Regulation on requirements for the discharge of waste water into Waters (Wastewater Ordinance - AbwV)

Waste disposal regulations

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"Wastewater Ordinance in the version published on 17 June 2004 (Federal Law Gazette I p. 1108, 2625), last by Article 1 of the Ordinance of 17 April 2024 (BGBl. 2024 I No. 132)"

Status: Revised by Bek. v. 17.6.2004 I 1108, 2625;

Last amended by Art. 1 V of 17.4.2024 I No. 132

This Regulation also serves to implement, in part, Council Directives

- 82/176/EEC of 22 March 1982 concerning limit values and quality objectives for mercury discharges from the alkali chloride electrolysis industry (OJ EC No. L 81 p. 29),
- 83/513/EEC of 26 September 1983 concerning limit values and quality objectives for cadmium discharges (OJ EC No. L 291 p. 1),
- 84/156/EEC of 8 March 1984 concerning limit values and quality objectives for mercury discharges into Except for the alkali chloride electrolysis industry (OJ EC No. L 74 p. 49 and No. L 99 p. 38),
- 84/491/EEC of 9 October 1984 concerning limit values and quality objectives for discharges of Hexachlorocyclohexane (OJ EC No. L 274 p. 11 and No. L 296 p. 11),
- 86/280/EEC of 12 June 1986 concerning limit values and quality objectives for the discharge of certain dangerous substances within the meaning of List I in the Annex to Directive 76/464/EEC (carbon tetrachloride, DDT, Pentachlorophenol) (OJ EC No. L 181 p. 16),
- 87/217/EEC of 19 March 1987 on the prevention and reduction of environmental pollution by asbestos (OJ EC No. L 855 p. 40),
- 88/347/EEC of 16 June 1988 concerning limit values and quality objectives for discharges of aldrin, Dieldrin, endrin, isodrin, hexachlorobenzene, hexachlorobutadiene and chloroform (OJ EC No. L 158 p. 35),
- 90/415/EEC of 27 July 1990 concerning limit values and quality objectives for discharges of 1,2- Dichloroethane, trichloroethene, tetrachloroethene and trichlorobenzene (OJ EC No. L 219 p. 49),
- 91/271/EEC of 21 May 1991 concerning urban waste water treatment (OJ EC No. L 135 p. 40),
- 92/112/EEC of the Council of 15 December 1992 laying down the procedures for the unification of Programmes to reduce and eventually eliminate pollution caused by waste from Titanium dioxide industry (OJ EC No. L 409 p. 11),
- 96/61 EC of the Council of 24 September 1996 concerning integrated emission prevention and control Environmental pollution (OJ EC No. L 257 p. 26),
- Commission Directive 98/15/EC of 27 February 1998 amending Council Directive 91/271/EEC as regards in relation to certain requirements laid down in Annex I (OJ EC No. L 67 p. 29),
- 2000/76 EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste (OJ EC No. L 332 p. 91, 2001 No. L 145 p. 52),
- 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on Industrial emissions (integrated pollution prevention and control) (recast) (OJ L 334, 17.12.2010, p. 17).

footnote

(+++ Text reference from: 1.4.1997 +++)

(+++ Section 6 paragraph 1: For application see Annex 13 Part C paragraphs 1 and 5;

Annex 19 Part C, Paragraph 4, Part D, Paragraph 3; Annex 22
Section I Part C, Paragraph 6, Section II Part C, Paragraph 3, Section II Part E, Paragraph 7; Annex
28 Part C, Paragraph 10, Part D,
Paragraph 4; Annex 36 Part C, Paragraph 4; Annex 37 Part C,
Paragraph 5; Annex 39 Part E,
Paragraph 1; Annex 43 Part C,
Paragraph 5; Annex 45 Part C,
Paragraph 3, Part D, Paragraph 3 +++)

(+++ Section 6 paragraph 1: For non-application see
Annex 12 Part C Paragraph 4 Sentence 3 +++)

The Ordinance was adopted as Article 1 G of 21.3.1997 I 566 (AbwV/AbwAGAnlAnpV) by the Federal Government with the approval of of the Federal Council. According to Article 3, sentence 1 of this Ordinance, it entered into force on 1 April 1997.

(+++ Official references of the standard setter to EC law:

Implementation of the
EEC Directive 464/76 (CELEX No: 376L0464)
EEC Directive 176/82 (CELEX No: 382L0176)
EEC Directive 513/83 (CELEX No: 383L0513)
EEC Directive 156/84 (CELEX No: 384L0156)
EEC Directive 491/84 (CELEX No: 384L0491)
EEC Directive 280/86 (CELEX No: 386L0280)
EEC Directive 217/87 (CELEX No: 387L0217)
EEC Directive 347/88 (CELEX No: 388L0347)
EEC Directive 271/91 (CELEX No: 391L0271)

Implementation of the
EEC Directive 112/92 (CELEX No: 392L0112) cf. V v. July 3, 1998 I 1795,

Implementation of the
EEC Directive 513/83 (CELEX No: 383L0513)
EEC Directive 156/84 (CELEX No: 384L0156)
EEC Directive 491/84 (CELEX No: 384L0491)
EEC Directive 280/86 (CELEX No: 386L0280)
EEC Directive 347/88 (CELEX No: 388L0347)
EEC Directive 415/90 (CELEX No: 390L0415)
EEC Directive 271/91 (CELEX No: 391L0271) cf. V v. December 22, 1998 I 3919,

Implementation of the
EEC Directive 112/92 (CELEX No: 392L0112)
EC Directive 15/98 (CELEX No: 398L0015) cf. V v. May 29, 2000 I 751,

Implementation of the
EEC Directive 271/91 (CELEX No: 391L0271)
EC Directive 61/96 (CELEX No: 396L0061)
EC Directive 15/98 (CELEX No: 398L0015)
EC Directive 76/2000 (CELEX No: 300L0076) cf. V v. July 2, 2002 I 2497,

Implementation of the
EURL75/2010 (CELEX No: 32010L0075) see V v. May 2, 2013 I 973
V of 27.2.2024 I No. 66
and V of 17.4.2024 I No. 132

Implementation of
EURL 75/2010 (CELEX No: 32010L0075)
EUBes 687/2014 (CELEX No: 32014D0687)
EUBes 738/2014 (CELEX No: 32014D0738) cf. V v. August 22, 2018 I 1327,

Notification of EURL
2015/1535 (CELEX No: 32015L1535) cf. V of 6.3.2020 I 485,

Implementation of
EURL 75/2010 (CELEX No: 32010L0075)
EUBes 2015/2119 (CELEX No: 32015D2119)
EUBes 2016/1032 (CELEX No: 32015D1032)
EUBes 2016/902 (CELEX No: 32015D0902) see V v. June 16, 2020 I 1287
V of 27.2.2024 I No. 66
and V of 17.4.2024 I No. 132
EUBes 2017/1442 (CELEX No: 32017D1442) see V v. January 20, 2022 I 87
EUBes 2017/2117 (CELEX No: 32017D2117) cf. V v. February 27, 2024 I No. 66
EUBes 2019/2031 (CELEX No: 32019D2031) see V v. April 17, 2024 I No. 132 +++)

§ 1 Scope of application

(1) This Regulation lays down minimum requirements for the discharge of waste water into waters from the areas of origin specified in the Annexes, as well as requirements for the construction, operation and use of waste water treatment plants.

(2) The general requirements of this Ordinance, the operator obligations set out in the Annexes and the emission limit values marked in the Annexes must be complied with by the discharger unless more extensive requirements are specified in the water law permit for the discharge of waste water. The other requirements of the Annexes to this Ordinance must be specified when a water law permit for the discharge of waste water is granted. Requirements must only be included in the water law permit for those parameters that are to be expected in the waste water.

(3) Further requirements under other legal provisions remain unaffected.

§ 2 Definitions

For the purposes of this Regulation:

1. Random sample: a single sampling from a waste water stream; 2. Mixed sample: a sample taken continuously over a given period of time, or a sample made up of several samples taken continuously or discontinuously over a given period of time and mixed;

3. qualified sample means a mixed sample consisting of at least five samples taken and mixed at intervals of not less than two minutes over a period of not more than two hours;

4. production-specific freight value the freight value (e.g. cbm/t, g/t, kg/t) relating to the refers to the production capacity underlying the authorisation under water law, unless otherwise stated in the relevant annex;

5. Place of origin: the place where waste water has been treated before mixing with other waste water, or where it is first collected;

6. Mixing means the merging of waste water streams from different sources; 7. Parameter means a chemical, physical or biological parameter listed in Annex 1; 8. Mixture calculation means the calculation of a permissible load or concentration resulting from the requirements of this Regulation relating to the individual waste water streams;

9. operational wastewater register the documentation of the basic data and processes of an operation or several operations grouped together at one location that have an influence on the quantity and quality of the wastewater and the associated environmental aspects; 10. operations log the documentation of all operational and plant-related data of the Self-monitoring and maintenance, which are used for operational control, control and regulation of wastewater treatment plants and to verify compliance with the requirements of this Regulation and the water law permit;

11. Annual report a brief summary of the most important information on the wastewater situation of the company as well as a summary and evaluation of the data continuously documented within a year that are necessary to verify compliance with the requirements of this Ordinance and the water law permit.

§ 3 General requirements

(1) Unless otherwise provided in the Annexes, waste water may only be discharged into a body of water if the pollutant load is kept as low as is possible after examining the circumstances in the individual case by

1. the use of water-saving processes in washing and cleaning processes, 2. indirect cooling,

3. the use of low-pollutant operating and auxiliary materials and

4. the process-integrated recycling of materials.

Unless otherwise specified in the Annexes, compliance with the requirements of sentence 1 shall be documented by means of an operational wastewater register, an operations log or in another suitable manner.
The contents of the operational wastewater register and the operations log can refer to existing documentation.
Operators of plants within the meaning of Section 1 Paragraph 3 of the Industrial Wastewater Treatment Plant Approval and Monitoring Ordinance of 2 May 2013 (Federal Law Gazette I p. 973, 1011, 3756), which was amended by Article 321 of the Ordinance of 31 August 2015 (Federal Law Gazette I p. 1474), must prepare an annual report in addition to the requirements of sentence 2 in accordance with the requirements in Part H of the industry-specific annexes. The contents of the operational wastewater register, the operations log and the annual report are determined in Annex 2.

(2) The requirements of this Regulation shall not be met by processes which transfer environmental pollution to other environmental media such as air or soil in a manner contrary to the state of the art. The use of chemicals, exhaust air emissions and the amount of sludge produced shall be kept as low as possible.

