Pollutants of the PRTR - Situation in Germany -

Reporting years 2007 - 2018



Umwelt 🌍 Bundesamt

Ulaly

German Environment Agency

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	Int	roduction	5
2	Re	leases to air, water and land	6
2.	.1	1,1,1-trichloroethane	6
2.	.2	1,2-dichloroethane (DCE)	7
2.	.3	1,2,3,4,5,6-hexachlorocyclohexane (HCH)	9
2.	.4	Ammonia (NH3)	10
2.	.5	Arsenic and compounds (as As)	11
2.	.6	Atrazine	13
2.	.7	Benzene	14
2.	.8	Benzo(g,h,i)pervlene	15
2.	.9	Cadmium and compounds (as Cd).	16
2.	.10	Carbon dioxide (CO2)	18
2.	.11	Carbon monoxide (CO)	19
2.	.12	Chlorides (as total Cl)	20
2.	.13	Chlorine and inorganic compounds (as HCl).	22
2.	.14	Chloro-alkanes, C10-C13.	23
2	.15	Chlorofluorocarbons (CFCs)	24
2	.16	Chromium and compounds (as Cr)	25
2	.17	Copper and compounds (as Cu)	27
2	.18	Cvanides (as total CN)	30
2	.19	Di-(2-ethyl hexyl) phthalate (DEHP)	31
2	.20	Dichloromethane (DCM)	32
2	.21	Diuron	34
2	.22	Fluoranthene	35
2	.23	Fluorides (as total F)	36
2	.24	Fluorine and inorganic compounds (as HF)	37
2	.25	Halogenated organic compounds (as AOX)	38
2	.26	Hydro-fluorocarbons (HFCs).	39
2	.27	Hydrochlorofluorocarbons(HCFCs)	40
2	.28	Hydrogen cvanide (HCN)	41
2	.29		42
2	30	Lead and compounds (as Pb)	43
2	.31	Mercury and compounds (as Hg)	45
2	32	Methane (CH4)	47
2	33	Nanhthalene	48
2	34	Nickel and compounds (as Ni)	49
2	35	Nitrogen oxides (NOx/NO2)	51
2	36	Nitrous oxide (N2O)	52
2	.37	Non-methane volatile organic compounds (NMVOC).	53
2	38	Nonvinhenol and Nonvinhenol ethoxylates (NP/NPFs)	54
2	39	Octylphenols and Octylphenol ethoxylates	55
2	40	Organotin compounds(as total Sn)	56
2	41	Particulate matter (PM10)	57
2	42	PCDD + PCDF (dioxins + furans) (as Teg)	58
2	43	Pentachlorophenol (PCP)	60
2	44	Perfluorocarhons (PECs)	61
2	45	Phenols (as total ()	62
2	46	Polychlorinated hinhenvls (PCBs)	63
2	47	Polycyclic aromatic hydrocarbons (PAHs)	65
2	48	Sulphur hexafluoride (SE6)	67
2	49	Sulphur oxides (S0x/S02)	68
2	50	Tetrachloroethylene (PER)	60
2	51	Tetrachloromethane (TCM)	70
2	.52	Total nitrogen.	, J 72
_		······································	-

 2.53 Total organic carbon (TOC) (as total C or COD/3). 2.54 Total phosphorus . 2.55 Tributyltin and compounds . 2.56 Trichlorobenzenes (TCBs) (all isomers) . 2.57 Trichloromethane . 2.58 Vinyl chloride . 2.59 Zinc and compounds (as Zn) . 	73 74 75 76 77 79 81
3 Off-site transfer in waste water 3.1 1,2-dichloroethane (DCE)	84 84
3.2 Arsenic and compounds (as As)	85
3.3 Benzene	86
3.4 Benzo(g,h,i)perylene	
3.5 Cadmium and compounds (as Cd)	
3.6 Chlorides (as total Cl)	89
3.7 Chromium and compounds (as Cr)	90
3.8 Copper and compounds (as Cu)	
3.9 Cyanides (as total CN)	
3.10 Dichloromethane (DCM)	
3.11 Ethyl benzene	
3.12 Fluoranthene	
3.13 Fluorides (as total F)	
3.14 Halogenated organic compounds (as AOX)	
3.15 Lead and compounds (as Pb)	
3.16 Mercury and compounds (as Hg)	
3.17 Naphilialene	
2.10 Norwinhanol and Norwinhanol otherwistor (ND/NDEr)	102
3.19 Nonyiphenol and Nonyiphenol ethoxylates	102
3 21 Organotin compounds(as total Sn)	104
3.22 PCDD + PCDE (dioxins + furans) (as Teg)	105
3 23 Phenols (as total ()	106
3.24 Polycyclic aromatic hydrocarbons (PAHs)	
3.25 Tetrachloromethane (TCM).	
3.26 Toluene	
3.27 Total nitrogen	
3.28 Total organic carbon (TOC) (as total C or COD/3)	
3.29 Total phosphorus	
3.30 Trichlorobenzenes (TCBs) (all isomers)	
3.31 Vinyl chloride	
3.32 Xylenes	
3.33 Zinc and compounds (as Zn)	
A Pollutants to report and threshold values	117

