 1 | 4.35 | 12.9 | 3.18 |
| **TOTAL** | 23 | 100 | 405 | 100 |

**Table 12:** For the reporting year **2018** — 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.

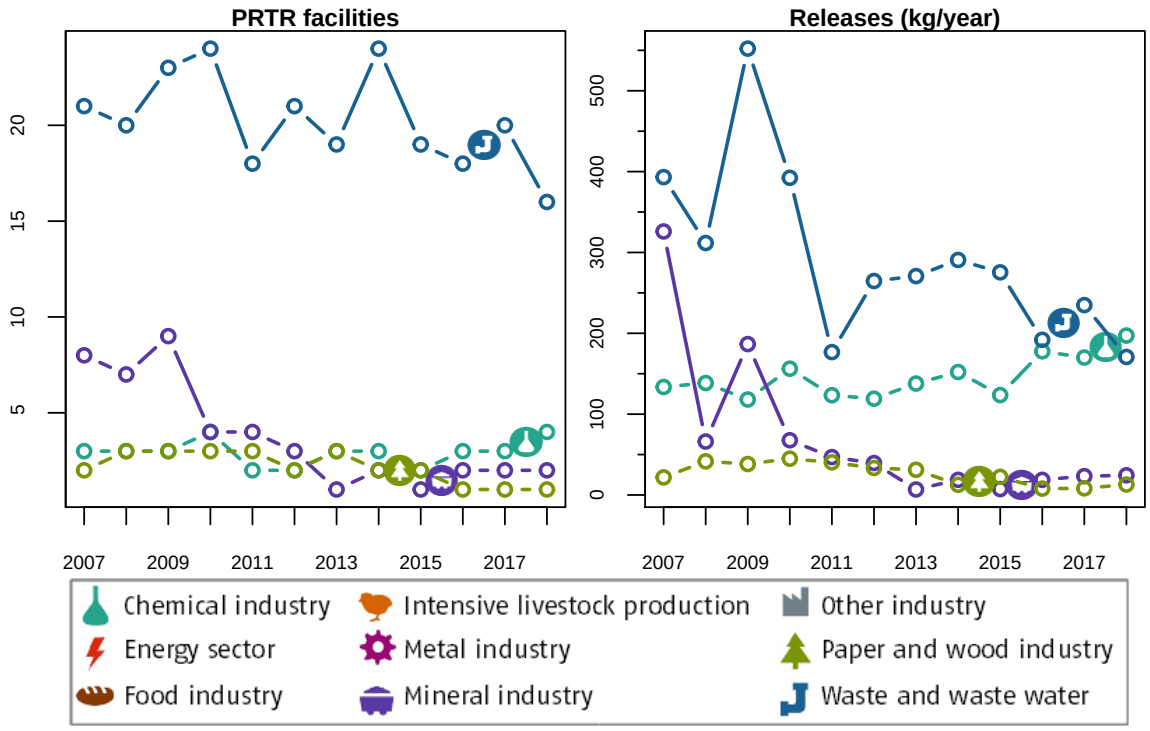



**Figure 12:** Annual number of facilities (left) and their releases (right) of the pollutant **"Cadmium and compounds (as Cd)"** to **Water**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

### 2.9.3 Releases to Land

The threshold is **5 kg "Cadmium and compounds (as Cd)" per year.** Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Cadmium and compounds (as Cd)"** to **Land** in **2018.**

## 2.10 Carbon dioxide (CO2)

### 2.10.1 Releases to Air

The threshold is **100 000 000 kg "Carbon dioxide (CO2)" per year.** Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 155 | 39.1 | 271 806 000 000 | 55.3 |
| Waste and waste water management | 75 | 18.9 | 118 558 000 000 | 24.1 |
| Metal industry | 28 | 7.07 | 34 618 000 000 | 7.04 |
| Chemical industry | 39 | 9.85 | 28 912 000 000 | 5.88 |
| Mineral industry | 62 | 15.7 | 27 951 000 000 | 5.68 |
| Paper- and wood industry | 26 | 6.57 | 8 188 000 000 | 1.66 |
| Food industry | 9 | 2.27 | 1 398 000 000 | 0.284 |
| Other industry | 2 | 0.505 | 508 000 000 | 0.103 |
| **TOTAL** | 396 | 100 | 491 939 000 000 | 100 |

**Table 13:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Carbon dioxide (CO2)"** to **Air** of the different industrial sectors including the corresponding shares.

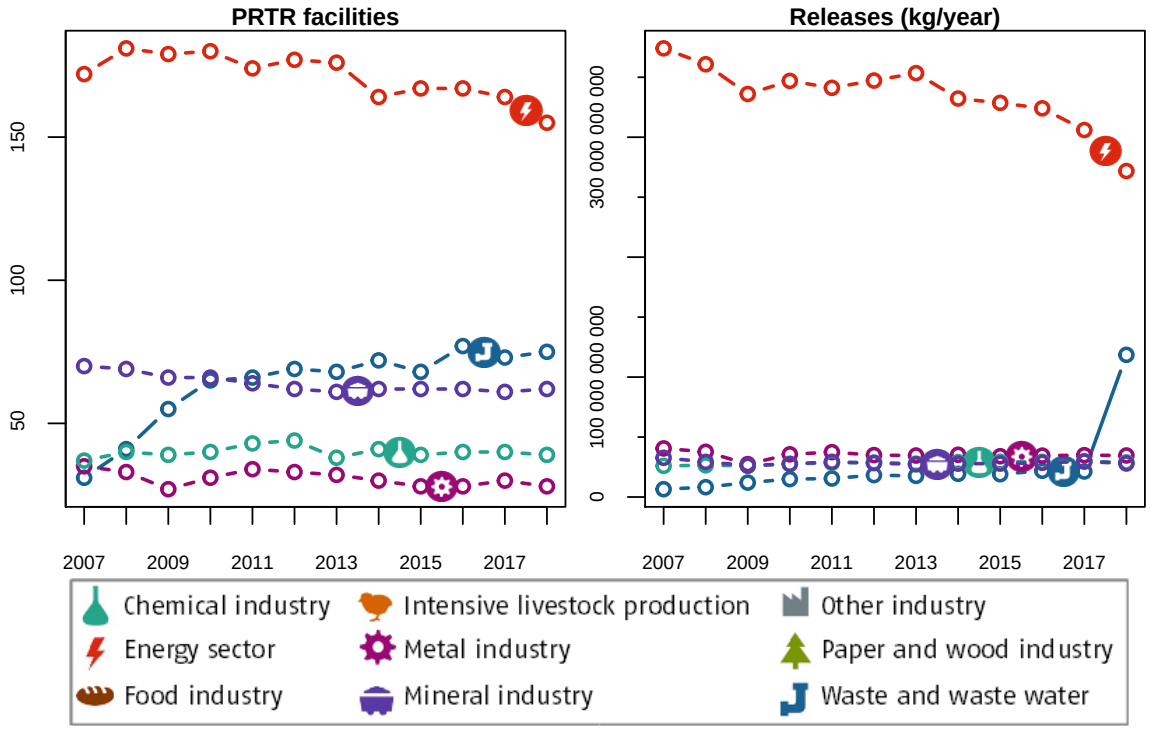



**Figure 13:** Annual number of facilities (left) and their releases (right) of the pollutant **"Carbon dioxide (CO2)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.11 Carbon monoxide (CO)

### 2.11.1 Releases to Air

The threshold is **500 000 kg "Carbon monoxide (CO)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 25 | 29.8 | 647 179 000 | 80 |
| Mineral industry | 35 | 41.7 | 89 188 000 | 11 |
| Energy sector | 15 | 17.9 | 47 508 000 | 5.87 |
| Chemical industry | 8 | 9.52 | 24 521 000 | 3.03 |
| Other industry | 1 | 1.19 | 919 000 | 0.114 |
| **TOTAL** | 84 | 100 | 809 315 000 | 100 |

**Table 14:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Carbon monoxide (CO)"** to **Air** of the different industrial sectors including the corresponding shares.

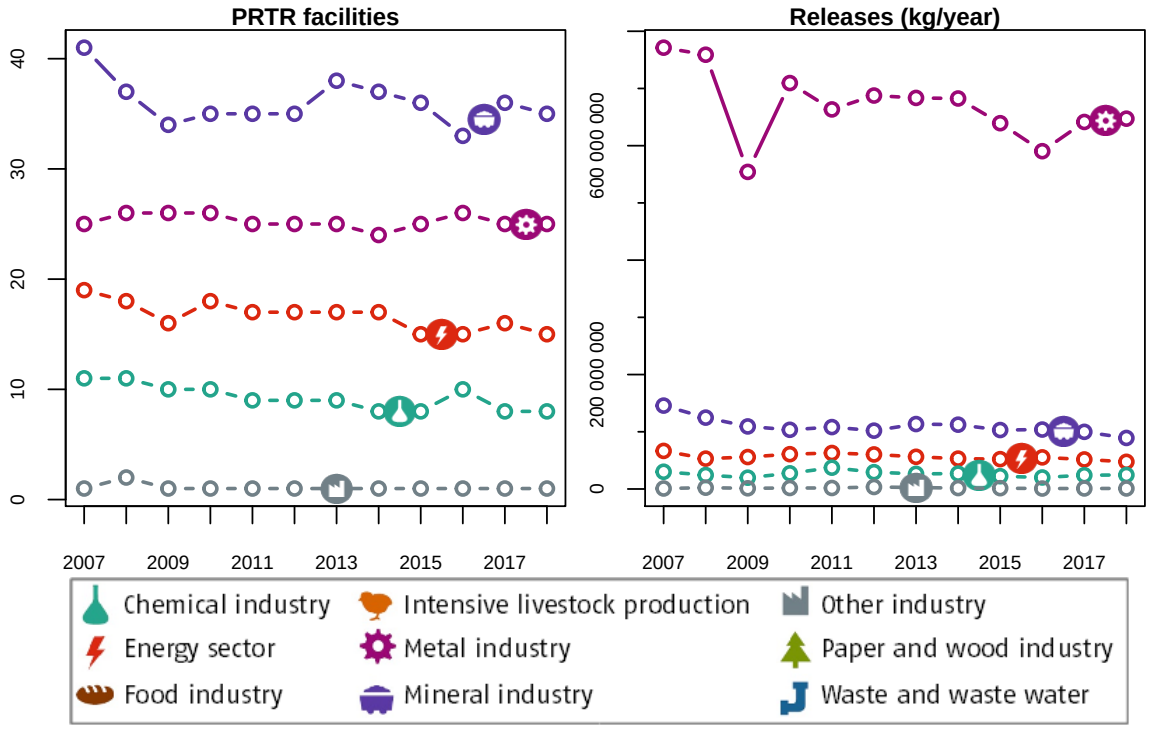



**Figure 14:** Annual number of facilities (left) and their releases (right) of the pollutant **"Carbon monoxide (CO)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.12 Chlorides (as total Cl)

### 2.12.1 Releases to Water

The threshold is **2 000 000 kg "Chlorides (as total Cl)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 26 | 21 | 3 158 870 000 | 55.3 |
| Waste and waste water management | 69 | 55.6 | 1 198 320 000 | 21 |
| Mineral industry | 19 | 15.3 | 944 770 000 | 16.5 |
| Energy sector | 8 | 6.45 | 401 130 000 | 7.03 |
| Metal industry | 1 | 0.806 | 3 490 000 | 0.0611 |
| Paper- and wood industry | 1 | 0.806 | 2 690 000 | 0.0471 |
| **TOTAL** | 124 | 100 | 5 709 270 000 | 100 |

**Table 15:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Chlorides (as total Cl)"** to **Water** of the different industrial sectors including the corresponding shares.

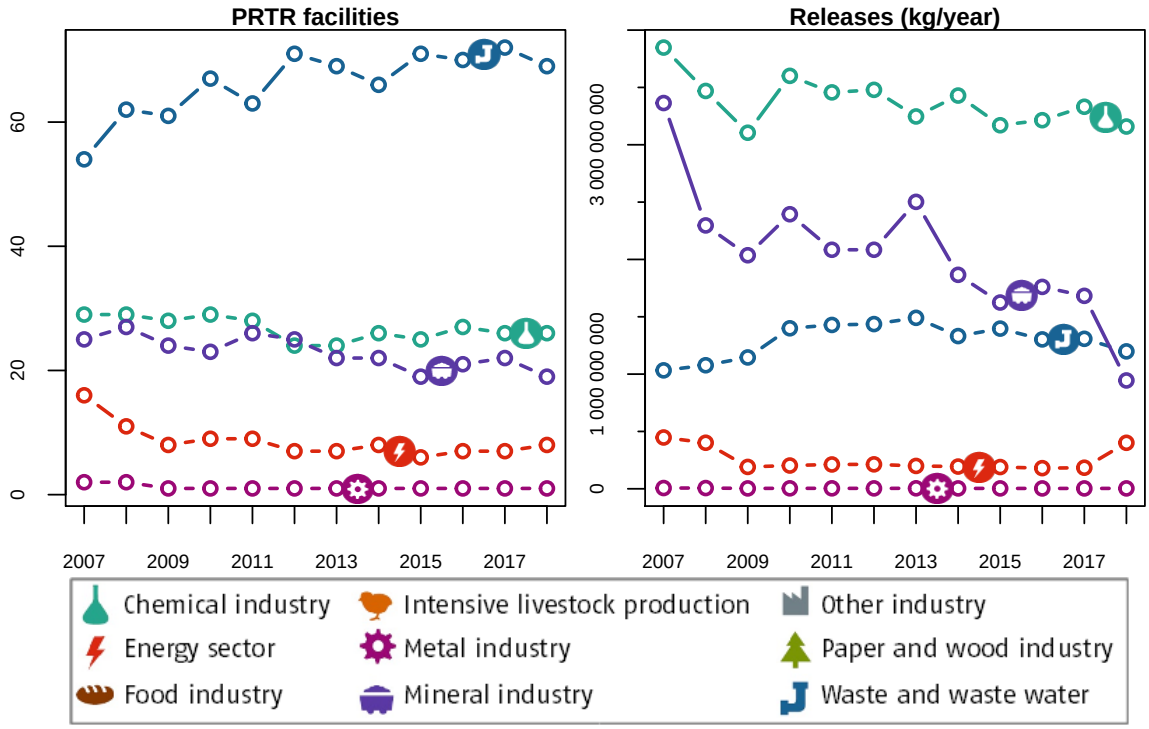



**Figure 15:** Annual number of facilities (left) and their releases (right) of the pollutant **"Chlorides (as total Cl)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.12.2 Releases to Land

The threshold is **2 000 000 kg "Chlorides (as total Cl)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Mineral industry | 1 | 100 | 227 000 000 | 100 |
| **TOTAL** | 1 | 100 | 227 000 000 | 100 |

**Table 16:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Chlorides (as total Cl)"** to **Land** of the different industrial sectors including the corresponding shares.

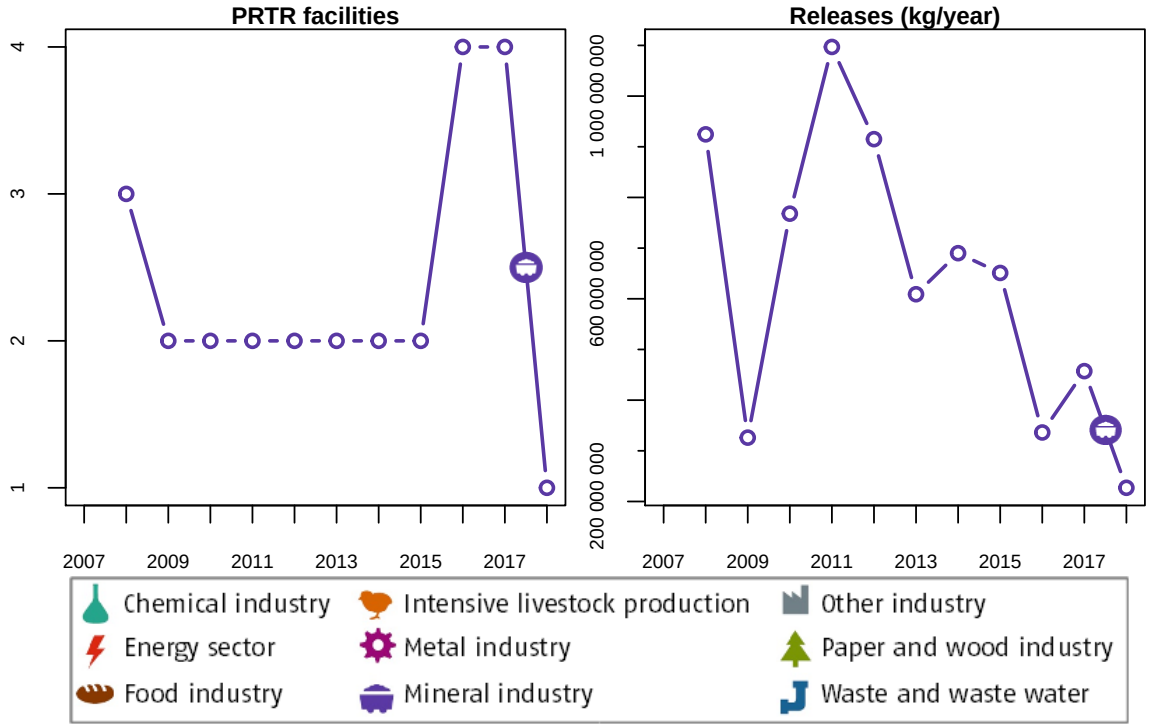



**Figure 16:** Annual number of facilities (left) and their releases (right) of the pollutant **"Chlorides (as total Cl)"** to **Land**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.13 Chlorine and inorganic compounds (as HCl)

### 2.13.1 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 been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 38 | 52.1 | 1 813 800 | 65.8 |
| Metal industry | 5 | 6.85 | 411 900 | 14.9 |
| Waste and waste water management | 14 | 19.2 | 219 200 | 7.95 |
| Mineral industry | 9 | 12.3 | 152 800 | 5.54 |
| Paper- and wood industry | 5 | 6.85 | 137 600 | 4.99 |
| Chemical industry | 2 | 2.74 | 22 800 | 0.827 |
| **TOTAL** | 73 | 100 | 2 758 100 | 100 |

**Table 17:** For the reporting year **2018** — 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.

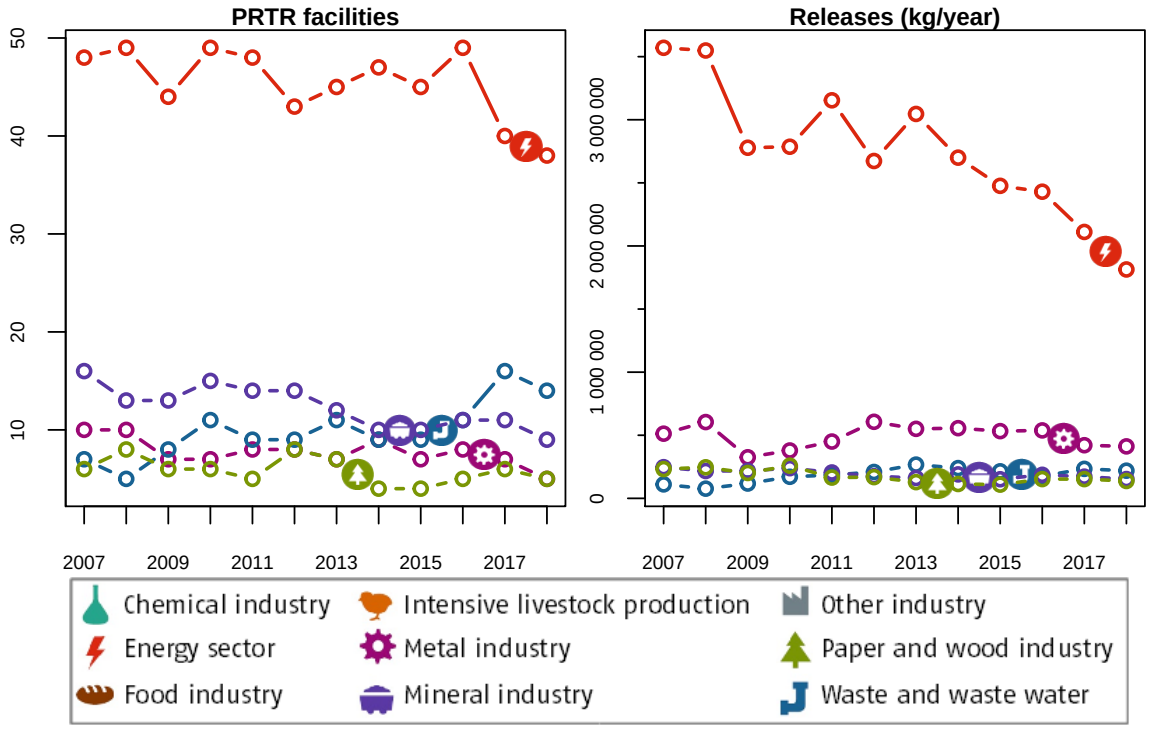



**Figure 17:** Annual number of facilities (left) and their releases (right) of the pollutant **"Chlorine and inorganic compounds (as HCl)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.14 Chloro-alkanes, C10-C13

### 2.14.1 Releases to Water

The threshold is **1 kg "Chloro-alkanes, C10-C13" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 1 | 100 | 18.6 | 100 |
| **TOTAL** | 1 | 100 | 18.6 | 100 |

**Table 18:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Chloro-alkanes, C10-C13"** to **Water** of the different industrial sectors including the corresponding shares.

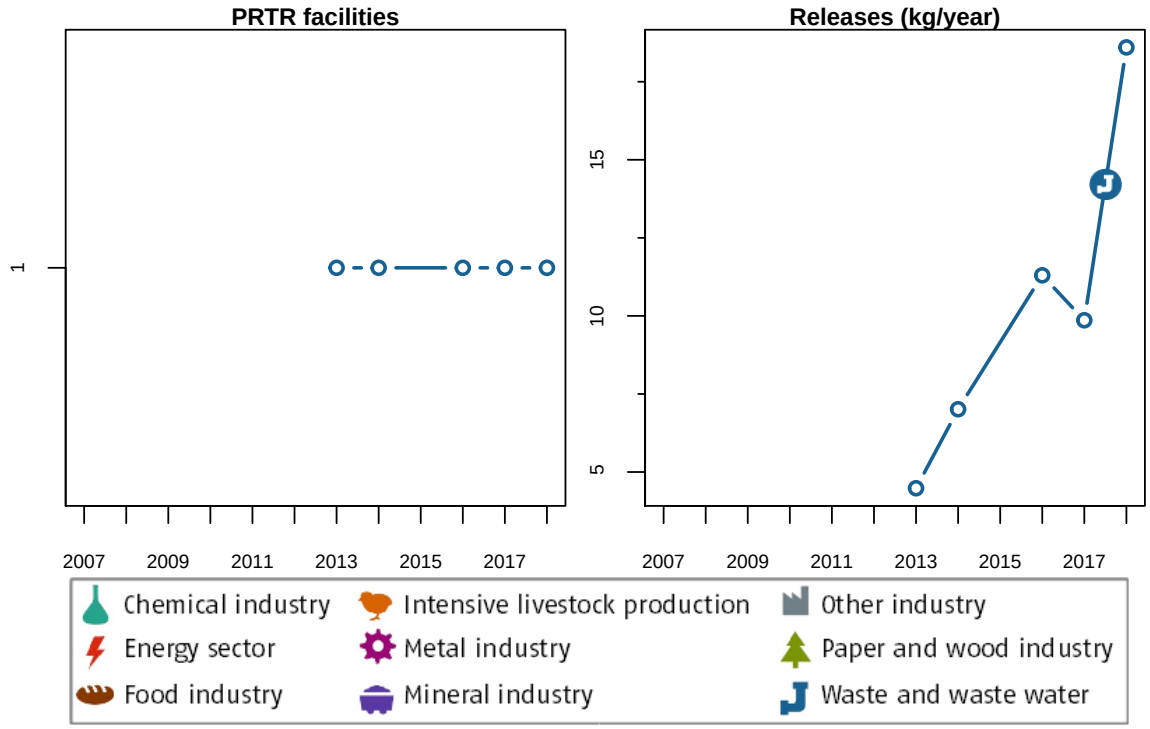



**Figure 18:** Annual number of facilities (left) and their releases (right) of the pollutant **"Chloro-alkanes, C10-C13"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.14.2 Releases to Land

The threshold is **1 kg "Chloro-alkanes, C10-C13" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Chloro-alkanes, C10-C13"** to **Land** in **2018**.

## 2.15 Chlorofluorocarbons (CFCs)

### 2.15.1 Releases to Air

The threshold is **1 kg "Chlorofluorocarbons (CFCs)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 10 | 100 | 140 | 100 |
| **TOTAL** | 10 | 100 | 140 | 100 |

**Table 19:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Chlorofluorocarbons (CFCs)"** to **Air** of the different industrial sectors including the corresponding shares.

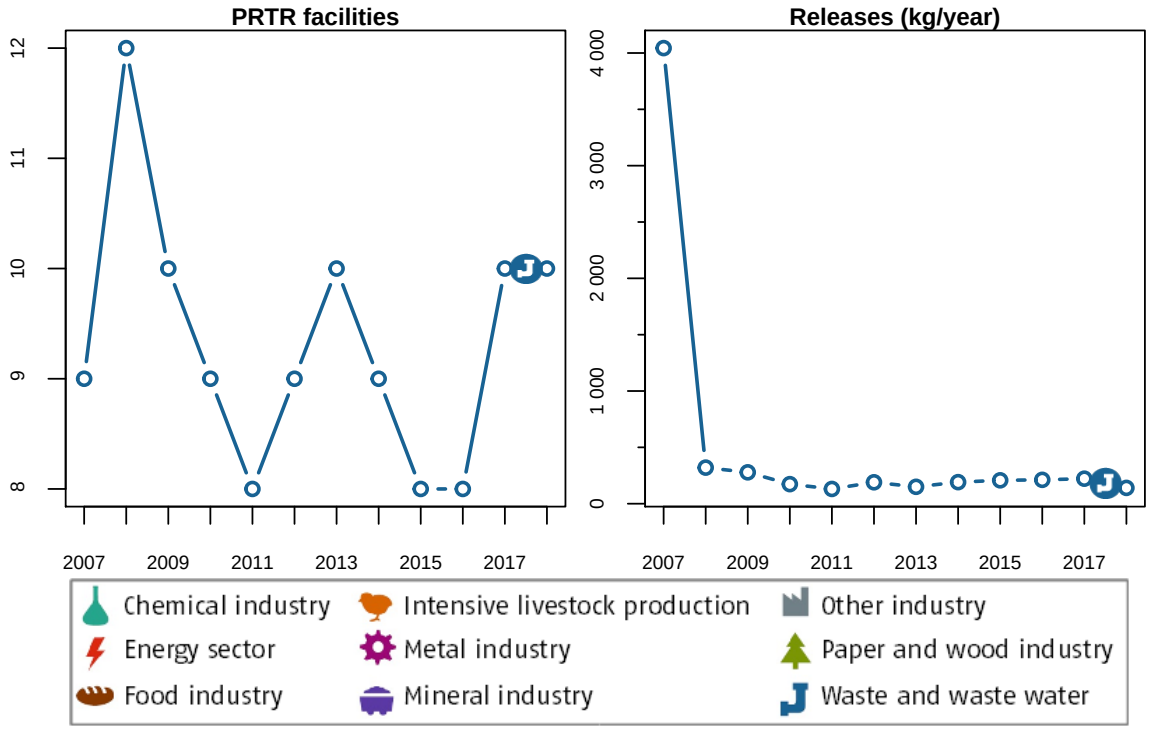



**Figure 19:** Annual number of facilities (left) and their releases (right) of the pollutant **"Chlorofluorocarbons (CFCs)"** to **Air**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.16 Chromium and compounds (as Cr)

### 2.16.1 Releases to Air

The threshold is **100 kg "Chromium and compounds (as Cr)" per year.** Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 15 | 78.9 | 2 730 | 74.8 |
| Energy sector | 4 | 21.1 | 921 | 25.2 |
| **TOTAL** | 19 | 100 | 3 651 | 100 |

**Table 20:** For the reporting year **2018** — 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.

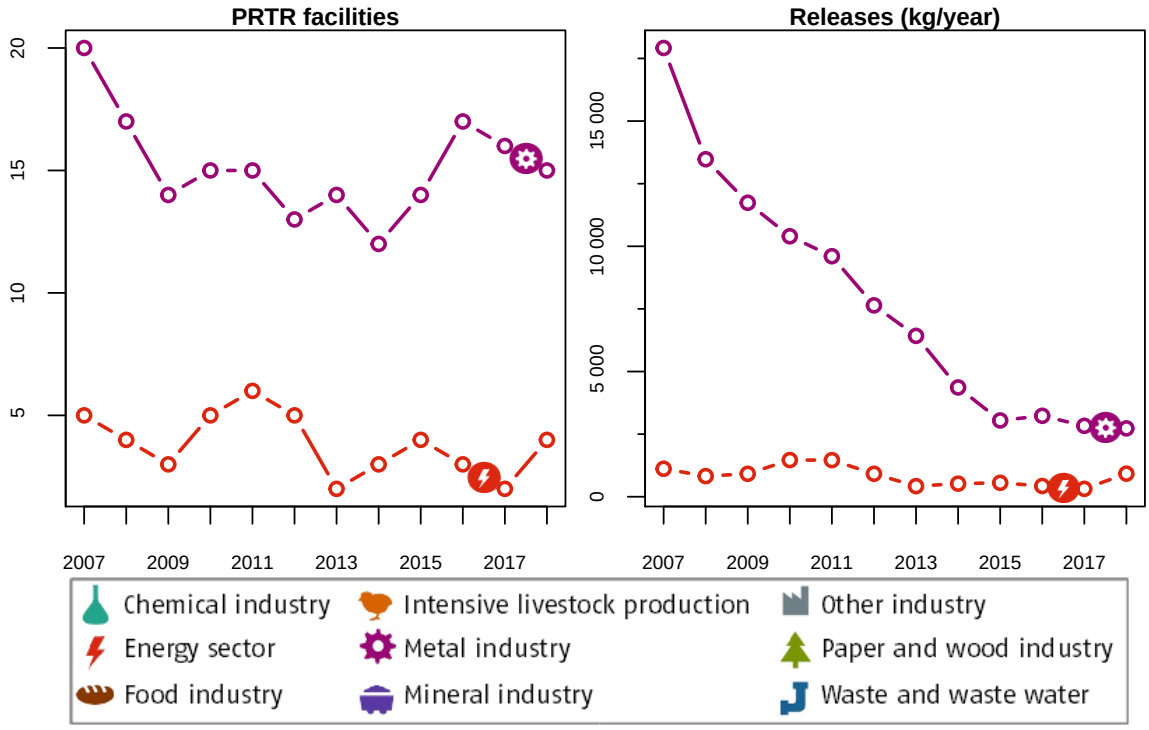



**Figure 20:** Annual number of facilities (left) and their releases (right) of the pollutant **"Chromium and compounds (as Cr)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.16.2 Releases to Water

The threshold is **50 kg "Chromium and compounds (as Cr)" per year.** Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 6 | 13.6 | 6 945 | 49.4 |
| Waste and waste water management | 29 | 65.9 | 4 699 | 33.4 |
| Energy sector | 4 | 9.09 | 1 675 | 11.9 |
| Mineral industry | 3 | 6.82 | 606 | 4.31 |
| Other industry | 1 | 2.27 | 72 | 0.512 |
| Metal industry | 1 | 2.27 | 70.7 | 0.503 |
| **TOTAL** | 44 | 100 | 14 068 | 100 |

**Table 21:** For the reporting year **2018** — 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.

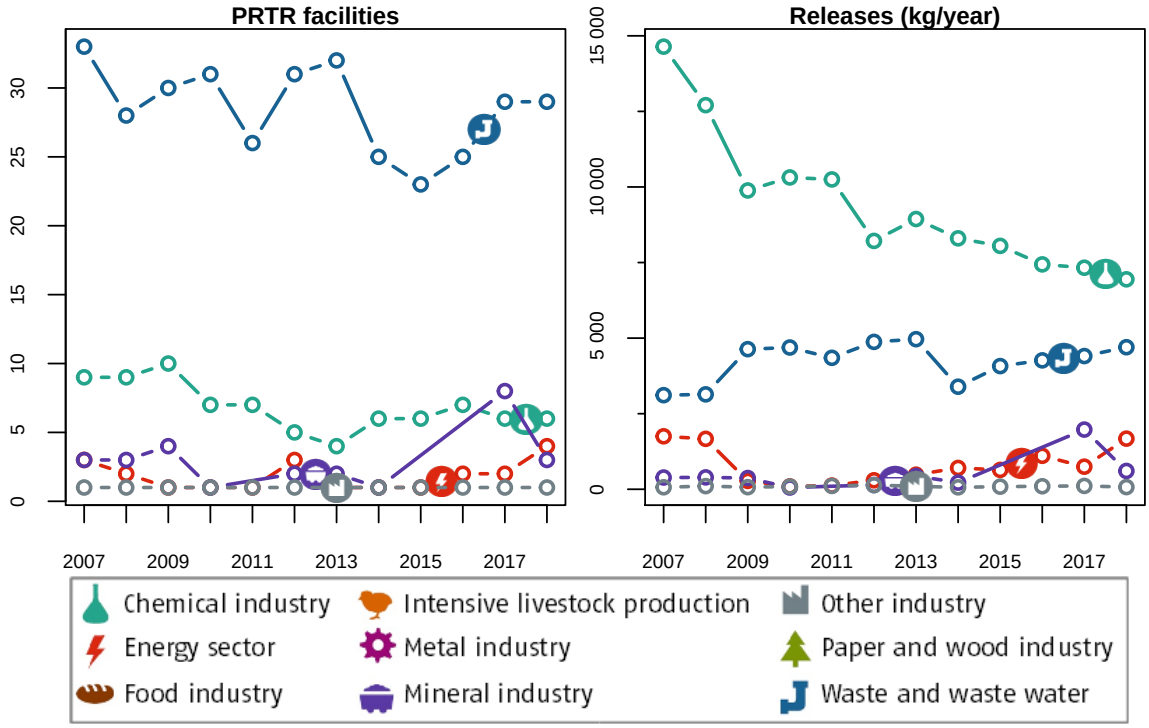



**Figure 21:** Annual number of facilities (left) and their releases (right) of the pollutant **"Chromium and compounds (as Cr)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.16.3 Releases to Land

The threshold is **50 kg "Chromium and compounds (as Cr)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Chromium and compounds (as Cr)"** to **Land** in **2018**.

## 2.17 Copper and compounds (as Cu)

### 2.17.1 Releases to Air

The threshold is **100 kg "Copper and compounds (as Cu)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 11 | 55 | 9 978 | 73.4 |
| Energy sector | 7 | 35 | 3 262 | 24 |
| Other industry | 1 | 5 | 248 | 1.82 |
| Chemical industry | 1 | 5 | 103 | 0.758 |
| **TOTAL** | 20 | 100 | 13 591 | 100 |

**Table 22:** For the reporting year **2018** — 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.

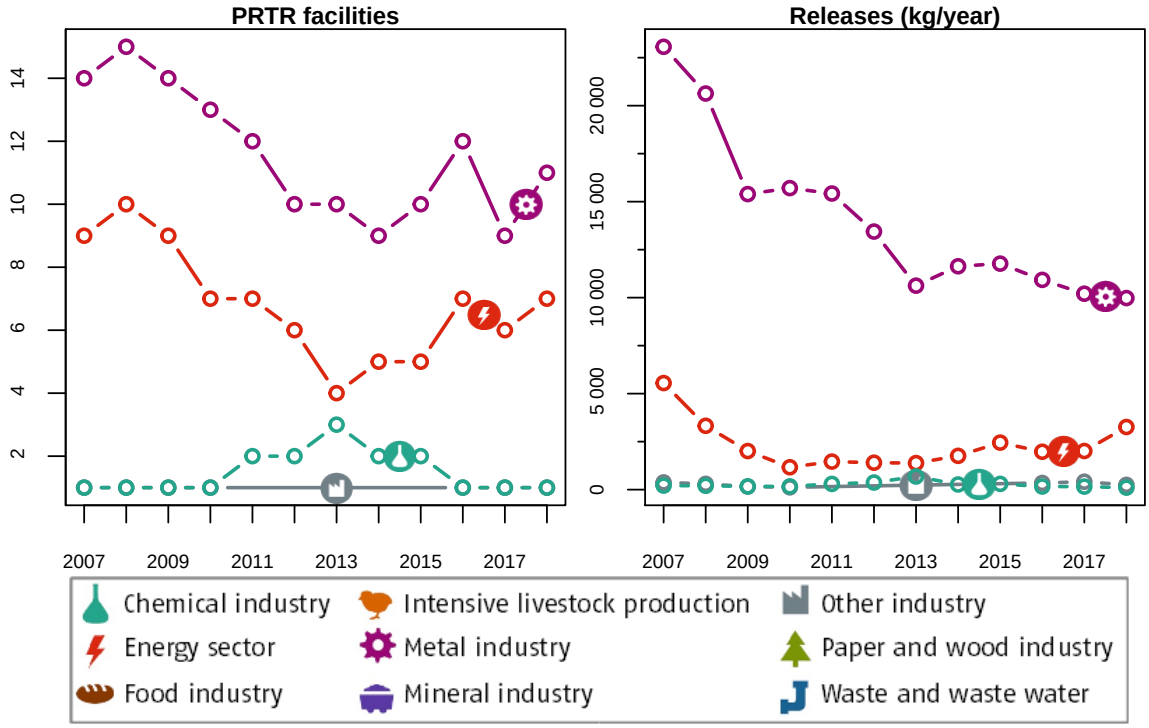



**Figure 22:** Annual number of facilities (left) and their releases (right) of the pollutant **"Copper and compounds (as Cu)"** to **Air**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

### 2.17.2 Releases to Water

The threshold is **50 kg "Copper and compounds (as Cu)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 128 | 82.1 | 26 535 | 72.8 |
| Chemical industry | 5 | 3.21 | 5 463 | 15 |
| Energy sector | 10 | 6.41 | 1 994 | 5.47 |
| Mineral industry | 6 | 3.85 | 1 136 | 3.12 |
| Metal industry | 4 | 2.56 | 992 | 2.72 |
| Paper- and wood industry | 3 | 1.92 | 322 | 0.884 |
| **TOTAL** | 156 | 100 | 36 443 | 100 |

**Table 23:** For the reporting year **2018** — 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.

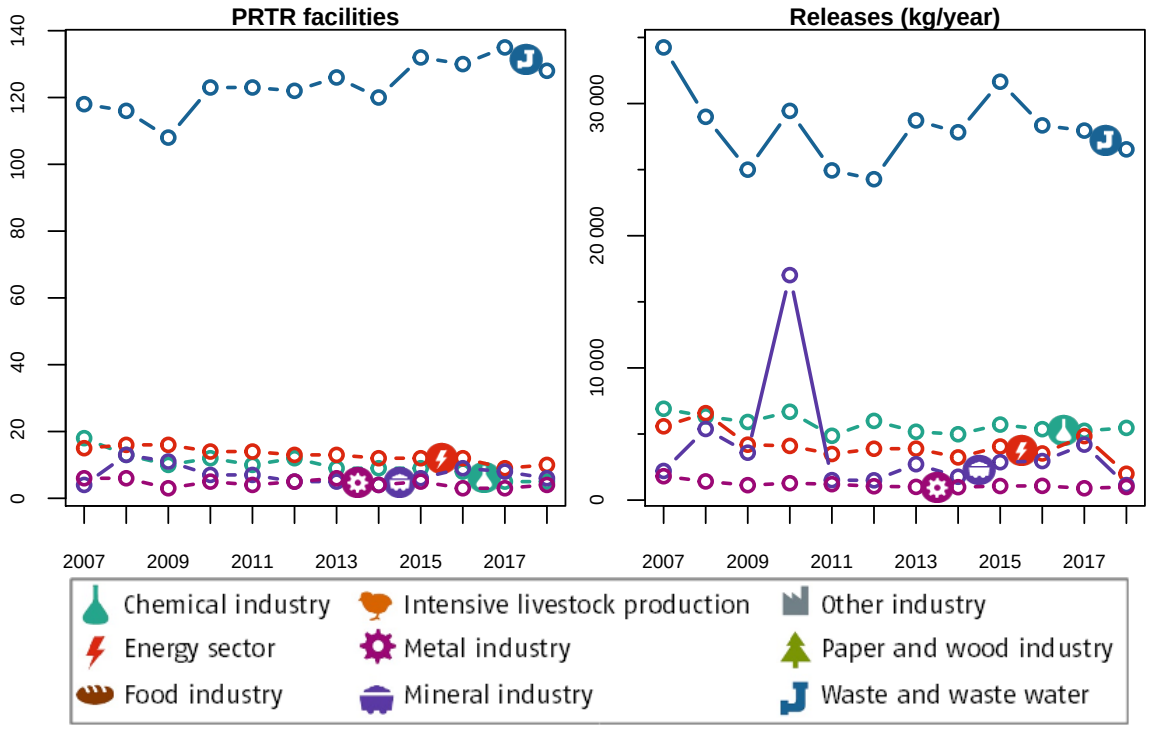



**Figure 23:** Annual number of facilities (left) and their releases (right) of the pollutant **"Copper and compounds (as Cu)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.17.3 Releases to Land

The threshold is **50 kg "Copper and compounds (as Cu)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Mineral industry | 1 | 100 | 53.9 | 100 |
| **TOTAL** | 1 | 100 | 53.9 | 100 |

**Table 24:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Copper and compounds (as Cu)"** to **Land** of the different industrial sectors including the corresponding shares.