(2a) Wastewater treatment plants should be constructed, operated and used in such a way as to enable energy-efficient operation. The energy potential generated during wastewater disposal should be used as far as technically possible and economically viable.

(3) Requirements laid down as concentration values shall not be achieved by dilution contrary to the state of the art.

(4) Where requirements are laid down prior to mixing, mixing for the purpose of joint treatment shall be permitted if the overall reduction in pollutant load per parameter is at least the same as if the respective requirements were met separately.

(5) Where requirements are laid down for the place where waste water is generated, mixing shall only be permitted if those requirements are met.

(6) If waste water flows to which different requirements apply are discharged together, the relevant requirement for each parameter shall be determined by means of a mixing calculation and specified in the water law permit. If the applicable annexes specify requirements for the place where the waste water is generated or before mixing, paragraphs 4 and 5 shall remain unaffected.

§ 4 Analysis and measurement methods

(1) The requirements in the Annexes refer to the analysis and measurement methods in accordance with Annex 1. The German standard methods for water, waste water and sludge analysis (DEV), DIN, DIN EN, DIN ISO, DIN EN ISO standards and technical rules of the Water Chemistry Society referred to in Annex 1 and the Annexes are published by Beuth Verlag GmbH, Berlin, and by the Water Chemistry Society in the Society of German Chemists, Wiley-VCH Verlag, Weinheim (Bergstrasse).
The above-mentioned procedural regulations are archived at the German Patent Office in Munich.

(2) The authorisation under water law may stipulate other equivalent procedures.

§ 5 Reference point of the requirements

(1) The requirements shall refer to the point where the waste water is discharged into the water body and, where specified in the Annexes to this Regulation, also to the place where the waste water was generated or the place before it was mixed.

(2) The discharge point is the outlet of the sewage plant in which the sewage is treated for the last time. The discharge point into a public sewage plant is also the place before mixing.

(3) If the waste water is not mixed with other waste water, requirements relating to the location before its mixing shall apply to the point of discharge into the water body.

§ 6 Compliance with the requirements

(1) If a value to be complied with under this Ordinance or laid down in the water permit is not complied with according to the result of an inspection within the framework of state monitoring, it shall nevertheless be deemed to be

are deemed to have been complied with if the results of this and the four previous state inspections do not exceed the relevant value in four cases and no result exceeds the value by more than 100 percent. Inspections that were carried out more than three years ago are not taken into account.

(2) Compliance with a value to be observed under this Regulation or laid down in the water law permit shall be determined by the number of significant digits specified in the procedural instructions of the associated analysis and measurement method for determining the respective parameter in accordance with Annex 1, but at least two significant digits, with the exception of the values for the dilution stages. The values specified in the Annexes take into account the measurement uncertainties of the analysis and sampling methods.

(3) A value for the chemical oxygen demand (COD) to be complied with under this Ordinance or laid down in the water permit shall, subject to paragraph 1, also be deemed to be complied with if four times the measured value of the total organically bound carbon (TOC), determined in milligrams per litre, does not exceed this value.

(3a) A value for total nitrogen as the sum of ammonium, nitrite and nitrate nitrogen (Ntot) to be complied with under this Ordinance or laid down in the water permit shall, subject to paragraph 1, also be deemed to have been complied with if the measured value of total bound nitrogen (TNb) does not exceed the value laid down for Ntot .

(4) If, during monitoring, it is determined that a value for toxicity to fish eggs, daphnia, algae and luminescent bacteria pursuant to numbers 401 to 404 of Annex 1 that must be observed under this Ordinance or set out in the water law permit has been exceeded, this value shall nevertheless be deemed to have been observed if the requirements of sentences 2 to 7 are met; paragraph 1 shall remain unaffected. The observed exceedance pursuant to sentence 1 must be based on a sulphate and chloride content that is above the effective threshold. The organism-specific effective threshold pursuant to sentence 2 is 3 grams per litre for fish eggs, 2 grams per litre for daphnia, 0.7 grams per litre for algae and 15 grams per litre for luminescent bacteria. Furthermore, the corrected measured value must not be greater than the value to be observed. The corrected measured value pursuant to sentence 4 is the difference between the measured value and the correction value. The correction value is determined from the sum of the concentrations of chloride and sulfate in the wastewater, expressed in grams per liter, divided by the organism-specific effective threshold. If the correction value determined does not correspond to a dilution level of the dilution sequence established in the determination procedure, the next higher dilution level is to be used as the correction value.

(5) Unless otherwise provided for in the Annexes, the Länder may allow results obtained by the discharger on the basis of an officially recognised monitoring procedure to be treated as equivalent to the results of State monitoring.

(6) Where the minimum number of measurements required by an operator to determine actual annual or monthly average values for certain parameters under Part H of a sector-specific Annex is exceeded, all values shall be used to calculate the average.

1. Before forming an annual average, all measurements within a calendar month are first recorded in a Monthly average to summarize,
2. Before calculating a monthly average, all measurements within one third of the calendar month are first combined to form an average for that third of the month; for calendar months with 31 days, the last third of the month consists of 11 days; in February, the first and second thirds of the month each consist of ten days.

The combined mean values referred to in points 1 and 2 shall be transmitted to the competent authority as part of the annual report referred to in point 3(a) of Annex 2.

footnote

(+++ Section 6 Paragraph 1: For application see Annex 13 Part C Paragraphs 1 and 5; Annex 19 Part C Paragraph 4, Part D Paragraph 3; Annex 22 Section I Part C Paragraph 6, Section II Part C Paragraph 3, Section II Part E Paragraph 7; Annex 28 Part C Paragraph 10, Part D Paragraph 4; Annex 36 Part C Paragraph 4; Annex 37 Part C Paragraph 5; Annex 39 Part E Paragraph 1; Annex 43 Part C Paragraph 5; Annex 45 Part C Paragraph 3, Part D Paragraph 3 +++) (+++ Section 6 Paragraph 1: For non-application see Annex 12 Part C Paragraph 4 Sentence 3 +

§ 7 Administrative Offenses

Administrative offence within the meaning of Section 103 Paragraph 1 Sentence 1 Number 3 Letter a of the Water Resources Act
Anyone who intentionally or negligently discharges waste water contrary to Section 3 Paragraph 1 Sentence 1 is deemed to be acting.

Annex 1 (to Section 4 Paragraph 1 Sentences 1 and 2)
Analysis and measurement methods

(Source: BGBl. I 2018, 1328 - 1337;
For the individual changes see footnote)

No.	parameter	Proceedings*
I	**General procedures**	
1	Instructions for Sampling technology	DIN EN ISO 5667-1 (A4) (April 2007 edition)
2	Sampling of wastewater	DIN 38402-11 (A11) (Edition February 2009)
3	Wastewater volume flow	DIN 19559 (July 1983 edition)
4	Pretreatment, homogenization and division of heterogeneous Water samples	DIN 38402-30 (A30) (July 1998 edition)
5	Preservation and handling of water samples	DIN EN ISO 5667-3 (A21) (July 2019 edition) This standard applies to the extent that the relevant Analysis procedure relevant standard not something else When determining the parameters according to the Numbers 401 to 404, 410 and 412, the sample shall be after removal. Preservation of the Sample up to 48 hours is to be cooled immediately to a Temperature of 2 to 5 °C in the dark is possible. Is a If longer storage of a sample is required, the sample frozen immediately after collection and stored at a Temperature of –18 °C or lower for up to two months to preserve.
6	Figures	DIN 1333 (February 1992 edition)
II	**Analysis methods**	
1	Anions/Elements	
101	Not occupied	
102	chloride	DIN EN ISO 10304-1 (D20) (July 2009 edition), DIN 38405-D1-1 (D1) (December 1985 edition), DIN 38405-D1-2 (D1) (Edition December 1985), DIN EN ISO 15682 (D31) (January 2002 edition), DIN ISO 15923-1 (D49) (July 2014 edition)
103	Cyanide, easily released	DIN 38405-D13-2 (D13) (February 1981 edition) with the following Requirement: when preserving, add NaOH up to a pH value > 12; store sample in the dark or use dark bottles use, DIN EN ISO 14403-1 (D2) (October 2012 edition) according to Subject to paragraph 506, DIN EN ISO 14403-2 (D3) (October 2012 edition) according to Pursuant to paragraph 506
104	Cyanide, total, in the Original sample	DIN 38405-D13-1 (D13) (February 1981 edition) with the following Requirement: when preserving, add NaOH up to a pH value > 12; store sample in the dark or use dark bottles use, DIN EN ISO 14403-1 (D2) (October 2012 edition) according to Subject to paragraph 506,

No.	parameter	Proceedings*
		DIN EN ISO 14403-2 (D3) (October 2012 edition) according to Pursuant to paragraph 506
105	Fluoride, total, in the Original sample	DIN 38405-D4-2 (D4) (July 1985 edition)
106	Nitrate nitrogen (NO3-N)	DIN EN ISO 10304-1 (D20) (July 2009 edition) in accordance with the number 503, DIN 38405-9 (D9) (September 2011 edition) in accordance with the number 503, DIN EN ISO 13395 (D28) (December 1996 edition), DIN ISO 15923-1 (D49) (July 2014 edition) The provisions of number 507 apply to all procedures
107	Nitrite nitrogen (NO2-N)	DIN EN 26777 (D10) (April 1993 edition), DIN EN ISO 10304-1 (D20) (July 2009 edition), DIN EN ISO 13395 (D28) (December 1996 edition), DIN ISO 15923-1 (D49) (July 2014 edition) The provisions of number 507 apply to all procedures
108	Phosphorus, total, in the Original sample	DIN EN ISO 6878 (D11) (September 2004 edition) with subject to the following: Disclosure in accordance with Section 7.4 of this Standard, DIN EN ISO 15681-2 (D46) (May 2019 edition) with the following Requirement: Digestion according to section 7.4 of DIN EN ISO 6878 (D11) (September 2004 edition), DIN EN ISO 15681-1 (D45) (May 2005 edition) with the following Requirement: Digestion according to section 7.4 of DIN EN ISO 6878 (D11) (September 2004 edition), DIN EN ISO 11885 (E22) (September 2009 edition) with following condition: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
109	Not occupied	
110	sulfate	DIN EN ISO 10304-1 (D20) (July 2009 edition), DIN 38405-D5-2 (D5) (January 1985 edition), DIN ISO 15923-1 (D49) (July 2014 edition)
111	Sulfide, easily released	DIN 38405-27 (D27) (October 2017 edition)
112	sulfite	DIN EN ISO 10304-3 (D22) (November 1997 edition)
113	Fluoride, dissolved	DIN EN ISO 10304-1 (D20) (July 2009 edition), DIN 38405-D4-1 (D4) (July 1985 edition)
114	Thiocyanate	DIN EN ISO 10304-3 (D22) (November 1997 edition)
115	Chlorate	DIN EN ISO 10304-4 (D25) (July 1999 edition)
2	Cations/Elements	
201	Aluminium in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with following condition: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 12020 (E25) (May 2000 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
202	Ammonium nitrogen (NH4-N)	DIN EN ISO 11732 (E23) (May 2005 edition),