1 Introduction

Germany, as well as the European Union and its Member States signed the UN ECE PRTR Protocol¹ 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 water⁴ 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 exceeded⁵. The E-PRTR Regulation lists 91 pollutants⁶. 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 injection⁷. The table shows a subdivision of total amounts of pollutants by industrial sectors⁸ 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 database⁹. 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.

¹https://www.unece.org/fileadmin/DAM/PRTR_Protocol_e.pdf

²http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:033:0001:0017:EN:PDF

³http://www.gesetze-im-internet.de/bundesrecht/schadregprot/gesamt.pdf

⁴https://wiki.prtr.bund.de/wiki/Definitionen#Verbringung_von_Abwasser_au.C3.9Ferhalb_des_Standortes

 $^{^{5}} http://www.thru.de/fileadmin/SITE_MASTER/content/Dokumente/Downloads/E_PRTR_VO_Anhang_II.pdf$

⁶https://www.thru.de/3/thrude/knowledge/pollutants-waste-industrial-sectors

⁷https://wiki.prtr.bund.de/wiki/Definitionen#Freisetzungen_in_den_Boden

⁸https://www.thru.de/3/thrude/knowledge/pollutants-waste-industrial-sectors/

⁹http://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 1 3 0	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





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 1 3 6	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 1 5 5	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 1 50	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 1 2 0	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





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 1 5 0	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 (*)

			Threshold for releases (column 1)			
No	CAS number	Pollutant (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 ₂ O)	10 000	_	_	
6	7664-41-7	Ammonia (NH ₃)	10 000			
7		Non-methane volatile organic compounds (NMVOC)	100 000			
8		Nitrogen oxides (NO _x /NO ₂)	100 000	_		
9		Perfluorocarbons (PFCs) (4)	100			
10	2551-62-4	Sulphur hexafluoride (SF ₆)	50	_		
11		Sulphur oxides (SO _x /SO ₂)	150 000	_	_	
12		Total nitrogen		50 000	50 000	
13		Total phosphorus		5 000	5 000	
14		Hydrochlorofluorocarbons (HCFCs) (⁵)	1			
15		Chlorofluorocarbons (CFCs) (6)	1	_	_	
16		Halons (⁷)	1	_		
17		Arsenic and compounds (as As) (⁸)	20	5	5	
18		Cadmium and compounds (as Cd) (⁸)	10	5	5	
19		Chromium and compounds (as Cr) (⁸)	100	50	50	
20		Copper and compounds (as Cu) (⁸)	100	50	50	
21		Mercury and compounds (as Hg) (⁸)	10	1	1	
22		Nickel and compounds (as Ni) (⁸)	50	20	20	
23		Lead and compounds (as Pb) (8)	200	20	20	
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	

^{(&#}x27;) Releases of pollutants falling into several categories of pollutants shall be reported for each of these categories.

EN

			Threshold for releases (column 1)			
No	CAS number	Pollutant (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	

EN

			Threshold for releases (column 1)			
No	CAS number	Pollutant (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 com- pounds (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 com- pounds (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, HFC245ca, HFC245ca, HFC265mfc.

(4) Total mass of perfluorocarbons: sum of CF₄, C₂F₆, C₃F₈, C₄F₁₀, c-C₄F₈, C₅F₁₂, C₆F₁₄.

(5) Total mass of substances including their isomers listed in Group VIII of Annex I to Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer (OJ L 244, 29.9.2000, p. 1). Regulation as amended by Regulation (EC) No 1804/2003 (OJ L 265, 16.10.2003, p. 1).

(6) Total mass of substances including their isomers listed in Group I and II of Annex I to Regulation (EC) No 2037/2000.

(7) Total mass of substances including their isomers listed in Group III and VI of Annex I to Regulation (EC) No 2037/2000.

(8) All metals shall be reported as the total mass of the element in all chemical forms present in the release.

(9) Halogenated organic compounds which can be adsorbed to activated carbon expressed as chloride.

(10) Expressed as I-TEQ.

(11) Single pollutants are to be reported if the threshold for BTEX (the sum parameter of benzene, toluene, ethyl benzene, xylenes) is exceeded.

 $(^{12})$ Total mass of the following brominated diphenylethers: penta-BDE, octa-BDE and deca-BDE.

 $(^{\rm 13})$ 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)).

 $({}^{\rm 15}\!)$ 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).