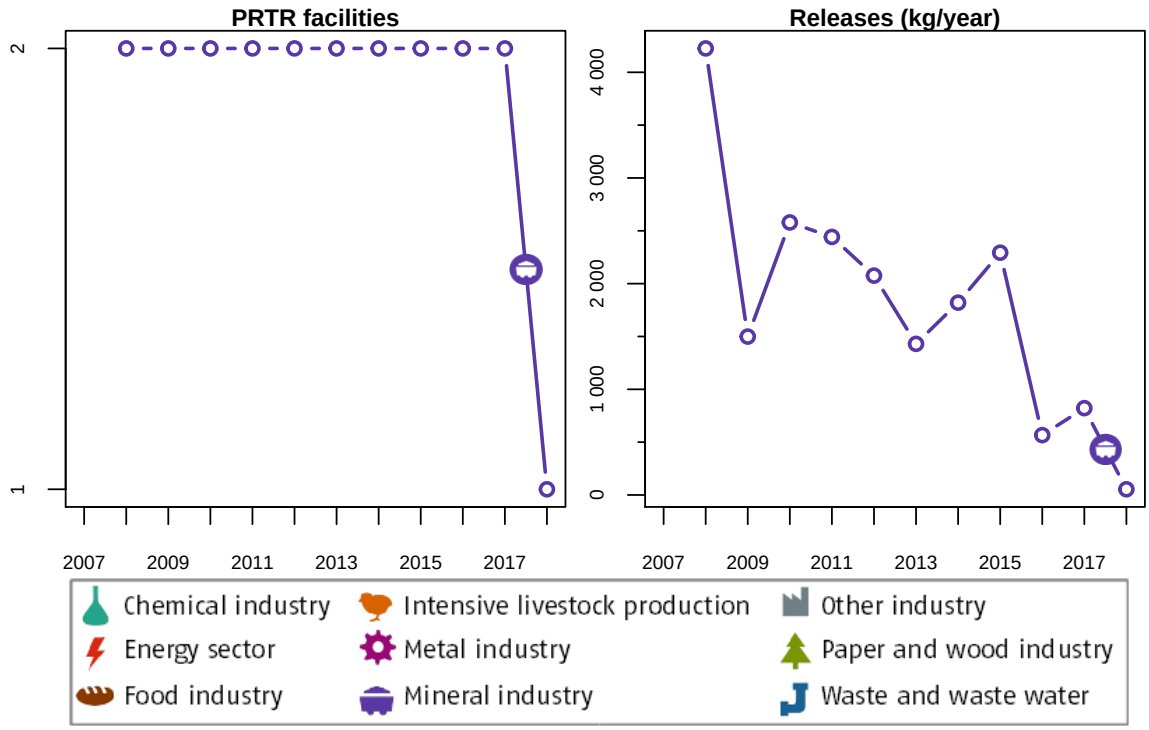



**Figure 24:** Annual number of facilities (left) and their releases (right) of the pollutant **"Copper and compounds (as Cu)"** to **Land**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.18 Cyanides (as total CN)

### 2.18.1 Releases to Water

The threshold is **50 kg "Cyanides (as total CN)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 3 | 18.8 | 3 548 | 44.1 |
| Energy sector | 4 | 25 | 3 260 | 40.5 |
| Waste and waste water management | 8 | 50 | 1 155 | 14.4 |
| Metal industry | 1 | 6.25 | 81.5 | 1.01 |
| **TOTAL** | 16 | 100 | 8 044 | 100 |

**Table 25:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Cyanides (as total CN)"** to **Water** of the different industrial sectors including the corresponding shares.

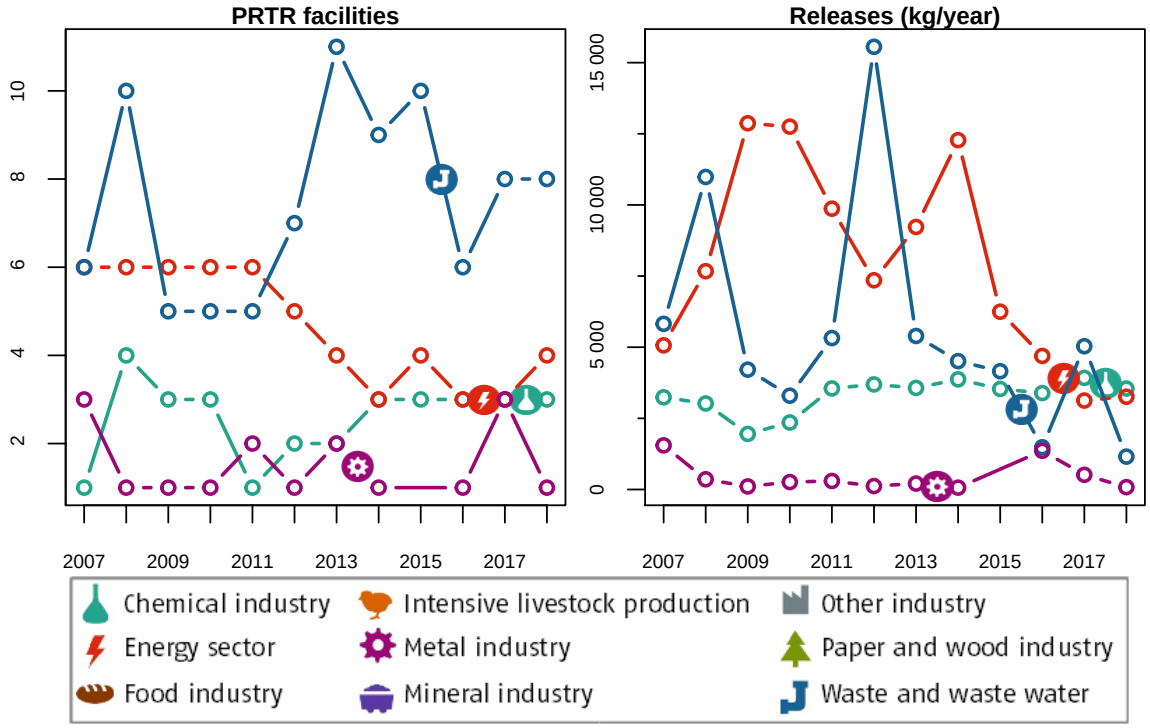



**Figure 25:** Annual number of facilities (left) and their releases (right) of the pollutant **"Cyanides (as total CN)"** to **Water**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

### 2.18.2 Releases to Land

The threshold is **50 kg "Cyanides (as total CN)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Cyanides (as total CN)"** to **Land** in **2018**.

## 2.19 Di-(2-ethyl hexyl) phthalate (DEHP)

### 2.19.1 Releases to Air

The threshold is **10 kg "Di-(2-ethyl hexyl) phthalate (DEHP)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Di-(2-ethyl hexyl) phthalate (DEHP)"** to **Air** in **2018**.

### 2.19.2 Releases to Water

The threshold is **1 kg "Di-(2-ethyl hexyl) phthalate (DEHP)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 137 | 100 | 1 052 | 100 |
| **TOTAL** | 137 | 100 | 1 052 | 100 |

**Table 26:** For the reporting year **2018** — 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.

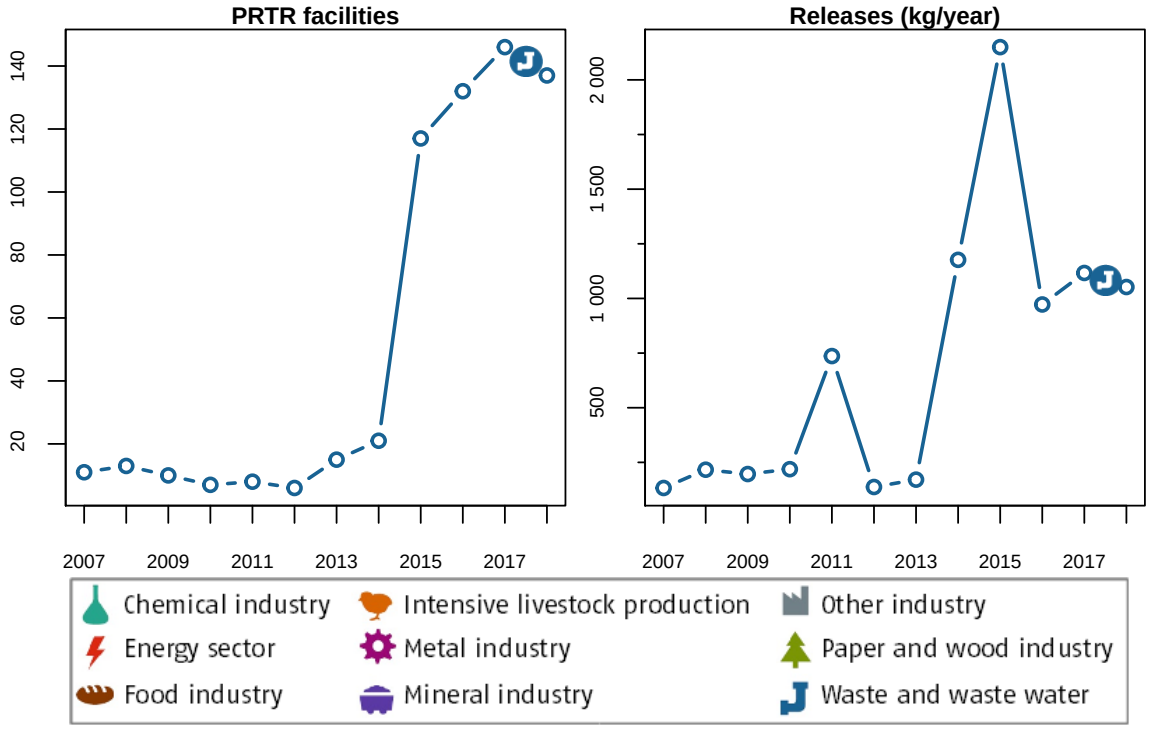



**Figure 26:** Annual number of facilities (left) and their releases (right) of the pollutant **"Di-(2-ethyl hexyl) phthalate (DEHP)"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.19.3 Releases to Land

The threshold is **1 kg "Di-(2-ethyl hexyl) phthalate (DEHP)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Di-(2-ethyl hexyl) phthalate (DEHP)"** to **Land** in **2018**.

## 2.20 Dichloromethane (DCM)

### 2.20.1 Releases to Air

The threshold is **1 000 kg "Dichloromethane (DCM)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 1 | 50 | 20 800 | 88.5 |
| Chemical industry | 1 | 50 | 2 700 | 11.5 |
| **TOTAL** | 2 | 100 | 23 500 | 100 |

**Table 27:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Dichloromethane (DCM)"** to **Air** of the different industrial sectors including the corresponding shares.

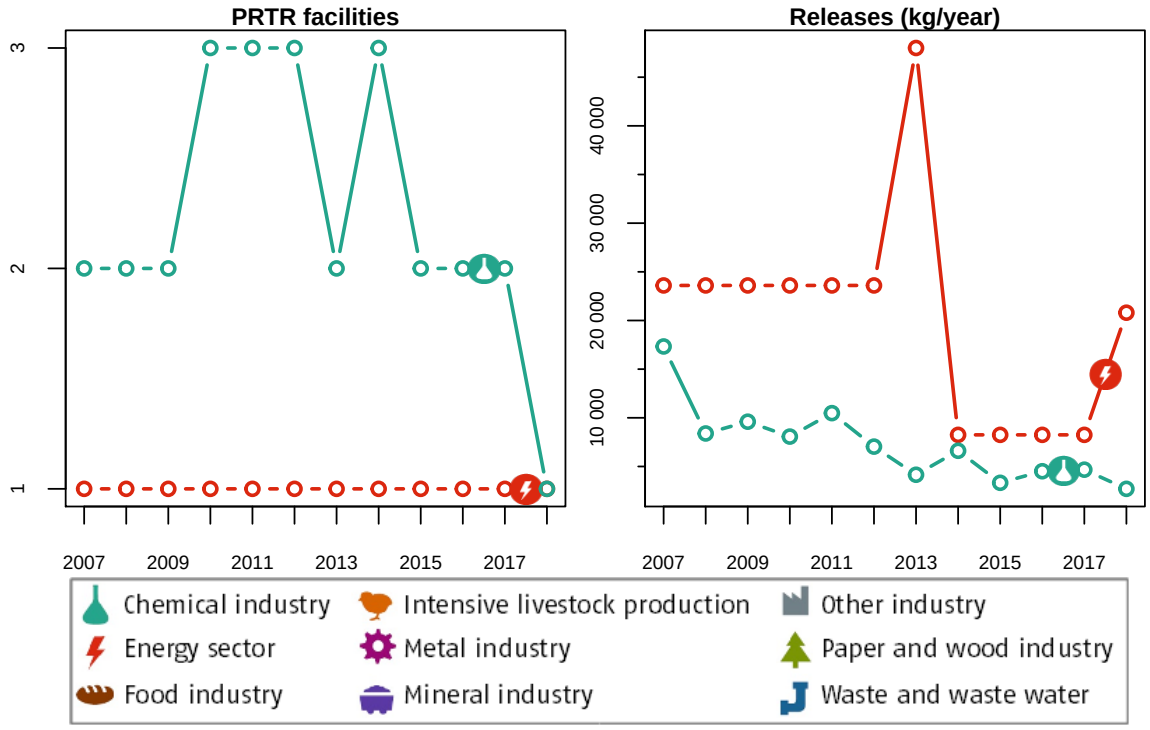



**Figure 27:** Annual number of facilities (left) and their releases (right) of the pollutant **"Dichloromethane (DCM)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.20.2 Releases to Water

The threshold is **10 kg "Dichloromethane (DCM)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 2 | 40 | 66 | 51.9 |
| Waste and waste water management | 2 | 40 | 48.5 | 38.2 |
| Energy sector | 1 | 20 | 12.6 | 9.91 |
| **TOTAL** | 5 | 100 | 127 | 100 |

**Table 28:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Dichloromethane (DCM)"** to **Water** of the different industrial sectors including the corresponding shares.

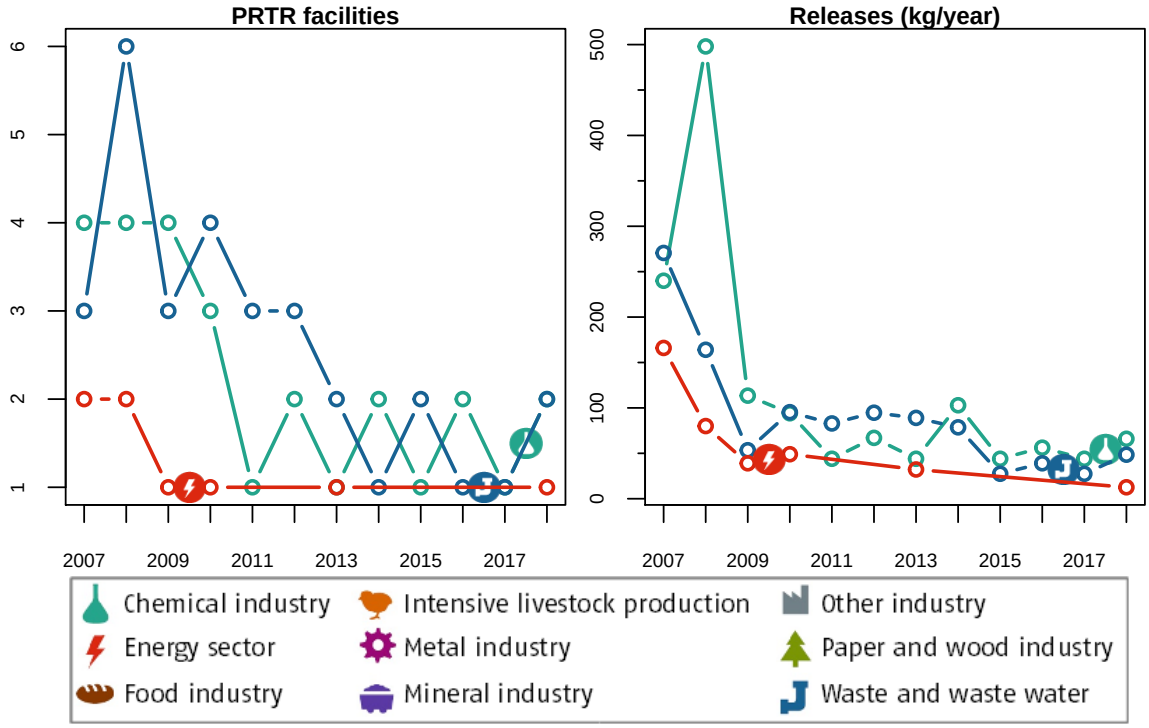



**Figure 28:** Annual number of facilities (left) and their releases (right) of the pollutant **"Dichloromethane (DCM)"** to **Water**, each by the 3 industrial sector(s) with the highest emissions in the year 2018.

### 2.20.3 Releases to Land

The threshold is **10 kg "Dichloromethane (DCM)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Dichloromethane (DCM)"** to **Land** in **2018.**

## 2.21 Diuron

### 2.21.1 Releases to Water

The threshold is **1 kg "Diuron" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 21 | 100 | 49 | 100 |
| **TOTAL** | 21 | 100 | 49 | 100 |

**Table 29:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Diuron"** to **Water** of the different industrial sectors including the corresponding shares.

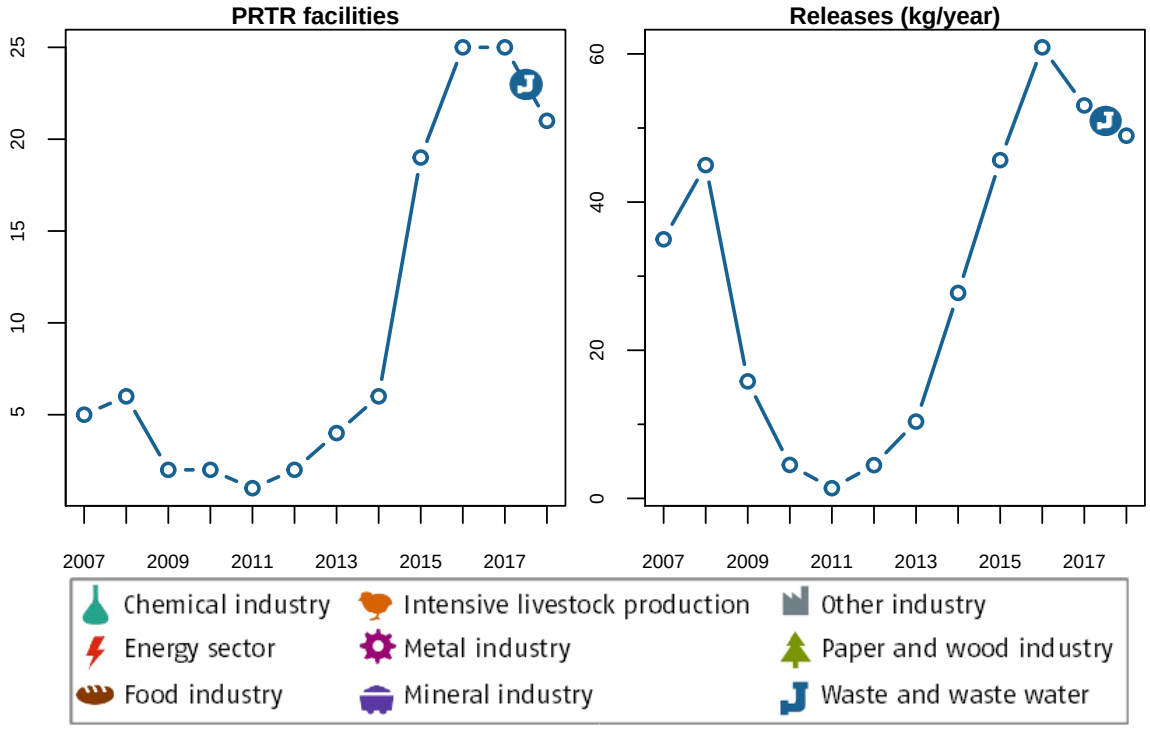



**Figure 29:** Annual number of facilities (left) and their releases (right) of the pollutant **"Diuron"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.21.2 Releases to Land

The threshold is **1 kg "Diuron" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Diuron"** to **Land** in **2018**.

## 2.22 Fluoranthene

### 2.22.1 Releases to Water

The threshold is **1 kg "Fluoranthene" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 2 | 100 | 11.9 | 100 |
| **TOTAL** | 2 | 100 | 11.9 | 100 |

**Table 30:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Fluoranthene"** to **Water** of the different industrial sectors including the corresponding shares.

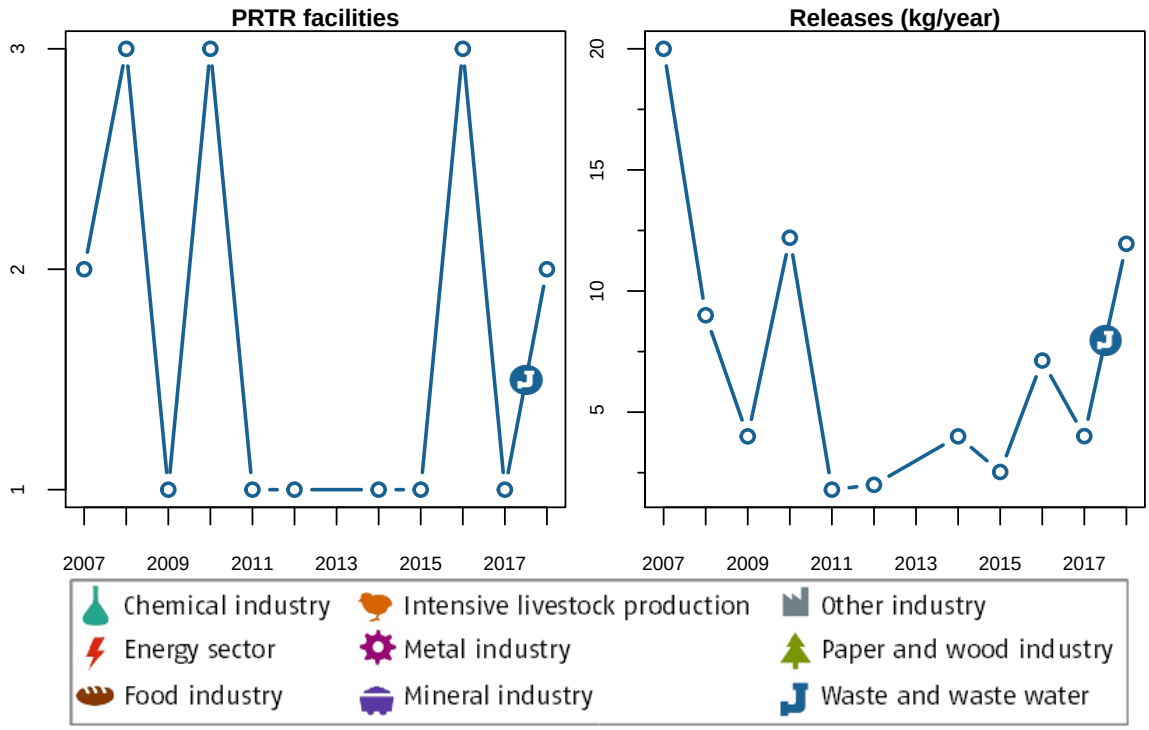



**Figure 30:** Annual number of facilities (left) and their releases (right) of the pollutant **"Fluoranthene"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.23 Fluorides (as total F)

### 2.23.1 Releases to Water

The threshold is **2 000 kg "Fluorides (as total F)" per year.** Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 38 | 59.4 | 816 270 | 52.8 |
| Metal industry | 5 | 7.81 | 332 760 | 21.5 |
| Chemical industry | 12 | 18.8 | 197 880 | 12.8 |
| Energy sector | 7 | 10.9 | 185 100 | 12 |
| Mineral industry | 2 | 3.12 | 13 840 | 0.895 |
| **TOTAL** | 64 | 100 | 1 545 850 | 100 |

**Table 31:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Fluorides (as total F)"** to **Water** of the different industrial sectors including the corresponding shares.

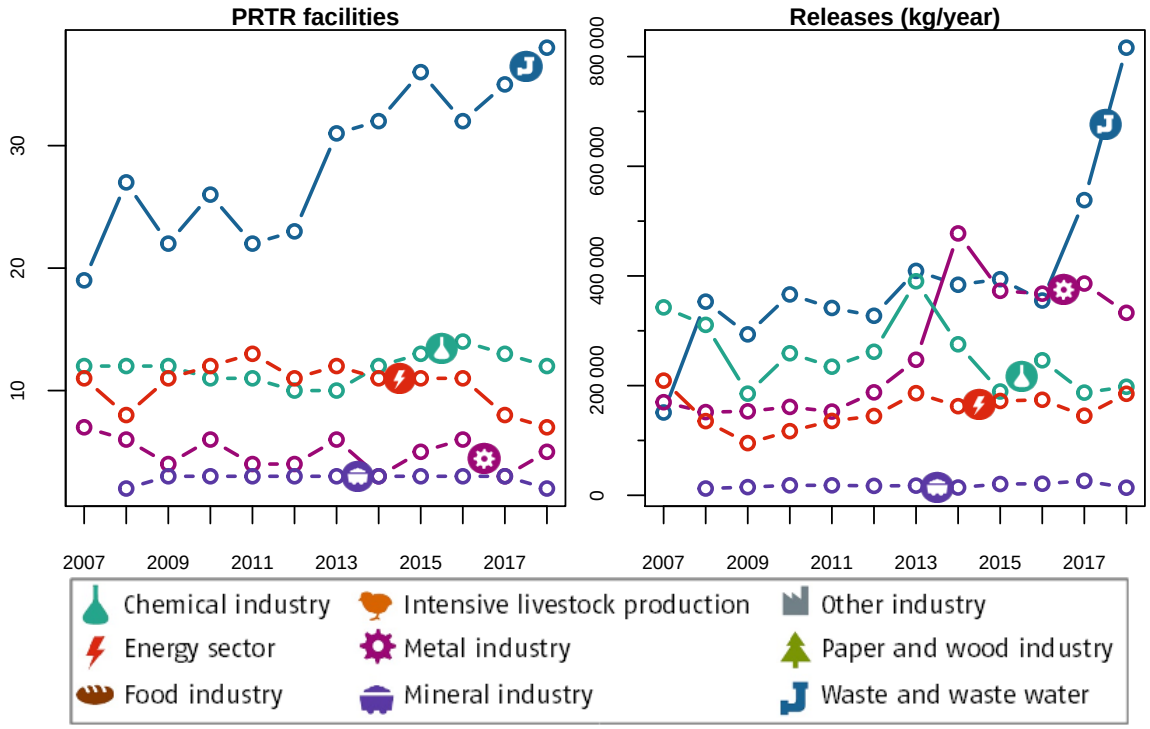



**Figure 31:** Annual number of facilities (left) and their releases (right) of the pollutant **"Fluorides (as total F)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.23.2 Releases to Land

The threshold is **2 000 kg "Fluorides (as total F)" per year.** Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Fluorides (as total F)"** to **Land** in **2018.**

## 2.24 Fluorine and inorganic compounds (as HF)

### 2.24.1 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 been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 16 | 72.7 | 245 100 | 61.5 |
| Metal industry | 6 | 27.3 | 153 200 | 38.5 |
| **TOTAL** | 22 | 100 | 398 300 | 100 |

**Table 32:** For the reporting year **2018** — 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.

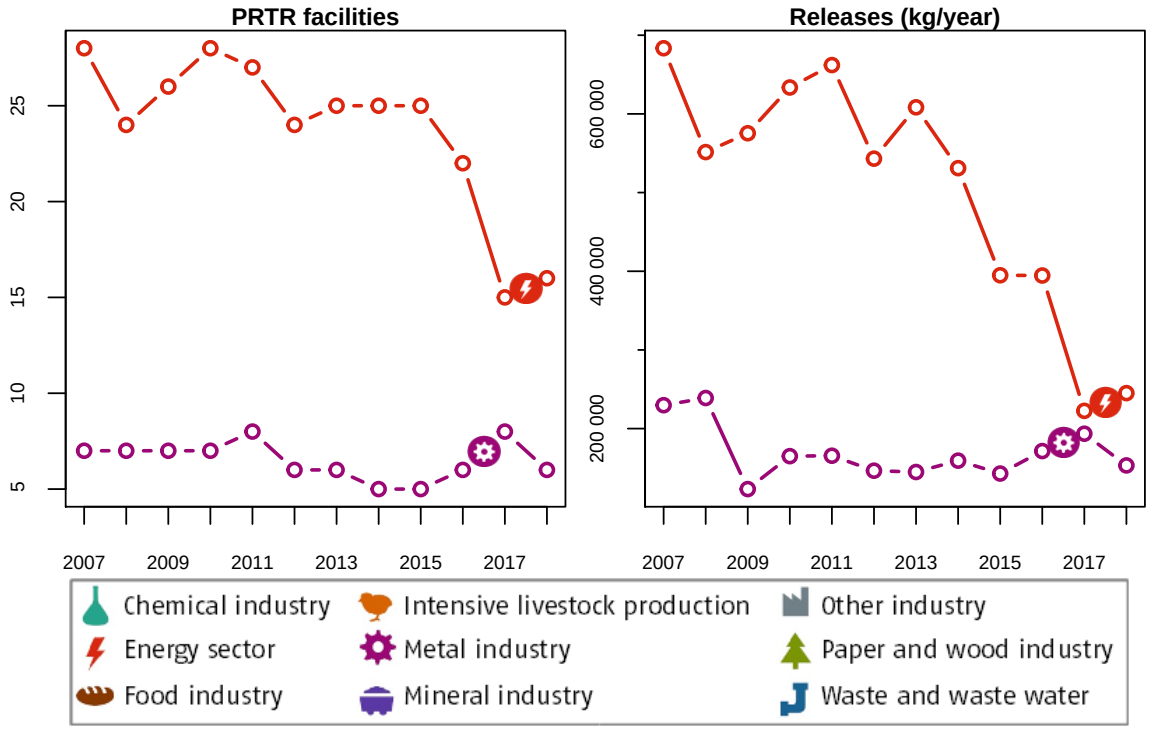



**Figure 32:** Annual number of facilities (left) and their releases (right) of the pollutant **"Fluorine and inorganic compounds (as HF)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 2.25 Halogenated organic compounds (as AOX)

### 2.25.1 Releases to Water

The threshold is **1 000 kg "Halogenated organic compounds (as AOX)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 32 | 72.7 | 92 760 | 49.4 |
| Chemical industry | 6 | 13.6 | 43 080 | 22.9 |
| Paper- and wood industry | 2 | 4.55 | 31 800 | 16.9 |
| Energy sector | 3 | 6.82 | 19 150 | 10.2 |
| Metal industry | 1 | 2.27 | 1 150 | 0.612 |
| **TOTAL** | 44 | 100 | 187 940 | 100 |

**Table 33:** For the reporting year **2018** — 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.

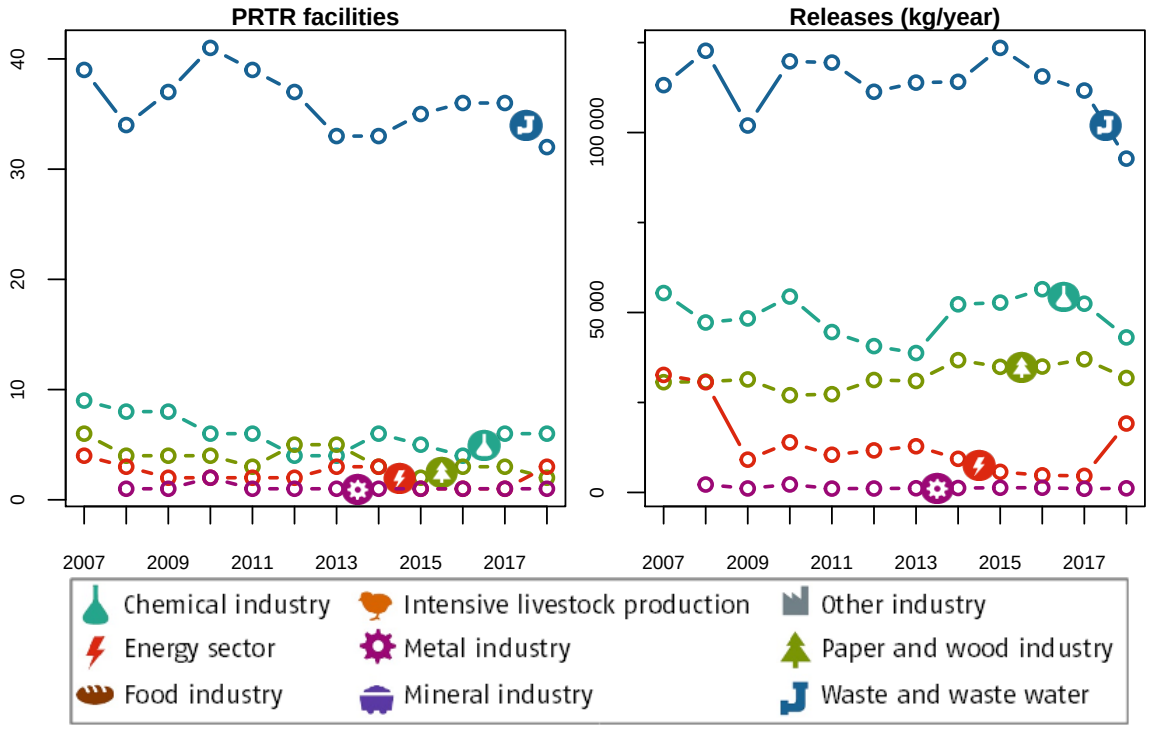



**Figure 33:** Annual number of facilities (left) and their releases (right) of the pollutant **"Halogenated organic compounds (as AOX)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.25.2 Releases to Land

The threshold is **1 000 kg "Halogenated organic compounds (as AOX)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Halogenated organic compounds (as AOX)"** to **Land** in **2018**.

## 2.26 Hydro-fluorocarbons (HFCs)

### 2.26.1 Releases to Air

The threshold is **100 kg "Hydro-fluorocarbons (HFCs)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 15 | 78.9 | 265 905 | 99.2 |
| Energy sector | 4 | 21.1 | 2 024 | 0.755 |
| **TOTAL** | 19 | 100 | 267 929 | 100 |

**Table 34:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Hydro-fluorocarbons (HFCs)"** to **Air** of the different industrial sectors including the corresponding shares.

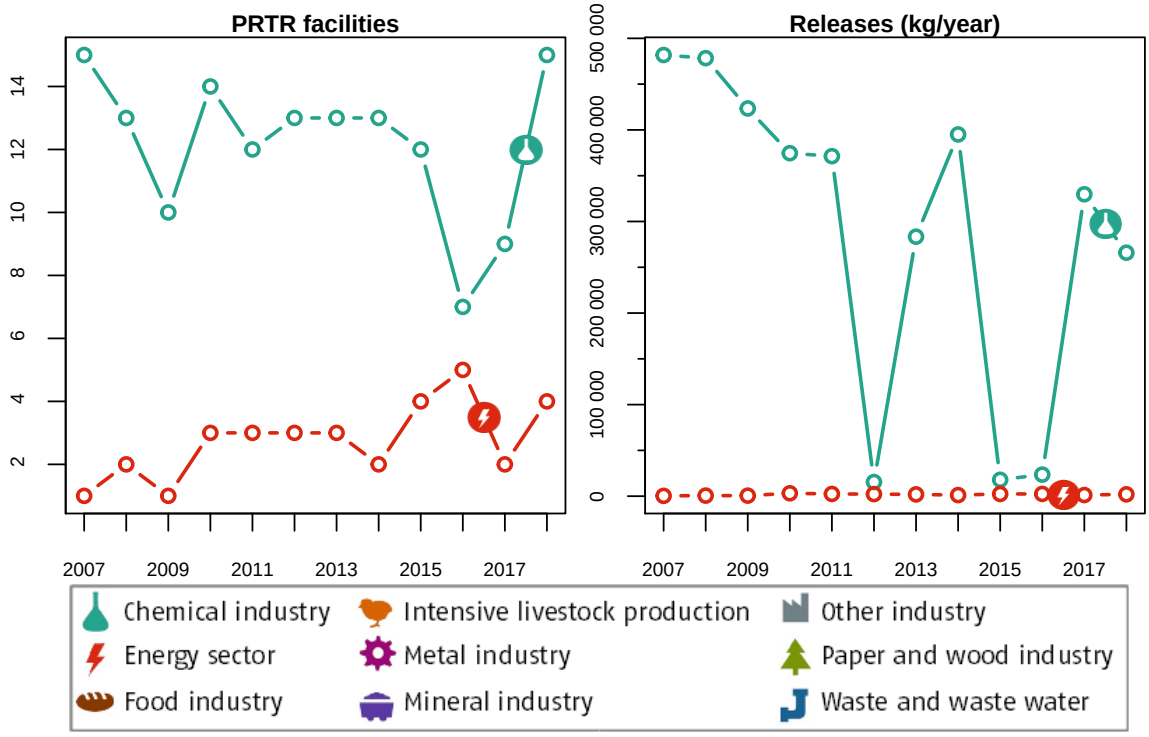



**Figure 34:** Annual number of facilities (left) and their releases (right) of the pollutant **"Hydro-fluorocarbons (HFCs)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 2.27 Hydrochlorofluorocarbons(HCFCs)

### 2.27.1 Releases to Air

The threshold is **1 kg "Hydrochlorofluorocarbons(HCFCs)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 2 | 40 | 422 | 94.6 |
| Waste and waste water management | 3 | 60 | 24.2 | 5.42 |
| **TOTAL** | 5 | 100 | 446 | 100 |

**Table 35:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Hydrochlorofluorocarbons(HCFCs)"** to **Air** of the different industrial sectors including the corresponding shares.

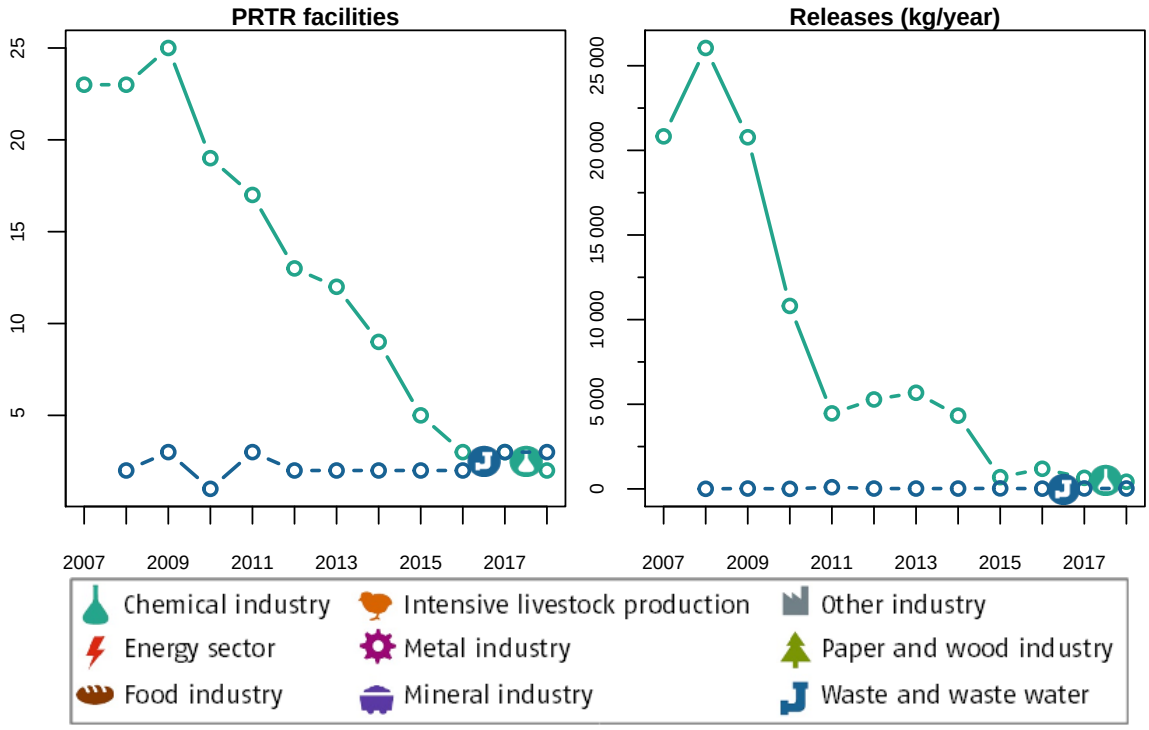



**Figure 35:** Annual number of facilities (left) and their releases (right) of the pollutant **"Hydrochlorofluorocarbons(HCFCs)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 2.28 Hydrogen cyanide (HCN)

### 2.28.1 Releases to Air

The threshold is **200 kg "Hydrogen cyanide (HCN)" per year.** Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 9 | 81.8 | 3 468 | 77.2 |
| Chemical industry | 2 | 18.2 | 1 024 | 22.8 |
| **TOTAL** | 11 | 100 | 4 492 | 100 |

**Table 36:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Hydrogen cyanide (HCN)"** to **Air** of the different industrial sectors including the corresponding shares.

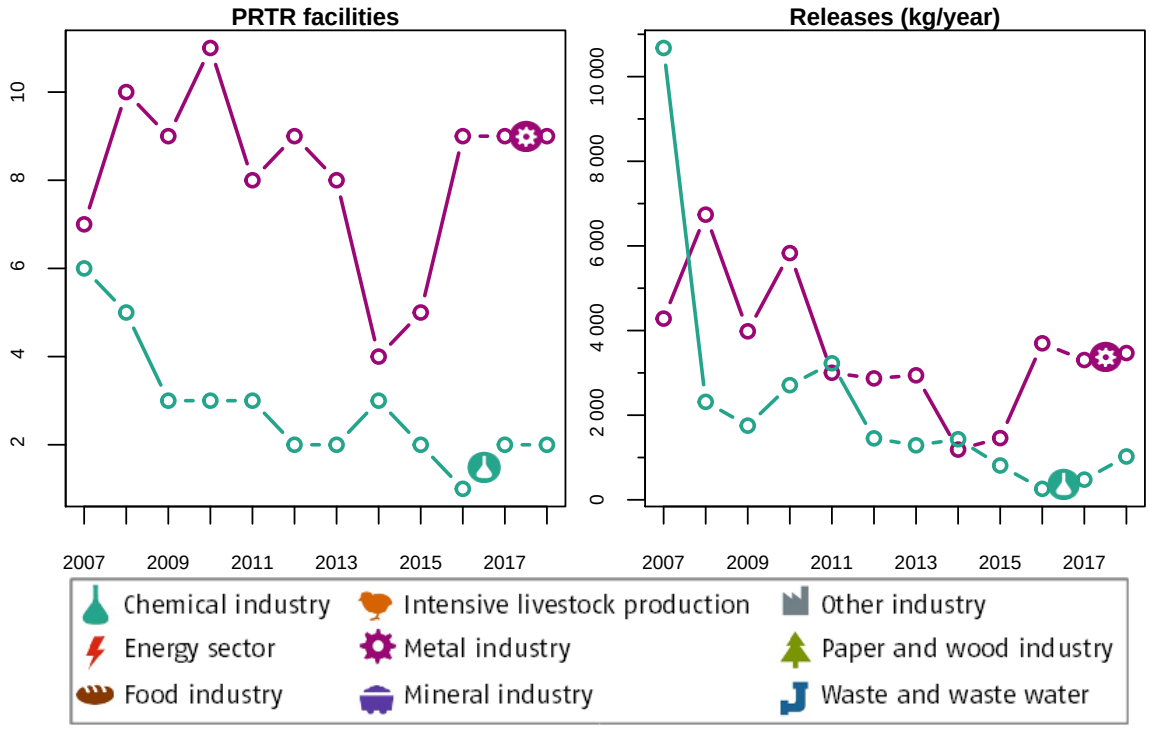



**Figure 36:** Annual number of facilities (left) and their releases (right) of the pollutant **"Hydrogen cyanide (HCN)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 2.29 Isoproturon

### 2.29.1 Releases to Water

The threshold is **1 kg "Isoproturon" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 10 | 100 | 18.2 | 100 |
| **TOTAL** | 10 | 100 | 18.2 | 100 |

**Table 37:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Isoproturon"** to **Water** of the different industrial sectors including the corresponding shares.