No.	parameter	Proceedings*
		DIN 38406-E5-1 (E5) (October 1983 edition), DIN 38406-E5-2 (E5) (October 1983 edition), DIN ISO 15923-1 (D49) (July 2014 edition) The provisions of number 507 apply to all procedures
203	Antimony in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38405-D32-1 (D32) (May 2000 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38405-D32-2 (D32) (May 2000 edition) with the following proviso: Digestion according to section 5.6.2 of this standard, DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
204	Arsenic in the original sample	DIN EN ISO 11969 (D18) (November 1996 edition) with the following proviso: Analysis according to section 8.3.1 of this standard, DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38405-D35 (D35) (September 2004 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
205	Barium in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
206	Lead in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38406-E6 (E6) (July 1998 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
207	Cadmium in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition),

No.	parameter	Proceedings*
		DIN EN ISO 17294-2 (E29) (January 2017) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 5961 (E19) (edition May 1995) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
208	Not occupied	
209	Chromium, total, in the Original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN 1233 (E10) (August 1996 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
210	Chromium VI	DIN 38405-D24 (D24) (edition May 1987), DIN EN ISO 10304-3 (D22) (November 1997 edition) with the following proviso: Determination according to Section 6 of this Standard, use of a UV detector, DIN EN ISO 23913 (D41) (September 2009 edition)
211	Cobalt in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38406-E24 (E24) (March 1993 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
212	Iron in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38406-E32 (E32) (edition May 2000) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
213	Copper in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition),

No.	parameter	Proceedings*
		DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38406-E7 (E7) (September 1991 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
214	Nickel in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38406-E11 (E11) (September 1991 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
215	Mercury in the original sample	DIN EN ISO 12846 (E12) (August 2012 edition), DIN EN ISO 17852 (E35) (April 2008 edition)
216	Silver in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition); Exception: for samples according to Appendix 53 (Photographic processes) without acidification and without Enlightenment, DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition); Exception: for samples according to Annex 53 without acidification and without digestion, DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition); Exception: for samples according to Annex 53 without acidification and without digestion, DIN 38406 (E18) (May 1990 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July edition 2002); Exception: for samples according to Annex 53 without acidification and without digestion
217	Thallium in the original sample	DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38406 (E26) (July 1997 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
218	Vanadium in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with the following proviso: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)

No.	parameter	Proceedings*
219	Zinc in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with following condition: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38406-E8 (E8) (October 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
220	Tin in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with subject to the following: Information in accordance with Annex A 1 of this Standard, DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 11885 (E22) (edition September 2009) Appendix A 1
221	Titanium in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with following condition: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition); for wastewater containing titanium dioxide Digestion according to DIN EN ISO 11885 (E22) (edition September 2009) Appendix A 2
222	Selenium in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with following condition: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 15586 (E4) (February 2004 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38405-23-1 (D23) (October 1994 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN 38405-23-2 (D23) (October 1994 edition) with the following Requirement: Explanation according to section 3.7.2 of this standard
223	Not occupied	
224	Indium in the original sample	DIN EN ISO 11885 (E22) (September 2009 edition) with following condition: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
225	Not occupied	
226	boron	DIN EN ISO 11885 (E22) (September 2009 edition) with following condition: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following Requirement: Digestion according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
227	cerium	DIN EN ISO 17294-2 (E29) (January 2017 edition)
228	Germanium	DIN EN ISO 17294-2 (E29) (January 2017 edition)
229	Gold	DIN EN ISO 17294-2 (E29) (January 2017 edition)

No.	parameter	Proceedings*
230	hafnium	DIN EN ISO 17294-2 (E29) (January 2017 edition)
231	molybdenum	DIN EN ISO 11885 (E22) (September 2009 edition) with following provision: Information according to DIN EN ISO 15587-2 (A32) (July 2002 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition) with the following proviso: Information according to DIN EN ISO 15587-2 (A32) (July 2002 edition)
232	palladium	DIN EN ISO 17294-2 (E29) (January 2017 edition)
233	Praseodym	DIN EN ISO 17294-2 (E29) (January 2017 edition)
234	Ruthenium	DIN EN ISO 17294-2 (E29) (January 2017 edition)
235	tungsten	DIN EN ISO 11885 (E22) (September 2009 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition)
236	zirconium	DIN EN ISO 11885 (E22) (September 2009 edition), DIN EN ISO 17294-2 (E29) (January 2017 edition)
237	platinum	DIN EN ISO 17294-2 (E29) (January 2017 edition)
3	Individual substances, total parameters, group parameters	
301	Filterable substances (suspended substances) in the original sample	DIN EN 872 (H33) (April 2005 edition) with the following proviso: Rinse the filter three times with 50 ml distilled Water
302	Adsorbable organic bound halogens (AOX) in of the original sample, indicated as chloride	For a chloride content of up to 5.0 g/l in the original sample: DIN EN ISO 9562 (H14) (February 2005 edition) in accordance with of number 501; adsorption in accordance with section 9.3.4 of this standard (column method – separate combustion of the columns required) If the chloride content in the Original sample: DIN EN ISO 9562 (H14) (February 2005 edition) in accordance with of Annex A of this standard; adsorption according to Section 9.3.4 of this standard (column method – separate Combustion of the columns required)
303	Chemical oxygen demand (COD) in the original sample	DIN 38409-41 (H41) (December 1980 edition) with the Pursuant to paragraph 510
304	Not occupied	
305	Organically bound carbon, total (TOC), in the original sample	DIN EN 1484 (H3) (April 2019 edition), direct TOC determination according to section 8.3 of this standard and according to Pursuant to paragraph 502 DIN EN ISO 20236 (H62) (April 2023 edition)
306	Total bound nitrogen (TNb) in the original sample	DIN EN 12260 (H34) (December 2003 edition) with the following Condition: Are combination devices used for the simultaneous determination of TNb and TOC are used in the investigation particle-containing samples Control measurements according to the Number 502. DIN EN ISO 11905-1 (H36) (August 1998 edition) DIN EN ISO 20236 (H62) (April 2023 edition)
307 and 308	Not occupied	
309	Hydrocarbons, total, in the Original sample	DIN EN ISO 9377-2 (H53) (July 2001 edition)

No.	parameter	Proceedings*
310	Not occupied	
311	Phenol index after distillation and dye extraction in the Original sample	DIN 38409-H16-2 (H16) (June 1984 edition), DIN EN ISO 14402 (H37) (December 1999 edition) with the Provided that the procedure according to Section 4 of this standard is to be applied
312	Not occupied	
313	Chlorine, free	DIN EN ISO 7393-2 (G4-2) (March 2019 edition)
314	Hexachlorobenzene in the Original sample	DIN 38407-2 (F2) (February 1993 edition), DIN EN ISO 6468 (F1) (February 1997 edition), DIN 38407-37 (F37) (November 2013 edition)
315	Trichloroethylene in the original sample	DIN EN ISO 10301 (F4) (August 1997 edition), DIN 38407-43 (F43) (October 2014 edition), DIN EN ISO 15680 (F19) (April 2004 edition)
316	1,1,1-Trichloroethane in the Original sample	DIN EN ISO 10301 (F4) (August 1997 edition), DIN 38407-43 (F43) (October 2014 edition), DIN EN ISO 15680 (F19) (April 2004 edition)
317	Tetrachloroethene in the Original sample	DIN EN ISO 10301 (F4) (August 1997 edition), DIN 38407-43 (F43) (October 2014 edition), DIN EN ISO 15680 (F19) (April 2004 edition)
318	Trichloromethane in the original sample	DIN EN ISO 10301 (F4) (August 1997 edition), DIN 38407-43 (F43) (October 2014 edition), DIN EN ISO 15680 (F19) (April 2004 edition)
319	Tetrachloromethane in the Original sample	DIN EN ISO 10301 (F4) (August 1997 edition), DIN 38407-43 (F43) (October 2014 edition), DIN EN ISO 15680 (F19) (April 2004 edition)
320	Dichloromethane in the original sample	DIN EN ISO 10301 (F4) (August 1997 edition), DIN 38407-43 (F43) (October 2014 edition), DIN EN ISO 15680 (F19) (April 2004 edition)
321	Hydrazin	DIN 38413-1 (P1) (Edition March 1982)
322	Chlorobenzene	DIN EN ISO 10301 (F4) (August 1997 edition) DIN 38407-43 (F43) (October 2014 edition)
323	Dichlorobenzene as the sum of all Isomers	DIN EN ISO 10301 (F4) (August 1997 edition) DIN 38407-37 (F37) (November 2013 edition) DIN 38407-43 (F43) (October 2014 edition)
324	Vinyl chloride	DIN EN ISO 10301 (F4) (August 1997 edition) DIN 38407-43 (F43) (October 2014 edition)
325	Not occupied	
326	Aniline in the original sample	DIN 38407-16 (F16) (June 1999 edition) with the following Requirement: Extraction with dichloromethane at pH 12; GC separation using a mass selective detector; when using an NP detector, two GC Use columns of different polarity
327	Hexachlorocyclohexane as a sum of all isomers	DIN 38407-2 (F2) (February 1993 edition) in accordance with Number 504, DIN EN ISO 6468 (F1) (February 1997 edition) in accordance with the number 504, DIN 38407-37 (F37) (November 2013 edition) in accordance with the number 504
328	Hexachlorobutadiene (HCBD) in the Original sample	DIN EN ISO 10301 (F4) (August 1997 edition), DIN 38407-2 (F2) (February 1993 edition),