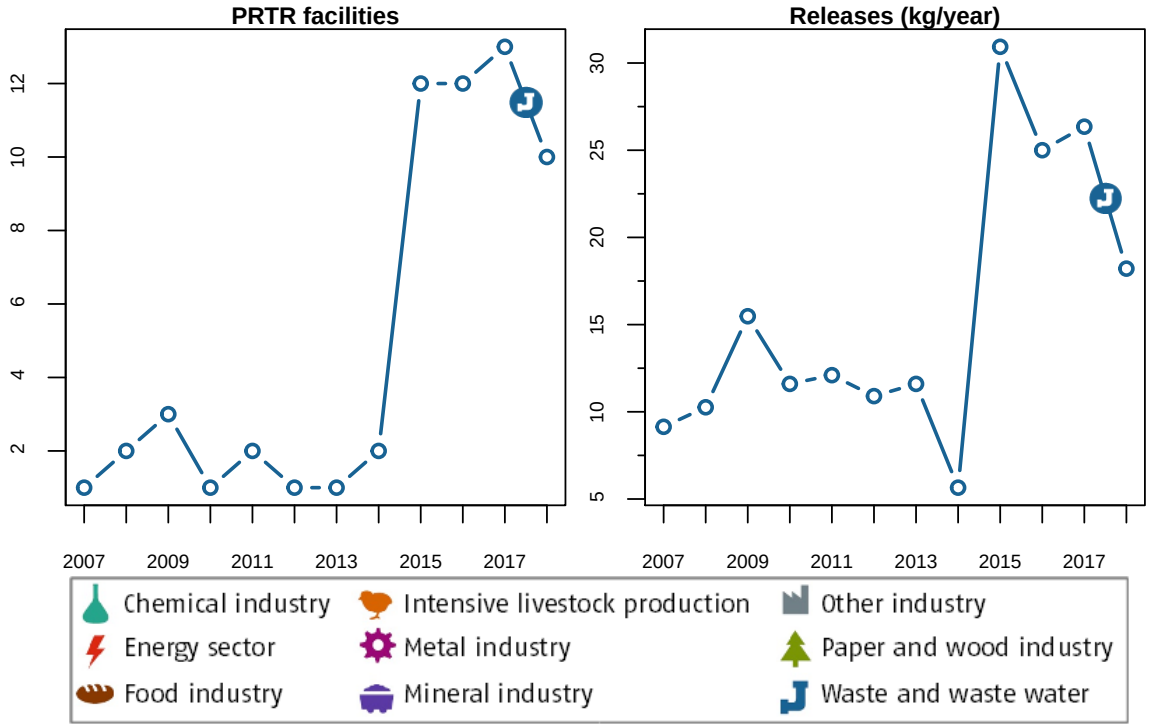



**Figure 37:** Annual number of facilities (left) and their releases (right) of the pollutant **"Isoproturon"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.29.2 Releases to Land

The threshold is **1 kg "Isoproturon" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Isoproturon"** to **Land** in **2018**.

## 2.30 Lead and compounds (as Pb)

### 2.30.1 Releases to Air

The threshold is **200 kg "Lead and compounds (as Pb)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 12 | 75 | 26 410 | 89.2 |
| Energy sector | 4 | 25 | 3 186 | 10.8 |
| **TOTAL** | 16 | 100 | 29 596 | 100 |

**Table 38:** For the reporting year **2018** — 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.

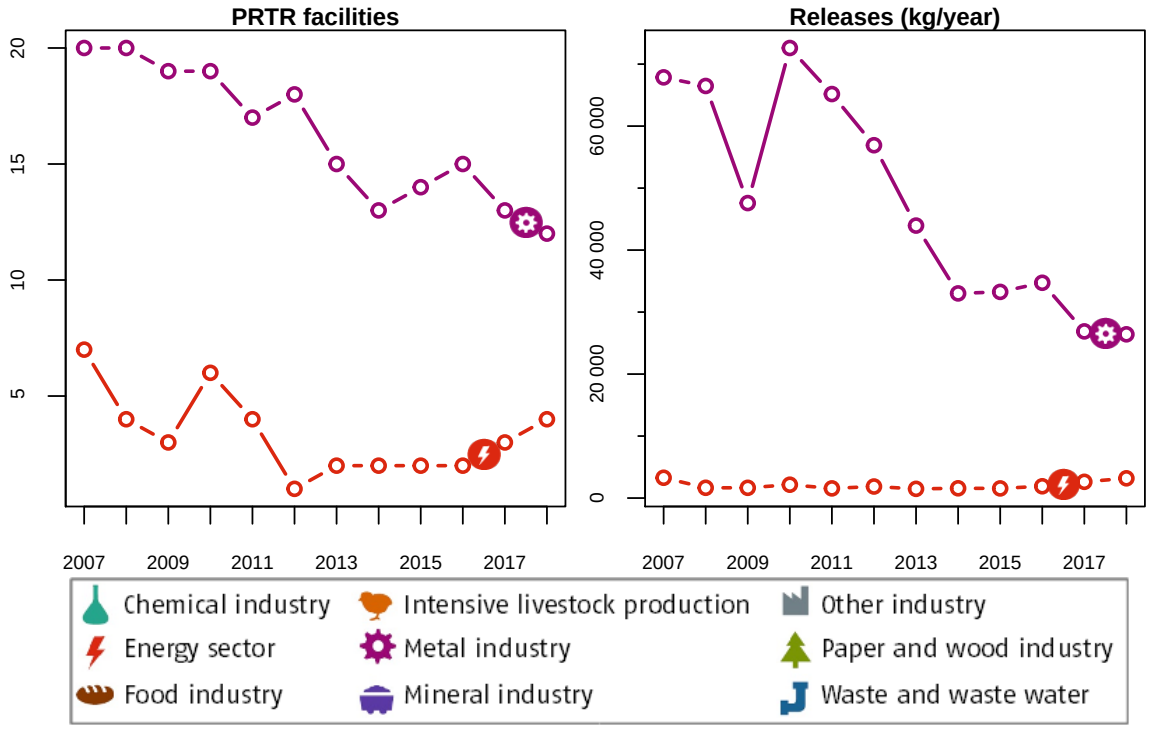



**Figure 38:** Annual number of facilities (left) and their releases (right) of the pollutant **"Lead and compounds (as Pb)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.30.2 Releases to Water

The threshold is **20 kg "Lead and compounds (as Pb)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 28 | 57.1 | 2 476 | 54.3 |
| Chemical industry | 8 | 16.3 | 953 | 20.9 |
| Energy sector | 3 | 6.12 | 564 | 12.4 |
| Metal industry | 6 | 12.2 | 388 | 8.51 |
| Mineral industry | 4 | 8.16 | 177 | 3.88 |
| **TOTAL** | 49 | 100 | 4 557 | 100 |

**Table 39:** For the reporting year **2018** — 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.

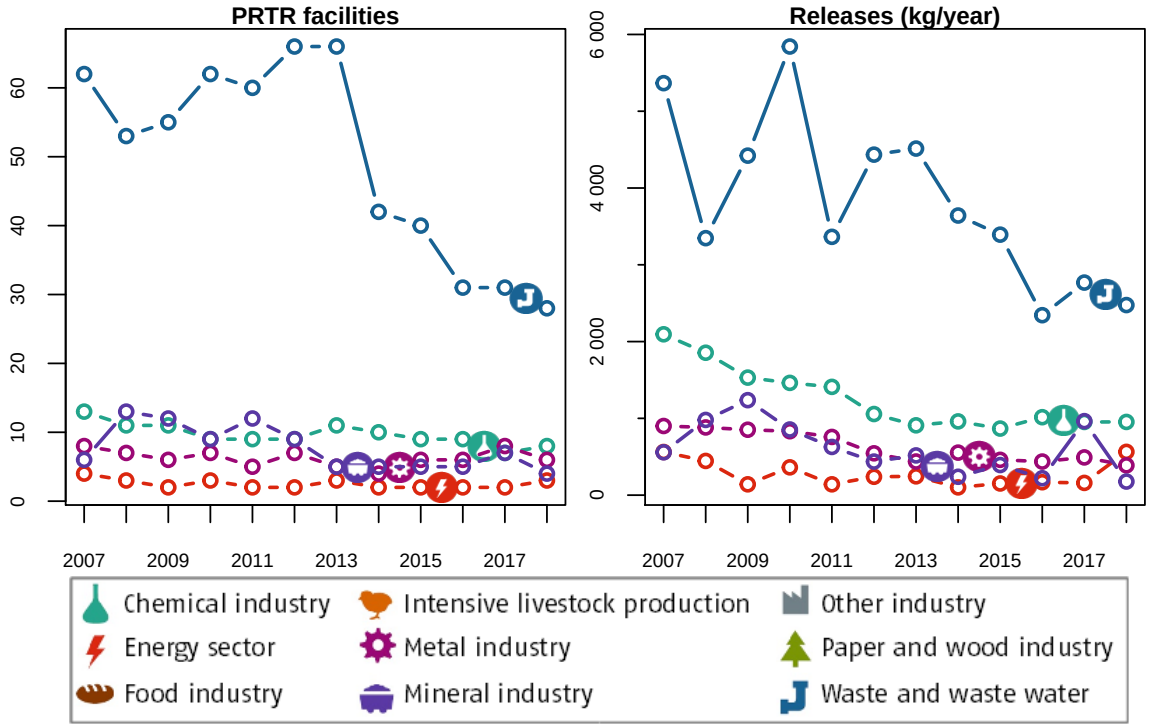



**Figure 39:** Annual number of facilities (left) and their releases (right) of the pollutant **"Lead and compounds (as Pb)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.30.3 Releases to Land

The threshold is **20 kg "Lead and compounds (as Pb)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Lead and compounds (as Pb)"** to **Land** in **2018**.

## 2.31 Mercury and compounds (as Hg)

### 2.31.1 Releases to Air

The threshold is **10 kg "Mercury and compounds (as Hg)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 33 | 44.6 | 4 480 | 78 |
| Mineral industry | 24 | 32.4 | 585 | 10.2 |
| Metal industry | 9 | 12.2 | 531 | 9.25 |
| Chemical industry | 4 | 5.41 | 102 | 1.78 |
| Waste and waste water management | 4 | 5.41 | 44.9 | 0.782 |
| **TOTAL** | 74 | 100 | 5 744 | 100 |

**Table 40:** For the reporting year **2018** — 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.

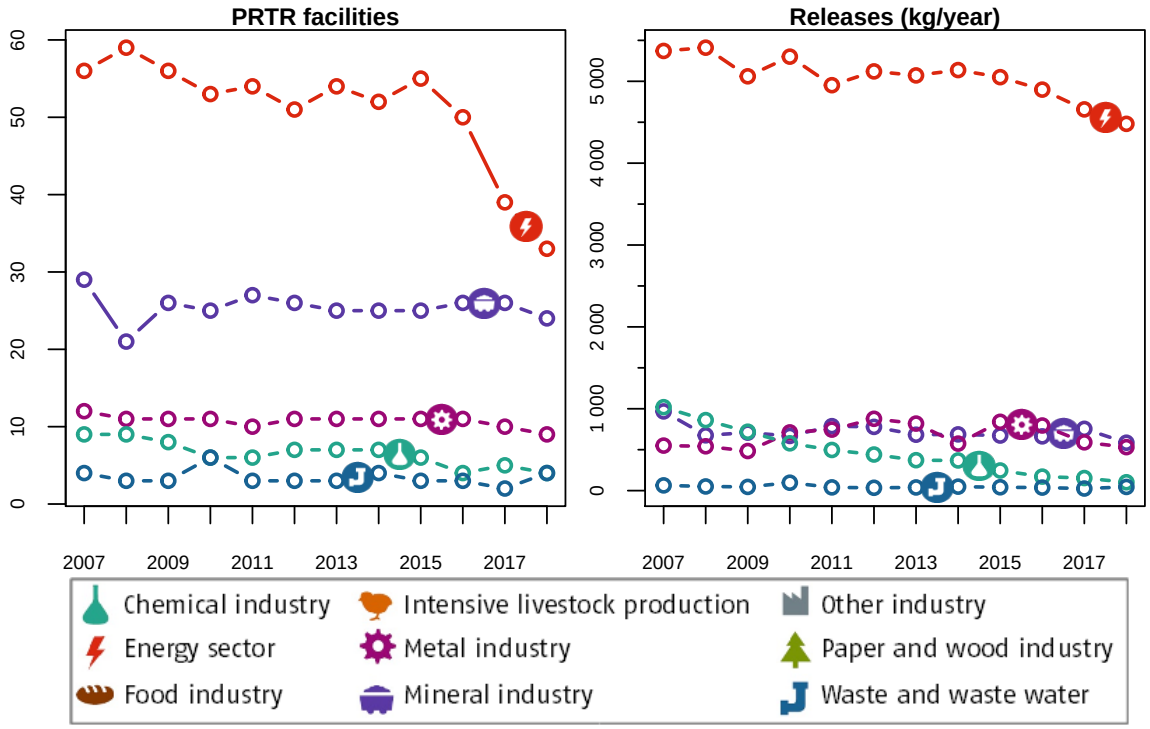



**Figure 40:** Annual number of facilities (left) and their releases (right) of the pollutant **"Mercury and compounds (as Hg)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.31.2 Releases to Water

The threshold is **1 kg "Mercury and compounds (as Hg)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 22 | 71 | 86.1 | 77.1 |
| Chemical industry | 6 | 19.4 | 13.8 | 12.3 |
| Metal industry | 1 | 3.23 | 6.54 | 5.85 |
| Energy sector | 2 | 6.45 | 5.32 | 4.76 |
| **TOTAL** | 31 | 100 | 112 | 100 |

**Table 41:** For the reporting year **2018** — 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.

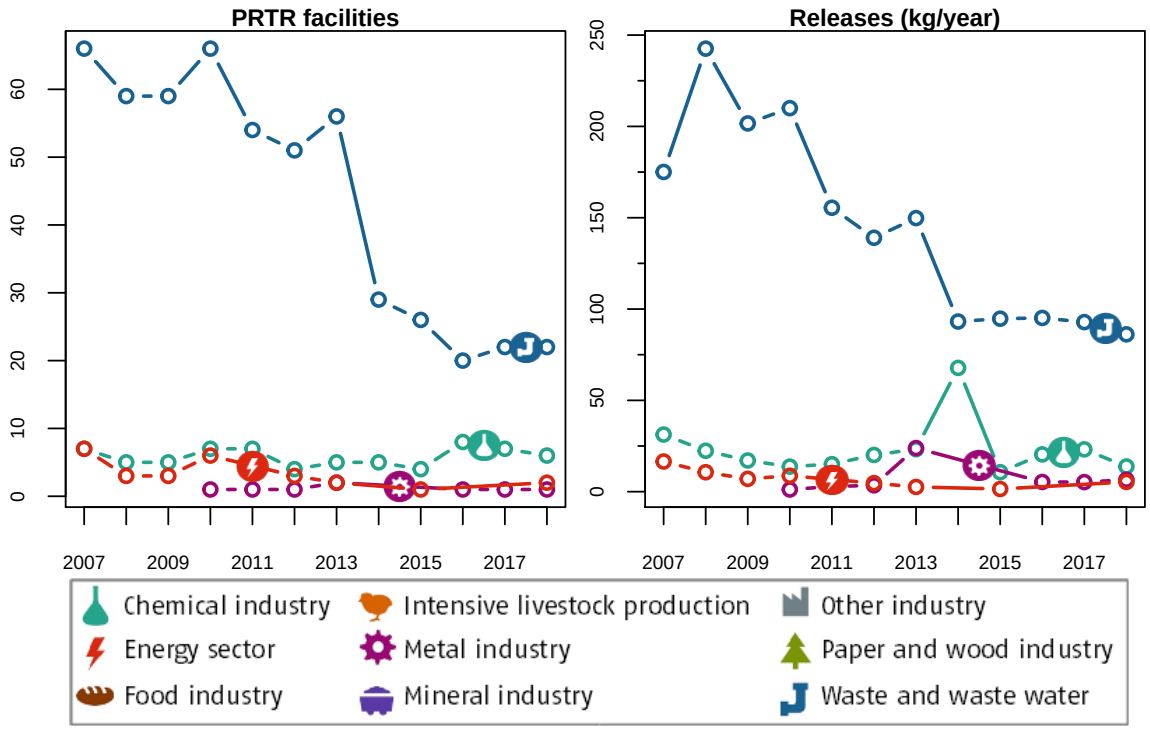



**Figure 41:** Annual number of facilities (left) and their releases (right) of the pollutant **"Mercury and compounds (as Hg)"** to **Water**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

### 2.31.3 Releases to Land

The threshold is **1 kg "Mercury and compounds (as Hg)" per year.** Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Mercury and compounds (as Hg)"** to **Land** in **2018.**

## 2.32 Methane (CH4)

### 2.32.1 Releases to Air

The threshold is **100 000 kg "Methane (CH4)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Mineral industry | 13 | 13.8 | 72 610 000 | 75.4 |
| Waste and waste water management | 65 | 69.1 | 21 088 000 | 21.9 |
| Energy sector | 10 | 10.6 | 1 747 000 | 1.81 |
| Chemical industry | 3 | 3.19 | 499 000 | 0.518 |
| Intensive livestock production and aquaculture | 2 | 2.13 | 275 000 | 0.285 |
| Other industry | 1 | 1.06 | 118 000 | 0.122 |
| **TOTAL** | 94 | 100 | 96 337 000 | 100 |

**Table 42:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Methane (CH4)"** to **Air** of the different industrial sectors including the corresponding shares.

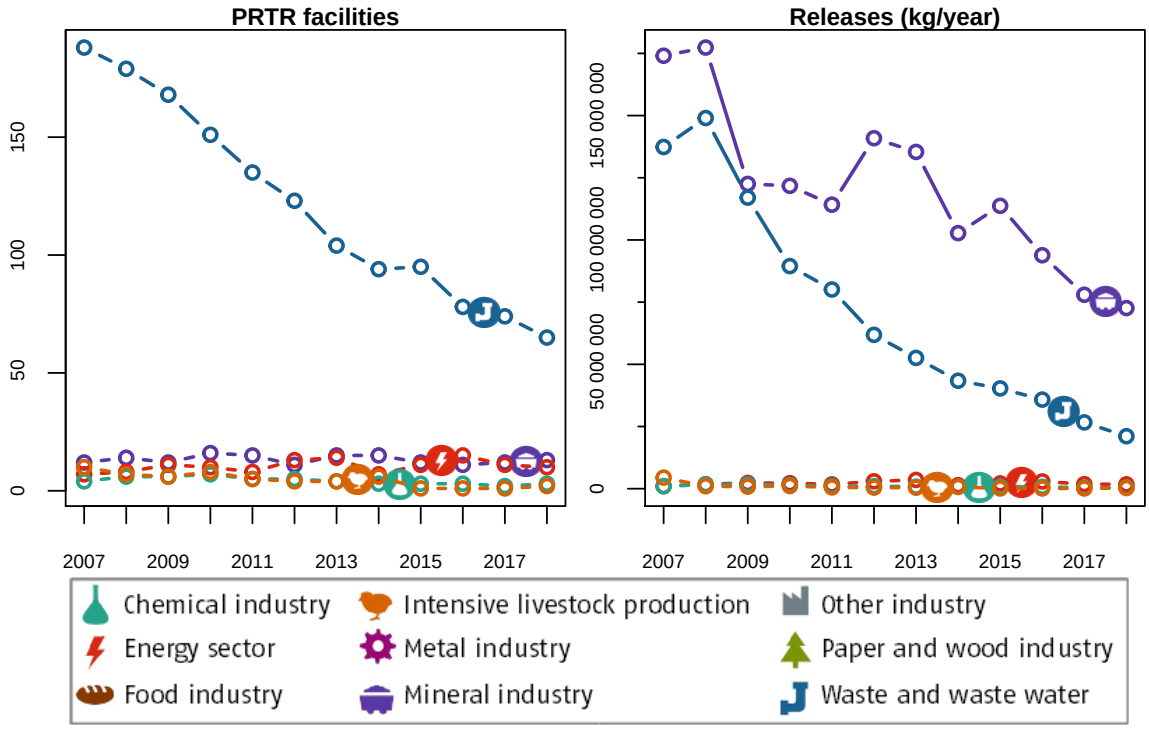



**Figure 42:** Annual number of facilities (left) and their releases (right) of the pollutant **"Methane (CH4)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.33 Naphthalene

### 2.33.1 Releases to Air

The threshold is **100 kg "Naphthalene" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 1 | 12.5 | 4 260 | 75.3 |
| Mineral industry | 5 | 62.5 | 1 103 | 19.5 |
| Energy sector | 1 | 12.5 | 158 | 2.79 |
| Chemical industry | 1 | 12.5 | 133 | 2.35 |
| **TOTAL** | 8 | 100 | 5 654 | 100 |

**Table 43:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Naphthalene"** to **Air** of the different industrial sectors including the corresponding shares.

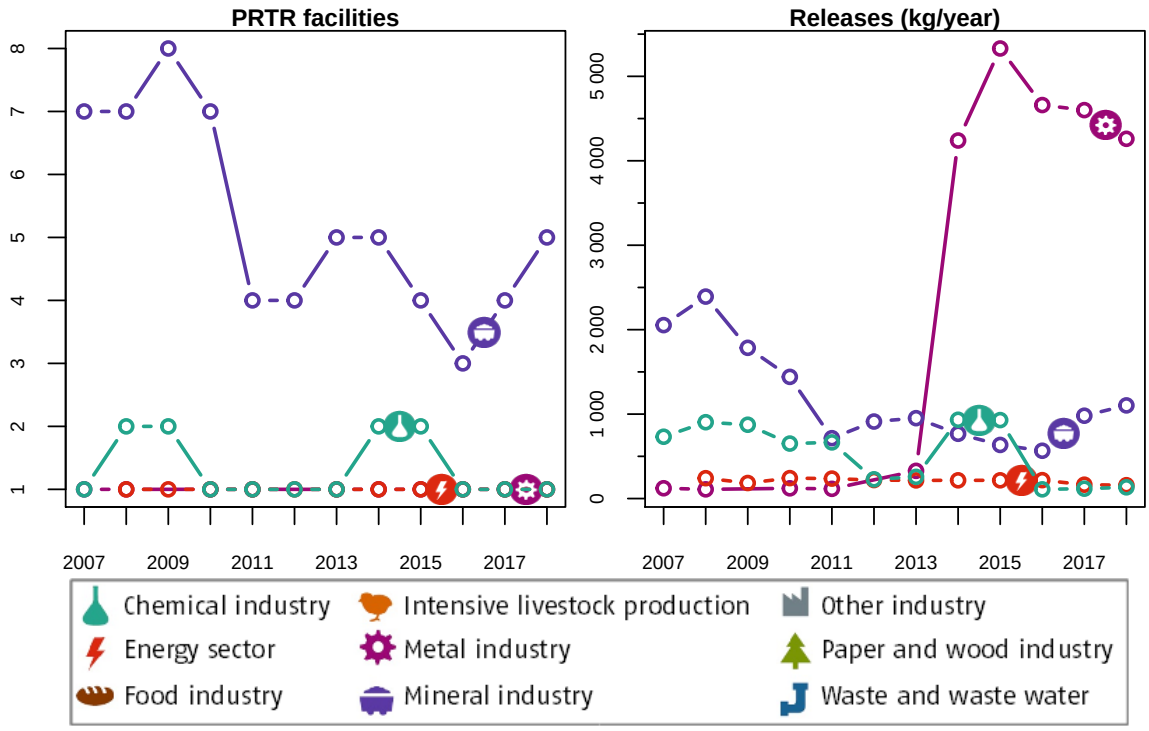



**Figure 43:** Annual number of facilities (left) and their releases (right) of the pollutant **"Naphthalene"** to **Air**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

### 2.33.2 Releases to Water

The threshold is **10 kg "Naphthalene" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Naphthalene"** to **Water** in **2018**.

### 2.33.3 Releases to Land

The threshold is **10 kg "Naphthalene" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Naphthalene"** to **Land** in **2018**.

## 2.34 Nickel and compounds (as Ni)

### 2.34.1 Releases to Air

The threshold is **50 kg "Nickel and compounds (as Ni)" per year.** Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 15 | 51.7 | 3 416 | 66.7 |
| Metal industry | 14 | 48.3 | 1 704 | 33.3 |
| **TOTAL** | 29 | 100 | 5 120 | 100 |

**Table 44:** For the reporting year **2018** — 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.

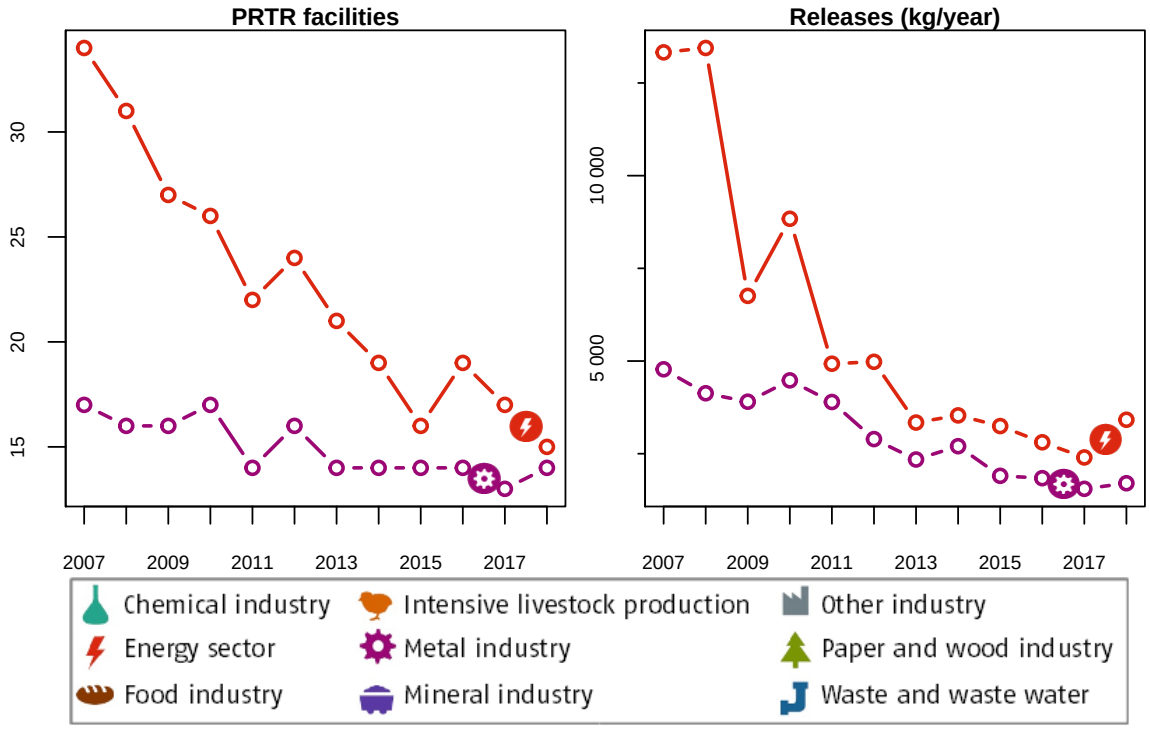



**Figure 44:** Annual number of facilities (left) and their releases (right) of the pollutant **"Nickel and compounds (as Ni)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.34.2 Releases to Water

The threshold is **20 kg "Nickel and compounds (as Ni)" per year.** Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 179 | 78.2 | 18 769 | 72.4 |
| Chemical industry | 20 | 8.73 | 4 137 | 16 |
| Energy sector | 8 | 3.49 | 1 483 | 5.72 |
| Metal industry | 11 | 4.8 | 826 | 3.18 |
| Mineral industry | 5 | 2.18 | 444 | 1.71 |
| Paper- and wood industry | 4 | 1.75 | 217 | 0.838 |
| Other industry | 2 | 0.873 | 51.6 | 0.199 |
| **TOTAL** | 229 | 100 | 25 929 | 100 |

**Table 45:** For the reporting year **2018** — 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.

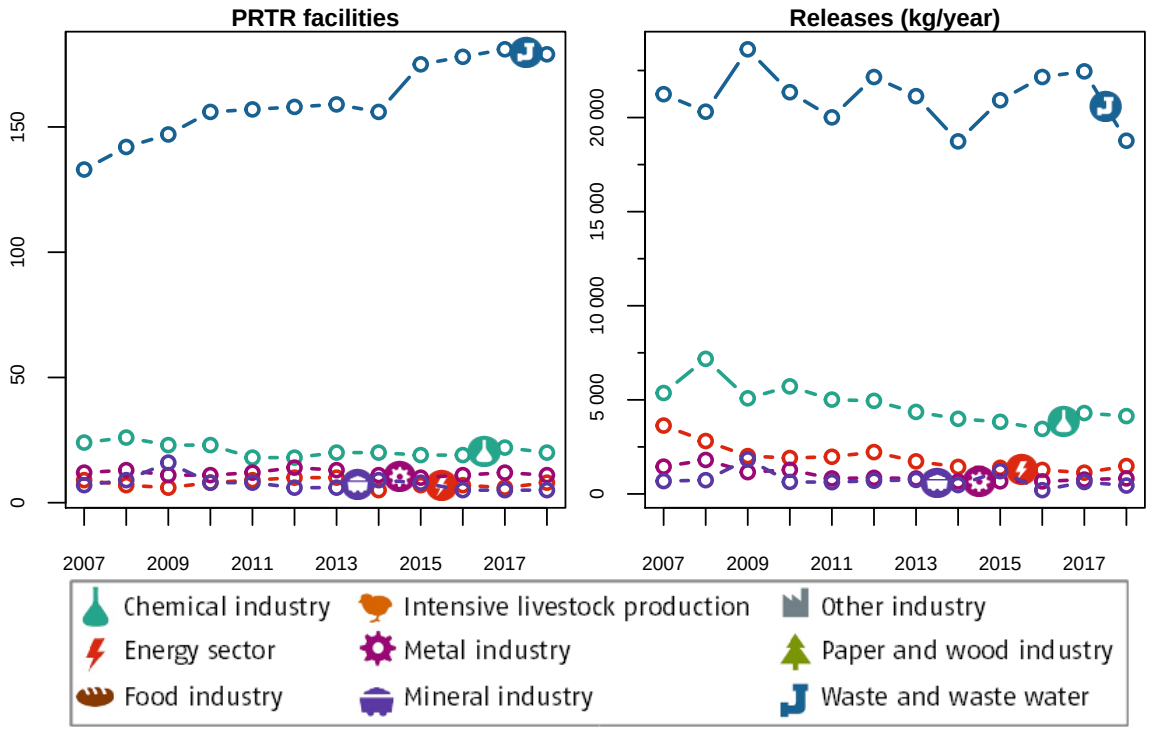



**Figure 45:** Annual number of facilities (left) and their releases (right) of the pollutant **"Nickel and compounds (as Ni)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.34.3 Releases to Land

The threshold is **20 kg "Nickel and compounds (as Ni)" per year.** Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Nickel and compounds (as Ni)"** to **Land** in **2018.**

## 2.35 Nitrogen oxides (NOx/NO2)

### 2.35.1 Releases to Air

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

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 130 | 32.7 | 176 568 000 | 64.7 |
| Mineral industry | 85 | 21.4 | 29 190 000 | 10.7 |
| Metal industry | 34 | 8.56 | 24 225 000 | 8.87 |
| Chemical industry | 33 | 8.31 | 17 263 000 | 6.32 |
| Waste and waste water management | 67 | 16.9 | 14 600 000 | 5.35 |
| Paper- and wood industry | 38 | 9.57 | 9 687 000 | 3.55 |
| Food industry | 6 | 1.51 | 936 000 | 0.343 |
| Other industry | 4 | 1.01 | 547 000 | 0.2 |
| **TOTAL** | 397 | 100 | 273 016 000 | 100 |

**Table 46:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Nitrogen oxides (NOx/NO2)"** to **Air** of the different industrial sectors including the corresponding shares.

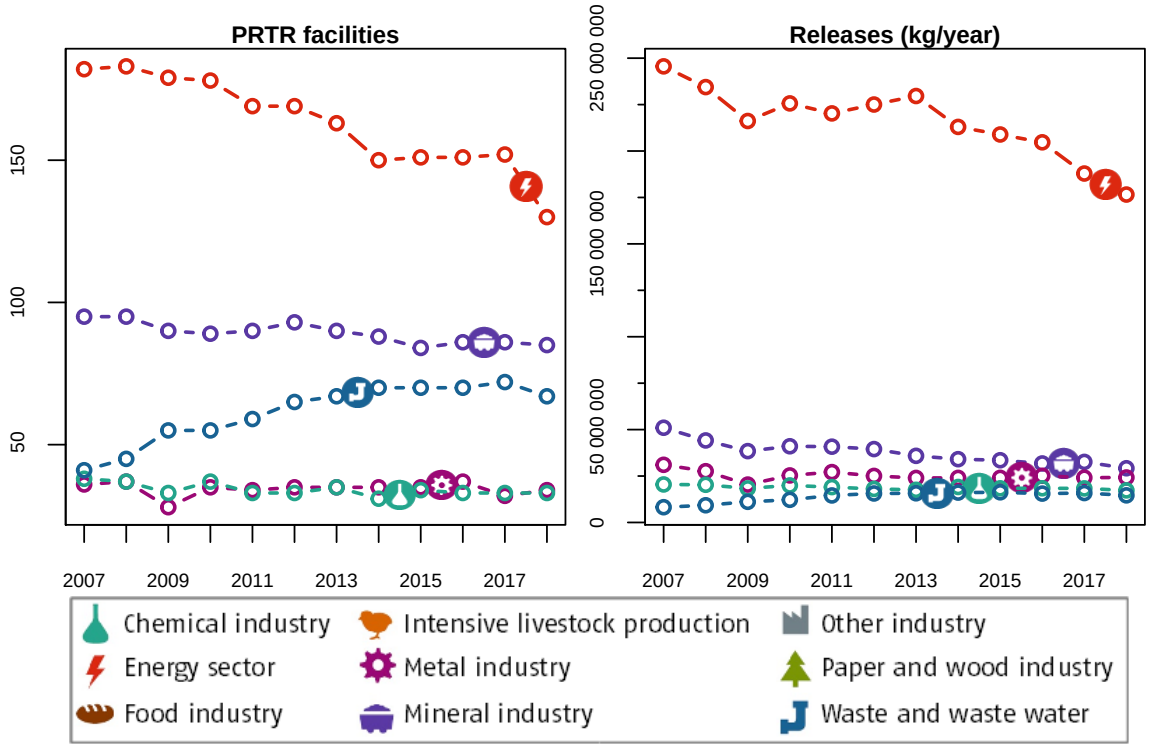



**Figure 46:** Annual number of facilities (left) and their releases (right) of the pollutant **"Nitrogen oxides (NOx/NO2)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.36 Nitrous oxide (N2O)

### 2.36.1 Releases to Air

The threshold is **10 000 kg "Nitrous oxide (N2O)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 41 | 48.8 | 3 004 100 | 42 |
| Chemical industry | 12 | 14.3 | 2 938 300 | 41.1 |
| Waste and waste water management | 25 | 29.8 | 989 700 | 13.8 |
| Mineral industry | 3 | 3.57 | 169 400 | 2.37 |
| Intensive livestock production and aquaculture | 2 | 2.38 | 35 200 | 0.492 |
| Food industry | 1 | 1.19 | 11 300 | 0.158 |
| **TOTAL** | 84 | 100 | 7 148 000 | 100 |

**Table 47:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Nitrous oxide (N2O)"** to **Air** of the different industrial sectors including the corresponding shares.

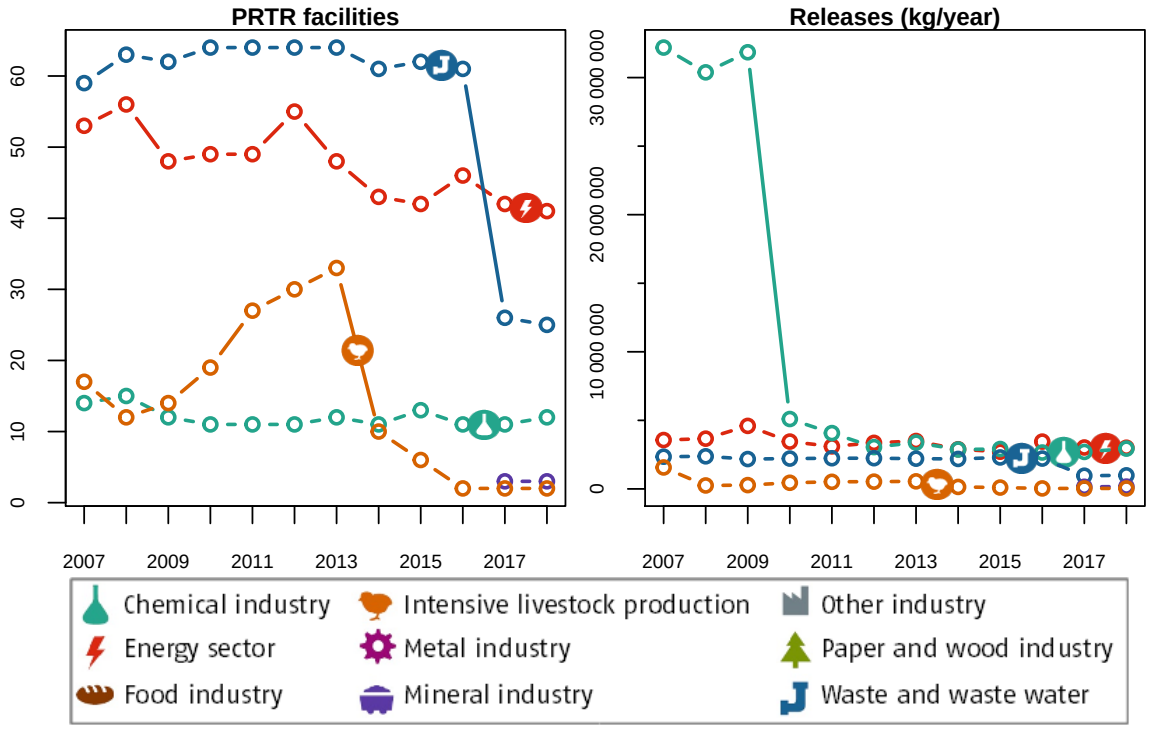



**Figure 47:** Annual number of facilities (left) and their releases (right) of the pollutant **"Nitrous oxide (N2O)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.37 Non-methane volatile organic compounds (NMVOC)

### 2.37.1 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 been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Other industry | 44 | 42.3 | 13 175 000 | 33.6 |
| Chemical industry | 9 | 8.65 | 8 318 000 | 21.2 |
| Paper- and wood industry | 15 | 14.4 | 7 463 000 | 19 |
| Energy sector | 13 | 12.5 | 4 668 000 | 11.9 |
| Food industry | 10 | 9.62 | 2 868 000 | 7.31 |
| Metal industry | 9 | 8.65 | 2 200 000 | 5.61 |
| Mineral industry | 4 | 3.85 | 528 000 | 1.35 |
| **TOTAL** | 104 | 100 | 39 220 000 | 100 |

**Table 48:** For the reporting year **2018** — 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.

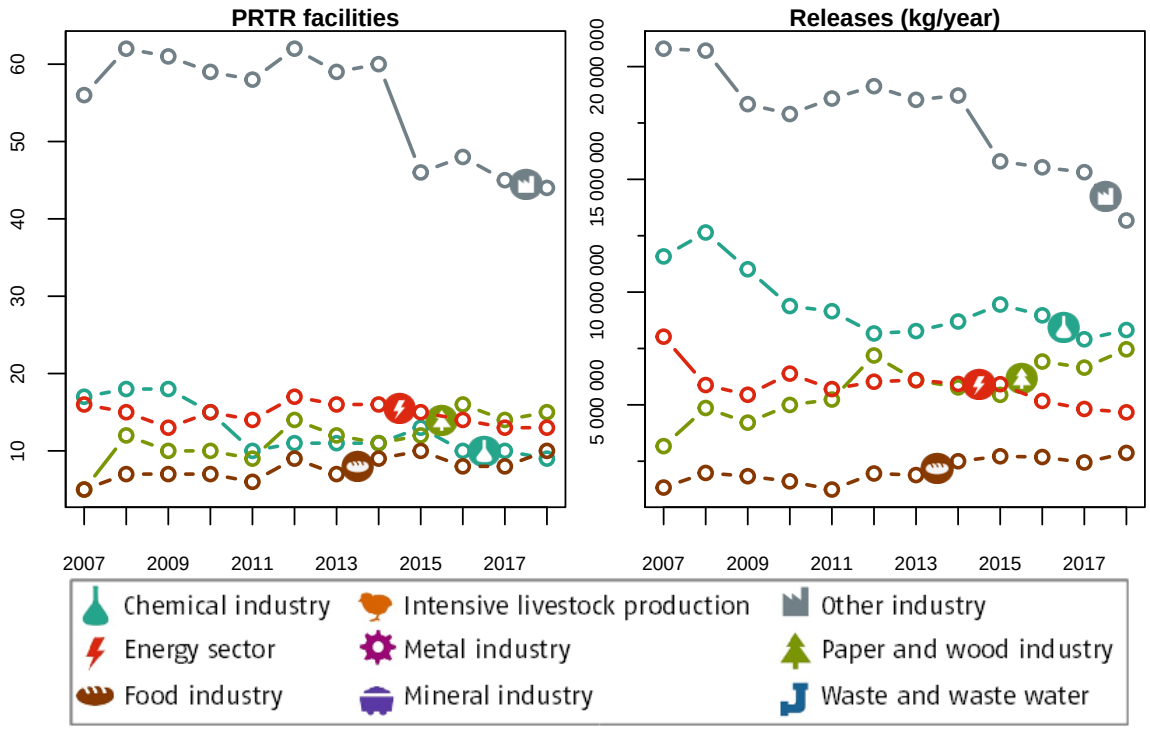



**Figure 48:** Annual number of facilities (left) and their releases (right) of the pollutant **"Non-methane volatile organic compounds (NMVOC)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.38 Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)

### 2.38.1 Releases to Water

The threshold is **1 kg "Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)" per year.** Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 8.33 | 182 | 73.7 |
| Waste and waste water management | 11 | 91.7 | 65 | 26.3 |
| **TOTAL** | 12 | 100 | 247 | 100 |

**Table 49:** For the reporting year **2018** — 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.

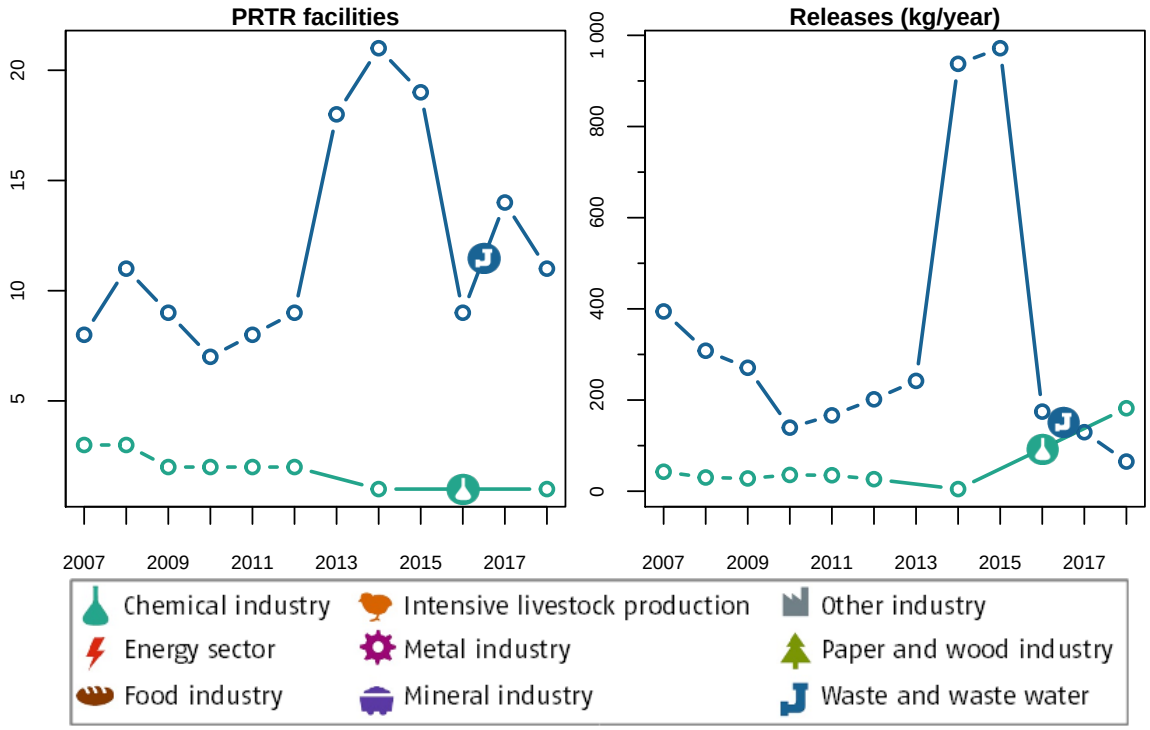



**Figure 49:** Annual number of facilities (left) and their releases (right) of the pollutant **"Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)"** to **Water**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.38.2 Releases to Land

The threshold is **1 kg "Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)" per year.** Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)"** to **Land** in **2018**.

## 2.39 Octylphenols and Octylphenol ethoxylates

### 2.39.1 Releases to Water

The threshold is **1 kg "Octylphenols and Octylphenol ethoxylates" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 3 | 75 | 39.5 | 66.2 |
| Chemical industry | 1 | 25 | 20.2 | 33.8 |
| **TOTAL** | 4 | 100 | 59.7 | 100 |

**Table 50:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Octylphenols and Octylphenol ethoxylates"** to **Water** of the different industrial sectors including the corresponding shares.

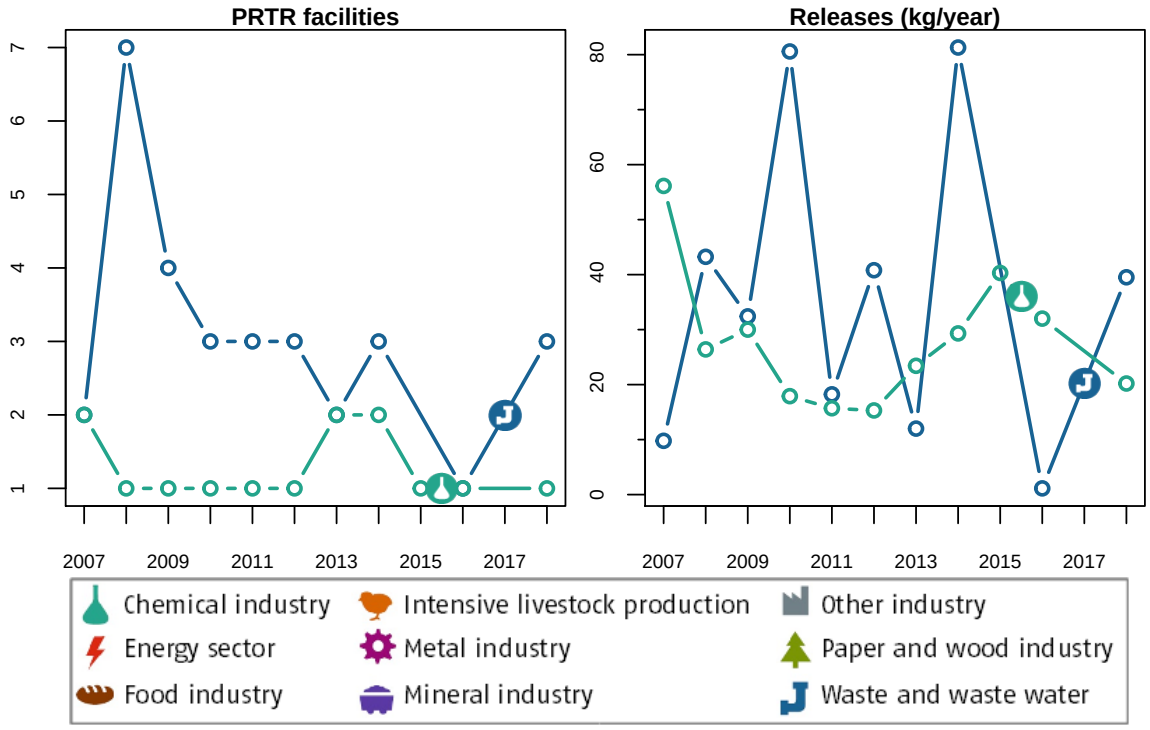



**Figure 50:** Annual number of facilities (left) and their releases (right) of the pollutant **"Octylphenols and Octylphenol ethoxylates"** to **Water**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

# 2.40 Organotin compounds(as total Sn)

## 2.40.1 Releases to Water

The threshold is **50 kg "Organotin compounds(as total Sn)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 50 | 218 | 81 |
| Energy sector | 1 | 50 | 51.1 | 19 |
| **TOTAL** | 2 | 100 | 269 | 100 |

**Table 51:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Organotin compounds(as total Sn)"** to **Water** of the different industrial sectors including the corresponding shares.

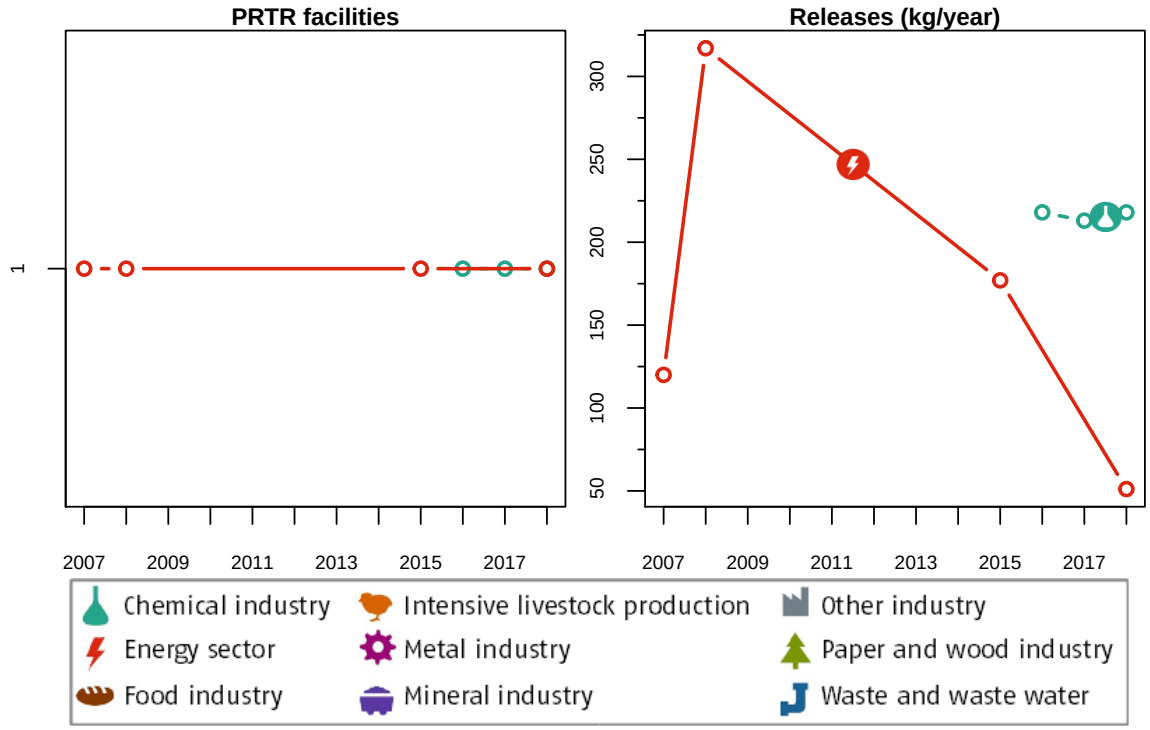



**Figure 51:** Annual number of facilities (left) and their releases (right) of the pollutant **"Organotin compounds(as total Sn)"** to **Water**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 2.40.2 Releases to Land

The threshold is **50 kg "Organotin compounds(as total Sn)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Organotin compounds(as total Sn)"** to **Land** in **2018**.

## 2.41 Particulate matter (PM10)

### 2.41.1 Releases to Air

The threshold is **50 000 kg "Particulate matter (PM10)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 13 | 28.9 | 3 811 400 | 40.5 |
| Energy sector | 16 | 35.6 | 3 175 500 | 33.7 |
| Food industry | 2 | 4.44 | 995 000 | 10.6 |
| Paper- and wood industry | 5 | 11.1 | 696 800 | 7.4 |
| Intensive livestock production and aquaculture | 4 | 8.89 | 282 400 | 3 |
| Mineral industry | 3 | 6.67 | 267 700 | 2.84 |
| Chemical industry | 2 | 4.44 | 191 600 | 2.03 |
| **TOTAL** | 45 | 100 | 9 420 400 | 100 |

**Table 52:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Particulate matter (PM10)"** to **Air** of the different industrial sectors including the corresponding shares.

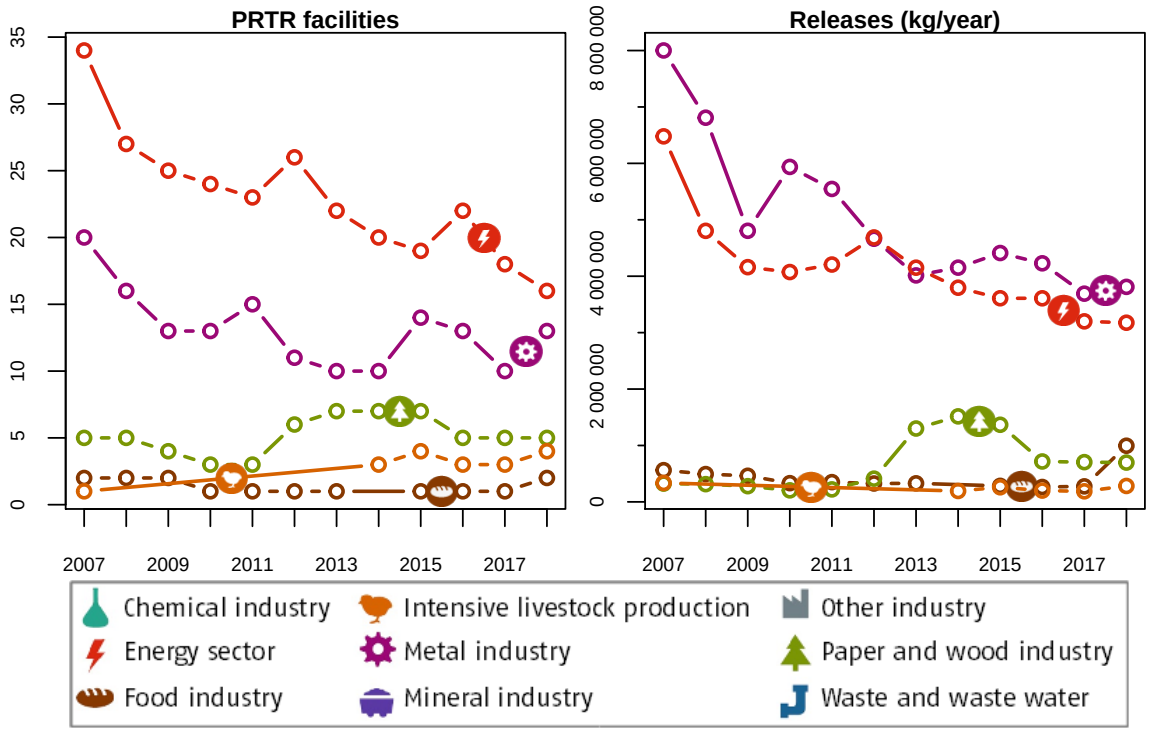



**Figure 52:** Annual number of facilities (left) and their releases (right) of the pollutant **"Particulate matter (PM10)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.42 PCDD + PCDF (dioxins + furans) (as Teq)

### 2.42.1 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 been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 16 | 94.1 | 0.00856 | 98.4 |
| Energy sector | 1 | 5.88 | 0.00014 | 1.61 |
| **TOTAL** | 17 | 100 | 0.0087 | 100 |

**Table 53:** For the reporting year **2018** — 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.

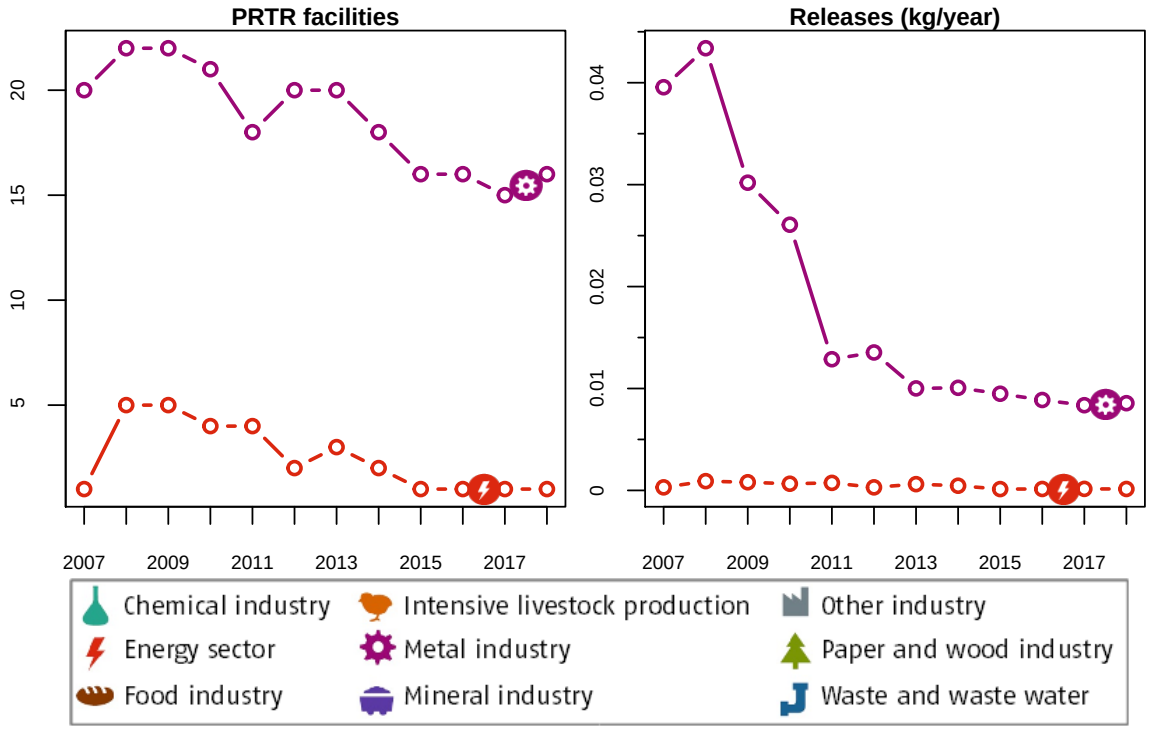



**Figure 53:** Annual number of facilities (left) and their releases (right) of the pollutant **"PCDD + PCDF (dioxins + furans) (as Teq)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.42.2 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 been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 50 | 0.000387 | 56.3 |
| Paper- and wood industry | 1 | 50 | 0.0003 | 43.7 |
| **TOTAL** | 2 | 100 | 0.000687 | 100 |

**Table 54:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"PCDD + PCDF (dioxins + furans) (as Teq)"** to **Water** of the different industrial sectors including the corresponding shares.

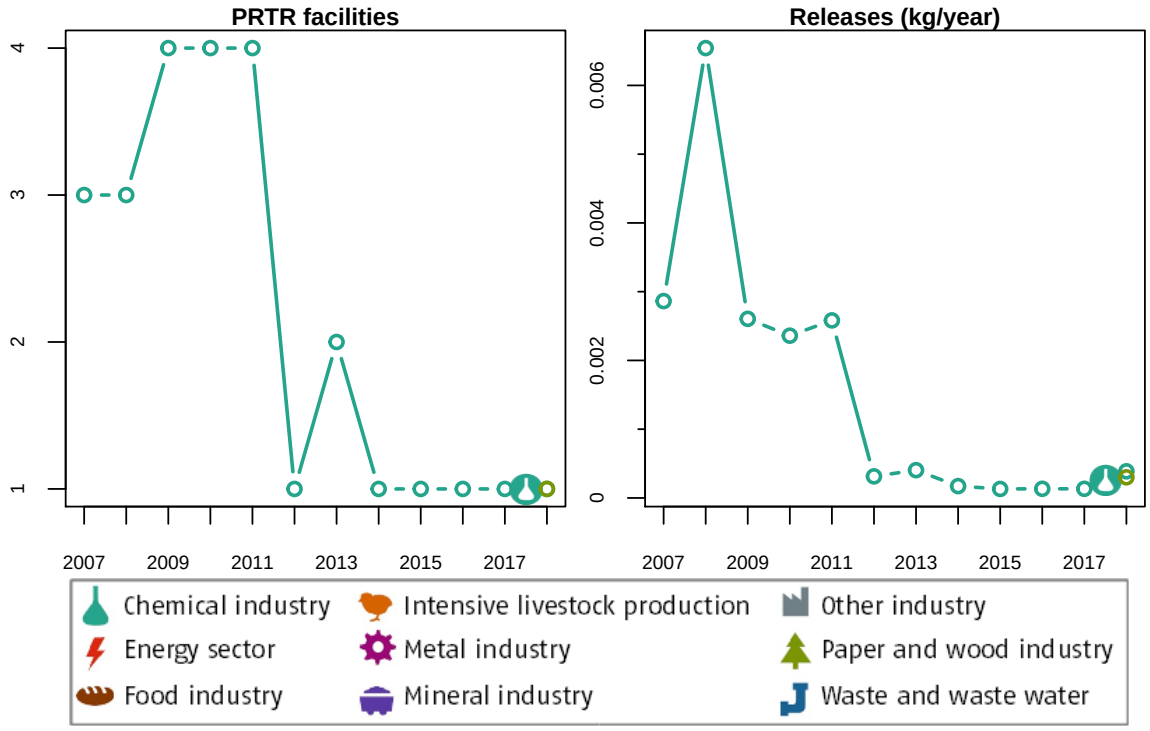



**Figure 54:** Annual number of facilities (left) and their releases (right) of the pollutant **"PCDD + PCDF (dioxins + furans) (as Teq)"** to **Water**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.42.3 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 been reported according to the German PRTR.

No facility reported the release of **"PCDD + PCDF (dioxins + furans) (as Teq)"** to **Land** in **2018.**

## 2.43 Pentachlorophenol (PCP)

### 2.43.1 Releases to Air

The threshold is **10 kg "Pentachlorophenol (PCP)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Pentachlorophenol (PCP)"** to **Air** in **2018**.

### 2.43.2 Releases to Water

The threshold is **1 kg "Pentachlorophenol (PCP)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 1 | 100 | 1.86 | 100 |
| **TOTAL** | 1 | 100 | 1.86 | 100 |

**Table 55:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Pentachlorophenol (PCP)"** to **Water** of the different industrial sectors including the corresponding shares.

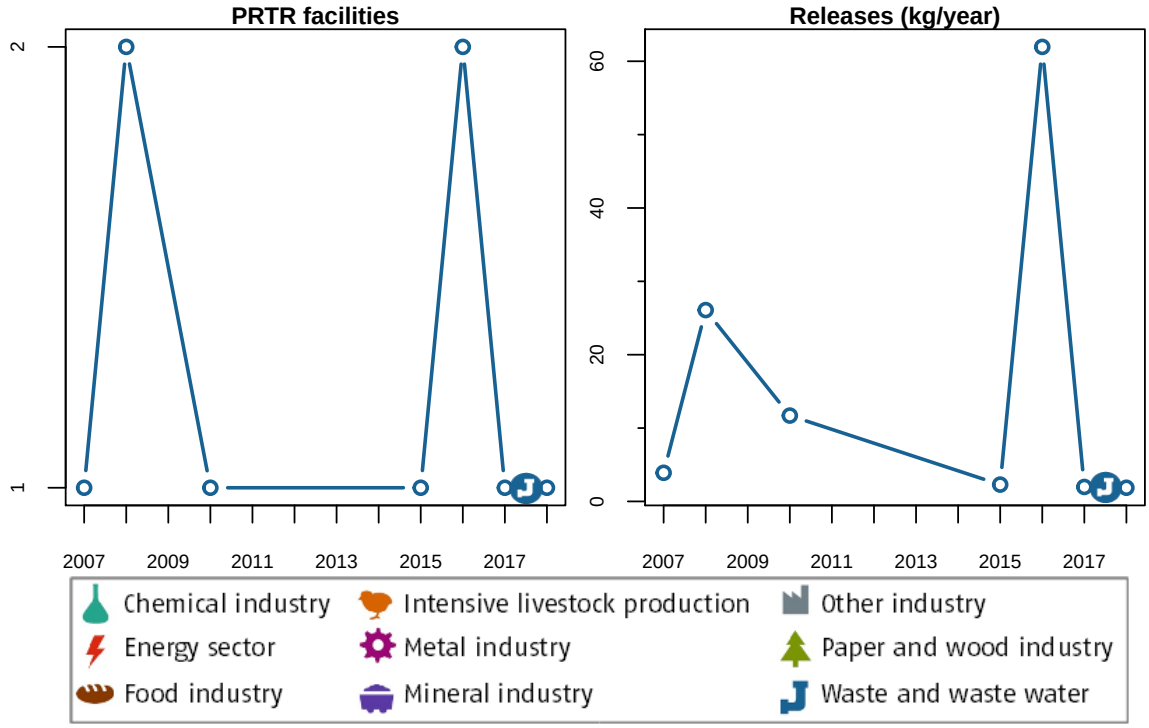



**Figure 55:** Annual number of facilities (left) and their releases (right) of the pollutant **"Pentachlorophenol (PCP)"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.43.3 Releases to Land

The threshold is **1 kg "Pentachlorophenol (PCP)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Pentachlorophenol (PCP)"** to **Land** in **2018**.

## 2.44 Perfluorocarbons (PFCs)

### 2.44.1 Releases to Air

The threshold is **100 kg "Perfluorocarbons (PFCs)" per year.** Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 4 | 100 | 15 930 | 100 |
| **TOTAL** | 4 | 100 | 15 930 | 100 |

**Table 56:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Perfluorocarbons (PFCs)"** to **Air** of the different industrial sectors including the corresponding shares.

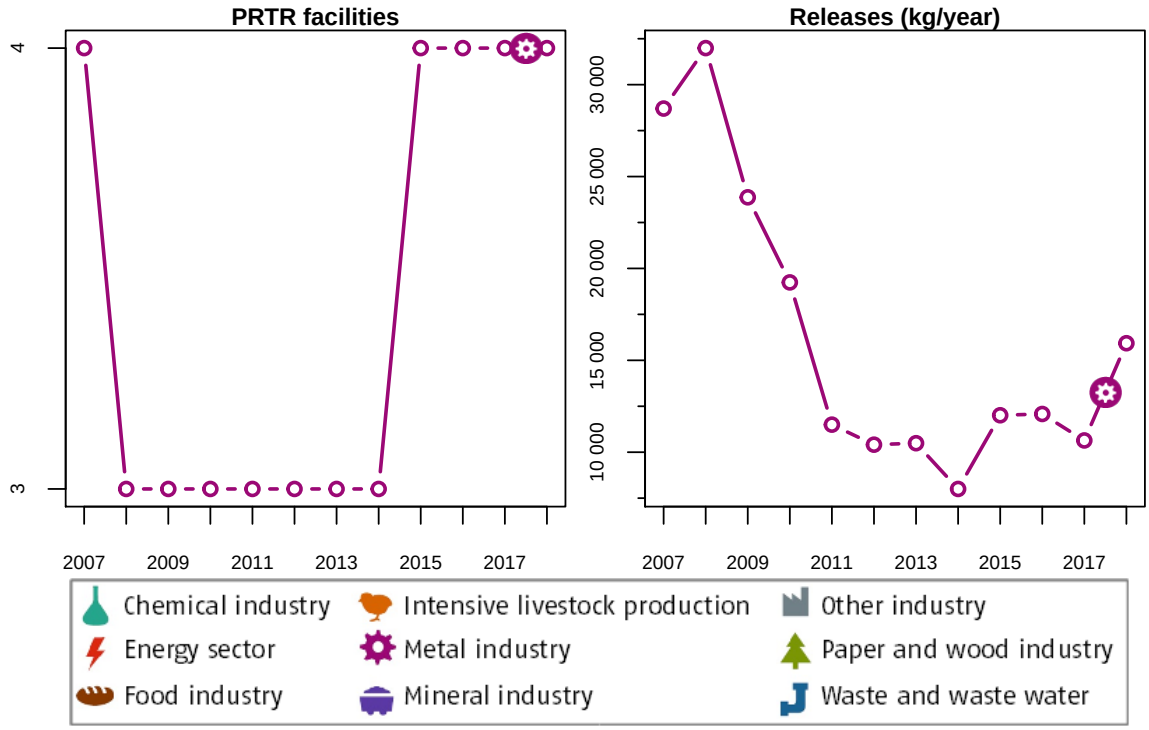



**Figure 56:** Annual number of facilities (left) and their releases (right) of the pollutant **"Perfluorocarbons (PFCs)"** to **Air**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.45 Phenols (as total C)

### 2.45.1 Releases to Water

The threshold is **20 kg "Phenols (as total C)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 3 | 27.3 | 3 914 | 77.5 |
| Waste and waste water management | 2 | 18.2 | 779 | 15.4 |
| Energy sector | 5 | 45.5 | 308 | 6.11 |
| Metal industry | 1 | 9.09 | 47.8 | 0.947 |
| **TOTAL** | 11 | 100 | 5 049 | 100 |

**Table 57:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Phenols (as total C)"** to **Water** of the different industrial sectors including the corresponding shares.

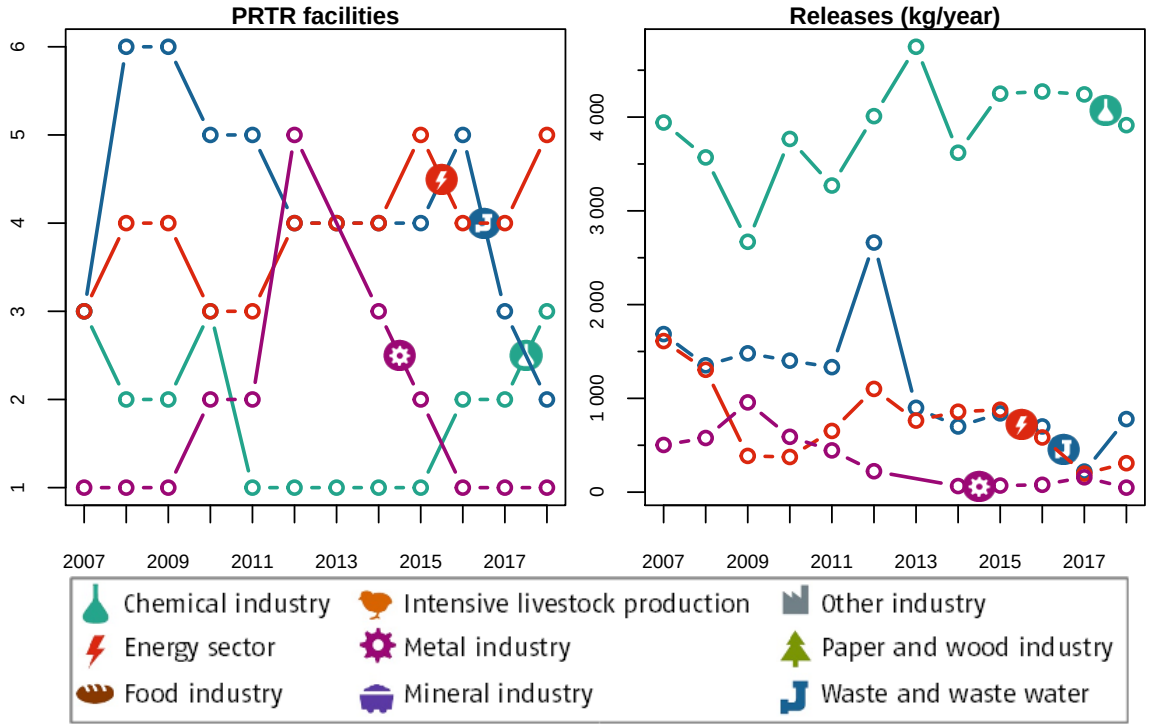



**Figure 57:** Annual number of facilities (left) and their releases (right) of the pollutant **"Phenols (as total C)"** to **Water**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

### 2.45.2 Releases to Land

The threshold is **20 kg "Phenols (as total C)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Phenols (as total C)"** to **Land** in **2018**.

## 2.46 Polychlorinated biphenyls (PCBs)

### 2.46.1 Releases to Air

The threshold is **0.1 kg "Polychlorinated biphenyls (PCBs)" per year.** Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 1 | 100 | 1.81 | 100 |
| **TOTAL** | 1 | 100 | 1.81 | 100 |

**Table 58:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Polychlorinated biphenyls (PCBs)"** to **Air** of the different industrial sectors including the corresponding shares.

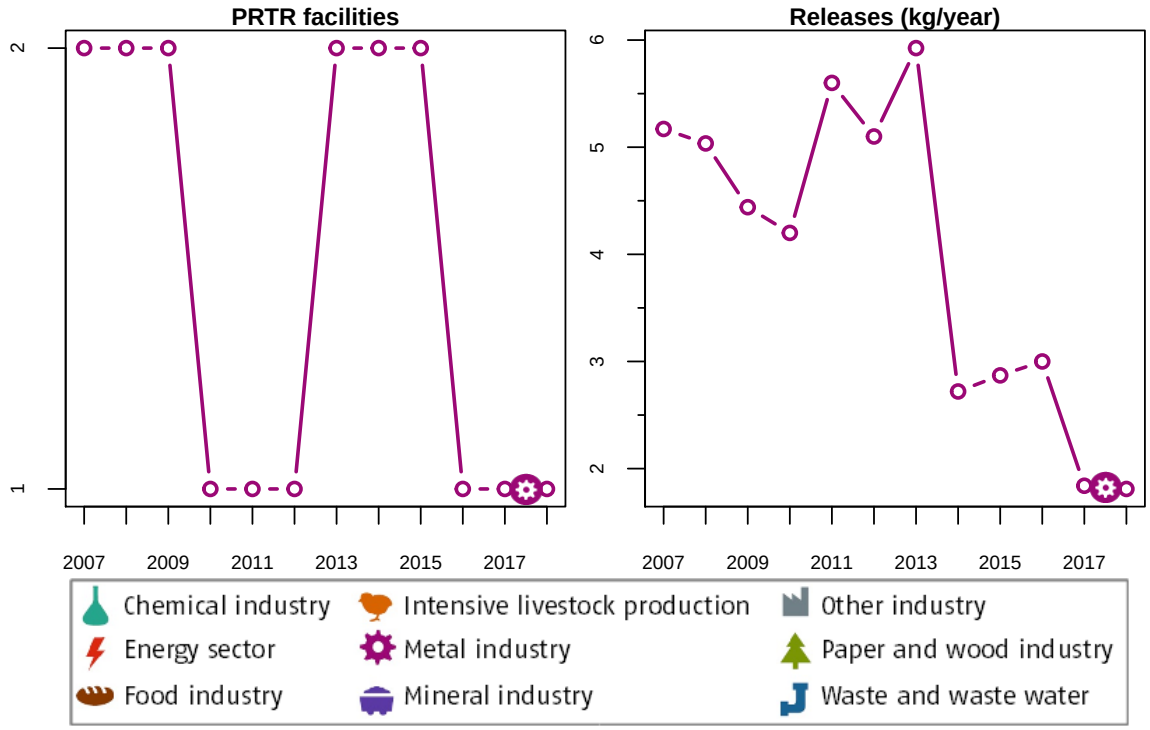



**Figure 58:** Annual number of facilities (left) and their releases (right) of the pollutant **"Polychlorinated biphenyls (PCBs)"** to **Air**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.46.2 Releases to Water

The threshold is **0.1 kg "Polychlorinated biphenyls (PCBs)" per year.** Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 2 | 100 | 1.35 | 100 |
| **TOTAL** | 2 | 100 | 1.35 | 100 |

**Table 59:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Polychlorinated biphenyls (PCBs)"** to **Water** of the different industrial sectors including the corresponding shares.

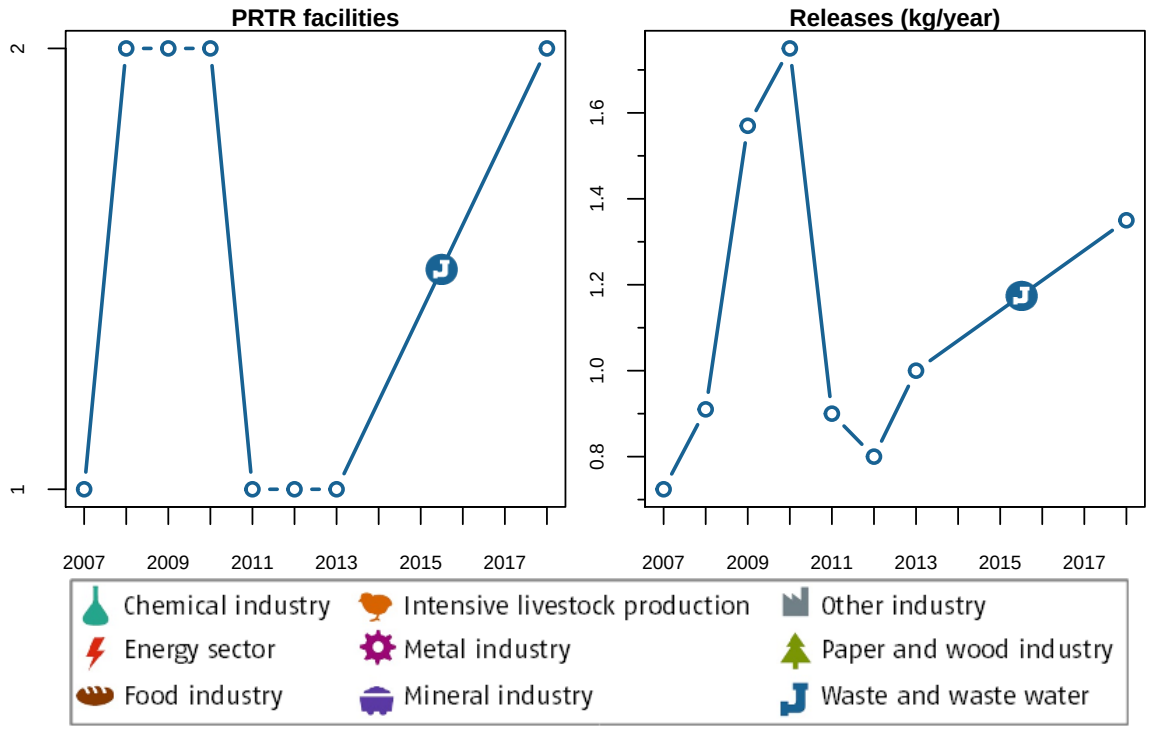



**Figure 59:** Annual number of facilities (left) and their releases (right) of the pollutant **"Polychlorinated biphenyls (PCBs)"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.46.3 Releases to Land

The threshold is **0.1 kg "Polychlorinated biphenyls (PCBs)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Polychlorinated biphenyls (PCBs)"** to **Land** in **2018**.

## 2.47 Polycyclic aromatic hydrocarbons (PAHs)

### 2.47.1 Releases to Air

The threshold is **50 kg "Polycyclic aromatic hydrocarbons (PAHs)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 1 | 20 | 336 | 37.8 |
| Chemical industry | 1 | 20 | 240 | 27 |
| Metal industry | 1 | 20 | 180 | 20.3 |
| Mineral industry | 1 | 20 | 76.9 | 8.66 |
| Food industry | 1 | 20 | 55 | 6.19 |
| **TOTAL** | 5 | 100 | 888 | 100 |

**Table 60:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Polycyclic aromatic hydrocarbons (PAHs)"** to **Air** of the different industrial sectors including the corresponding shares.

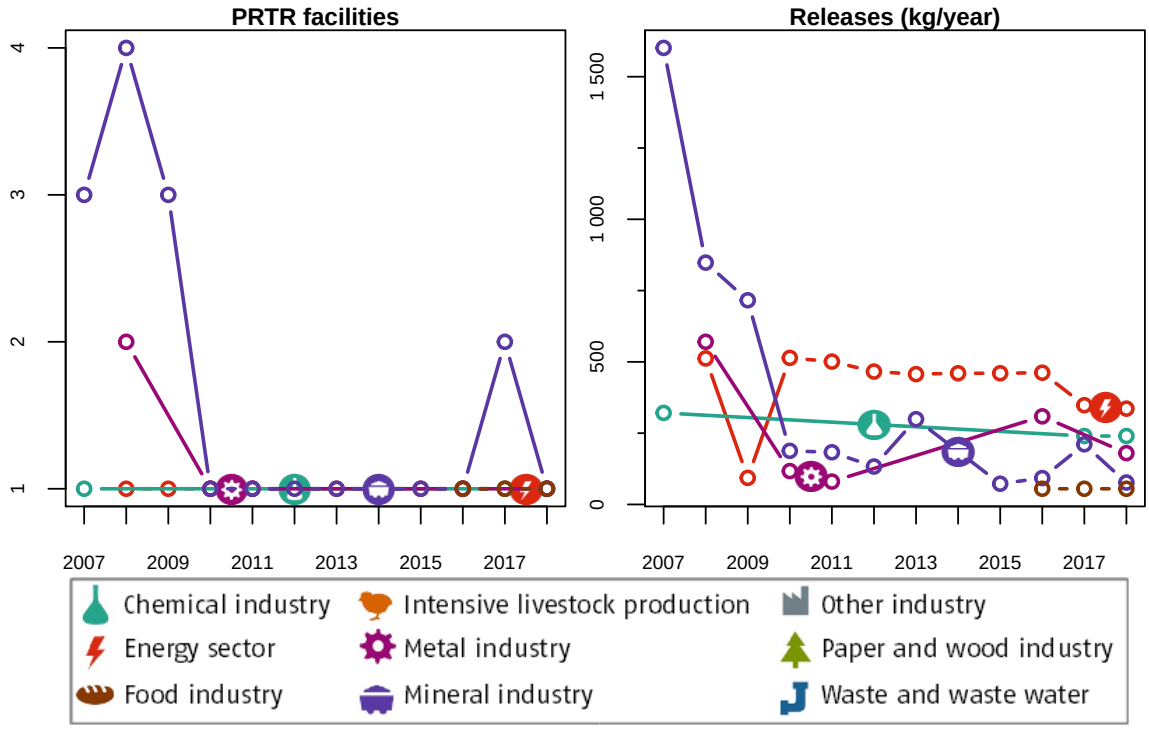



**Figure 60:** Annual number of facilities (left) and their releases (right) of the pollutant **"Polycyclic aromatic hydrocarbons (PAHs)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.47.2 Releases to Water

The threshold is **5 kg "Polycyclic aromatic hydrocarbons (PAHs)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 4 | 100 | 28.9 | 100 |
| **TOTAL** | 4 | 100 | 28.9 | 100 |

**Table 61:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Polycyclic aromatic hydrocarbons (PAHs)"** to **Water** of the different industrial sectors including the corresponding shares.

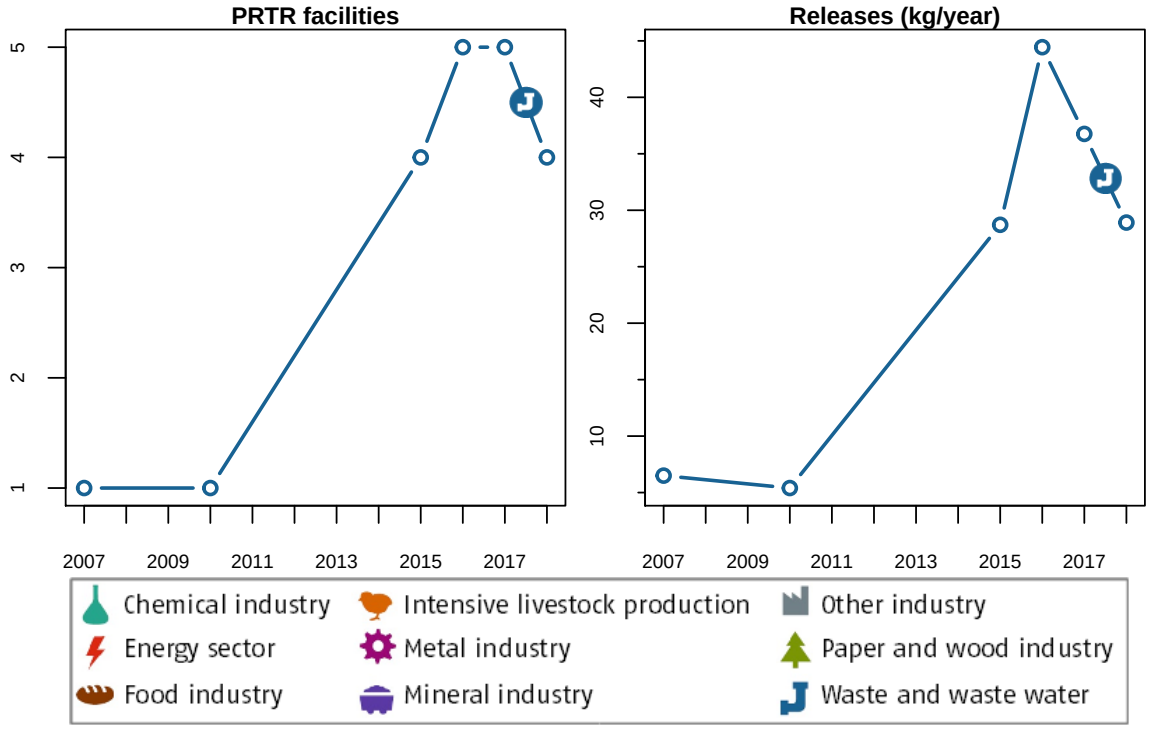



**Figure 61:** Annual number of facilities (left) and their releases (right) of the pollutant **"Polycyclic aromatic hydrocarbons (PAHs)"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.47.3 Releases to Land

The threshold is **5 kg "Polycyclic aromatic hydrocarbons (PAHs)" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Polycyclic aromatic hydrocarbons (PAHs)"** to **Land** in **2018**.