No.	parameter	Proceedings*
		DIN 38407-43 (F43) (October 2014 edition), DIN 38407-37 (F37) (November 2013 edition), DIN EN ISO 15680 (F19) (April 2004 edition)
329	Aldrin, Dieldrin, Endrin, Isodrin (Drine) in the original sample	DIN 38407-2 (F2) (February 1993 edition) in accordance with Number 504, DIN EN ISO 6468 (F1) (February 1997 edition) in accordance with number 504, DIN 38407-37 (F37) (November 2013 edition) according to number 504
330	Not occupied	
331	1,2-Dichloroethane in the Original sample	DIN EN ISO 10301 (F4) (August 1997 edition), DIN 38407-43 (F43) (October 2014 edition), DIN EN ISO 15680 (F19) (April 2004 edition)
332	Trichlorobenzene as the sum of all Isomers in the original sample	DIN 38407-2 (F2) (February 1993 edition) in accordance with Number 504, DIN 38407-43 (F43) (October 2014 edition), DIN EN ISO 6468 (F1) (February 1997 edition) in accordance with number 504, DIN 38407-37 (F37) (November 2013 edition) in accordance with number 504, DIN EN ISO 15680 (F19) (April 2004 edition)
333	Endosulfan as the sum of all Isomers in the original sample	DIN 38407-2 (F2) (February 1993 edition) in accordance with Number 504, DIN EN ISO 6468 (F1) (February 1997 edition) in accordance with number 504, DIN 38407-37 (F37) (November 2013 edition) according to number 504
334	Benzene and derivatives in the Original sample	DIN 38407-43 (F43) (October 2014 edition) in accordance with numbers 504 and 505, DIN EN ISO 15680 (F19) (April 2004 edition) in accordance with numbers 504 and 505
335	Organic complexing agents in the Original sample (EDTA, NTA, DTPA, MGDA, ÿ-ADA, 1,3-PDTA)	DIN EN ISO 16588 (P10) (February 2004 edition)
336	Polycyclic aromatic Hydrocarbons (PAH) in the original sample (Fluoranthene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene, indeno(1,2,3-cd)pyrene)	DIN EN ISO 17993 (F18) (March 2004 edition) in accordance with number 504, DIN 38407-39 (F39) (September 2011 edition) in accordance with number 504, DIN ISO 28540 (F40) (May 2014 edition) in accordance with Number 504
337	Chlorine dioxide and other oxidants, expressed as chlorine	DIN 38408-5 (G5) (June 1990 edition) with the following proviso: The troubleshooting measures provided for in Section 4 of this standard do not need to be carried out. As an alternative to using the DIN 38408-5 (G5) procedure without troubleshooting, the determination of parameter 337 according to DIN EN ISO 7393-2 (G4-2) (March 2019 edition) can be carried out in accordance with Parameter 313 must be performed.
338	coloring	DIN EN ISO 7887 (C1) (April 2012 edition) Section 5 DEV F33 (52nd edition
339	Polychlorinated dibenzodioxins (PCDD) and polychlorinated	2002). The toxicity equivalent (IÿTEQ) for the limitation of polychlorinated dibenzodioxins

No.	parameter	Proceedings *
	Dibenzofurans (PCDF) and as Toxicity equivalents (IÿTEQ)	(PCDD) and polychlorinated dibenzofurans (PCDF) is defined as the sum of the products of the individual concentrations of the respective substances according to No. 339 of Annex 1 to Section 4 and the corresponding toxicity equivalence factors (TEF) according to Annex VI Part 2 of Directive 2010/75/EU
340	Per- and polyfluorinated Compounds (PFC) in the Original sample	DIN 38407-42 (F42) (Edition March 2011)
341	PH value	DIN EN ISO 10523 (C5) (April 2012 edition)
342	Redox potential	DIN 38404 (C6) (edition May 1984) with the note: Redox potential is identical to redox voltage according to point 2 of this standard
4	Biological testing procedures	
	For the procedures under numbers 401 to 404, 410 and 412, number 509 shall apply. The requirements according to DIN EN ISO 5667-16 (L1) (March 2019 edition) only apply if no deviating regulations are made in the test procedures.	
400	Sampling and conducting biological tests	DIN EN ISO 5667-16 (L1) (Edition March 2019)
401	Toxicity to fish eggs (GEi) in the original sample	DIN EN ISO 15088 (T6) (June 2009 edition)
402	Toxicity to Daphnia (GD) in the original sample	DIN 38412-L 30 (L30) (Edition March 1989)
403	Toxicity to algae (GA) in the original sample	DIN 38412-L 33 (L33) (March 1991 edition) with the following proviso: In section 3.5 of this standard, the sentence “provided that no inhibition of more than 20 percent is found at higher dilution factors” does not apply and in section 11.1 of this standard, the note does not apply.
404	Toxicity to Luminous bacteria (GL) in the Original sample	DIN EN ISO 11348-1 (L51) (May 2009 edition) or DIN EN ISO 11348-2 (L52) (May 2009 edition), each with the following proviso: The wastewater analysis shall be carried out in accordance with Annex B of these standards.
405	Easy biodegradability of substances	Section C.4 of the Annex to Commission Regulation (EC) No 440/2008 of 30 May 2008 laying down test methods pursuant to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (OJ L 142/444 of 31.5.2008)
406	Aerobic biodegradability of substances	DIN EN ISO 9888 (L25) (November 1999 edition) with the following stipulation: The degradability is determined as the degree of DOC degradation over 28 days. The amount of activated sludge inoculum is 1 g/l dry matter in the test batch. The water hardness of the test water can be up to 2.7 mmol/l. Blown out and adsorbed substance components are not taken into account in the result. The result is given as the degree of degradation. Pre-adapted inocula are not permitted.
407	Aerobic biodegradability (eliminability) of the filtered Sample in biological Treatment plants	DIN EN ISO 9888 (L25) (November 1999 edition) with the following requirement: The degradability is determined as the COD or DOC degradation rate (elimination rate). The inoculum of the real wastewater treatment plant is used with 1 g/l dry matter in the test batch (section 8.3 of this standard). The duration of the elimination test corresponds to the time required to determine the elimination rate of the total wastewater of the real

No.	parameter	Proceedings*
		Wastewater treatment plant in the test simulation for the total wastewater. The COD concentration in the test batch (COD between 100 and 1 000 mg/l) should largely correspond to the real wastewater of the plant inlet. The water hardness of the test water should not exceed the water hardness of the actual wastewater. Blown-out substances are not taken into account in the result. The elimination rates are based on the COD concentration at the start of the test, minus the blown-out substances. The result is given as the degree of elimination.
408	Aerobic biodegradability (eliminability) of the filtered Sample in biological Treatment facilities within a maximum period of seven days	DIN EN ISO 9888 (L25) (November 1999 edition) with the following requirement: The degradability is determined as the COD or DOC degradation rate (elimination rate) over a maximum of seven days. The inoculum of the actual wastewater treatment plant is used with 1 g/l dry matter in the test batch (section 8.3 of this standard). The COD concentration in the test batch (COD between 100 and 1,000 mg/l) should largely correspond to the actual wastewater of the plant inlet. The water hardness of the test water should not exceed the water hardness of the actual wastewater. Blown-out substances are not taken into account in the result. The elimination rates are based on the COD concentration at the start of the test, minus the blown-out substances. The result is given as the degree of elimination.
409	Biochemical oxygen demand in 5 days in the original sample	DIN EN ISO 5815-1 (H50) (November 2020 edition)
410	Mutagenic potential (umu test)	DIN 38415-T 3 (T3) (Edition December 1996)
411	Not occupied	
412	Toxicity to duckweed (GW) in the original sample	DIN EN ISO 20079 (L49) (December 2006 edition)
III	**Notes and explanations**	
501	Notes on the AOX procedure (number 302) 1. Periodate content If periodates are present in the sample, the sodium sulphite must be added in excess of stoichiometric amounts and allowed to have a reducing effect for at least 24 hours. 2. Chloride content If the chloride content is more than 1.0 g/l, a chloride concentration of less than 1.0 g/l is produced in the analysis sample by diluting the sample. The blank-adjusted measured value is multiplied by the dilution factor. The corresponding blank value is the value of a solution of 1.0 g/l chloride determined on a working day. If the chloride content in the undiluted sample is less than 1.0 g/l, deionized water is used as the blank value. 3. Findings The AOX contents of the pre-filter and the first and second adsorption columns are to be summed in the findings.	
502	Notes on the TOC or TNb method (numbers 305 and 306) A device with thermal catalytic combustion (minimum temperature 670 °C) must be used. The regulations for homogenization according to DIN 38402 Part 30 (A30) (July 1998 edition) apply; in particular, sections 8.3 and 8.4.5 must be observed. When examining wastewater samples containing particles, control measurements must be carried out in accordance with Appendix C of DIN EN 1484 (H3) (August 1997 edition).	
503	Note on the nitrate nitrogen method (number 106) When applying the method DIN EN ISO 10304-1 (D20) (July 2009 edition), chromatographic interferences caused by high chloride or sulfate content can be eliminated by diluting the	

No.	parameter	Proceedings*
	Samples or by filtration through Ag or Ba cartridges before analysis. DIN 38405-9 (D9) (September 2011 edition) is only applicable for slightly contaminated wastewater.	
504	Note on the limit of quantification. Measured values of individual components are only taken into account if they are at or above the limit of quantification of the respective analysis method.	
505	Note on the procedure for benzene and derivatives (number 334) The result of the analysis for the parameter “Benzene and derivatives” shall be the sum of the individual results for benzene, toluene, ethylbenzene and the xylenes o-xylene, m-xylene and p-xylene.	
506	Note on the procedure for cyanide, easily released and cyanide, total, in the original sample (numbers 103 and 104): DIN EN ISO 14403-1 (D2) (October 2012 edition) and DIN EN ISO 14403-2 (D3) (October 2012 edition) are only to be used for the preliminary test to determine whether the wastewater sample contains cyanide above the lower application limits of these standards. If the result of the preliminary test shows that the cyanide content of the wastewater sample is below the lower application limits of these standards, DIN 38405-D13-2 (D13) (February 1981 edition) or DIN 38405-D13-1 (D13) (February 1981 edition) do not need to be applied; otherwise these standards are to be applied.	
507	On-site filtration may be omitted if samples are filtered immediately upon arrival at the laboratory or if they are determined within 24 hours of sampling.	
508	Not occupied	
509	Instructions for the determination of biological test methods (numbers 401 to 404, 410 and 412) Significant volume changes in the measured values due to the addition of neutralizing agents must be documented when the results are given. By choosing suitable acids and alkalis, it must be ensured that significant chemical-physical changes in the sample, in particular precipitation and dissolution, are avoided. The neutralizing agent must be added in such a way that the local differences in the pH value in the sample are kept as small as possible, for example by stirring quickly or adding slowly. The dilution levels result from nested geometric series on the basis of 2 and 3 in accordance with DIN EN ISO 15088 (T6) (June 2009 edition), Section 8.3, Table 1.	
510	The procedure for diluting samples described in the scope of the method may be deviated from. A dilution factor may be selected in accordance with standard laboratory practice. If a dilution factor of 10 is exceeded, dilution must be carried out in several steps. In a measuring solution obtained by dilution, the COD value must not fall below 100 mg/l.	