## 2.48 Sulphur hexafluoride (SF6)

### 2.48.1 Releases to Air

The threshold is **50 kg "Sulphur hexafluoride (SF6)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Other industry | 1 | 33.3 | 929 | 84.5 |
| Metal industry | 1 | 33.3 | 111 | 10.1 |
| Chemical industry | 1 | 33.3 | 60 | 5.45 |
| **TOTAL** | 3 | 100 | 1 100 | 100 |

**Table 62:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Sulphur hexafluoride (SF6)"** to **Air** of the different industrial sectors including the corresponding shares.

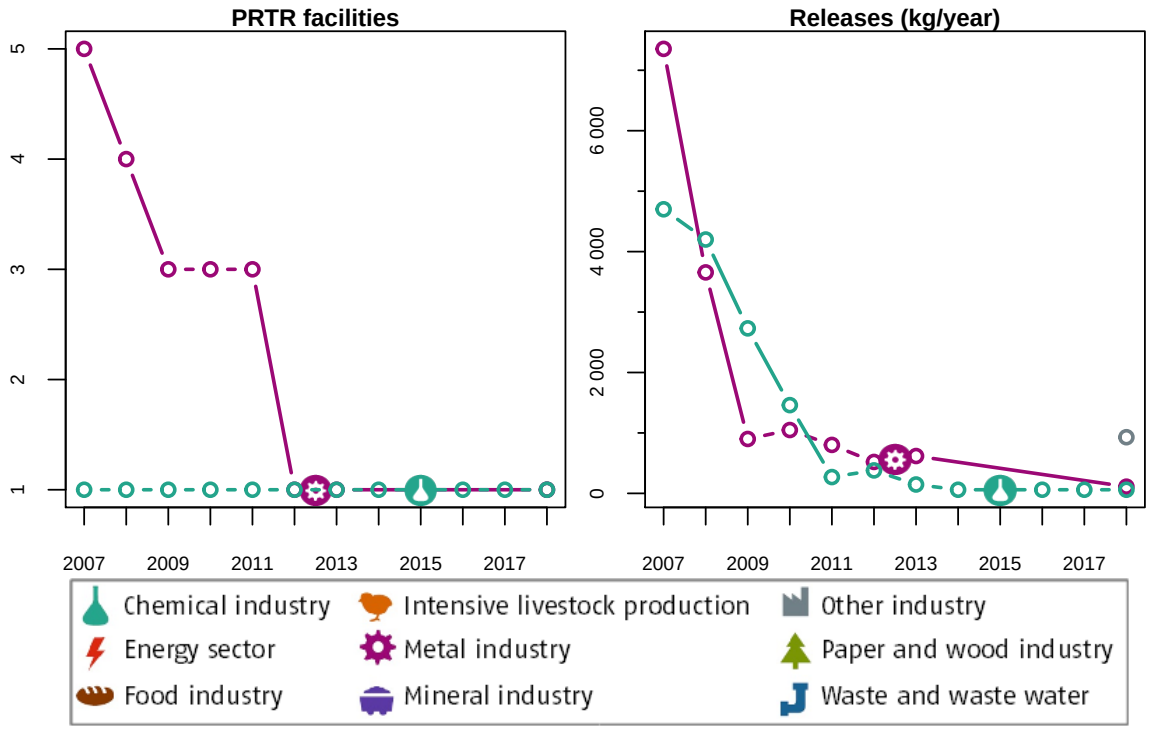



**Figure 62:** Annual number of facilities (left) and their releases (right) of the pollutant **"Sulphur hexafluoride (SF6)"** to **Air**, each by the 3 industrial sector(s) with the highest emissions in the year 2018.

## 2.49 Sulphur oxides (SOx/SO2)

### 2.49.1 Releases to Air

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

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 75 | 47.2 | 127 620 000 | 67.3 |
| Metal industry | 26 | 16.4 | 37 821 000 | 19.9 |
| Mineral industry | 35 | 22 | 13 280 000 | 7 |
| Chemical industry | 15 | 9.43 | 8 686 000 | 4.58 |
| Paper- and wood industry | 6 | 3.77 | 1 508 000 | 0.795 |
| Food industry | 2 | 1.26 | 832 000 | 0.438 |
| **TOTAL** | 159 | 100 | 189 747 000 | 100 |

**Table 63:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Sulphur oxides (SOx/SO2)"** to **Air** of the different industrial sectors including the corresponding shares.

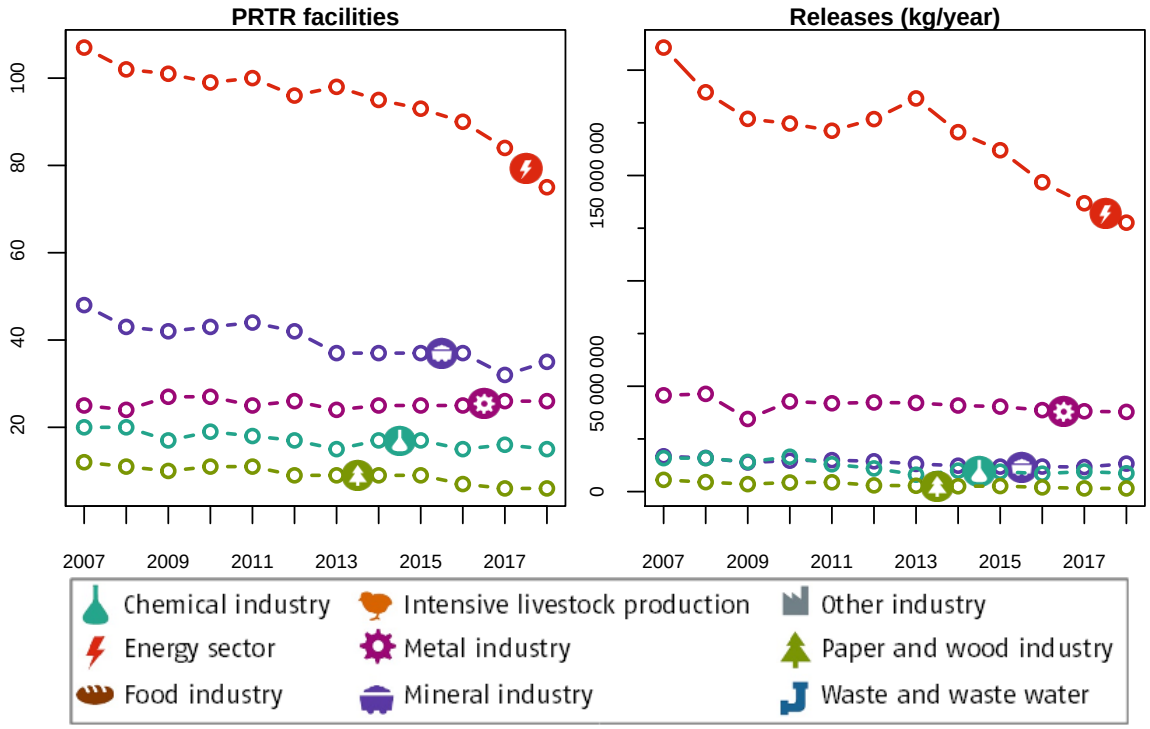



**Figure 63:** Annual number of facilities (left) and their releases (right) of the pollutant **"Sulphur oxides (SOx/SO2)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.50 Tetrachloroethylene (PER)

### 2.50.1 Releases to Air

The threshold is **2 000 kg "Tetrachloroethylene (PER)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Tetrachloroethylene (PER)"** to **Air** in **2018**.

### 2.50.2 Releases to Water

The threshold is **10 kg "Tetrachloroethylene (PER)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 2 | 66.7 | 64.9 | 81.3 |
| Chemical industry | 1 | 33.3 | 14.9 | 18.7 |
| **TOTAL** | 3 | 100 | 79.8 | 100 |

**Table 64:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Tetrachloroethylene (PER)"** to **Water** of the different industrial sectors including the corresponding shares.

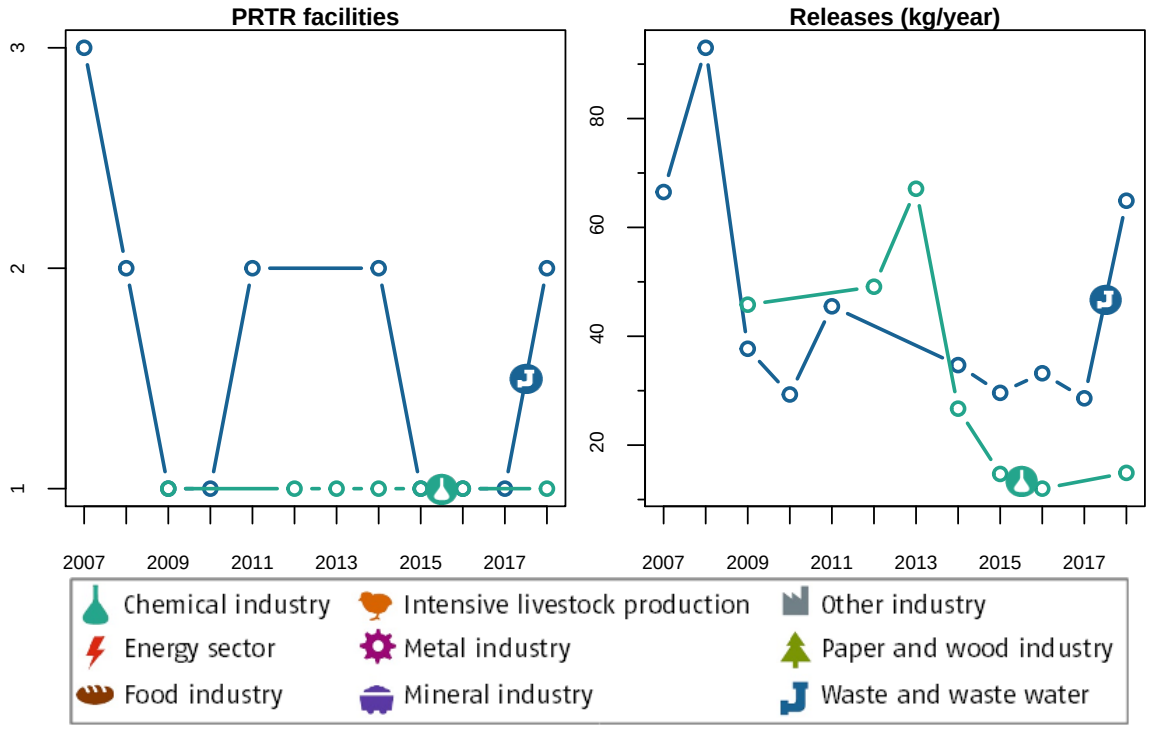



**Figure 64:** Annual number of facilities (left) and their releases (right) of the pollutant **"Tetrachloroethylene (PER)"** to **Water**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 2.51 Tetrachloromethane (TCM)

### 2.51.1 Releases to Air

The threshold is **100 kg "Tetrachloromethane (TCM)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 2 | 66.7 | 1 052 | 89.7 |
| Metal industry | 1 | 33.3 | 121 | 10.3 |
| **TOTAL** | 3 | 100 | 1 173 | 100 |

**Table 65:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Tetrachloromethane (TCM)"** to **Air** of the different industrial sectors including the corresponding shares.

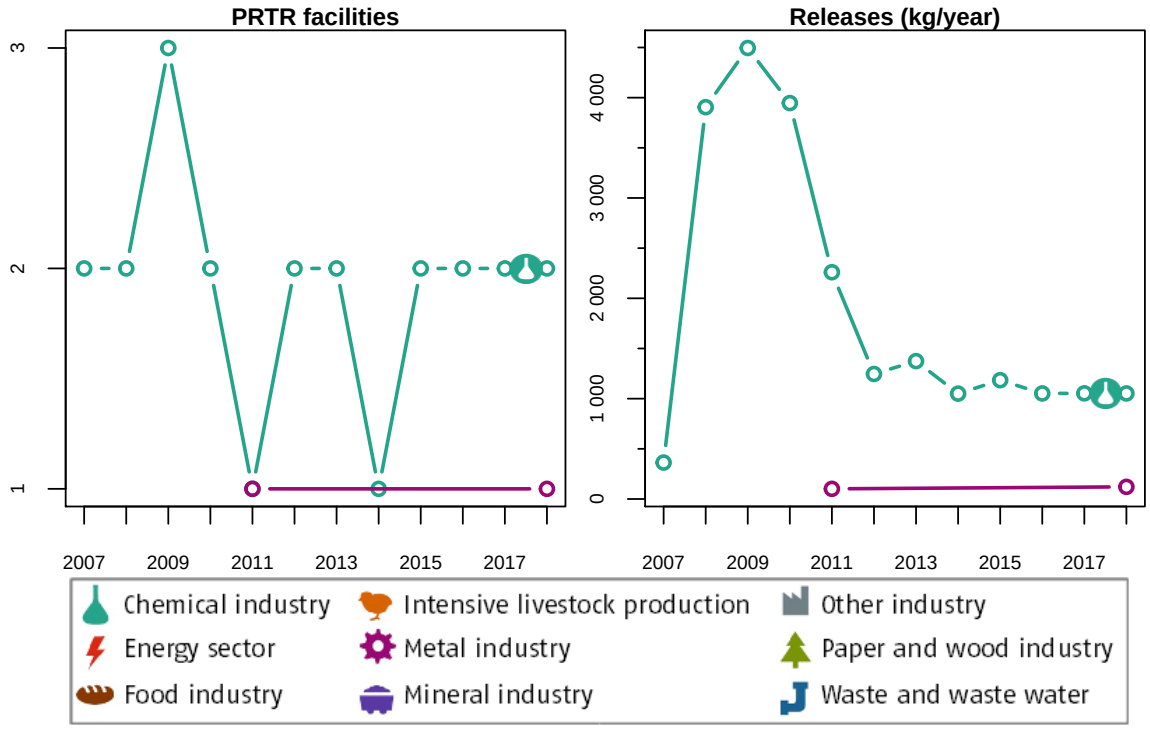



**Figure 65:** Annual number of facilities (left) and their releases (right) of the pollutant **"Tetrachloromethane (TCM)"** to **Air**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

### 2.51.2 Releases to Water

The threshold is **1 kg "Tetrachloromethane (TCM)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 2 | 100 | 7.94 | 100 |
| **TOTAL** | 2 | 100 | 7.94 | 100 |

**Table 66:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Tetrachloromethane (TCM)"** to **Water** of the different industrial sectors including the corresponding shares.

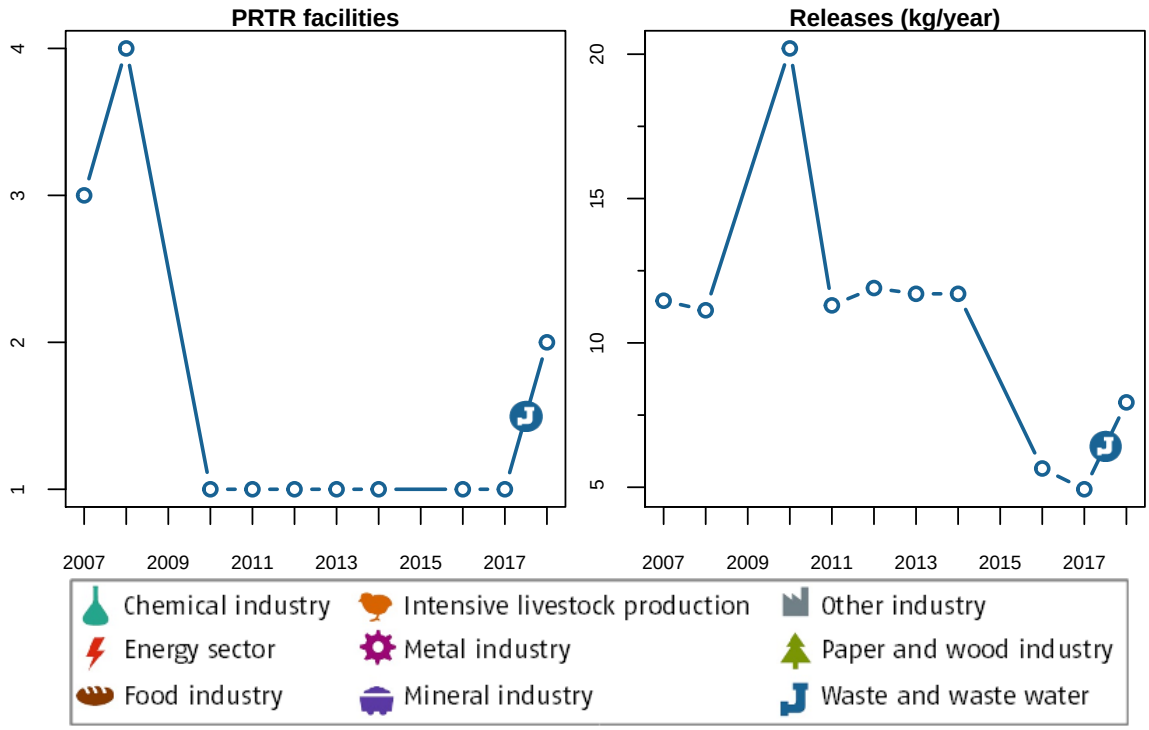



**Figure 66:** Annual number of facilities (left) and their releases (right) of the pollutant **"Tetrachloromethane (TCM)"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.52 Total nitrogen

### 2.52.1 Releases to Water

The threshold is **50 000 kg "Total nitrogen" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 161 | 83.9 | 35 067 400 | 87.2 |
| Chemical industry | 16 | 8.33 | 3 370 300 | 8.38 |
| Energy sector | 9 | 4.69 | 1 327 500 | 3.3 |
| Metal industry | 5 | 2.6 | 381 000 | 0.947 |
| Paper- and wood industry | 1 | 0.521 | 89 100 | 0.221 |
| **TOTAL** | 192 | 100 | 40 235 300 | 100 |

**Table 67:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Total nitrogen"** to **Water** of the different industrial sectors including the corresponding shares.

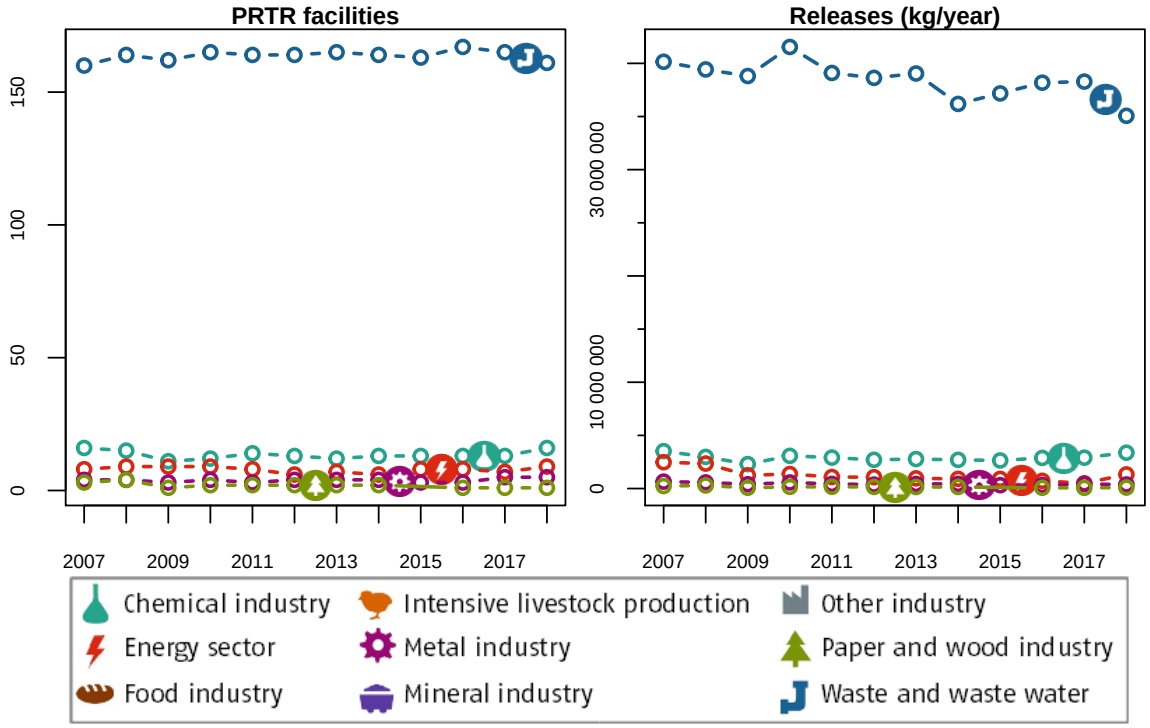



**Figure 67:** Annual number of facilities (left) and their releases (right) of the pollutant **"Total nitrogen"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.52.2 Releases to Land

The threshold is **50 000 kg "Total nitrogen" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Total nitrogen"** to **Land** in **2018**.

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

### 2.53.1 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 been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 169 | 74.8 | 41 212 000 | 66.9 |
| Paper- and wood industry | 27 | 11.9 | 11 336 600 | 18.4 |
| Chemical industry | 19 | 8.41 | 5 804 600 | 9.42 |
| Energy sector | 8 | 3.54 | 2 791 800 | 4.53 |
| Food industry | 1 | 0.442 | 283 000 | 0.459 |
| Metal industry | 1 | 0.442 | 150 000 | 0.243 |
| Other industry | 1 | 0.442 | 53 400 | 0.0866 |
| **TOTAL** | 226 | 100 | 61 631 400 | 100 |

**Table 68:** For the reporting year **2018** — 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.

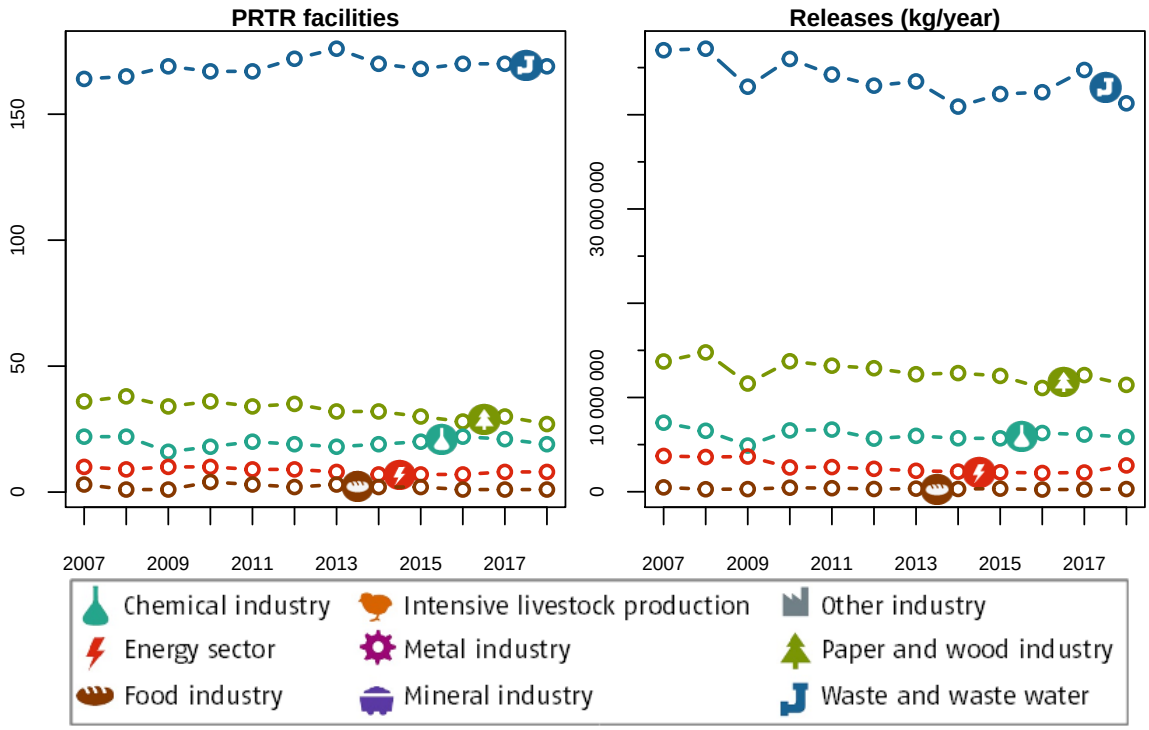



**Figure 68:** Annual number of facilities (left) and their releases (right) of the pollutant **"Total organic carbon (TOC) (as total C or COD/3)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 2.54 Total phosphorus

### 2.54.1 Releases to Water

The threshold is **5 000 kg "Total phosphorus" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 64 | 80 | 1 163 130 | 82.4 |
| Chemical industry | 7 | 8.75 | 150 280 | 10.6 |
| Paper- and wood industry | 5 | 6.25 | 54 850 | 3.89 |
| Energy sector | 2 | 2.5 | 29 500 | 2.09 |
| Food industry | 1 | 1.25 | 8 290 | 0.587 |
| Metal industry | 1 | 1.25 | 5 150 | 0.365 |
| **TOTAL** | 80 | 100 | 1 411 200 | 100 |

**Table 69:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Total phosphorus"** to **Water** of the different industrial sectors including the corresponding shares.

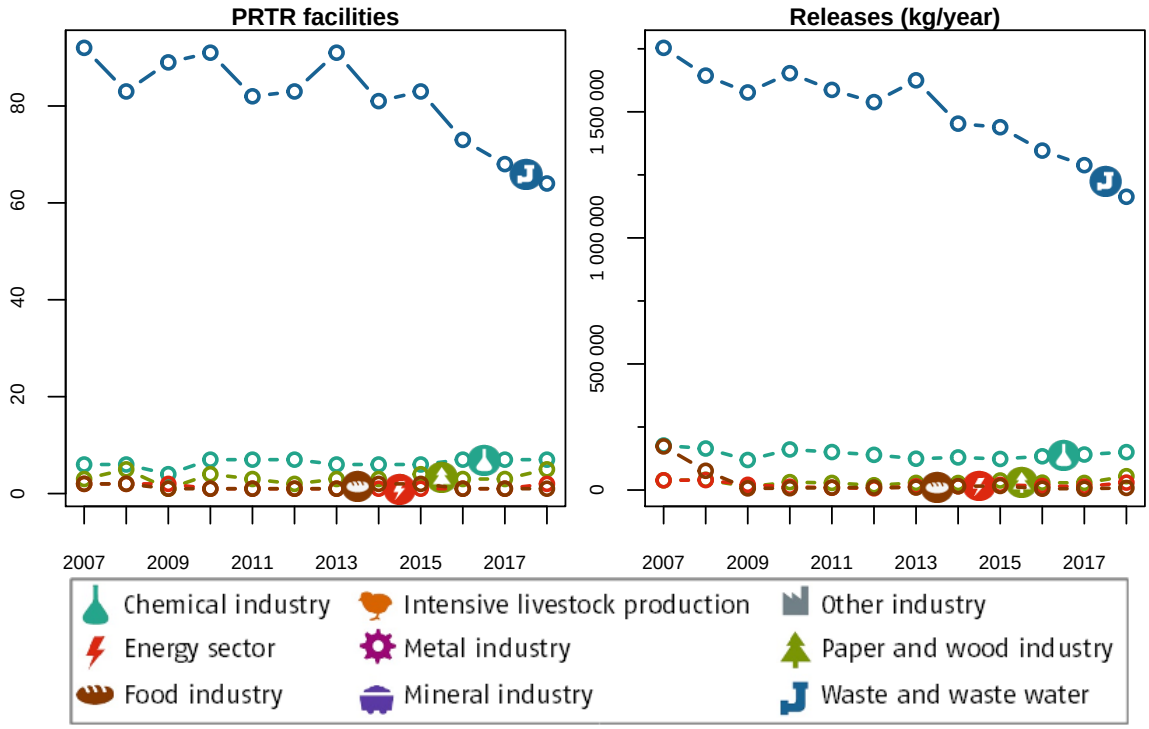



**Figure 69:** Annual number of facilities (left) and their releases (right) of the pollutant **"Total phosphorus"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.54.2 Releases to Land

The threshold is **5 000 kg "Total phosphorus" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Total phosphorus"** to **Land** in **2018**.

## 2.55 Tributyltin and compounds

### 2.55.1 Releases to Water

The threshold is **1 kg "Tributyltin and compounds" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 1 | 100 | 35.5 | 100 |
| **TOTAL** | 1 | 100 | 35.5 | 100 |

**Table 70:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Tributyltin and compounds"** to **Water** of the different industrial sectors including the corresponding shares.

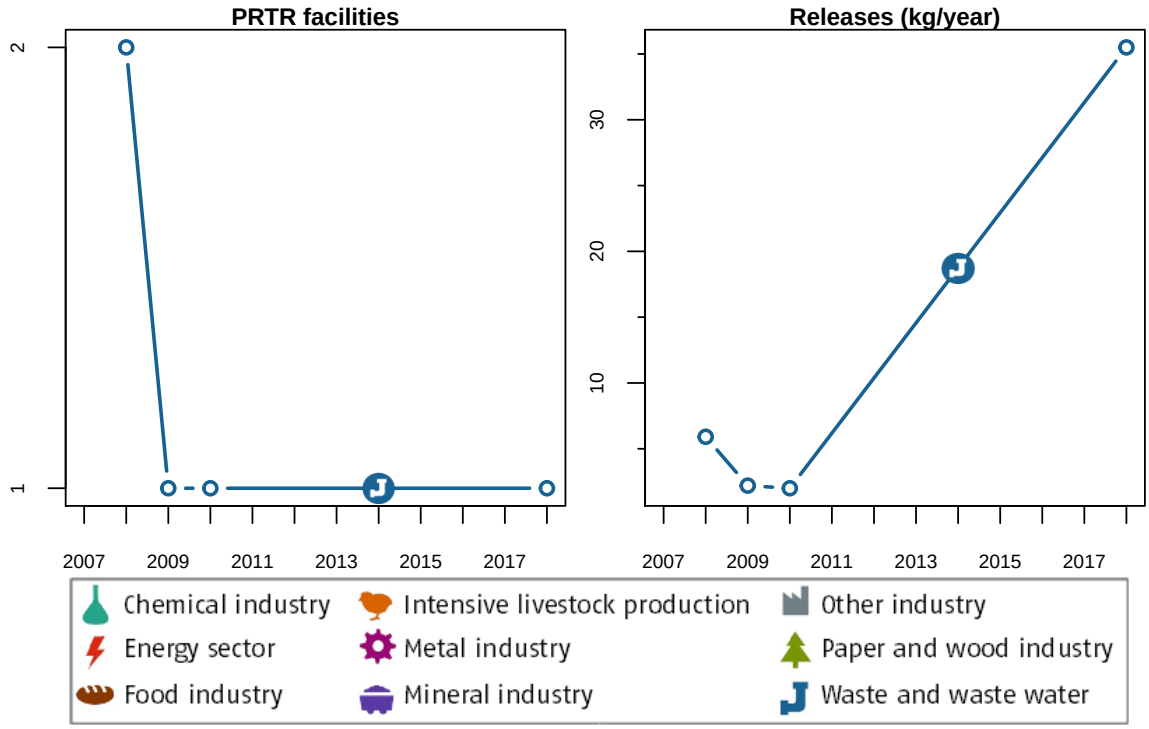



**Figure 70:** Annual number of facilities (left) and their releases (right) of the pollutant **"Tributyltin and compounds"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.55.2 Releases to Land

The threshold is **1 kg "Tributyltin and compounds" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Tributyltin and compounds"** to **Land** in **2018**.

## 2.56 Trichlorobenzenes (TCBs) (all isomers)

### 2.56.1 Releases to Air

The threshold is **10 kg "Trichlorobenzenes (TCBs) (all isomers)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Trichlorobenzenes (TCBs) (all isomers)"** to **Air** in **2018**.

### 2.56.2 Releases to Water

The threshold is **1 kg "Trichlorobenzenes (TCBs) (all isomers)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 1 | 100 | 2 | 100 |
| **TOTAL** | 1 | 100 | 2 | 100 |

**Table 71:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Trichlorobenzenes (TCBs) (all isomers)"** to **Water** of the different industrial sectors including the corresponding shares.

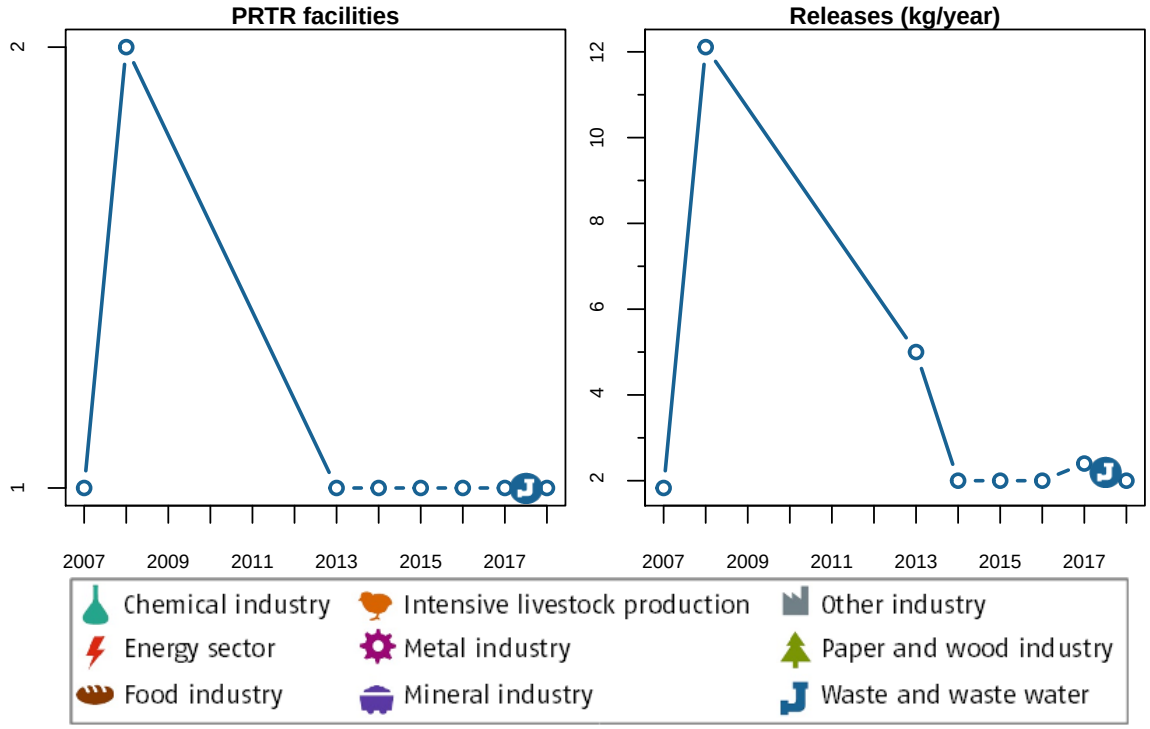



**Figure 71:** Annual number of facilities (left) and their releases (right) of the pollutant **"Trichlorobenzenes (TCBs) (all isomers)"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.57 Trichloromethane

### 2.57.1 Releases to Air

The threshold is **500 kg "Trichloromethane" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 2 | 100 | 2 523 | 100 |
| **TOTAL** | 2 | 100 | 2 523 | 100 |

**Table 72:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Trichloromethane"** to **Air** of the different industrial sectors including the corresponding shares.

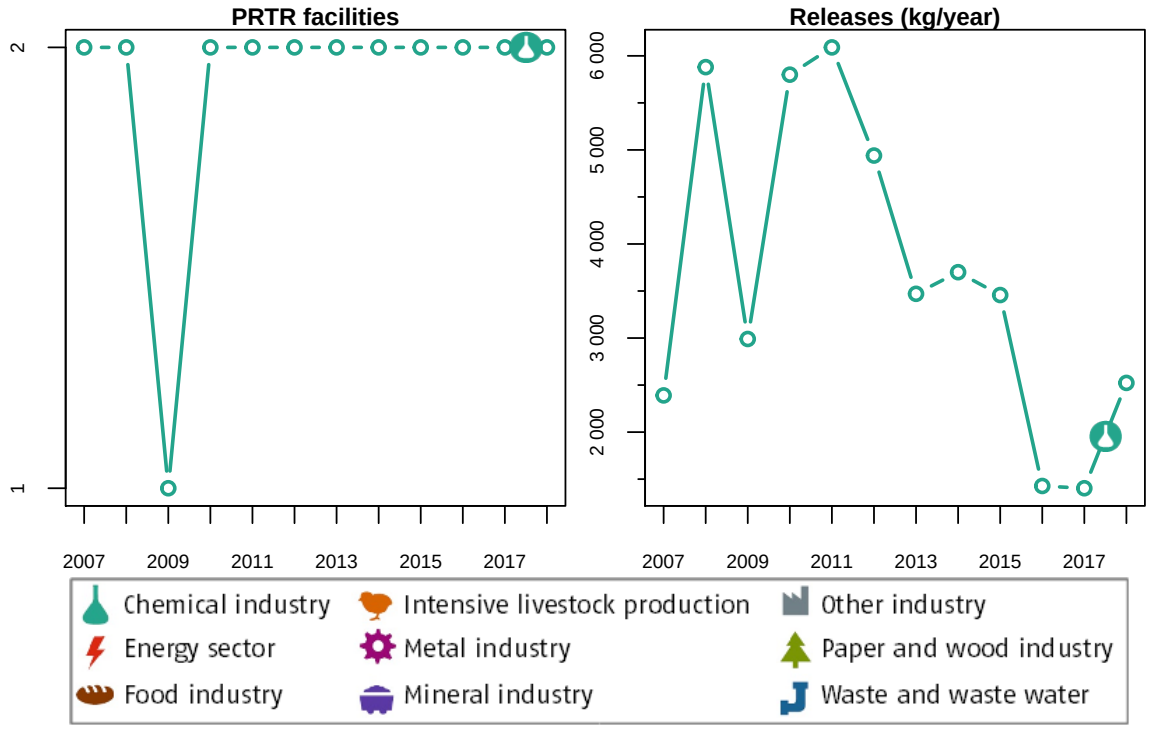



**Figure 72:** Annual number of facilities (left) and their releases (right) of the pollutant **"Trichloromethane"** to **Air**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.57.2 Releases to Water

The threshold is **10 kg "Trichloromethane" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 2 | 33.3 | 263 | 77.8 |
| Waste and waste water management | 3 | 50 | 47.9 | 14.2 |
| Energy sector | 1 | 16.7 | 27.3 | 8.07 |
| **TOTAL** | 6 | 100 | 338 | 100 |

**Table 73:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Trichloromethane"** to **Water** of the different industrial sectors including the corresponding shares.

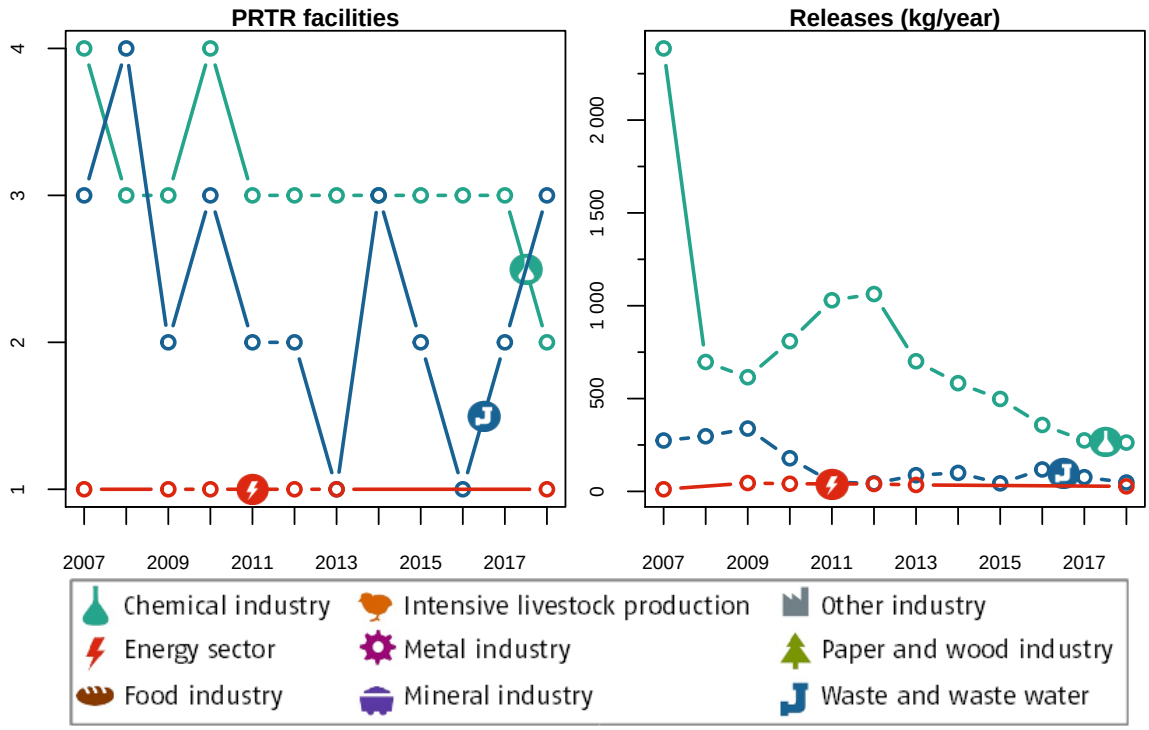



**Figure 73:** Annual number of facilities (left) and their releases (right) of the pollutant **"Trichloromethane"** to **Water**, each by the 3 industrial sector(s) with the highest emissions in the year 2018.

# 2.58 Vinyl chloride

## 2.58.1 Releases to Air

The threshold is **1 000 kg "Vinyl chloride" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 7 | 100 | 121 370 | 100 |
| **TOTAL** | 7 | 100 | 121 370 | 100 |

**Table 74:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Vinyl chloride"** to **Air** of the different industrial sectors including the corresponding shares.

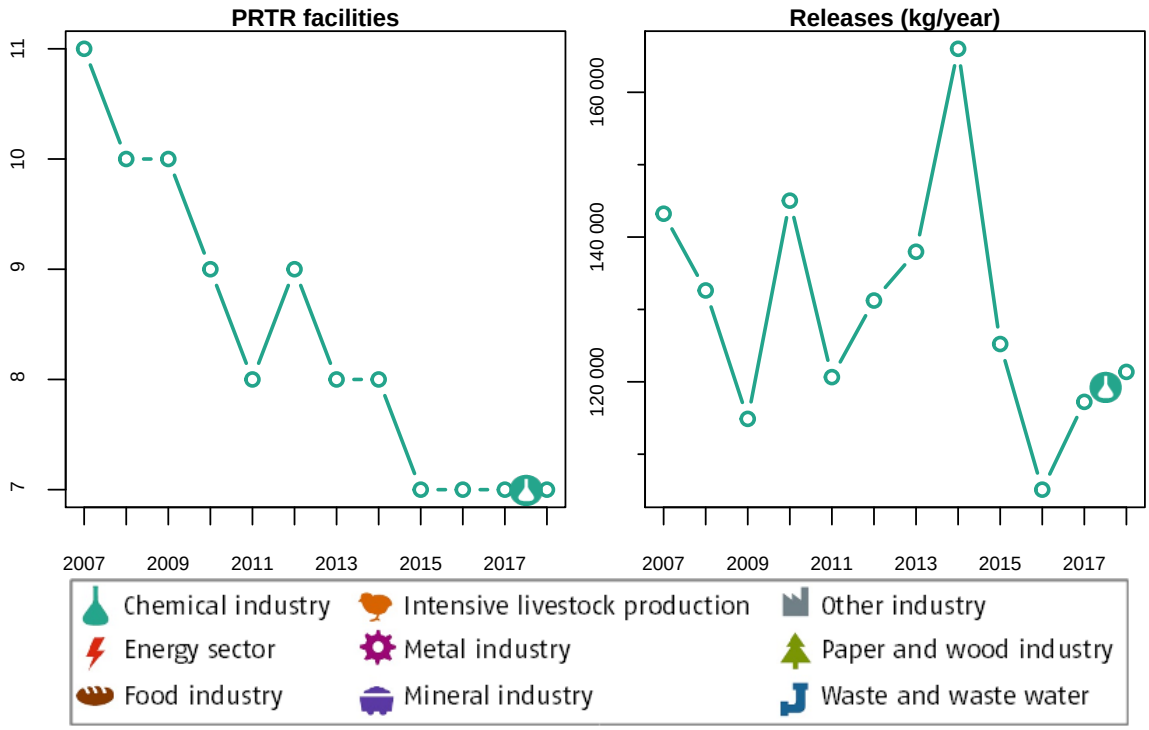



**Figure 74:** Annual number of facilities (left) and their releases (right) of the pollutant **"Vinyl chloride"** to **Air**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 2.58.2 Releases to Water

The threshold is **10 kg "Vinyl chloride" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 100 | 33 | 100 |
| **TOTAL** | 1 | 100 | 33 | 100 |

**Table 75:** For the reporting year **2018** — Number of facilities and their releases of the pollutant **"Vinyl chloride"** to **Water** of the different industrial sectors including the corresponding shares.

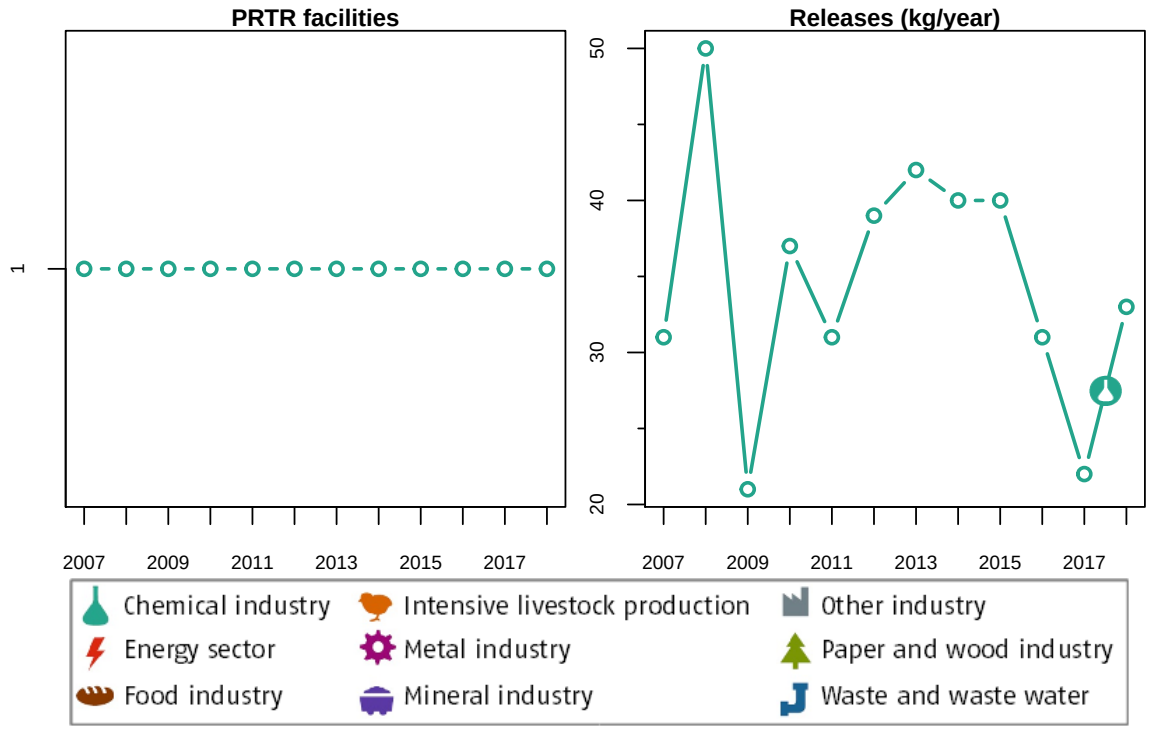



**Figure 75:** Annual number of facilities (left) and their releases (right) of the pollutant **"Vinyl chloride"** to **Water**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

### 2.58.3 Releases to Land

The threshold is **10 kg "Vinyl chloride" per year**. Releases to **Land** above this value have to been reported according to the German PRTR.

No facility reported the release of **"Vinyl chloride"** to **Land** in **2018**.

## 2.59 Zinc and compounds (as Zn)

### 2.59.1 Releases to Air

The threshold is **200 kg "Zinc and compounds (as Zn)" per year**. Releases to **Air** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 17 | 65.4 | 51 014 | 82 |
| Chemical industry | 4 | 15.4 | 6 486 | 10.4 |
| Energy sector | 3 | 11.5 | 3 602 | 5.79 |
| Waste and waste water management | 1 | 3.85 | 868 | 1.4 |
| Other industry | 1 | 3.85 | 219 | 0.352 |
| **TOTAL** | 26 | 100 | 62 189 | 100 |

**Table 76:** For the reporting year **2018** — 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.

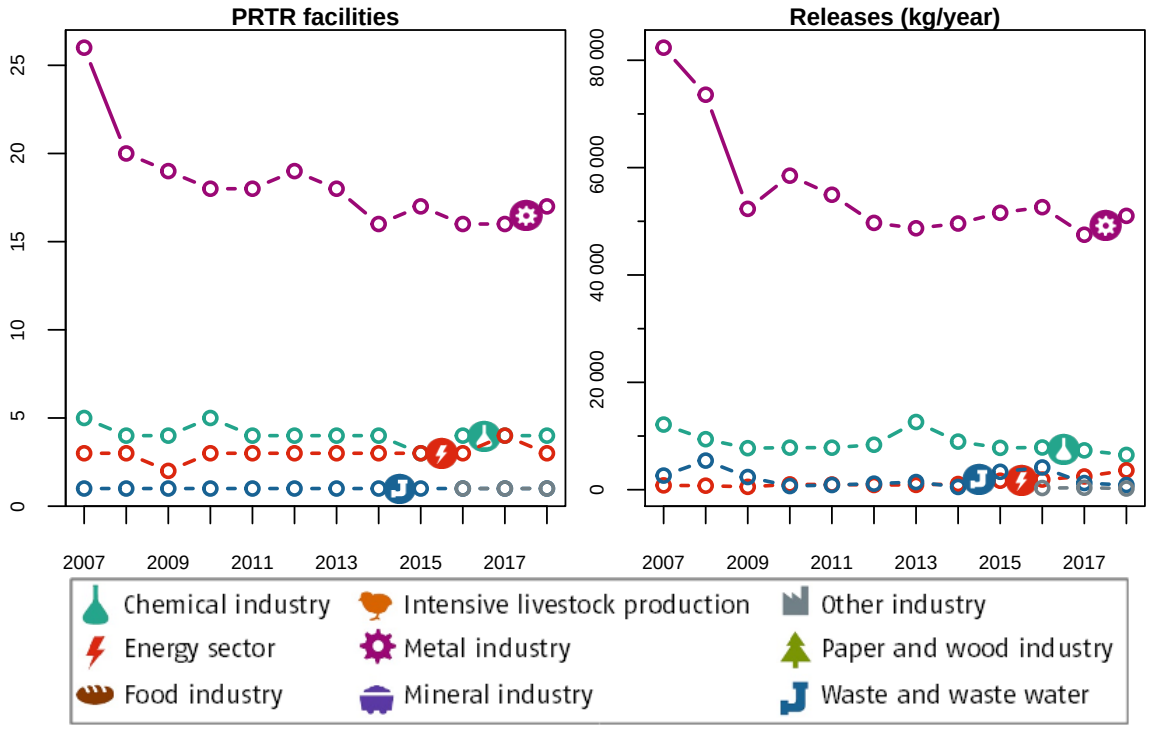



**Figure 76:** Annual number of facilities (left) and their releases (right) of the pollutant **"Zinc and compounds (as Zn)"** to **Air**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.59.2 Releases to Water

The threshold is **100 kg "Zinc and compounds (as Zn)" per year**. Releases to **Water** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Waste and waste water management | 189 | 77.5 | 154 119 | 64 |
| Chemical industry | 21 | 8.61 | 37 637 | 15.6 |
| Mineral industry | 14 | 5.74 | 23 147 | 9.61 |
| Energy sector | 10 | 4.1 | 12 594 | 5.23 |
| Metal industry | 8 | 3.28 | 12 442 | 5.16 |
| Paper- and wood industry | 2 | 0.82 | 993 | 0.412 |
| **TOTAL** | 244 | 100 | 240 932 | 100 |

**Table 77:** For the reporting year **2018** — 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.

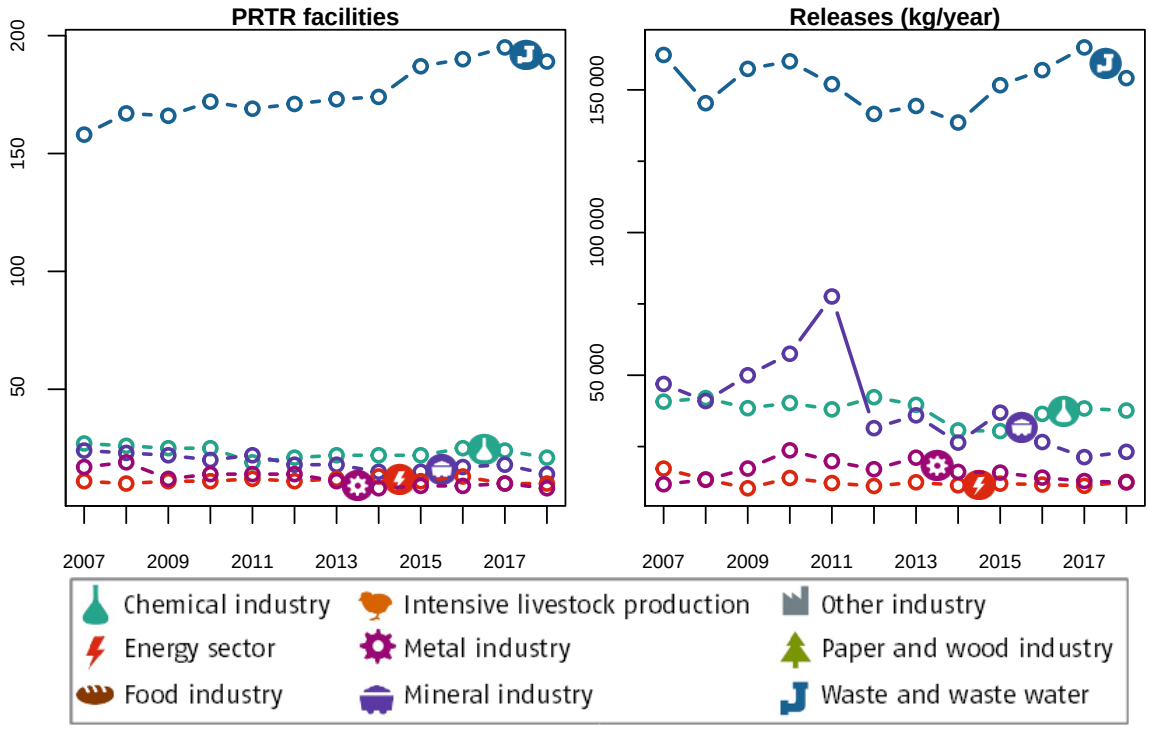



**Figure 77:** Annual number of facilities (left) and their releases (right) of the pollutant **"Zinc and compounds (as Zn)"** to **Water**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

### 2.59.3 Releases to Land

The threshold is **100 kg "Zinc and compounds (as Zn)" per year.** Releases to **Land** above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Releases (kg/year) | (%) |
|---|---|---|---|---|
| Mineral industry | 1 | 100 | 454 | 100 |
| **TOTAL** | 1 | 100 | 454 | 100 |

**Table 78:** For the reporting year **2018** — 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.

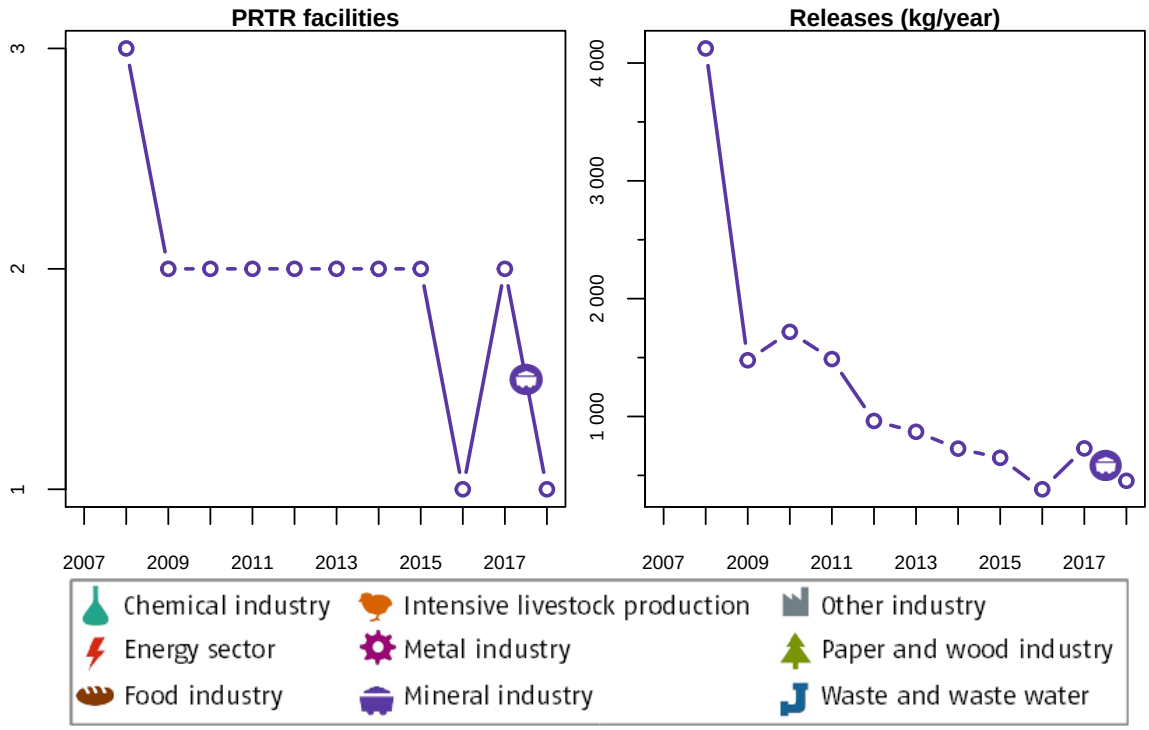



**Figure 78:** Annual number of facilities (left) and their releases (right) of the pollutant **"Zinc and compounds (as Zn)"** to **Land**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

# 3 Off-site transfer in waste water

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

## 3.1 1,2-dichloroethane (DCE)

The threshold is **10 kg "1,2-dichloroethane (DCE)" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 100 | 47.9 | 100 |
| **TOTAL** | 1 | 100 | 47.9 | 100 |

**Table 79:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"1,2-dichloroethane (DCE)"** of the different industrial sectors including the corresponding shares.

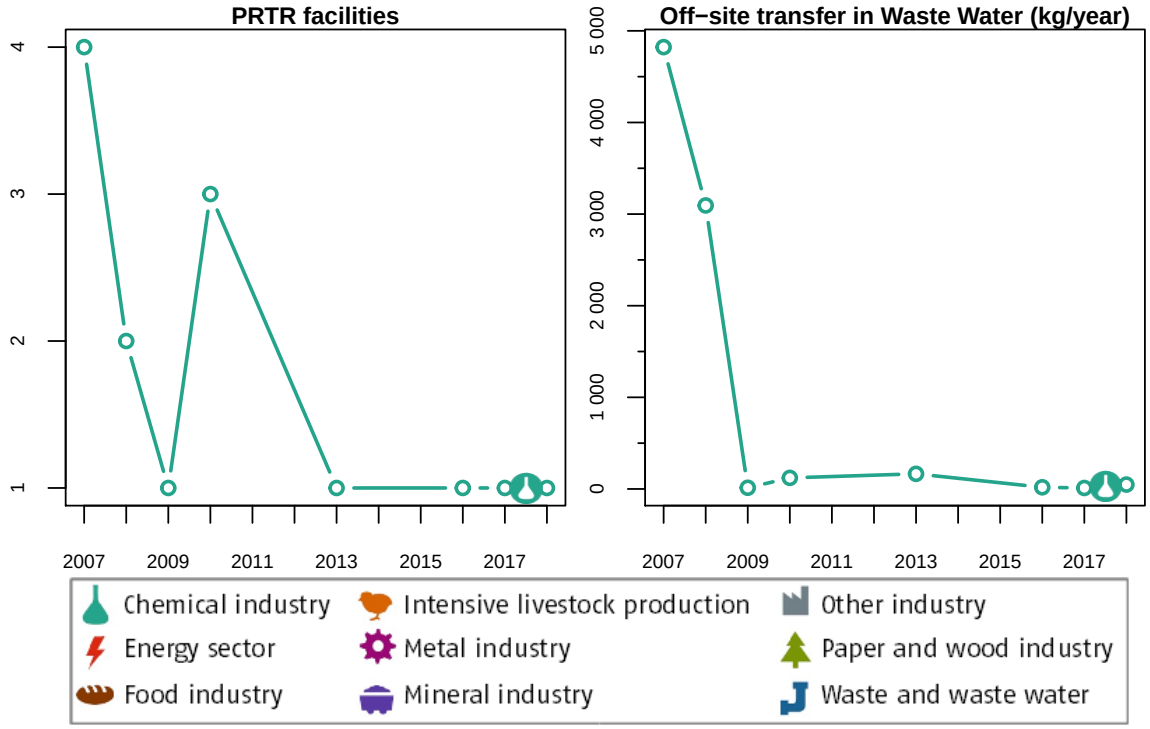



**Figure 79:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"1,2-dichloroethane (DCE)"**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 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 been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 1 | 6.25 | 299 | 56.3 |
| Chemical industry | 6 | 37.5 | 138 | 25.9 |
| Energy sector | 3 | 18.8 | 48.5 | 9.13 |
| Waste and waste water management | 5 | 31.2 | 34.4 | 6.46 |
| Paper- and wood industry | 1 | 6.25 | 11.7 | 2.2 |
| **TOTAL** | 16 | 100 | 531 | 100 |

**Table 80:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Arsenic and compounds (as As)"** of the different industrial sectors including the corresponding shares.

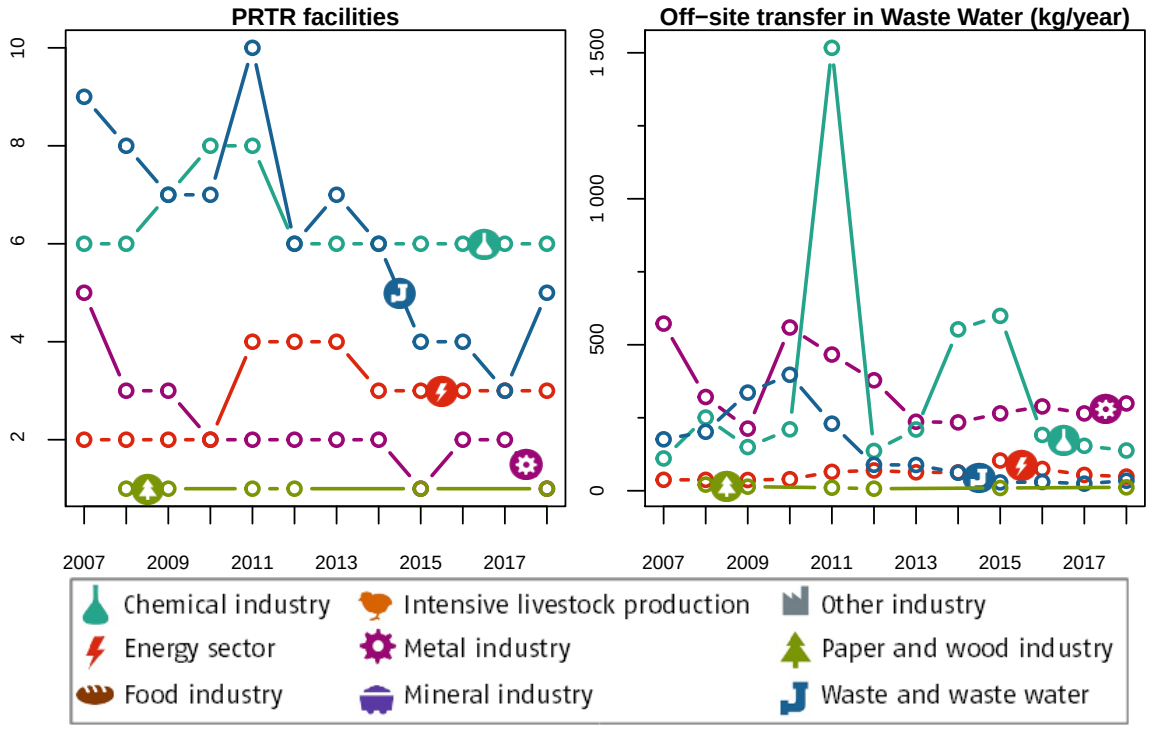



**Figure 80:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Arsenic and compounds (as As)"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.3 Benzene

The threshold is **200 kg "Benzene" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 5 | 83.3 | 1 306 | 68.3 |
| Energy sector | 1 | 16.7 | 607 | 31.7 |
| **TOTAL** | 6 | 100 | 1 913 | 100 |

**Table 81:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Benzene"** of the different industrial sectors including the corresponding shares.

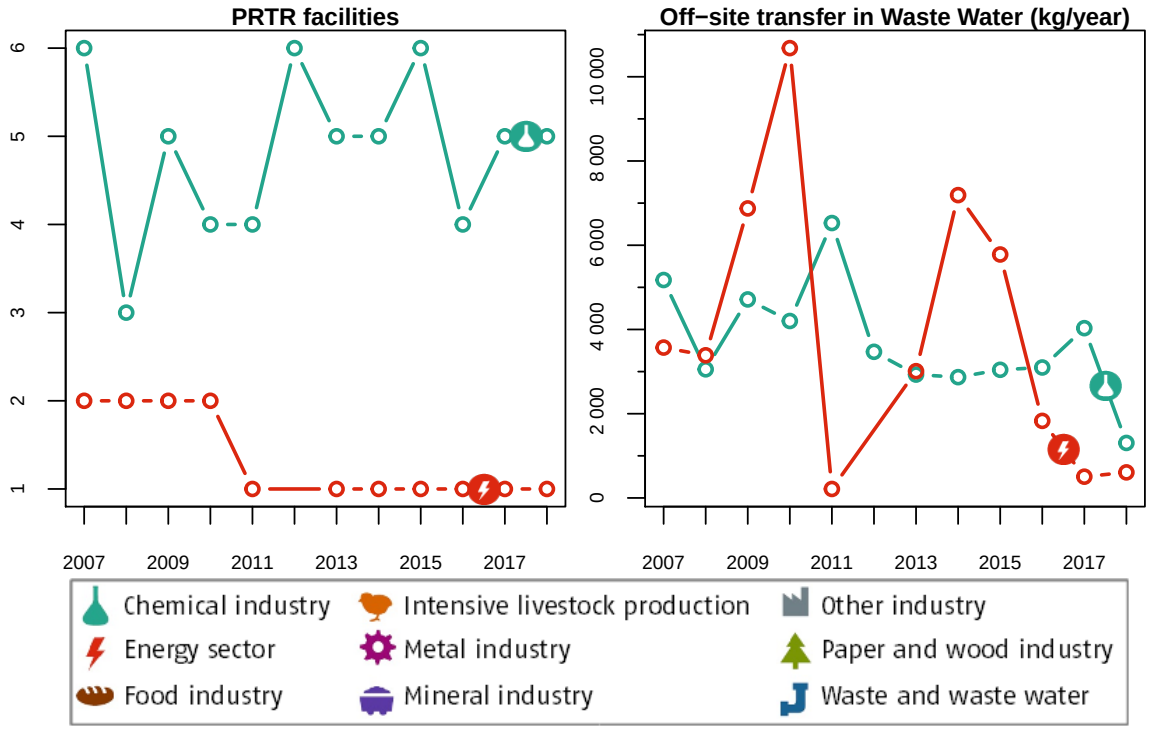



**Figure 81:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Benzene"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.4 Benzo(g,h,i)perylene

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 1 | 100 | 4.08 | 100 |
| **TOTAL** | 1 | 100 | 4.08 | 100 |

**Table 82:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Benzo(g,h,i)perylene"** of the different industrial sectors including the corresponding shares.

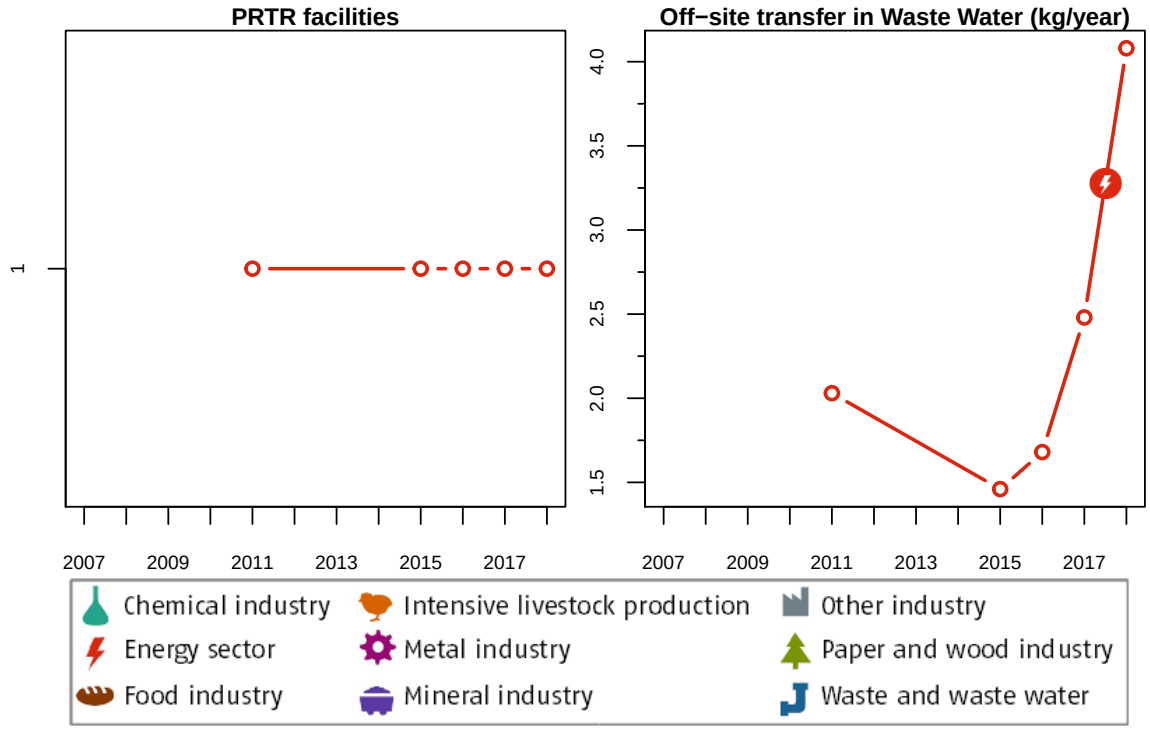



**Figure 82:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Benzo(g,h,i)perylene"**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 3.5 Cadmium and compounds (as Cd)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 2 | 50 | 1 237 | 92.1 |
| Waste and waste water management | 2 | 50 | 106 | 7.9 |
| **TOTAL** | 4 | 100 | 1 343 | 100 |

**Table 83:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Cadmium and compounds (as Cd)"** of the different industrial sectors including the corresponding shares.

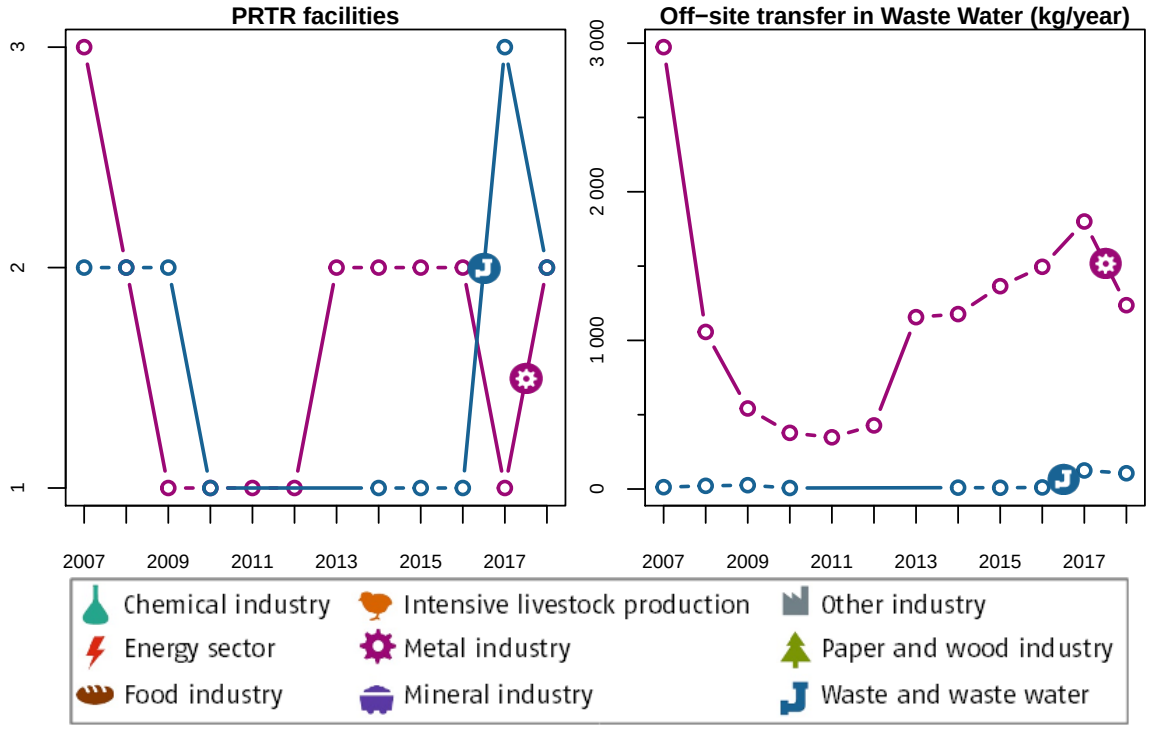



**Figure 83:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Cadmium and compounds (as Cd)"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.6 Chlorides (as total Cl)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 27 | 79.4 | 482 570 000 | 94.6 |
| Waste and waste water management | 5 | 14.7 | 12 750 000 | 2.5 |
| Food industry | 1 | 2.94 | 7 590 000 | 1.49 |
| Mineral industry | 1 | 2.94 | 7 250 000 | 1.42 |
| **TOTAL** | 34 | 100 | 510 160 000 | 100 |

**Table 84:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Chlorides (as total Cl)"** of the different industrial sectors including the corresponding shares.

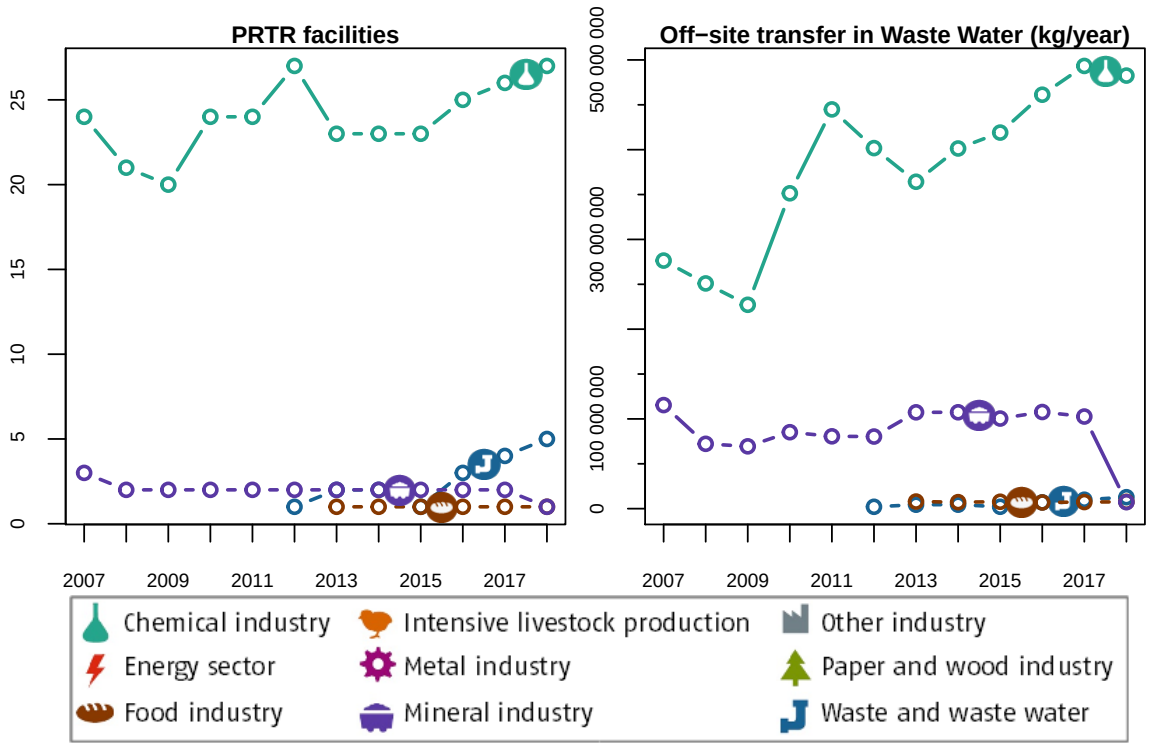



**Figure 84:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Chlorides (as total Cl)"**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

## 3.7 Chromium and compounds (as Cr)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 5 | 62.5 | 2 052 | 81.8 |
| Metal industry | 2 | 25 | 308 | 12.3 |
| Other industry | 1 | 12.5 | 148 | 5.9 |
| **TOTAL** | 8 | 100 | 2 508 | 100 |

**Table 85:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Chromium and compounds (as Cr)"** of the different industrial sectors including the corresponding shares.

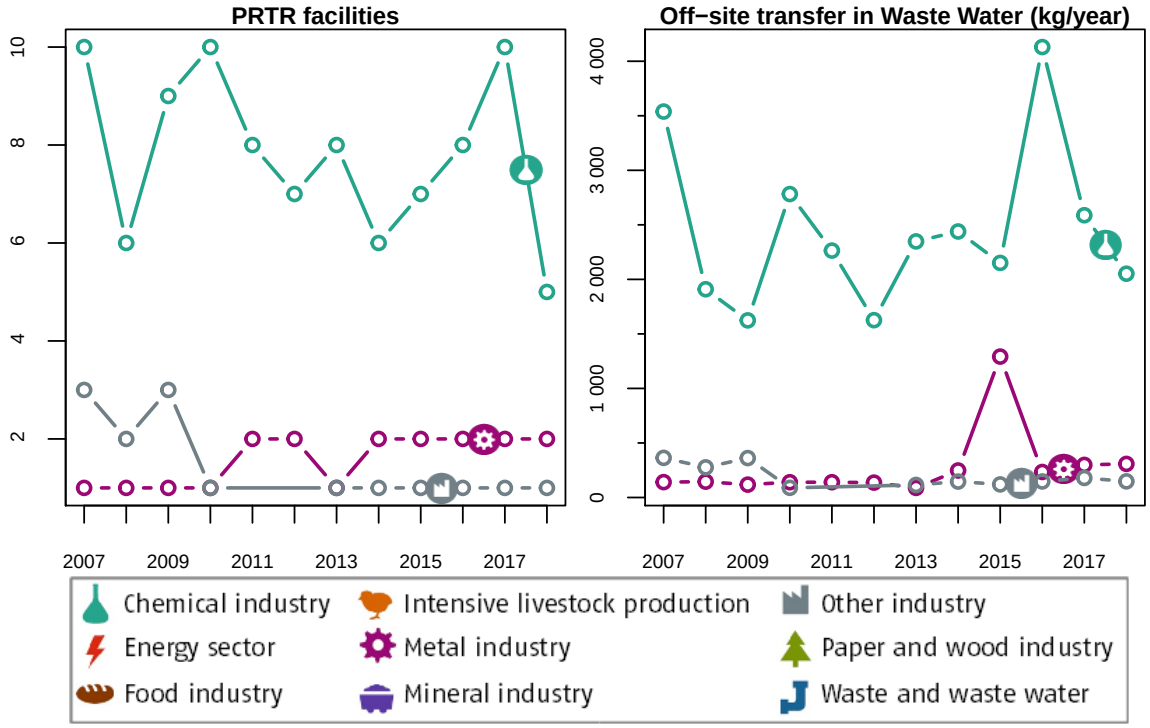



**Figure 85:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Chromium and compounds (as Cr)"**, each by the 3 industrial sector(s) with the highest emissions in the year 2018.

## 3.8 Copper and compounds (as Cu)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 15 | 68.2 | 85 132 | 98.9 |
| Waste and waste water management | 2 | 9.09 | 455 | 0.528 |
| Metal industry | 1 | 4.55 | 191 | 0.222 |
| Paper- and wood industry | 1 | 4.55 | 138 | 0.16 |
| Other industry | 2 | 9.09 | 133 | 0.154 |
| Food industry | 1 | 4.55 | 62 | 0.072 |
| **TOTAL** | 22 | 100 | 86 110 | 100 |

**Table 86:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Copper and compounds (as Cu)"** of the different industrial sectors including the corresponding shares.

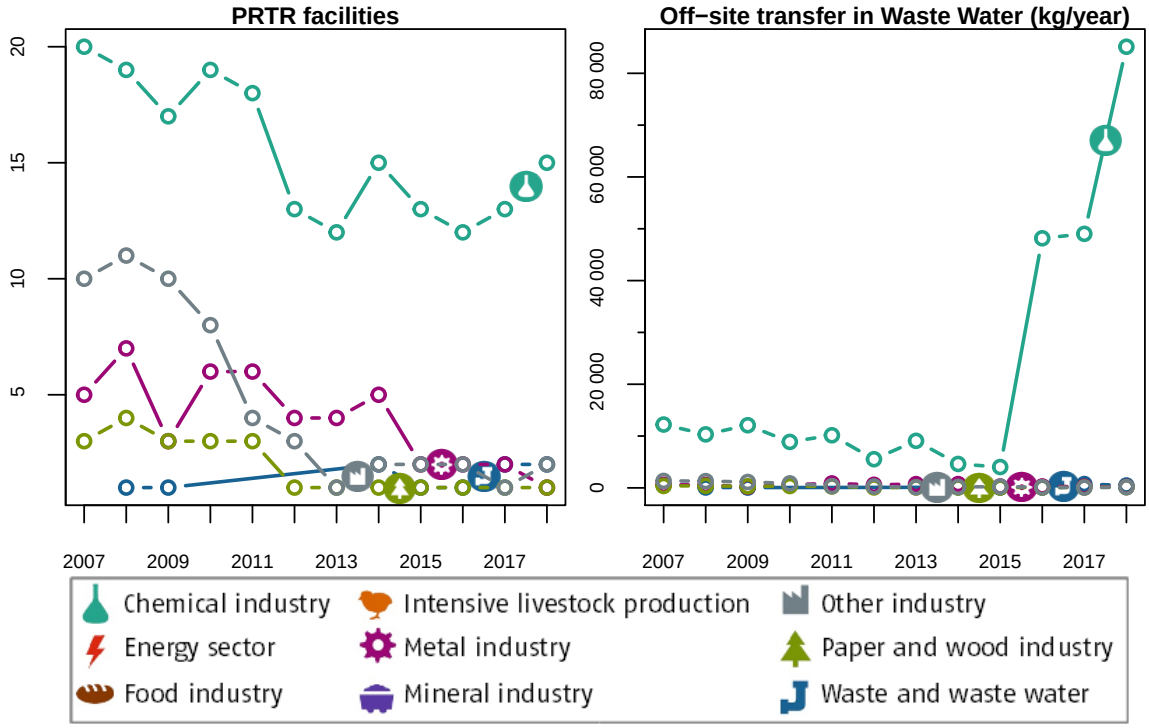



**Figure 86:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Copper and compounds (as Cu)"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.9 Cyanides (as total CN)

The threshold is **50 kg "Cyanides (as total CN)" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 3 | 25 | 11 263 | 65.7 |
| Chemical industry | 4 | 33.3 | 3 666 | 21.4 |
| Metal industry | 3 | 25 | 2 009 | 11.7 |
| Waste and waste water management | 2 | 16.7 | 218 | 1.27 |
| **TOTAL** | 12 | 100 | 17 155 | 100 |

**Table 87:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Cyanides (as total CN)"** of the different industrial sectors including the corresponding shares.