* The process designations according to the German standard procedures for water, wastewater and Sludge analysis (DEV) are given in brackets.

Annex 2 (to Section 3 Paragraph 1 Sentences 2 to 5)
Content of operational documentation

(Source: BGBl. I 2016, 1291 - 1292)

1. Operational wastewater register

The operational wastewater register serves to demonstrate that the general wastewater-related requirements according to Section 3 and Part B of the industry-specific appendix of the Wastewater Ordinance can in principle be met.

The contents of the operational wastewater register according to Section 2 Number 9 of the Wastewater Ordinance are usually:

a) general information on the operation, in particular the number of plants under the Federal Immission Control Act or under Section 60 of the Water Resources Act, the approved production or machine capacities and the products manufactured, unless these are independently operated industrial wastewater treatment plants under Section 60 Paragraph 3 Sentence 1 Number 2 of the Water Resources Act,

b) Description of production, wastewater-related processes and
Wastewater pretreatment processes with overview plan, drainage plan, flow diagrams of the process engineering plants, representation of the material flows and details of the type and quantity of wastewater-relevant raw and auxiliary materials used, c) Description

and balancing of the wastewater partial flows including the representation of the
Flow paths from the point of origin of the wastewater to the discharge or transfer point with details of the volume flows as well as the pollutant concentrations and loads,

d) Overview of the wastewater-relevant annual mass flows, e.g. in kilograms of pollutants per
Kilograms of product manufactured, provided that production-specific loads are specified in the relevant Annex,

(e) description of the waste water treatment plants and discharges as well as the measuring devices and sampling points,

f) List of water law permits.

If there are any changes relevant to wastewater, an update must be made.

2. Operating log Contents
of the operating log according to Section 2 Number 10 of the Wastewater Ordinance are usually:

a) Indication of process-related water consumption and indication of energy consumption of
sewage treatment plants,

b) indication of production quantities and information on the capacity utilisation of the production

facilities, c) indication of the actual waste water quantities generated and discharged as a partial flow and
Total current,

d) Sampling protocols and details of test results and measured values from the
Self-monitoring,

e) Documentation of the wastewater-relevant raw and auxiliary materials used, specifying the type,
Quantity and dosage,

f) Information on wastewater-related operations, in particular on domestic and
Decommissioning, maintenance and repairs,
Leak tests, plant cleaning, sludge disposal and disposal of residual materials with control and disposal records as well as information on disruptions to normal operation and their effects on wastewater discharge,

g) information on measures taken to ensure compliance with general substance and
quantity-related requirements according to Section 3 and Part B of the sector-specific annex to the Waste Water Ordinance.

3. Annual Report
The annual report pursuant to Section 2 Number 11 of the Wastewater Ordinance can be prepared as a summary and evaluation of the operating log; the basis for preparing the annual report are the reports pursuant to Section 61 of the Water Resources Act or the reports pursuant to state regulations on self-monitoring of wastewater discharges. The annual report must be submitted to the responsible monitoring authority within the first quarter of the following year.
Contents of the annual report are:

a) Summary and evaluation of the results of the operational wastewater tests in accordance with the operator obligations under Part H of the sector-specific appendix to the Wastewater Ordinance,
specifying the respective pollutant-related concentrations and loads. If available, data from self-monitoring based on state regulations can be used. The summary must enable a comparison with the emission limit values set in the water law permit or directly applicable in accordance with Section 1 Paragraph 2 Sentence 1 of the Wastewater Ordinance,

b) Overview of the most important wastewater-relevant material and annual mass flows, e.g. in kilograms of pollutants per kilogram of manufactured product, and overview of the production quantities in manufactured products per year, provided that production-specific loads are specified in the sector-specific annex to the Wastewater Ordinance, as well as overview of the wastewater quantities in cubic metres per year and the process-related water consumption,

(c) Summary of special operating conditions of the production and
Wastewater treatment plant such as batch operation, start-up and shut-down processes, decommissioning of plant components and disruptions to normal operation that had an impact on the wastewater discharge,
d) Summary, description and

evaluation of the measures implemented to comply with the general requirements according to Section 3 and Part B of the sector-specific annex to the Wastewater Ordinance.

Annex 1 Domestic and municipal wastewater

(Source: BGBl. I 2004, 1118 - 1119; for
the individual changes see footnote)

A Scope

This Annex applies to waste water,

1. which consists essentially of households or similar establishments such as collective accommodation, hotels, restaurants, campsites, hospitals, office buildings (domestic wastewater) or from installations serving purposes other than those mentioned, provided that it corresponds to domestic wastewater,

2. which is collected in sewage systems and consists essentially of the substances referred to in point 1. facilities and installations as well as from installations used for commercial or agricultural purposes, provided that the harmfulness of this waste water can be reduced by biological processes with the same Success as with domestic wastewater can be reduced (municipal wastewater), or

3. which is treated in a river treatment plant and corresponds to numbers 1 or 2 according to its origin.

B General requirements

Paragraph 3(1) shall not apply.

C Wastewater requirements for the discharge point

(1) The following requirements shall apply to the waste water at the point of discharge into the water body:

Samples after Size classes the Wastewater treatment plant	Chemical Oxygen requirement (COD)	Biochemical Oxygen requirement in 5 Days (BSB5)	Ammonium nitrogen (NH4 N)	Nitrogen, in total, as sum from Ammonium-, Nitrite and Nitrate nitrogen (Nges)	phosphorus in total (Pges)
	mg/l	mg/l	mg/l		mg/l
	Qualified sample or 2-hour mixed sample				
Size class 1 smaller than 60 kg/day BSB5 (raw)	150	40	-	-	-
Size class 2 60 until 300 kg/day BSB5 (raw)	110	25	-	-	-

Size class 3 larger as 300 until 600 kg/day BSB5 (raw)	90	20	10	-	-
Size class 4 larger as 600 until 6 000 kg/day BSB5 (raw)	90	20	10	18	2
Size class 5 larger as 6 000 kg/day BSB5 (raw)	75	15	10	13	1

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*) In the case of small discharges within the meaning of Section 8 in conjunction with Section 9 Paragraph 2 Sentence 2 of the Wastewater Charges Act, a random sample may be taken instead of a qualified random sample or a 2-hour mixed sample.

The requirements apply to ammonium nitrogen and total nitrogen at a wastewater temperature of 12 °C and higher in the effluent of the biological reactor of the wastewater treatment plant. Instead of 12 °C, the time limit from May 1 to October 31 can also be used. In the water law permit, a higher concentration of up to 25 mg/l can be permitted for total nitrogen if the reduction in the total nitrogen load is at least 70 percent. The reduction refers to the ratio of the nitrogen load in the inflow to that in the effluent in a representative period, which should not exceed 24 hours. The load in the inflow is based on the sum of organic and inorganic nitrogen.

(2) The allocation of a discharger to one of the size classes specified in paragraph 1 shall be based on the design values of the waste water treatment plant, taking the BOD5 load of the untreated waste water - BOD5 (raw) - as the basis. In cases where the design value for a waste water treatment plant is based solely on the BOD5 value of the sedimented waste water, the following values shall be decisive for the classification: less than 40 kg/d BOD5 (sed.)

Size class 1	
Size class 2	40 to 200 kg/d BOD5 (sed.)
Size class 3	greater than 200 kg/d up to 400 kg/d BOD5 (sed.)
Size class 4	greater than 400 to 4 000 kg/d BOD5 (sed.)
Size class 5	greater than 4 000 kg/d BOD5 (sed.).

(3) If, in the case of pond systems designed for a retention time of 24 hours or more, a sample is clearly coloured by algae, the COD and BOD5 shall be determined from the algae-free sample. In this case, the values laid down in paragraph 1 shall be reduced by 15 mg/l for COD and by 5 mg/l for BOD5.

3 (4) For discharges of less than 8 m of wastewater per day from wastewater treatment plants of size class 1 as per paragraph 1, which are covered by the harmonised standards DIN EN 12566-3 (September 2013 edition) or DIN EN 12566-6 (May 2013 edition) or which correspond to a European Technical Assessment issued for the plant and which have a CE marking, sentences 2 to 4 and paragraphs 5 to 7 apply. The requirements under paragraph 1 are deemed to be met if

1. the system in accordance with the cleaning performance specified in the manufacturer's performance declaration is suitable to meet the requirements of paragraph 1,
2. the system fulfils the following performances according to the manufacturer's declaration of performance:
   a) Watertightness: passed,
   b) Stability: Information according to the harmonized standards DIN EN 12566-3 (September 2013 edition) or DIN EN 12 566-6 (May 2013 edition) or according to the European Technical Evaluation and
   c) Durability: passed,
3. in the test procedure according to the harmonized standards DIN EN 12566-3 (September 2013 edition) or DIN EN 12566-6 (May 2013 edition) or according to the European Technical Assessment, no more than one desludging was carried out during the entire test period, and 4. the system is installed,

operated and maintained in accordance with the requirements of sections 9, 12 and 13 of the DWA-A 221 standard (December 2019 edition), published by the German Association for Water, Wastewater and Waste e. V. (DWA), Hennef 2019, which is registered with the German

National Library and can be viewed in the library of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety; for systems for which a European Technical Assessment has been issued, this requirement only applies insofar as it can be met given the nature of the system.

The specialist knowledge according to sections 9, 12 and 13 of the DWA-A 221 standard (December 2019 edition) of the German Association for Water, Wastewater and Waste (DWA), published by DWA, Hennef 2019, is equivalent to equivalent training or specialist knowledge obtained in another member state of the European Union or in another contracting state to the Agreement on the European Economic Area.
Insofar as requirements according to DIN 1986-30, DIN 4261-1 or DIN 4261-5 are to be observed according to sections 9, 12 and 13 of the DWA-A 221 standard (December 2019 edition) of the German Association for Water, Wastewater and Waste (DWA), published by DWA, Hennef 2019, requirements according to DIN 1986-30, DIN 4261-1 or DIN 4261-5 can be met instead of these requirements, requirements according to other standards that offer an equivalent or comparable level of safety, performance or reliability.