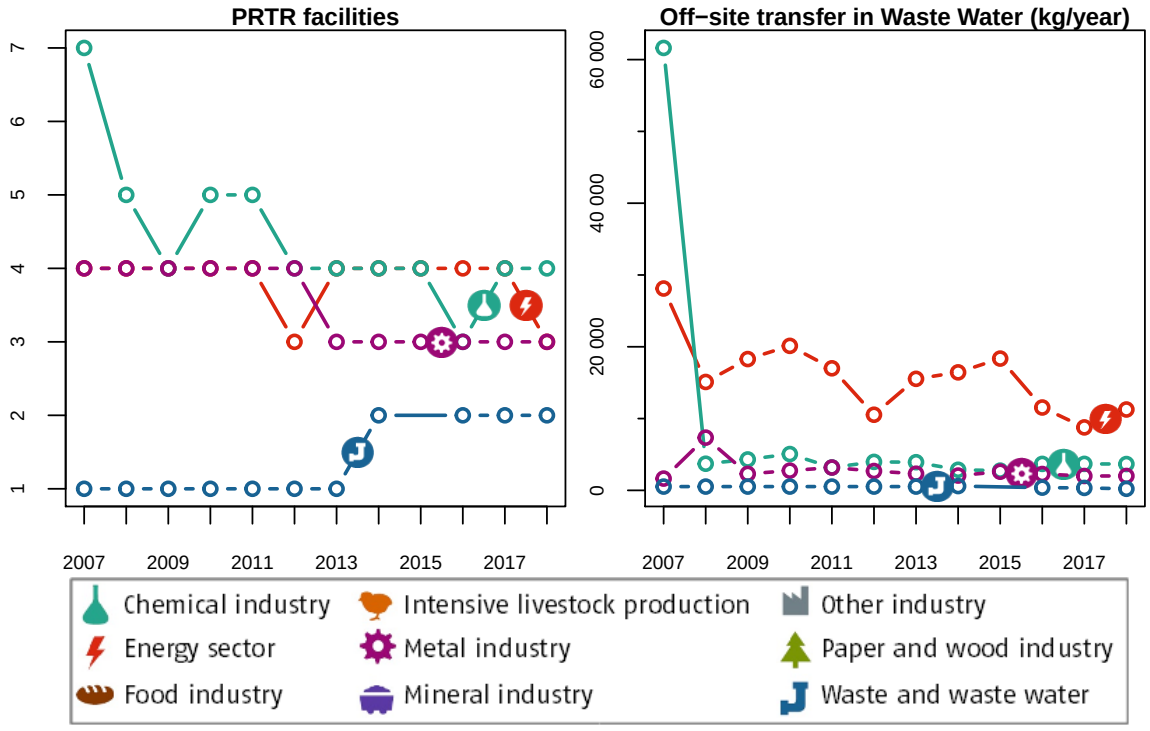



**Figure 87:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Cyanides (as total CN)"**, each by the 4 industrial sector(s) with the highest emissions in the year 2018.

## 3.10 Dichloromethane (DCM)

The threshold is **10 kg "Dichloromethane (DCM)" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 3 | 75 | 505 | 96 |
| Waste and waste water management | 1 | 25 | 20.9 | 3.97 |
| **TOTAL** | 4 | 100 | 526 | 100 |

**Table 88:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Dichloromethane (DCM)"** of the different industrial sectors including the corresponding shares.

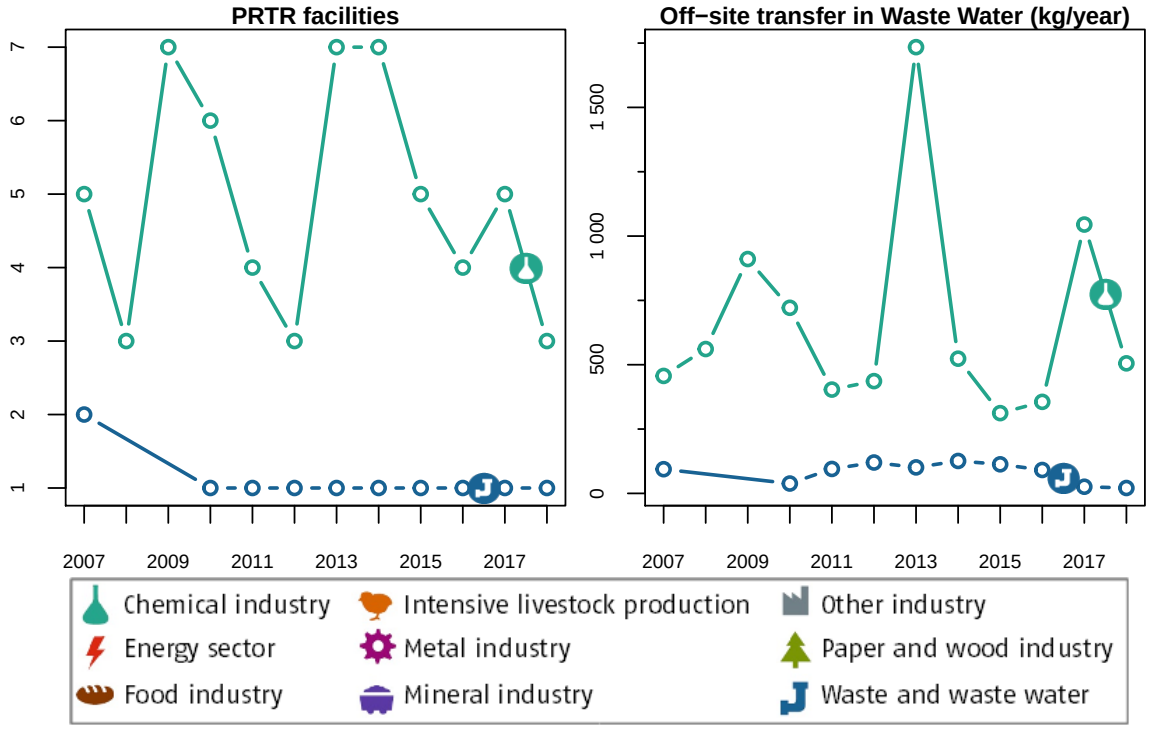



**Figure 88:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Dichloromethane (DCM)"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.11 Ethyl benzene

The threshold is **200 kg "Ethyl benzene" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 6 | 85.7 | 1 272 | 92.3 |
| Energy sector | 1 | 14.3 | 106 | 7.69 |
| **TOTAL** | 7 | 100 | 1 378 | 100 |

**Table 89:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Ethyl benzene"** of the different industrial sectors including the corresponding shares.

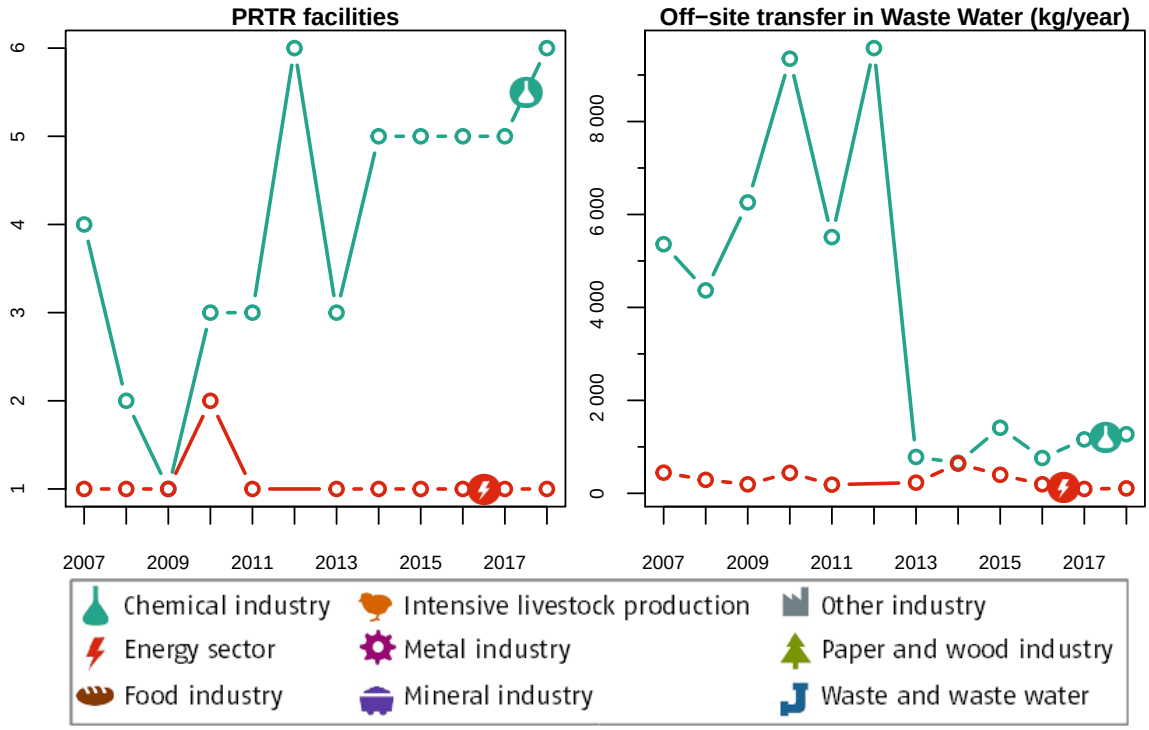



**Figure 89:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Ethyl benzene"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.12 Fluoranthene

The threshold is **1 kg "Fluoranthene" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 2 | 66.7 | 18.5 | 67.6 |
| Other industry | 1 | 33.3 | 8.85 | 32.4 |
| **TOTAL** | 3 | 100 | 27.4 | 100 |

**Table 90:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Fluoranthene"** of the different industrial sectors including the corresponding shares.

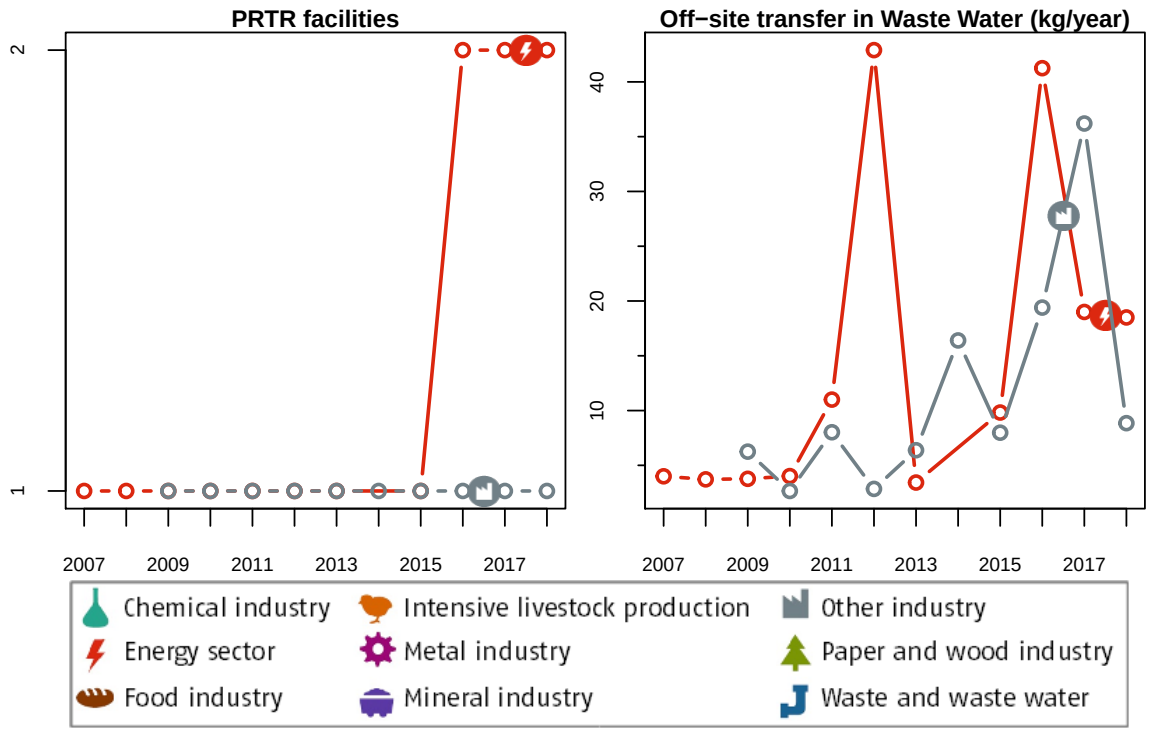



**Figure 90:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Fluoranthene"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.13 Fluorides (as total F)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 4 | 26.7 | 161 000 | 47.8 |
| Other industry | 4 | 26.7 | 72 030 | 21.4 |
| Energy sector | 2 | 13.3 | 56 510 | 16.8 |
| Metal industry | 3 | 20 | 37 860 | 11.2 |
| Waste and waste water management | 2 | 13.3 | 9 650 | 2.86 |
| **TOTAL** | 15 | 100 | 337 050 | 100 |

**Table 91:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Fluorides (as total F)"** of the different industrial sectors including the corresponding shares.

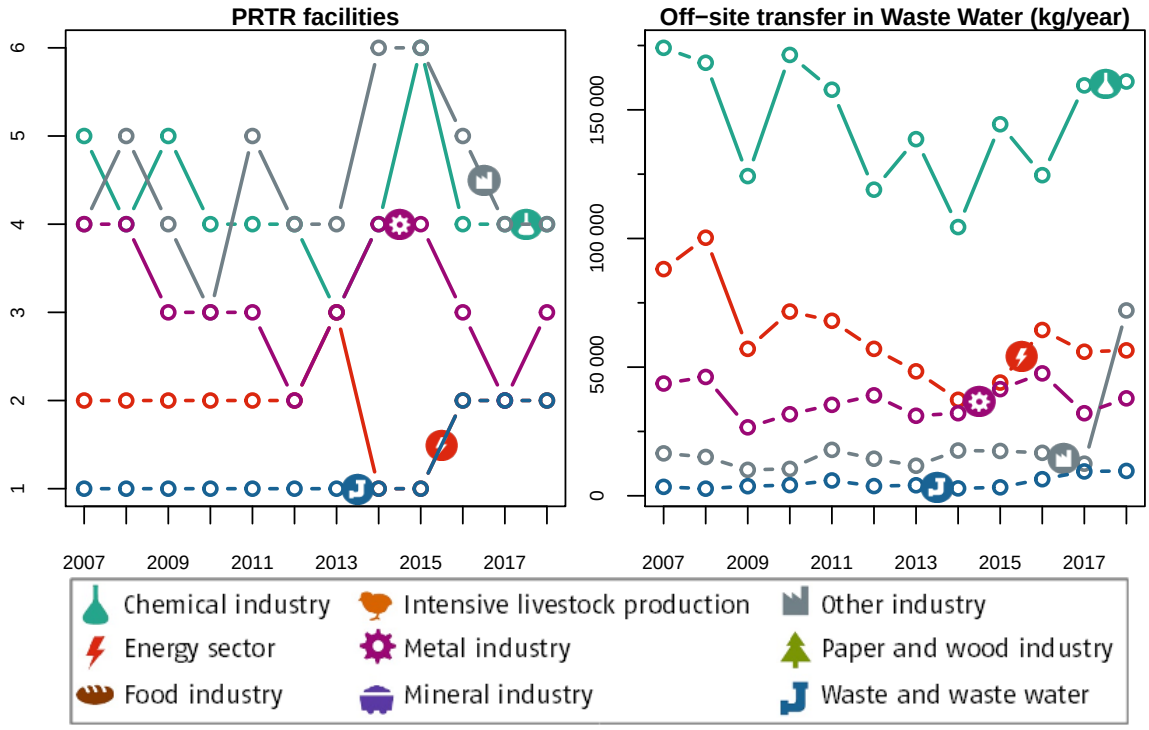



**Figure 91:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Fluorides (as total F)"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.14 Halogenated organic compounds (as AOX)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 21 | 87.5 | 518 400 | 99 |
| Paper- and wood industry | 3 | 12.5 | 5 020 | 0.959 |
| **TOTAL** | 24 | 100 | 523 420 | 100 |

**Table 92:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Halogenated organic compounds (as AOX)"** of the different industrial sectors including the corresponding shares.

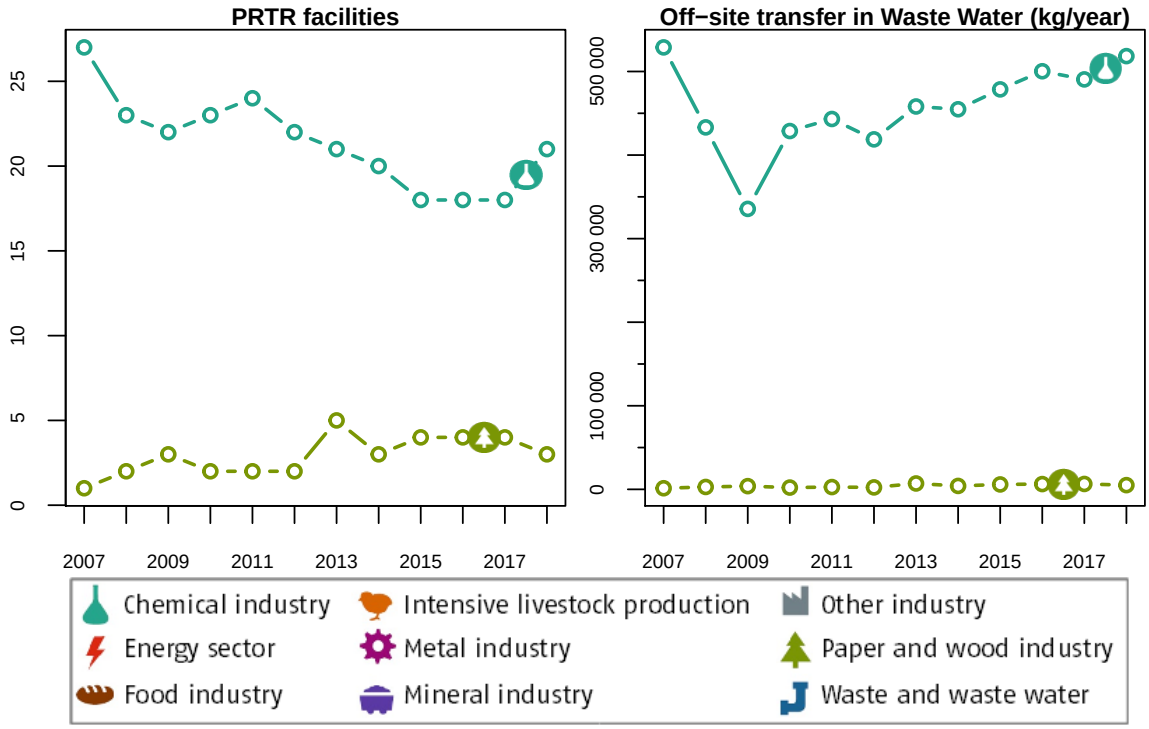



**Figure 92:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Halogenated organic compounds (as AOX)"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.15 Lead and compounds (as Pb)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 5 | 35.7 | 2 447 | 61.9 |
| Chemical industry | 6 | 42.9 | 952 | 24.1 |
| Waste and waste water management | 1 | 7.14 | 500 | 12.7 |
| Energy sector | 1 | 7.14 | 27.3 | 0.691 |
| Paper- and wood industry | 1 | 7.14 | 25 | 0.633 |
| **TOTAL** | 14 | 100 | 3 951 | 100 |

**Table 93:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Lead and compounds (as Pb)"** of the different industrial sectors including the corresponding shares.

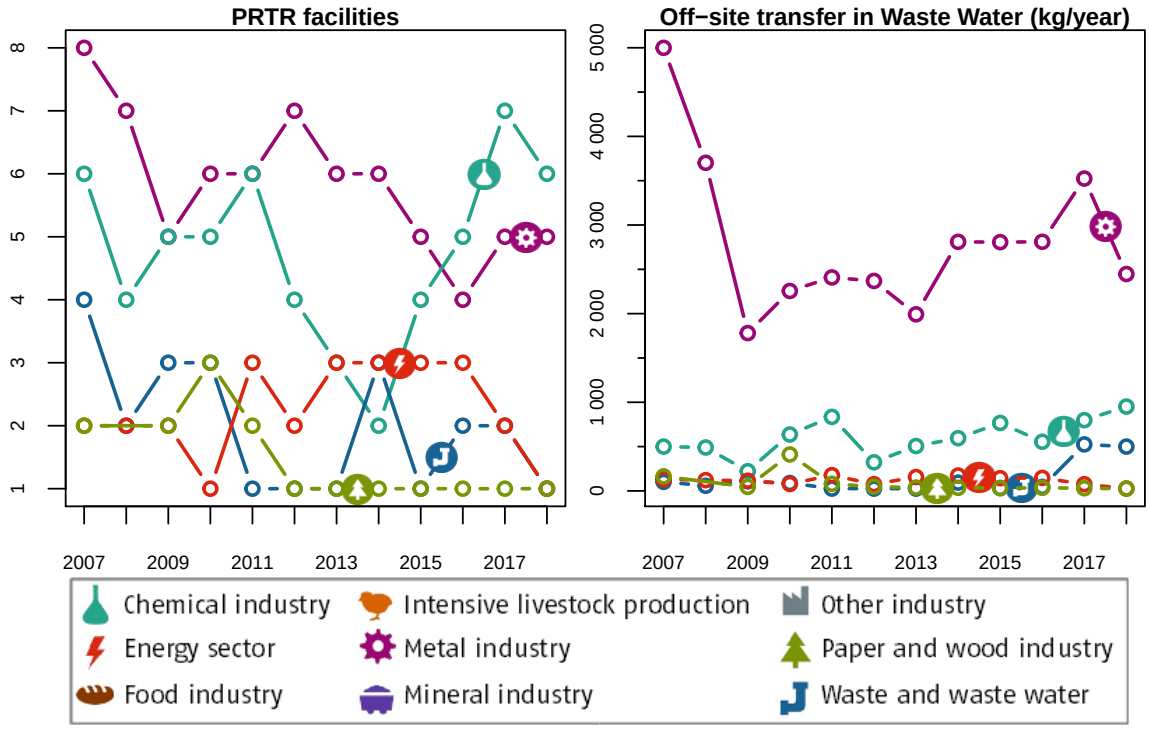



**Figure 93:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Lead and compounds (as Pb)"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.16 Mercury and compounds (as Hg)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 1 | 12.5 | 883 | 81.4 |
| Chemical industry | 1 | 12.5 | 158 | 14.6 |
| Waste and waste water management | 4 | 50 | 35.5 | 3.27 |
| Energy sector | 1 | 12.5 | 6.78 | 0.625 |
| Mineral industry | 1 | 12.5 | 1.2 | 0.111 |
| **TOTAL** | 8 | 100 | 1 084 | 100 |

**Table 94:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Mercury and compounds (as Hg)"** of the different industrial sectors including the corresponding shares.

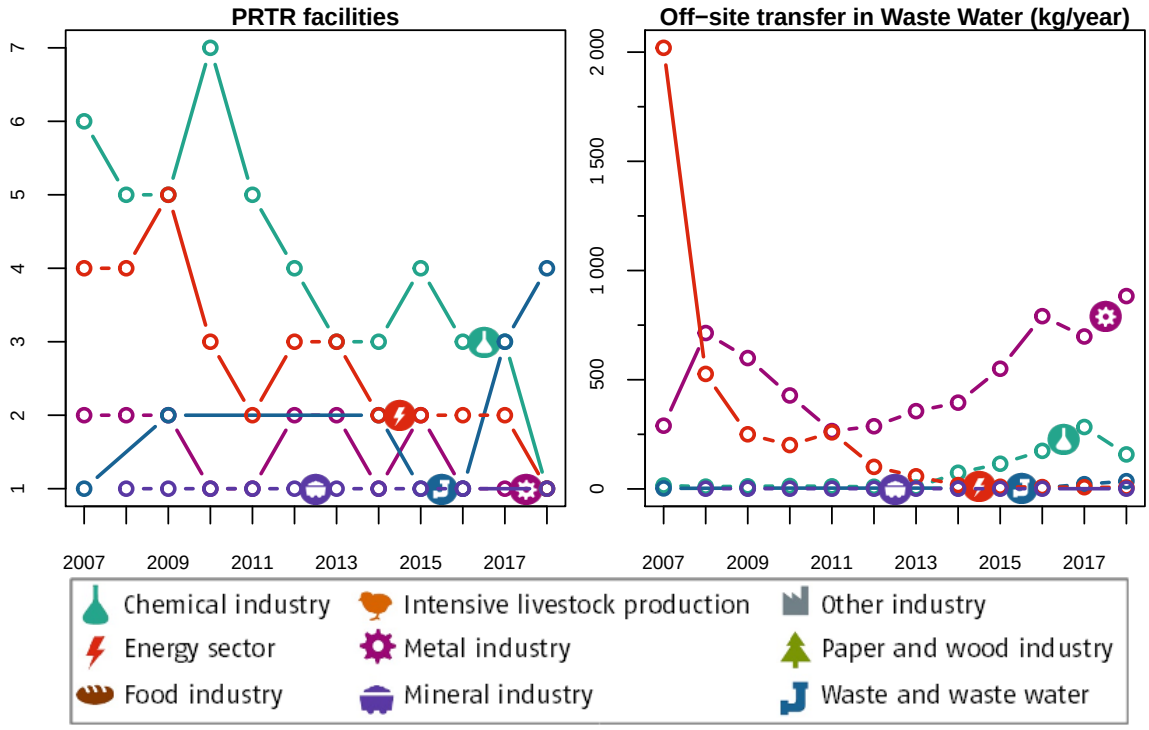



**Figure 94:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Mercury and compounds (as Hg)"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.17 Naphthalene

The threshold is **10 kg "Naphthalene" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 50 | 2 830 | 99.2 |
| Energy sector | 1 | 50 | 23.7 | 0.831 |
| **TOTAL** | 2 | 100 | 2 854 | 100 |

**Table 95:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Naphthalene"** of the different industrial sectors including the corresponding shares.

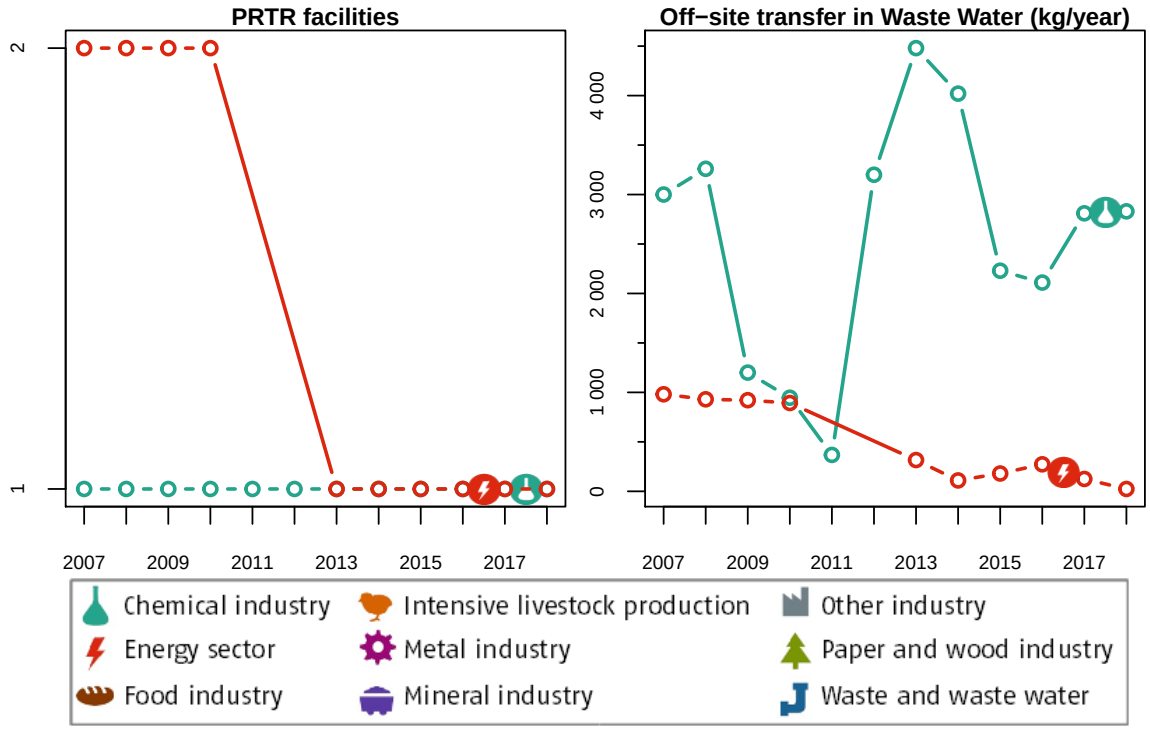



**Figure 95:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Naphthalene"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.18 Nickel and compounds (as Ni)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 20 | 38.5 | 2 103 | 53.5 |
| Metal industry | 13 | 25 | 1 002 | 25.5 |
| Waste and waste water management | 9 | 17.3 | 437 | 11.1 |
| Other industry | 5 | 9.62 | 197 | 5.01 |
| Paper- and wood industry | 2 | 3.85 | 73.9 | 1.88 |
| Energy sector | 2 | 3.85 | 70.7 | 1.8 |
| Food industry | 1 | 1.92 | 42.9 | 1.09 |
| **TOTAL** | 52 | 100 | 3 927 | 100 |

**Table 96:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Nickel and compounds (as Ni)"** of the different industrial sectors including the corresponding shares.

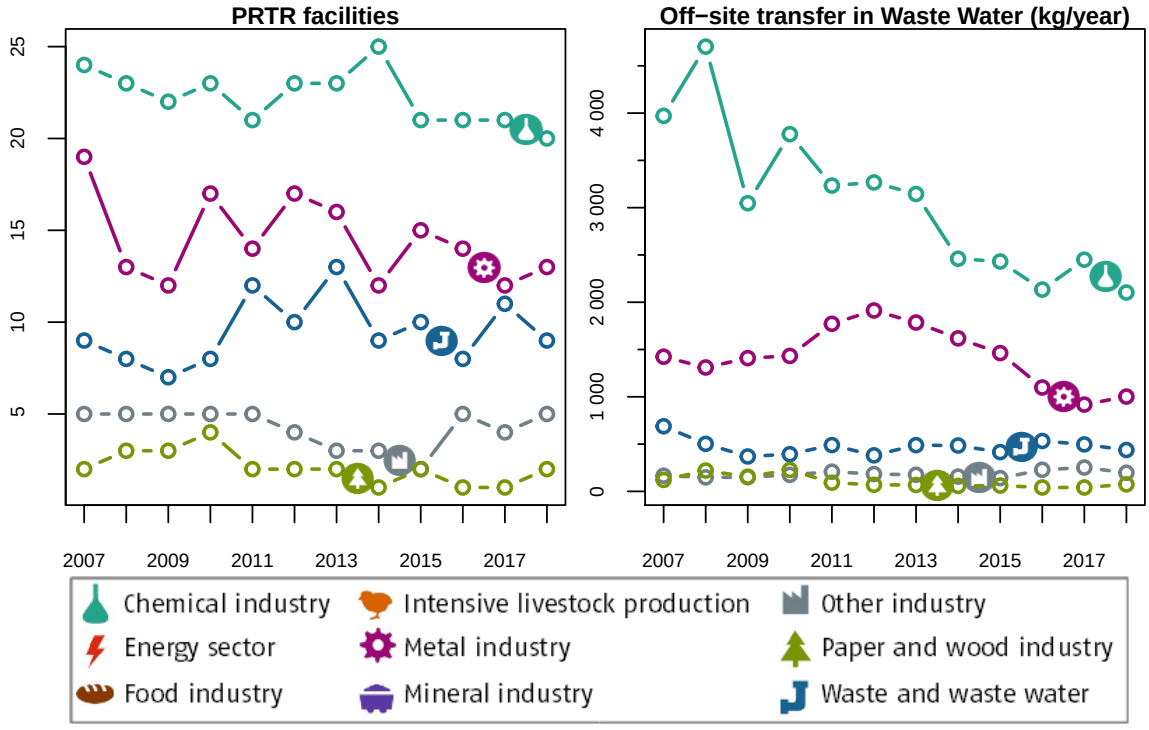



**Figure 96:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Nickel and compounds (as Ni)"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.19 Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 100 | 41.4 | 100 |
| **TOTAL** | 1 | 100 | 41.4 | 100 |

**Table 97:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)"** of the different industrial sectors including the corresponding shares.

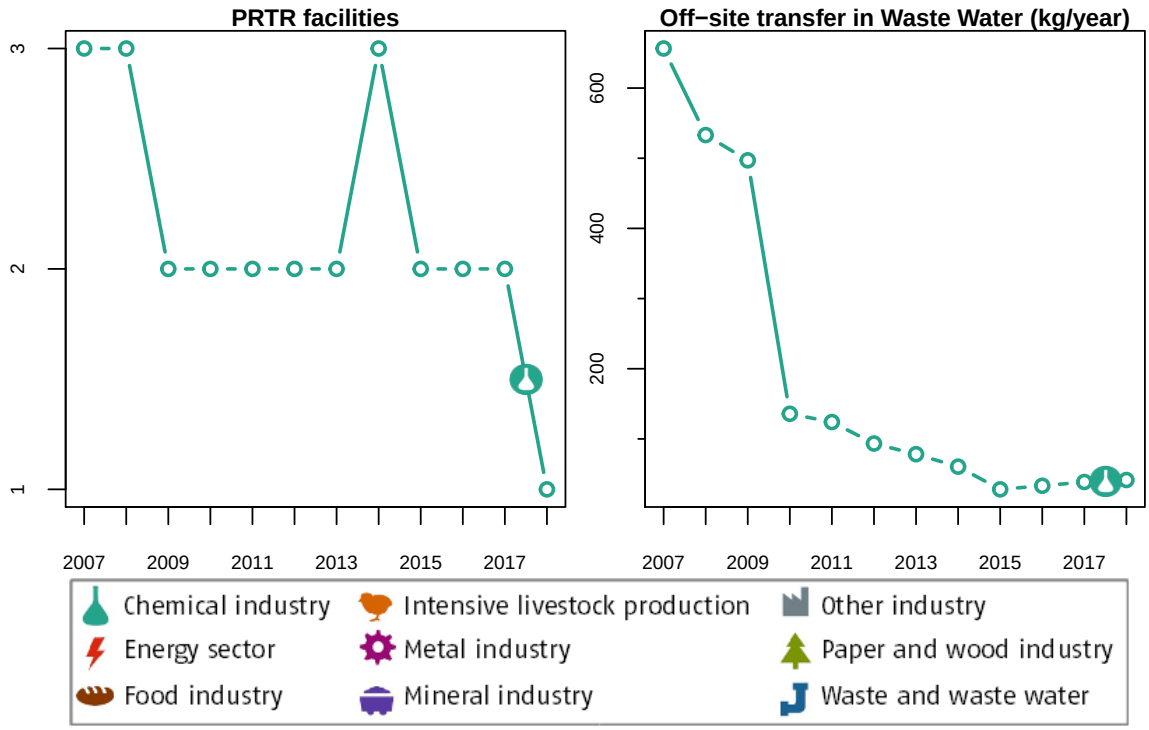



**Figure 97:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)"**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 3.20 Octylphenols and Octylphenol ethoxylates

The threshold is **1 kg "Octylphenols and Octylphenol ethoxylates" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 100 | 11 | 100 |
| **TOTAL** | 1 | 100 | 11 | 100 |

**Table 98:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Octylphenols and Octylphenol ethoxylates"** of the different industrial sectors including the corresponding shares.

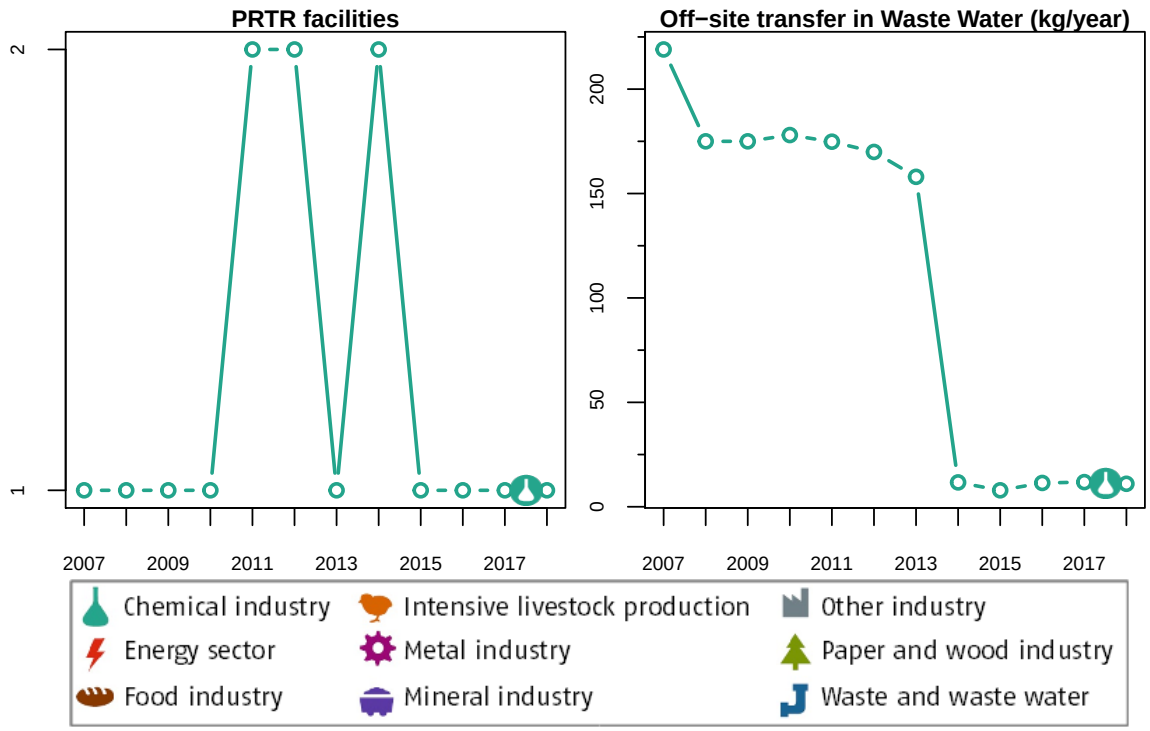



**Figure 98:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Octylphenols and Octylphenol ethoxylates"**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 3.21 Organotin compounds(as total Sn)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 100 | 10 200 | 100 |
| **TOTAL** | 1 | 100 | 10 200 | 100 |

**Table 99:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Organotin compounds(as total Sn)"** of the different industrial sectors including the corresponding shares.

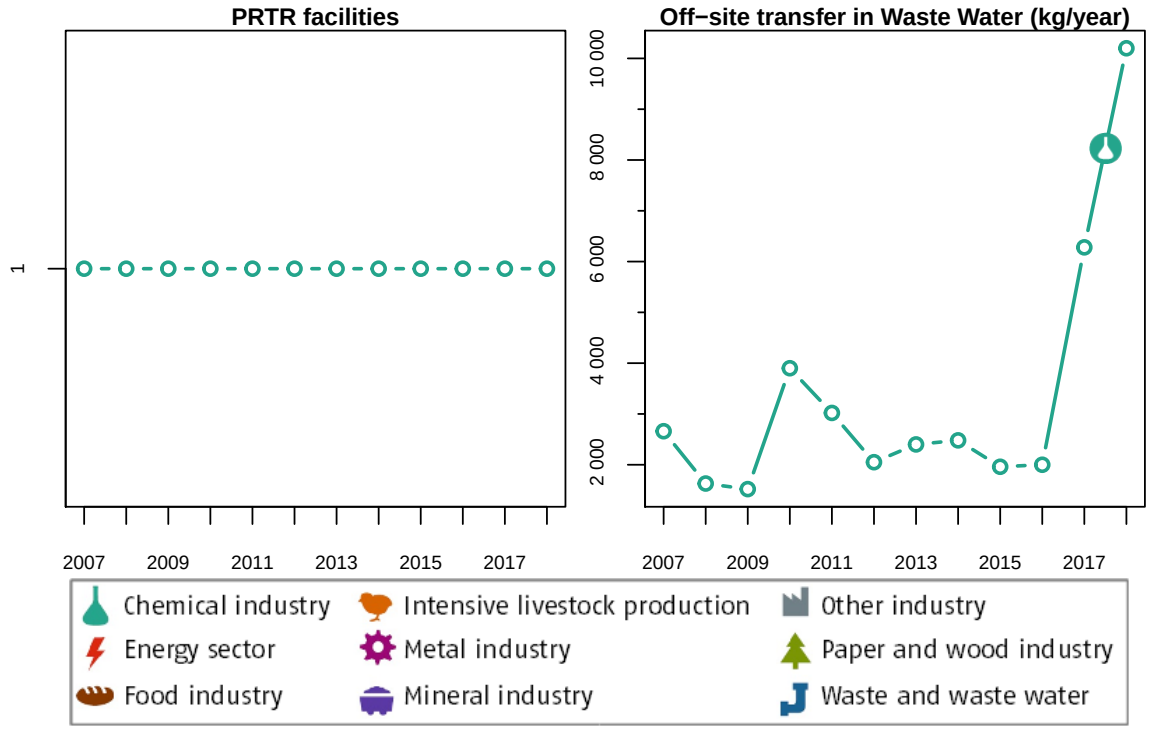



**Figure 99:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Organotin compounds(as total Sn)"**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

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

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 2 | 66.7 | 0.00387 | 92.8 |
| Paper- and wood industry | 1 | 33.3 | 0.0003 | 7.19 |
| **TOTAL** | 3 | 100 | 0.00417 | 100 |

**Table 100:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"PCDD + PCDF (dioxins + furans) (as Teq)"** of the different industrial sectors including the corresponding shares.