(5) The requirement under paragraph 4, sentence 2, number 1 is met if

1. the nominal design of the plant is based on a daily inflow of 150 litres and a daily load of 60 grams BOD 5 per population equivalent and

2. the cleaning performance stated in the performance declaration

   a) for installations covered by the harmonised standard DIN EN 12566-3 (September 2013 edition) or for which a European Technical Assessment is available, with regard to COD at least 90 percent and at least 95 percent for BSB 5 ,

   b) for plants covered by the harmonised standard DIN EN 12566-6 (May 2013 edition) or for which a European Technical Assessment is available, is at least 85 per cent for COD and at least 90 per cent for BOD 5 .

If effluent concentrations are specified in the performance declaration, these are decisive, in deviation from paragraph 4, sentence 2, number 1, and must meet the requirements of paragraph 1. If these effluent concentrations were determined by means of a 24-hour composite sample, they must not exceed a value of 100 mg/l for COD and a value of 25 mg/l for BOD 5 , in deviation from paragraph 1, sentence 1 .

(6) The Länder may issue provisions deviating from the requirements of paragraph 4, sentence 2, number 4; in this case, paragraph 4, sentence 2, number 4 shall apply in accordance with those provisions.

(7) In the case of discharges pursuant to paragraph 4 sentence 1, the requirements pursuant to paragraph 1 shall also be deemed to have been met if 1. a valid general building inspectorate approval exists for the system at the time of installation or for an existing system that was already installed on 12 March 2020, a valid general building approval was available at the time of installation and

2. the system is installed, operated and maintained in accordance with the general building approval is being maintained.

3 (8) In the case of discharges of less than 8 m3 of wastewater per day from wastewater treatment plants of size class 1 pursuant to paragraph 1, which do not fall under paragraph 4 sentence 1, the requirements pursuant to paragraph 1 shall be deemed to be met if a wastewater treatment plant approved by a general building inspectorate or otherwise under state law is installed, operated and maintained in accordance with the approval.
The approval must specify the requirements for the installation, operation and maintenance of the system necessary for proper functioning in accordance with the requirements of paragraph 1.

(9) For small discharges within the meaning of Section 8 in conjunction with Section 9(2) sentence 2 of the Wastewater Charges Act, the Länder may lay down different requirements if a connection to a public wastewater treatment plant is expected in the near future.

(10) For domestic waste water generated in mountainous regions at an altitude of more than 1 500 metres above sea level, different requirements may be laid down in the water permit.

Appendix 2 Lignite briquette production

Source of the original text: BGBl. I 2004, 1119

A Scope (1) This Annex shall

apply to waste water containing pollutants originating mainly from lignite briquette manufacture or arising in connection with such manufacture.
(2) This Annex shall not apply to waste water from indirect cooling systems and from process water treatment and flue gas scrubbing.

B General requirements

There are no requirements beyond those set out in Section 3.

C Wastewater requirements for the discharge point

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour composite sample	
	concentration (mg/l)	freight (g/t)
Filterable substances	50	18
Chemical oxygen demand (COD)	50	30

(2) The values for the production-specific load (g/t) refer to the maximum installed dryer capacity, expressed in the amount of dry coal in 2 hours with a mass fraction of water of 16 to 18 percent. If production capacities are based on dry coal with mass fractions of water other than 16 to 18 percent, 17 percent shall be used as the basis for calculating the dryer capacity. The pollutant load is determined from the concentration values of the 2-hour composite sample or the qualified random sample and the wastewater volume flow in dry weather (dry weather discharge) in 2 hours.

Annex 3 Production of food and animal feed

(Source: BGBl. 2024 I No. 132, pp. 2 - 6)

A Scope

(1) This Annex shall apply to waste water whose pollutant load originates mainly from the following areas of Manufacture of food, beverages, milk and milk products or animal feed by treatment or processing of plant and animal raw materials:

1. Manufacture of alcohol and alcoholic beverages, 2. Breweries,

3. Production of soft drinks and beverage bottling, 4. Processing of fish, shellfish and crustaceans, 5. Meat processing, including the production of ready meals,

6. Drying of plant products for animal feed production, 7. Potato processing, 8. Malting,

9. Processing of milk and milk products, 10. Production of fruit and vegetable products and ready meals, 11. Oilseed processing, edible fat and oil refining, 12. Production of starch, 13. Production of solid and liquid sugars and syrup from sugar beet and sugar cane, 14. Production of yeast and

15. other processes for the production of food and feed, insofar as the facilities are listed in Section 1 Paragraph 3 of the Industrial Wastewater Treatment Plant Approval and Monitoring Ordinance.

This Annex also applies to rainwater that is contaminated by specific operations.

(2) This Annex shall also apply to waste water,

1. whose pollutant load mainly comes from the production of table water and from the extraction and bottling of natural mineral water, spring water and medicinal water, or
2. whose pollutant load originates both from the processing of fish, shellfish and crustaceans and from households and installations within the meaning of Annex 1 Part A, if in the raw water the COD load of the waste water from the processing of fish, shellfish and crustaceans is normally more than two thirds of the total load and the BOD5 load is at least 600 kg per day.

(3) This Annex shall not apply to

1. Wastewater from milk processing plants with a pollutant load in the raw wastewater of less than 3 kg BOD5 per day,
2. Wastewater from meat processing with a pollutant load in the raw wastewater of less than 10 kg BSB5 per week,
3. Waste water whose pollutant load originates mainly from the slaughter of animals, 4. Waste water from

distilleries under Section 9 of the Alcohol Tax Act, from plants for the production of wine and fruit wine and from plants for the production of alcohol from molasses, which do not fall under Section 1 Paragraph 3 of the Industrial Sewage Treatment Plant Approval and Monitoring Ordinance,

5. Waste water whose pollutant load originates mainly from the production of ethanol from plant biomass in plants according to Annex 1, number 4.1.2 of the Ordinance on Plants Requiring Authorisation, including the production of co-products,
6. Waste water from the production of pectin, 7.

Waste water from the production of hide glue, gelatine and bone glue, 8. Waste water

whose pollutant load is essentially

(a) during the collection, transport, storage, handling and processing of non-human produced in the manufacture of animal by-products intended for

b) human consumption or in storage, intermediate treatment and processing establishments for Category 1, 2 and 3 material within the meaning of Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (OJ L 300, 14.11.2009, p. 1), and

9. Waste water from indirect cooling systems, from process water treatment and from steam generation.

(4) The requirements set out in Part C, paragraph 1, paragraph 2, sentences 1 and 2, and paragraph 3 are emission limit values within the meaning of Section 1, paragraph 2, sentence 1.

B General requirements

(1) Waste water and pollutant loads shall be kept as low as possible by the following measures and under the following conditions: Taking into account the provisions of the hygiene regulations or the provisions for food and Feed safety is possible:

1. Multiple use and recycling, for example for cleaning, washing, cooling or as Process water,
2. Use of water-saving or water-free processes for cleaning production facilities and Pipelines,
3. Demand-controlled chemical dosing when cleaning production facilities and pipelines and

4. Avoiding or minimising the use of cleaning chemicals or disinfectants, which are harmful to the aquatic environment, in particular priority substances listed in Annex 8, Table 1, Column 8 of the Surface Waters Ordinance.

(2) Waste water not requiring treatment shall be discharged separately from waste water requiring treatment.

(3) For plants within the meaning of Section 1 Paragraph 3 of the Industrial Sewage Treatment Plant Approval and Monitoring Ordinance, retention capacities for wastewater must be provided and measures for the proper reuse, treatment or disposal of retained wastewater must be provided in order to prevent uncontrolled emissions in the event of unscheduled operating conditions. The extent of the retention capacities and the measures must be appropriate to the risk. The discharger must carry out an appropriate risk assessment.

(4) In the case of oilseed processing, edible fat and oil refining,

1. the pollutant load is kept low by using low-phosphorus raw materials and
2. the waste water from cleaning and disinfection processes may only contain surfactants that have a Achieve a DOC degradation rate of 80 percent after 28 days in accordance with the procedure set out in Annex 1, number 405. Surfactants are organic surface-active substances with washing and wetting properties which, at a concentration of 0.5 percent and a temperature of 20 °C, reduce the surface tension of distilled water to 0.045 N/m or less.

(5) For sugar production plants, the waste water must also not contain any organically bound halogens resulting from the use of chlorine or chlorine-releasing compounds, with the exception of chlorine dioxide, in the waste water cycle. Proof that this requirement is met can be provided by

1. the operating and auxiliary materials used are listed in an operating log and
2. Information from the manufacturer is available stating that none of the substances or groups of substances mentioned are contained in the waste water.

C Wastewater requirements for the discharge point

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

parameter	Qualified sample or 2-hour composite sample mg/l
Biochemical oxygen demand in 5 days (BOD5)	20
Chemical oxygen demand (COD)	100
Total organic carbon (TOC)	351
Filterable substances (AFS)	302.3
Ammonium nitrogen (NH4-N)	5.0
Nitrogen, total, as the sum of ammonium, nitrite and nitrate nitrogen (Ntotal)	15
Total bound nitrogen (TNb)	18
Total phosphorus (Ptotal)	2.0

1 In the water law permit, a different concentration can be permitted for the TOC parameter if a site-specific factor for the COD/TOC ratio can be derived from suitable measurement series for the site. In this case, the TOC concentration is determined as the result of dividing the COD concentration according to paragraph 1, paragraph 5, paragraph 6 or paragraph 7 by the site-specific factor for the COD/TOC ratio.

parameter	Qualified random sample or 2-hour composite sample mg/
[2] l The requirement for AFS only applies to wastewater whose load originates primarily from plants within the meaning of Section 1 Paragraph 3 of the Industrial Sewage Treatment Plant Approval and Monitoring Ordinance.	
[3] A value of 50 mg/l applies to wastewater from the extraction of solid and liquid sugars as well as from the extraction of syrup from sugar beet and sugar cane.	

(2) The requirements for ammonium nitrogen (NH4-N), total bound nitrogen (TNb) and total nitrogen (Nges) apply if the raw load of total nitrogen (Nges) in the inflow to the wastewater treatment plant on which the water law approval is based is more than 100 kg per day or if the plant is a plant within the meaning of Section 1 Paragraph 3 of the Industrial Sewage Treatment Plant Approval and Monitoring Ordinance. Furthermore, the requirements only apply if the wastewater temperature in the outflow from the biological reactor is 12 °C or higher.

In the water law permit , a higher concentration of up to 25 mg/l for total nitrogen (Ntot) and a higher concentration of up to 30 mg/l for total bound nitrogen (TNb) may be permitted if the reduction in the load of total bound nitrogen (TNb) is at least 80 percent.
The reduction refers to the ratio of the nitrogen load in the influent to that in the effluent of the wastewater treatment plant over a representative period which shall not exceed 24 hours.

(3) The requirement for total phosphorus applies if the raw load of total phosphorus on which the water law authorisation is based is more than 20 kg per day or if the plant is a plant within the meaning of Section 1(3) of the Industrial Sewage Treatment Plant Authorisation and Monitoring Ordinance.

(4) Where the waste water originates from the processing of fish, shellfish and crustaceans, a maximum permissible concentration of total phosphorus of 0,70 mg/l shall apply if the raw load of total phosphorus on which the water law authorisation is based exceeds 200 kg per day in the influent of the waste water treatment plant.

(5) If the waste water originates from the production of starch, a higher concentration of up to 185 mg/l for COD and up to 65 mg/l for TOC may be permitted in the water permit, by way of derogation from paragraph 1, if the reduction in the COD load is at least 95 percent.
The reduction refers to the ratio of the COD load in the inflow to that in the effluent in a representative period which shall not exceed 24 hours.

(6) If the waste water originates from the extraction of solid and liquid sugars and from the extraction of syrup from sugar beet and sugar cane, outside the beet campaign, a higher content of up to 155 mg/l for COD and up to 55 mg/l for TOC may be permitted in the water law permit, by way of derogation from paragraph 1, if the reduction in the COD load is at least 95 percent.
The reduction refers to the ratio of the COD load in the inflow to that in the effluent in a representative period which shall not exceed 24 hours.

(7) If the waste water originates from the production of yeast, the water legislation may, by way of derogation from paragraph 1, Approval a higher content may be permitted for the following parameters:

- COD of up to 250 mg/l and TOC of up to 85 mg/l, if the reduction of the COD load is at least 95 percent. The reduction refers to the ratio of the COD load in the influent to that in the effluent in a representative period, which should not exceed 24 hours,
- Ptotal of up to 2.5 mg/l.

(8) If the waste water originates from plants for drying plant products for animal feed production, the requirements for AFS and TNb may be waived in the water law authorisation, by way of derogation from paragraph 1 .

(9) In the case of pond systems designed for a residence time of 24 hours or more and where the the daily wastewater volume underlying the water law permit does not exceed 500 m3 , a sample

clearly coloured by algae, the COD, TOC and BOD5 must be determined from the algae-free sample.
In this case, the values laid down in paragraph 1 shall be reduced by 15 mg/l for COD, by 5 mg/l for TOC and by 5 mg/l for BOD5.

(10) In the case of storage ponds, the requirements refer to the sample.

D Requirements for waste water before mixing

Sealing and condensation water arising from the extraction of solid and liquid sugars and from the extraction of syrup from sugar beet and sugar cane may, unless it can be reused within the plant, be mixed with waste water from other sources for the purpose of joint treatment only if the concentrations of the parameters laid down in Part C, paragraph 1, in the raw waste water exceed the values laid down therein.

E Wastewater requirements for the site of the incident

There are no additional requirements for wastewater at the site of origin.

F Requirements for existing discharges

(1) By way of derogation from Part B(2), in the case of existing installations for the discharge of waste water requiring treatment which were lawfully in operation before 20 April 2024 or whose construction had lawfully started on that date, waste water not requiring treatment may, with the consent of the competent authority, be discharged together with waste water requiring treatment.

(2) By way of derogation from paragraph 3 of Part B, in the case of existing installations which were lawfully in operation before 20 April 2024 or whose construction was lawfully started on that date, the requirement to maintain retention capacity for waste water may be waived with the consent of the competent authority if that requirement is disproportionate due to reasons of space or the configuration of the installation.

(3) For existing discharges of waste water from plants which are not plants within the meaning of Section 1(3) of the Industrial Sewage Treatment Plant Approval and Monitoring Ordinance, which were lawfully in operation before 20 April 2024 or whose construction was lawfully started on that date and for which
While requirements were laid down in the Wastewater Ordinance until April 1, 2024, the requirements of Part C shall apply from January 1, 2027. Until this date, the requirements of Parts C of Annexes 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 18 and 21 of the Wastewater Ordinance in the version valid up to and including April 19, 2024 shall apply.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) The requirements set out in paragraphs 2 to 5 shall apply to the discharge of waste water from plants pursuant to Section 1 paragraph 3 of the Industrial Sewage Treatment Plant Approval and Monitoring Ordinance.

(2) At the point of discharge into the water body, at least the following measurements shall be taken in the waste water:

1. continuous measurement of pH value, temperature and wastewater volume flow and 2. measurement of

the following parameters in the qualified sample or in the 2-hour composite sample:

parameter	Minimum frequency
TOC	daily1
AFS	daily1
Tnb	daily1
Pges	daily1

parameter	Minimum frequency
BSB5	monthly
chloride	monthly
1 If the available data series demonstrate a clear stability of the measurement results, the frequency of measurements can be reduced as determined by the authorities. Measurements must be taken at least monthly.	

(3) An annual report shall be drawn up in accordance with Annex 2, point 3.

(4) The measurements of the parameters pursuant to paragraph 2 shall be carried out using the analysis and measurement methods specified in Annex 1 or using officially recognised monitoring methods. The state regulations for self-monitoring remain unaffected by the operator's obligations pursuant to paragraphs 2 and 3.

(5) Evidence of compliance with the general requirements shall be provided in an operational wastewater register in accordance with Annex 2. In addition to the information specified in Annex 2, point 1, the wastewater register shall contain the following information:

1. wastewater-relevant sub-streams and their characteristics,
2. Retention capacities provided and measures planned in accordance with the requirements of Part B Paragraph 3 and
3. Data on the cleaning chemicals and disinfectants used in accordance with the requirements of Part B, paragraph 1, number 4.

Annex 9 Manufacture of coating materials

(Source: BGBl. 2024 I No. 66, p. 2 – 3)

A Scope

(1) This Annex shall apply to waste water the pollutant load of which originates mainly from the manufacture of coating materials by physical processes such as aqueous emulsion paints, synthetic resin-based renders and water-dilutable coating materials, as well as solvent-based coating materials, with associated ancillary operations.

(2) This Annex shall not apply to waste water from the manufacture of coating materials by chemical synthesis, such as the manufacture of organic colour pigments, inorganic pigments and paint resins. This Annex shall not apply to waste water from indirect cooling systems and from process water treatment.

B General requirements

(1) When generating vacuum in the production process, the amount of waste water generated shall be kept to a minimum by using waste water-free processes.

(2) The waste water must not contain any mercury compounds or organic tin compounds resulting from the use of preservatives or microbicidal additives. Proof that the waste water does not contain mercury or organic tin compounds can be provided by information from the manufacturers stating that the input materials and auxiliary materials used for preservation or microbicidal treatment do not contain such compounds.

(3) Waste water from the solvent-based coatings manufacturing area with ancillary operations resulting from the quenching of the distillation sump from solvent recovery shall not be discharged.

C Wastewater requirements for the discharge point

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

parameter	Qualified sample or 2-hour mixed sample
Chemical oxygen demand (COD)	120 mg/l
Biochemical oxygen demand in 5 days (BOD5)	20 mg/l
Toxicity to fish eggs (GEi)	2

(2) For waste water streams with a COD concentration of more than 50 g/l at the source, the COD shall be to a maximum of 500 mg/l.

D Requirements for waste water before mixing

(1) The following conditions shall be applied to waste water from the following areas before it is mixed with other waste water:
Requirements:

parameter	Water-based emulsion paints, resin-based plasters and water-dilutable Coating materials	Container cleaning with lye (lye cleaning) from production of solvent-based coating materials with subsidiary operations
	Qualified sample or 2-hour composite sample mg/l	
barium	2.0	2.0
Lead	0.50	0.50
cadmium	0.10	0.10
Chrome, total	0.50	0.50
Cobalt	1.0	1.0
copper	0.50	0.50
nickel	0.50	0.50
zinc	2.0	2.0
tin	–	1.0
Adsorbable organically bound Halogens (AOX)	1.0	1.0
Volatile halogenated Hydrocarbons (VHC)	0.10	–

(2) The requirements for AOX and VOCs (sum of trichloroethene, tetrachloroethene, 1.1.1-trichloroethane, Dichloromethane – calculated as chlorine) refer to the sample. The requirement for VOCs also applies considered complied with if it is demonstrated that no volatile halogenated hydrocarbons are present in the production and cleaning purposes.

Annex 10 Slaughter of animals

(Source: BGBl. I 2004, 1125 - 1126
For the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to waste water containing the main pollutant load from the slaughter of animals and intestinal processing.
(2) This Annex shall not apply to waste water from small discharges within the meaning of Section 8 of the Waste Water Charges Act with a pollutant load in the raw wastewater of less than 10 kg BOD5 per week and from indirect cooling systems and process water treatment.

B **General requirements** There are no

requirements beyond those set out in Section 3.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour composite sample mg/l
Biochemical oxygen demand in 5 days (BOD5)	25
Chemical oxygen demand (COD)	110
Ammonium nitrogen (NH4-N)	10
Nitrogen, total, as the sum of ammonium, nitrite and nitrate nitrogen (Ntotal)	18
Phosphorus, total	2

(2) The requirements for ammonium nitrogen and total nitrogen apply to a wastewater temperature of 12 °C or more in the effluent of the biological reactor of the wastewater treatment plant and provided that the raw load of total nitrogen on which the water law permit is based is more than 100 kg per day. A higher concentration of up to 25 mg/l for total nitrogen may be permitted in the water law permit if the reduction in the total nitrogen load is at least 70 percent. The reduction refers to the ratio of the nitrogen load in the inflow to that in the effluent in a representative period, which should not exceed 24 hours. The loads are to be based on total bound nitrogen (TNb).

(3) The requirement for total phosphorus shall apply if the raw load of total phosphorus on which the water permit is based is more than 20 kg per day.
(4) In the case of pond systems designed for a residence time of 24 hours or more and where the

If a sample is clearly coloured by algae and the daily waste water quantity on which the water law permit is based does not exceed 500 m3 , the COD and BOD5 must be determined from the algae-free sample. In this case, the values laid down in paragraph 1 are reduced by 15 mg/l for COD and by 5 mg/l for BOD5.