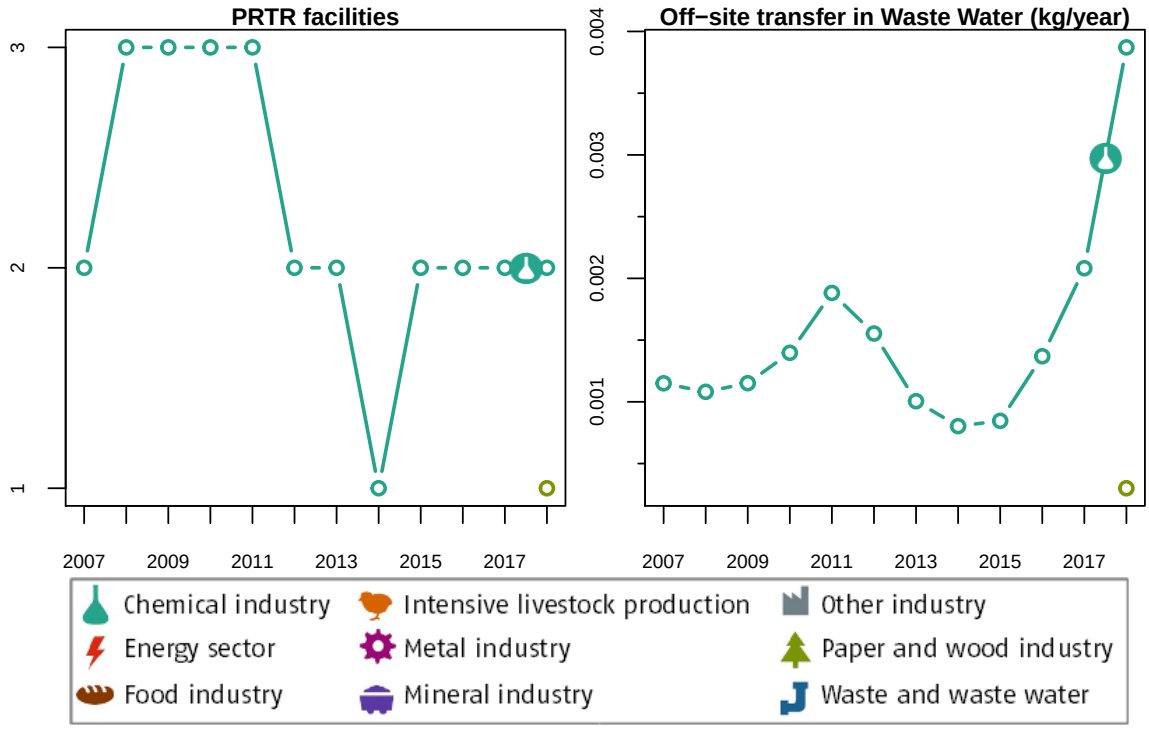



**Figure 100:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"PCDD + PCDF (dioxins + furans) (as Teq)"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.23 Phenols (as total C)

The threshold is **20 kg "Phenols (as total C)" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 3 | 7.89 | 315 930 | 61.3 |
| Chemical industry | 19 | 50 | 191 659 | 37.2 |
| Metal industry | 6 | 15.8 | 5 368 | 1.04 |
| Waste and waste water management | 4 | 10.5 | 803 | 0.156 |
| Food industry | 1 | 2.63 | 742 | 0.144 |
| Other industry | 5 | 13.2 | 598 | 0.116 |
| **TOTAL** | 38 | 100 | 515 099 | 100 |

**Table 101:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Phenols (as total C)"** of the different industrial sectors including the corresponding shares.

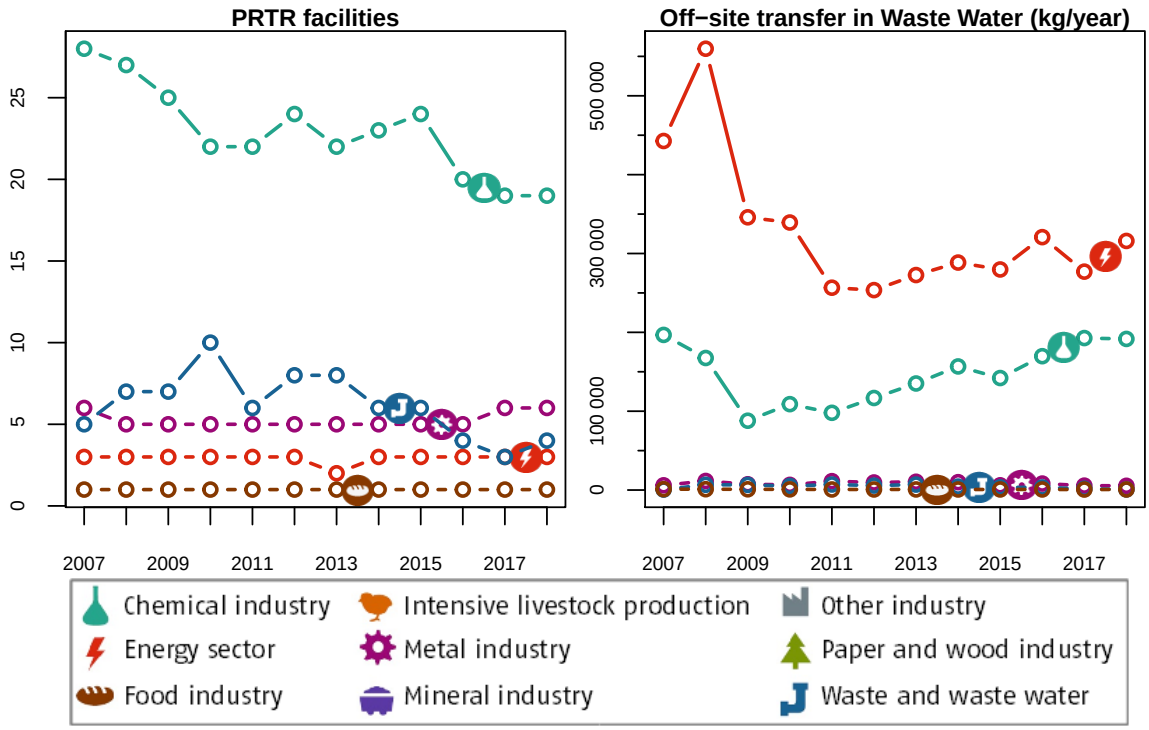



**Figure 101:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Phenols (as total C)"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.24 Polycyclic aromatic hydrocarbons (PAHs)

The threshold is **5 kg "Polycyclic aromatic hydrocarbons (PAHs)" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Energy sector | 2 | 66.7 | 93.7 | 68.1 |
| Chemical industry | 1 | 33.3 | 43.8 | 31.9 |
| **TOTAL** | 3 | 100 | 138 | 100 |

**Table 102:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Polycyclic aromatic hydrocarbons (PAHs)"** of the different industrial sectors including the corresponding shares.

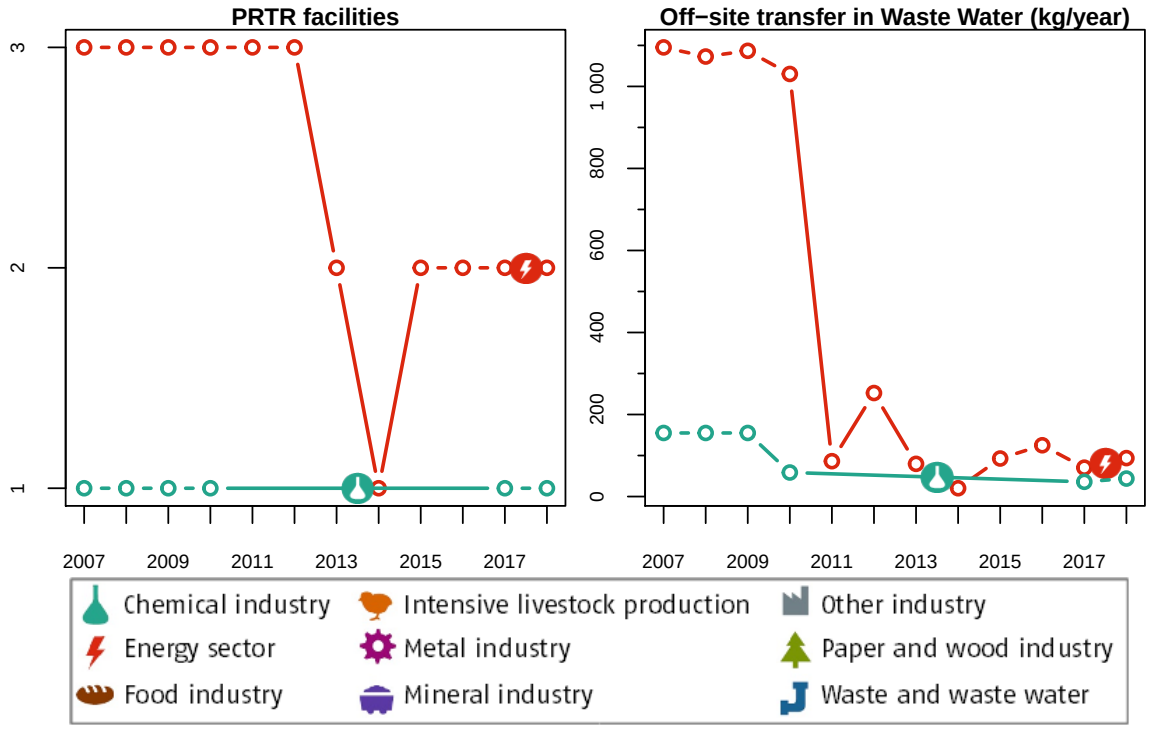



**Figure 102:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Polycyclic aromatic hydrocarbons (PAHs)"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.25 Tetrachloromethane (TCM)

The threshold is **1 kg "Tetrachloromethane (TCM)" per year**. Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 100 | 1.71 | 100 |
| **TOTAL** | 1 | 100 | 1.71 | 100 |

**Table 103:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Tetrachloromethane (TCM)"** of the different industrial sectors including the corresponding shares.

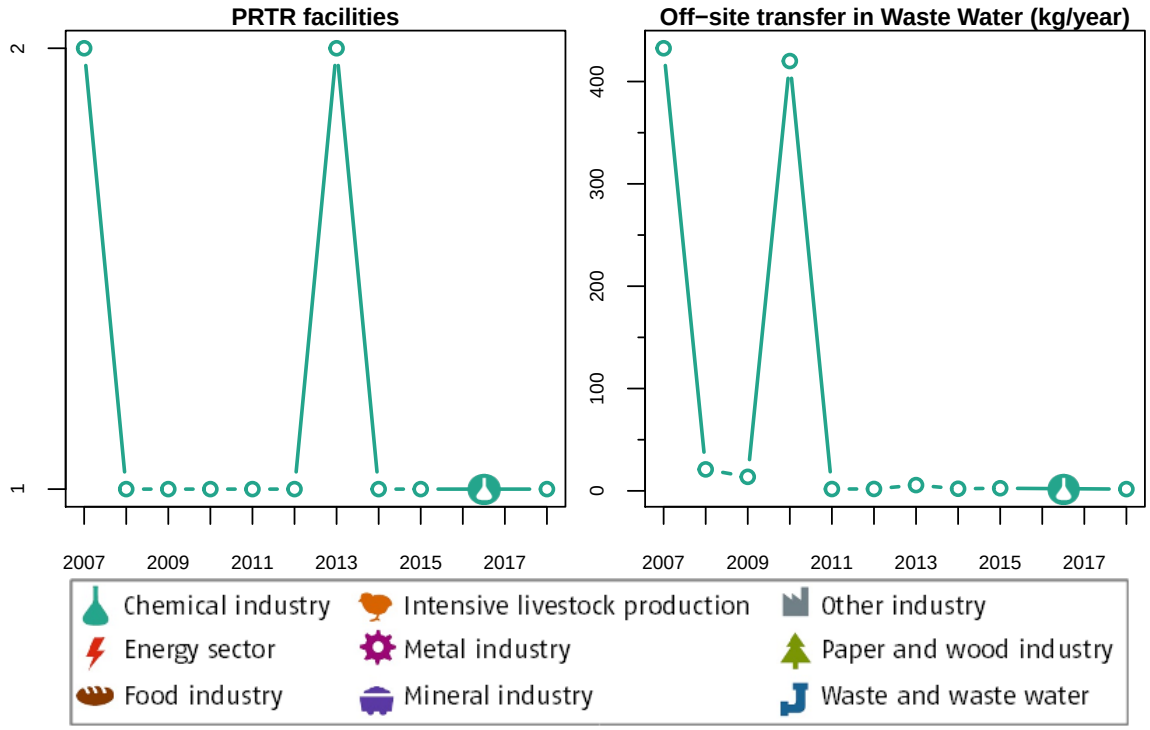



**Figure 103:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Tetrachloromethane (TCM)"**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 3.26 Toluene

The threshold is **200 kg "Toluene" per year.** Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 11 | 91.7 | 37 467 | 99.3 |
| Energy sector | 1 | 8.33 | 252 | 0.668 |
| **TOTAL** | 12 | 100 | 37 719 | 100 |

**Table 104:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Toluene"** of the different industrial sectors including the corresponding shares.

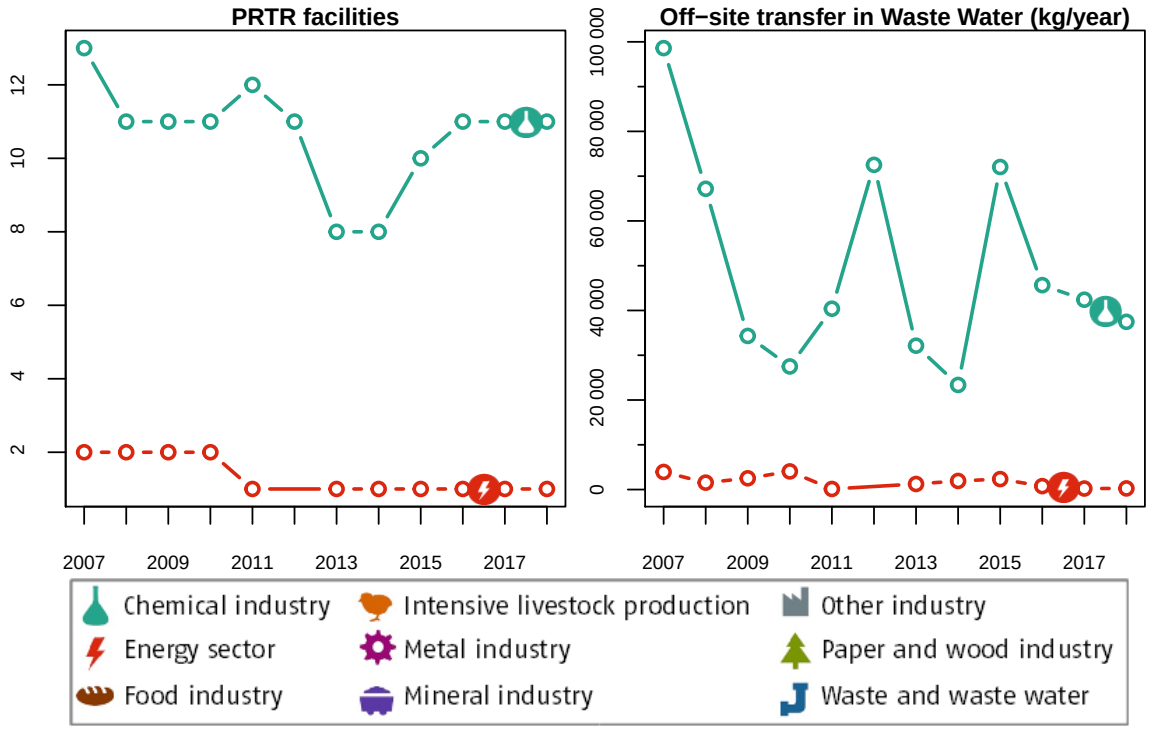



**Figure 104:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Toluene"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.27 Total nitrogen

The threshold is **50 000 kg "Total nitrogen" per year.** Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 26 | 38.2 | 5 923 300 | 51.4 |
| Food industry | 23 | 33.8 | 2 662 700 | 23.1 |
| Metal industry | 6 | 8.82 | 1 570 500 | 13.6 |
| Energy sector | 3 | 4.41 | 598 000 | 5.19 |
| Waste and waste water management | 5 | 7.35 | 379 300 | 3.29 |
| Other industry | 3 | 4.41 | 261 300 | 2.27 |
| Paper- and wood industry | 2 | 2.94 | 129 300 | 1.12 |
| **TOTAL** | 68 | 100 | 11 524 400 | 100 |

**Table 105:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Total nitrogen"** of the different industrial sectors including the corresponding shares.

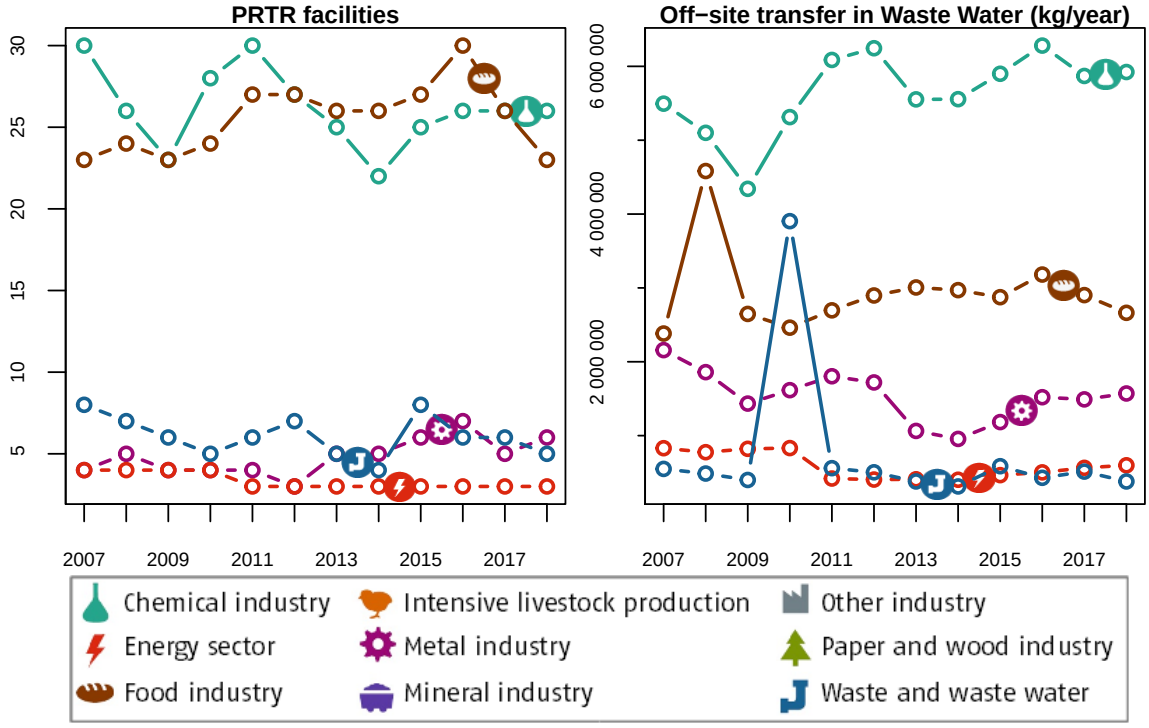



**Figure 105:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Total nitrogen"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.28 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 been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 114 | 32.9 | 57 459 700 | 34.3 |
| Food industry | 144 | 41.5 | 54 395 400 | 32.4 |
| Paper- and wood industry | 35 | 10.1 | 44 616 400 | 26.6 |
| Other industry | 19 | 5.48 | 4 215 700 | 2.51 |
| Waste and waste water management | 18 | 5.19 | 3 088 900 | 1.84 |
| Energy sector | 7 | 2.02 | 2 818 400 | 1.68 |
| Metal industry | 10 | 2.88 | 1 164 300 | 0.694 |
| **TOTAL** | 347 | 100 | 167 758 800 | 100 |

**Table 106:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Total organic carbon (TOC) (as total C or COD/3)"** of the different industrial sectors including the corresponding shares.

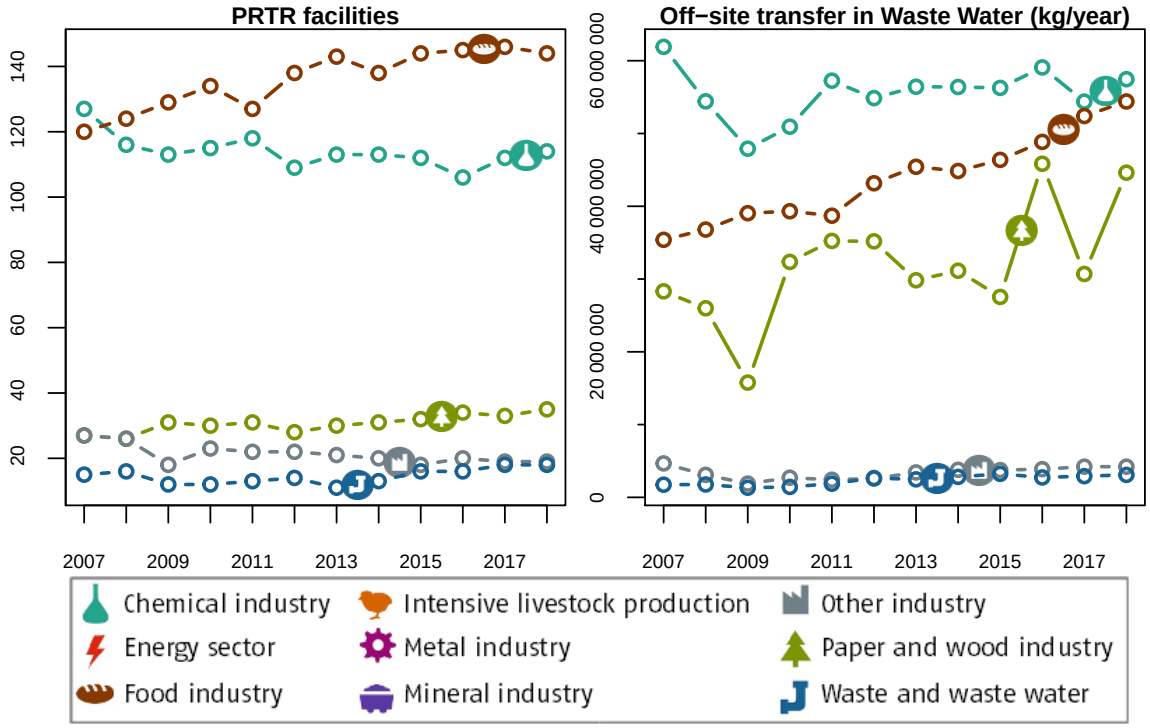



**Figure 106:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Total organic carbon (TOC) (as total C or COD/3)"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.29 Total phosphorus

The threshold is **5 000 kg "Total phosphorus" per year.** Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Food industry | 60 | 67.4 | 1 251 060 | 53.3 |
| Chemical industry | 21 | 23.6 | 1 025 040 | 43.7 |
| Paper- and wood industry | 3 | 3.37 | 23 570 | 1 |
| Waste and waste water management | 1 | 1.12 | 17 000 | 0.724 |
| Energy sector | 2 | 2.25 | 14 400 | 0.613 |
| Intensive livestock production and aquaculture | 1 | 1.12 | 10 900 | 0.464 |
| Other industry | 1 | 1.12 | 5 640 | 0.24 |
| **TOTAL** | 89 | 100 | 2 347 610 | 100 |

**Table 107:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Total phosphorus"** of the different industrial sectors including the corresponding shares.

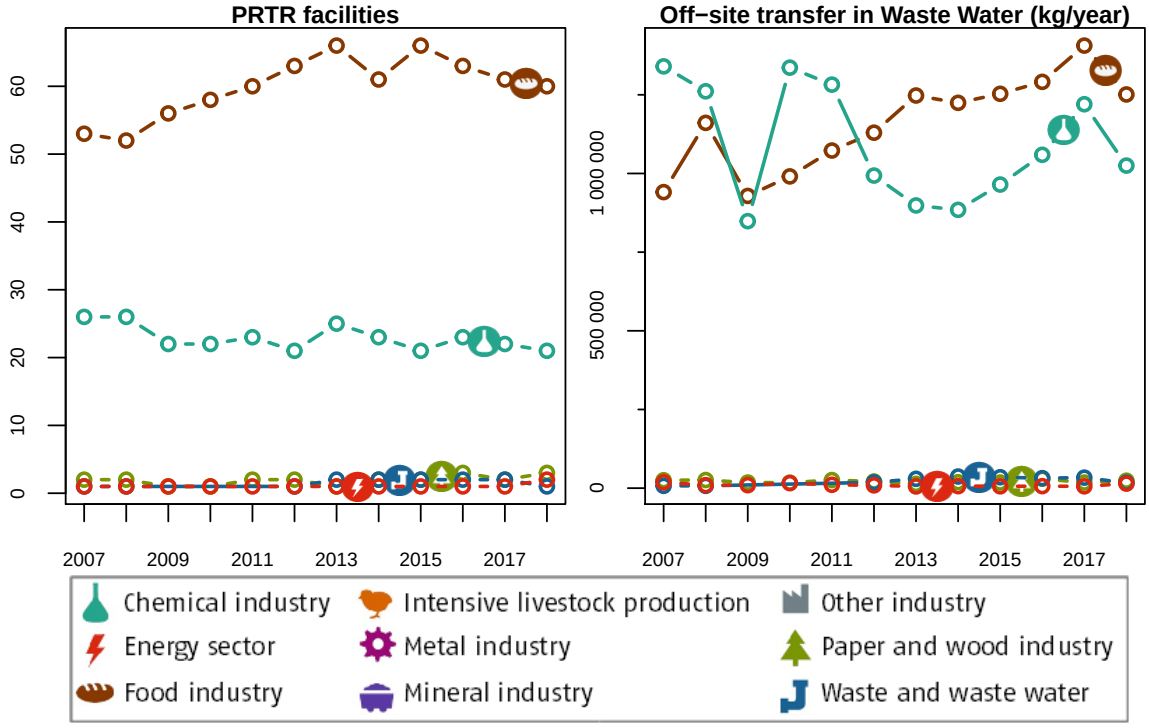



**Figure 107:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Total phosphorus"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

## 3.30 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 been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 1 | 100 | 88 | 100 |
| **TOTAL** | 1 | 100 | 88 | 100 |

**Table 108:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Trichlorobenzenes (TCBs) (all isomers)"** of the different industrial sectors including the corresponding shares.

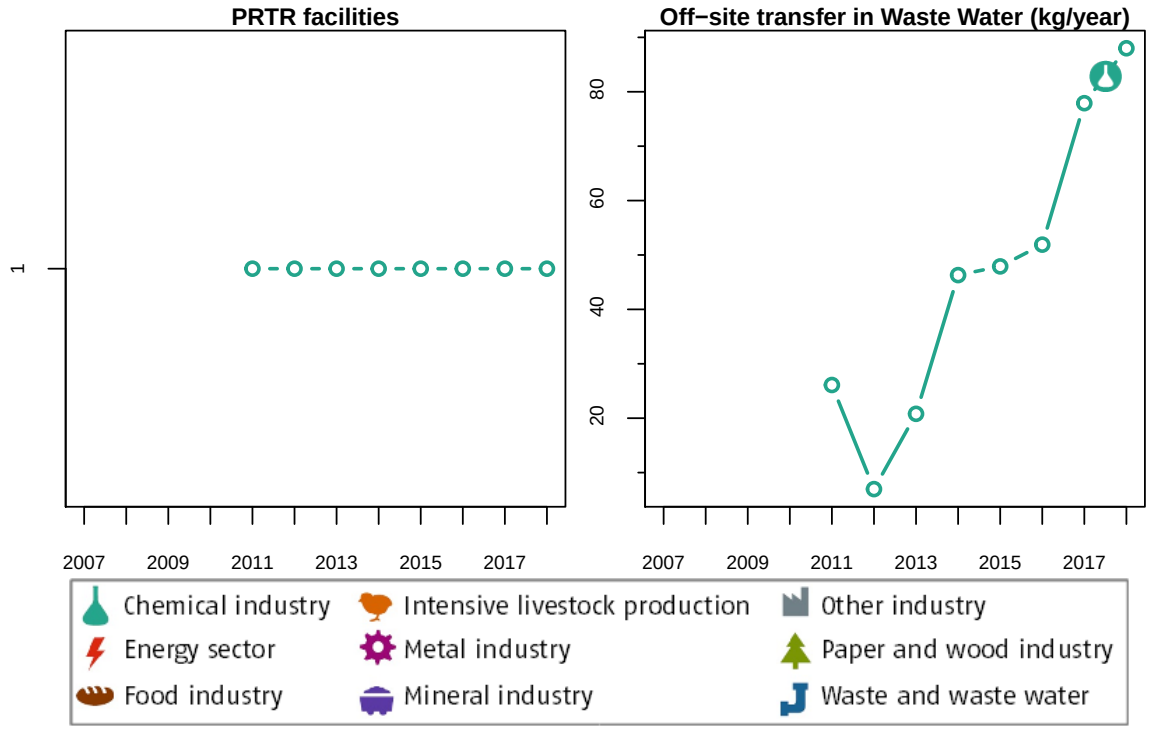



**Figure 108:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Trichlorobenzenes (TCBs) (all isomers)"**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 3.31 Vinyl chloride

The threshold is **10 kg "Vinyl chloride" per year.** Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 6 | 100 | 991 | 100 |
| **TOTAL** | 6 | 100 | 991 | 100 |

**Table 109:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Vinyl chloride"** of the different industrial sectors including the corresponding shares.

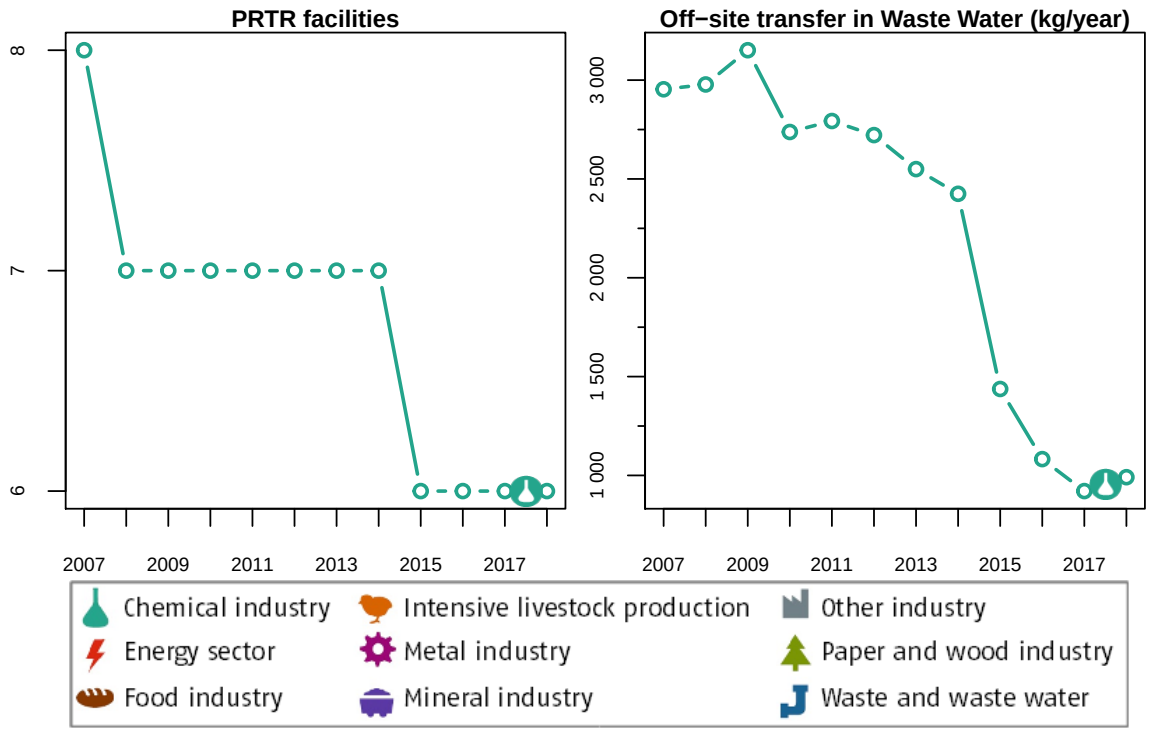



**Figure 109:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Vinyl chloride"**, each by the 1 industrial sector(s) with the highest emissions in the year 2018.

## 3.32 Xylenes

The threshold is **200 kg "Xylenes" per year.** Off-site transfer in waste water above this value have to been reported according to the German PRTR.

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Chemical industry | 7 | 87.5 | 3 647 | 84.5 |
| Energy sector | 1 | 12.5 | 669 | 15.5 |
| **TOTAL** | 8 | 100 | 4 316 | 100 |

**Table 110:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Xylenes"** of the different industrial sectors including the corresponding shares.

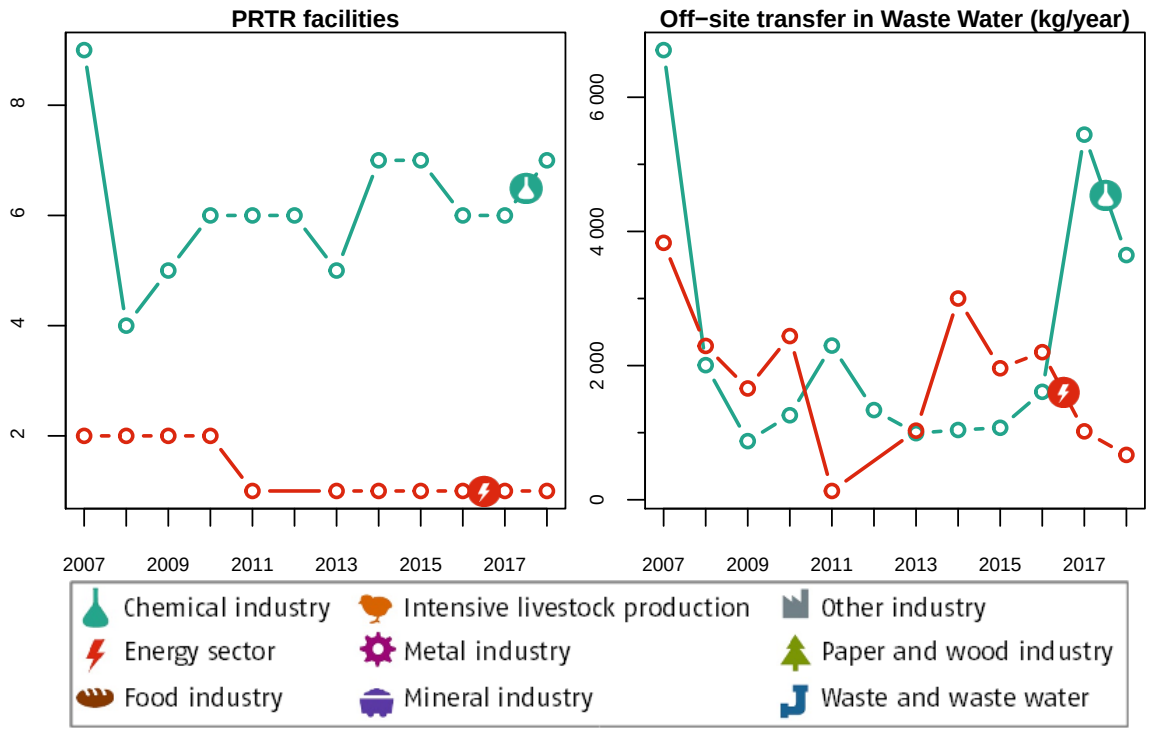



**Figure 110:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Xylenes"**, each by the 2 industrial sector(s) with the highest emissions in the year 2018.

## 3.33 Zinc and compounds (as Zn)

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

| Industrial sector | Facilities | (%) | Off-site transfer w. w. (kg/year) | (%) |
|---|---|---|---|---|
| Metal industry | 12 | 23.5 | 53 776 | 76.1 |
| Chemical industry | 25 | 49 | 10 605 | 15 |
| Waste and waste water management | 5 | 9.8 | 4 137 | 5.85 |
| Food industry | 2 | 3.92 | 735 | 1.04 |
| Paper- and wood industry | 2 | 3.92 | 706 | 0.999 |
| Other industry | 3 | 5.88 | 405 | 0.573 |
| Energy sector | 2 | 3.92 | 302 | 0.427 |
| **TOTAL** | 51 | 100 | 70 666 | 100 |

**Table 111:** For the reporting year **2018** — Number of facilities and their off-site transfer in waste water (w. w.) of the pollutant **"Zinc and compounds (as Zn)"** of the different industrial sectors including the corresponding shares.

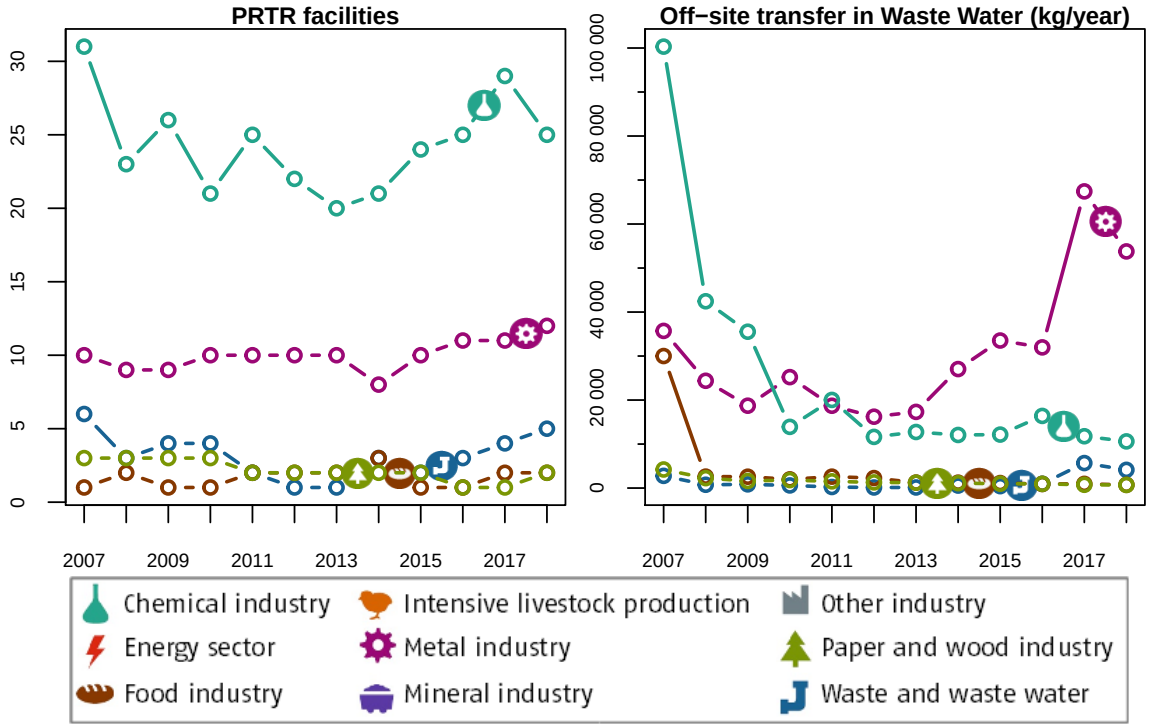



**Figure 111:** Annual number of facilities (left) and their off-site transfer in waste water (right) of the pollutant **"Zinc and compounds (as Zn)"**, each by the 5 industrial sector(s) with the highest emissions in the year 2018.

# 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 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*.

*ANNEX II*

**Pollutants** (*)

| No | CAS number | Pollutant (1) | Threshold for releases (column 1) | | |
|---|---|---|---|---|---|
| | | | to air (column 1a) kg/year | to water (column 1b) kg/year | to land (column 1c) kg/year |
| 1 | 74-82-8 | Methane ($CH_4$) | 100 000 | — (2) | — |
| 2 | 630-08-0 | Carbon monoxide (CO) | 500 000 | — | — |
| 3 | 124-38-9 | Carbon dioxide ($CO_2$) | 100 million | — | — |
| 4 | | Hydro-fluorocarbons (HFCs) (3) | 100 | — | — |
| 5 | 10024-97-2 | Nitrous oxide ($N_2O$) | 10 000 | — | — |
| 6 | 7664-41-7 | Ammonia ($NH_3$) | 10 000 | — | — |
| 7 | | Non-methane volatile organic compounds (NMVOC) | 100 000 | — | — |
| 8 | | Nitrogen oxides ($NO_x/NO_2$) | 100 000 | — | — |
| 9 | | Perfluorocarbons (PFCs) (4) | 100 | — | — |
| 10 | 2551-62-4 | Sulphur hexafluoride ($SF_6$) | 50 | — | — |
| 11 | | Sulphur oxides ($SO_x/SO_2$) | 150 000 | — | — |
| 12 | | Total nitrogen | — | 50 000 | 50 000 |
| 13 | | Total phosphorus | — | 5 000 | 5 000 |
| 14 | | Hydrochlorofluorocarbons (HCFCs) (5) | 1 | — | — |
| 15 | | Chlorofluorocarbons (CFCs) (6) | 1 | — | — |
| 16 | | Halons (7) | 1 | — | — |
| 17 | | Arsenic and compounds (as As) (8) | 20 | 5 | 5 |
| 18 | | Cadmium and compounds (as Cd) (8) | 10 | 5 | 5 |
| 19 | | Chromium and compounds (as Cr) (8) | 100 | 50 | 50 |
| 20 | | Copper and compounds (as Cu) (8) | 100 | 50 | 50 |
| 21 | | Mercury and compounds (as Hg) (8) | 10 | 1 | 1 |
| 22 | | Nickel and compounds (as Ni) (8) | 50 | 20 | 20 |
| 23 | | Lead and compounds (as Pb) (8) | 200 | 20 | 20 |
| 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 |

(*) Releases of pollutants falling into several categories of pollutants shall be reported for each of these categories.

| No | CAS number | Pollutant [1] | Threshold for releases (column 1) | | |
|---|---|---|---|---|---|
| | | | to air (column 1a) kg/year | to water (column 1b) kg/year | to land (column 1c) kg/year |
| 29 | 143-50-0 | Chlordecone | 1 | 1 | 1 |
| 30 | 470-90-6 | Chlorfenvinphos | — | 1 | 1 |
| 31 | 85535-84-8 | Chloro-alkanes, $C_{10}$-$C_{13}$ | — | 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 | — |
| 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 | Trichloroethylene | 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 |

| No | CAS number | Pollutant [1] | Threshold for releases (column 1) | | |
|---|---|---|---|---|---|
| | | | to air (column 1a) kg/year | to water (column 1b) kg/year | to land (column 1c) kg/year |
| 62 | 71-43-2 | Benzene | 1 000 | 200 (as BTEX) [11] | 200 (as BTEX) [11] |
| 63 | | Brominated diphenylethers (PBDE) [12] | — | 1 | 1 |
| 64 | | Nonylphenol and Nonylphenol ethoxylates (NP/NPEs) | — | 1 | 1 |
| 65 | 100-41-4 | Ethyl benzene | — | 200 (as BTEX) [11] | 200 (as BTEX) [11] |
| 66 | 75-21-8 | Ethylene oxide | 1 000 | 10 | 10 |
| 67 | 34123-59-6 | Isoproturon | — | 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] |
| 79 | | Chlorides (as total Cl) | — | 2 million | 2 million |
| 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 ($PM_{10}$) | 50 000 | — | — |
| 87 | 1806-26-4 | Octylphenols and Octylphenol ethoxylates | — | 1 | — |

| No | CAS number | Pollutant [1] | Threshold for releases (column 1) | | |
|---|---|---|---|---|---|
| | | | to air (column 1a) kg/year | to water (column 1b) kg/year | to land (column 1c) kg/year |
| 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 $CF_4$, $C_2F_6$, $C_3F_8$, $C_4F_{10}$, c-$C_4F_8$, $C_5F_{12}$, $C_6F_{14}$.

[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).