Annex 12 Production of bioethanol

(Source: BGBl. 2024 I No. 132, p. 6 - 8)

A Scope

(1) This Annex shall apply to waste water whose pollutant load originates mainly from the production of ethanol from biomass in installations referred to in point 4.1.2 of Annex 1 to the Ordinance on Installations Requiring a Licence, including the production of co-products produced in connection with the production of ethanol.

This Annex also applies to rainwater that is contaminated by specific operations.

(2) This Annex shall not apply to waste water from indirect cooling systems and from process water treatment.

(3) The requirements set out in Part C paragraphs 1, 2 and 3 are emission limit values within the meaning of Section 1 paragraph 2 sentence 1.

B General requirements

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. Multiple use and recycling,

2. Use of wastewater-free processes for vacuum generation and exhaust air purification and 3. Retention or recovery of substances by processing mother liquors and by optimised Procedure.

(2) Waste water not requiring treatment shall be discharged separately from waste water requiring treatment.

(3) Retention capacities for waste water must be provided and measures must be taken to ensure proper reuse, treatment or disposal of retained waste water in order to prevent uncontrolled emissions in the event of unscheduled operating conditions. The extent of the retention capacities and the measures must be proportionate to the risk. The discharger must carry out an appropriate risk assessment.

(4) Where there are several waste water producing establishments at one site, the holder of the water licence shall establish in an appropriate form, with the operational managers of the other waste water producing establishments, the tasks, responsibilities and cooperation with regard to proper waste water disposal.

(5) Evidence of compliance with the general requirements shall be provided in an operational wastewater register. In addition to the information in Annex 2, point 1, the wastewater register shall contain information on retention capacities provided or measures planned in accordance with paragraph 3.

(6) Wastewater treatment plants pursuant to Section 60(3) sentence 1 number 2 of the Water Resources Act as well as associated sewer systems and plants for the dewatering of sewage sludge in connection with wastewater disposal shall be constructed and operated in such a way that odour and noise emissions are avoided.

(7) Where waste water as defined in Part A, paragraph 1, which satisfies the requirements of Part C, paragraph 1, is used as make-up water in cooling systems for the indirect cooling of industrial processes, the quality of this make-up water shall be considered as pre-pollution within the meaning of Annex 31, Part B, paragraph 4.

C Wastewater requirements for the discharge point

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

parameter	Qualified sample or 2-hour composite sample mg/l
Biochemical oxygen demand in 5 days (BOD5)	25
Chemical oxygen demand (COD)	100
Total organic carbon (TOC)	33
Filterable substances (AFS)	30
Ammonium nitrogen (NH4-N)	10
Nitrogen, total, as the sum of ammonium, nitrite and nitrate nitrogen (Ntotal)	18
Total bound nitrogen (TNb)	20
Total phosphorus (Ptotal)	2.0

(2) The requirements for ammonium nitrogen (NH4-N), total nitrogen (Ntot) and total bound nitrogen (TNb) in paragraph 1 shall apply at a waste water temperature of 12°C and above in the effluent from the biological reactor.

(3) If the annual discharged loads specified below are exceeded, the following concentrations shall be considered as Annual average values must be observed:

parameter	Annual freight	Concentration mg/l (Annual average)
Tnb	2.5 t/year	251ÿÿ
AOX	100 kg/year	1.0
Chrome, total	2.5 kg/year	0.025
copper	5.0 kg/year	0.050
nickel	5.0 kg/year	0.050
zinc	30 kg/year	0.30
1 The annual mean value for TNb may be up to 40 mg/l if the elimination rate in Annual average is at least 70 percent.		

(4) The parameters referred to in paragraph 3 shall be measured in accordance with Part H, paragraph 1. The results of the measurement shall be results of state surveillance. Section 6 paragraph 1 does not apply.

D Requirements for waste water before mixing

No additional requirements are placed on the wastewater before it is mixed with other wastewater.

E Wastewater requirements for the site of the incident

There are no additional requirements for wastewater at the site of the incident.

F Requirements for existing discharges

(1) By way of derogation from Part B, paragraph 2, in the case of existing installations for the discharge of waste water requiring treatment Wastewater treatment plants that were legally in operation before 20 April 2024 or whose construction was started on that date has been lawfully started, with the consent of the competent authority, not requiring treatment Wastewater should be discharged together with wastewater requiring treatment.

(2) By way of derogation from Part B, paragraph 3, existing installations lawfully commissioned before 20 April 2024 may operation or whose construction had been lawfully started at that time, with the consent of the competent authority may waive the requirement to maintain retention capacity for waste water, if this requirement is disproportionate due to space constraints or the configuration of the system.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators shall determine the following parameters in the waste water at the point of discharge into the water body in the flow-proportional 24-hour composite sample as follows:

parameter	Minimum frequency
TOC	daily
AFS	daily
Tnb	daily
Pges	daily
BSB5	monthly
AOX	monthly
Chromium, total, copper, nickel, zinc, lead	monthly

parameter	Minimum frequency
Other heavy metals, if limited in the water law permit	monthly

In the case of wastewater flows with proven small fluctuations in volume flow and concentration, the measurements can also be carried out in the qualified sample or the 2-hour mixed sample, as determined by the authorities. If the available data series demonstrate a clear stability of the measurement results, the frequency of measurements can be reduced as determined by the authorities. However, measurements with the minimum frequency of daily must take place at least once a month, and the others annually.

(2) The annual mean values for the parameters referred to in Part C, paragraph 3, shall be calculated from the results of the measurements referred to in paragraph 1.

(3) An annual report shall be drawn up in accordance with Annex 2, point 3.

(4) The measurements of the parameters pursuant to paragraph 1 shall be carried out using the analysis and measurement methods specified in Annex 1 or using officially recognised monitoring methods. The state regulations for self-monitoring remain unaffected by the operator's obligations pursuant to paragraphs 1 to 3.

Annex 13 Manufacture of particleboard, fibreboard or mats

(Source: BGBl. I 2020, 1287 – 1289)

A Scope

(1) This Annex shall apply

1. for wastewater whose pollutant load originates mainly from the production of chipboards, wood fibreboards or wood fibre mats, and for rainwater that is contaminated by specific operations.
2.

(2) This Annex shall not apply to waste water from indirect cooling systems and from process water treatment.

(3) The requirements set out in Part C, paragraphs 1 and 5 are emission limit values within the meaning of Section 1, paragraph 2, sentence 1.

B General requirements

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. Collection of rainwater contaminated by the operation, including rainwater from paved storage areas for all types of wood, excluding roundwood and slabs,
2. Extensive recycling of process water from washing, cooking and shredding of wood chips for the production of wood fibres,
3. extensive recycling of water from exhaust gas wet cleaning systems; if waste water is generated from exhaust gas wet cleaning, it must be subjected to biological treatment or other suitable waste water treatment.

(2) Process waste water and operation-specific contaminated rainwater shall be treated separately.

C Wastewater requirements for the discharge point

(1) For plants with a production capacity of 600 m3 or more per day, an annual mean value of 40 mg/l for filterable substances in the qualified random sample must not be exceeded for the operation-specific contaminated rainwater at the point of discharge into the water body. The filterable substances must be measured in accordance with Part H, paragraph 1, number 1. The results of the measurements in accordance with sentence 2 are equivalent to the results of state monitoring. Section 6, paragraph 1 does not apply.

(2) Process waste water from the manufacture of wood fibre boards and wood fibre mats shall be subject to
The following requirements apply to the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
Biochemical oxygen demand in 5 days (BOD5)	kg/t	0.20
Total organic carbon (TOC)	kg/	0.30
Chemical oxygen demand (COD)	t kg/t	1.0
Phenol index after distillation and dye extraction	g/t	0.30
Toxicity to fish eggs (GEi)		2

(3) For process waste water from the manufacture of wood fibreboard with a density exceeding 900 kg/m3 , which in
For boards manufactured using wet processes and having a fibre moisture content of more than 20 per cent at the board forming stage, a value of 2.0 kg/t for COD and a value of 0.70 kg/t for TOC shall apply, notwithstanding paragraph 2.

(4) The requirements under paragraphs 2 and 3 refer to the production capacity of wood fibre boards or wood fibre mats (absolutely dry) in 0.5 or 2 hours on which the water approval is based.
The pollutant load is calculated by multiplying the concentration value of the qualified sample or the 2-hour composite sample by the volume of the wastewater stream corresponding to the sampling.

(5) Without prejudice to the requirements of paragraph 2, the following shall not be permitted at the point of discharge into the water body:

Process waste water from plants with a production capacity of 600 m3 or more per day following
Annual average values are not exceeded:

	Annual mean mg/ l
Chemical oxygen demand (COD)	200
Filterable substances	35

The COD requirement is considered to be met if the annual average TOC does not exceed 70 mg/l. The COD or TOC as well as the filterable substances are to be determined in accordance with Part H, Paragraph 1, Number 2, Letter
a and b. The results of the measurements according to sentence 3 are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply.

D Requirements for waste water before mixing

In process wastewater, a value of 0.30 g/t for adsorbable organically bound halogens (AOX) must not be exceeded before mixing with other wastewater. The requirement refers to the production capacity of wood fiber boards and wood fiber mats (absolutely dry) in 0.5 or 2 hours on which the water law approval is based. The pollutant load is calculated by multiplying the concentration value of the sample by the volume of the wastewater flow that corresponds to the sampling.

E Wastewater requirements for the site of the incident

There are no additional requirements for wastewater at the site of the incident.

F Requirements for existing discharges

By way of derogation from Part B, paragraph 2, in existing wastewater treatment plants that were lawfully in operation before 24 June 2020 or whose construction was lawfully started on that date, process wastewater and operation-specific contaminated rainwater may be treated together with the consent of the competent authority.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators of plants for the production of particle boards, wood fibre boards or wood fibre mats with a

Production capacity of 600 m3 or more per day shall have at least the following measurements in the waste water at the Discharge point into the water body:

1. For operationally contaminated rainwater, the filterable substances parameter must be measured in the qualified sample during a discharge; the measurements must be carried out at least once every three months during rainfall events.
2. For process wastewater, samples must be taken at least weekly in the 2-hour composite sample or in the qualified Sample to measure the following parameters:
   a) filterable substances,
   b) COD or TOC.
3. For process wastewater, the following parameters must be measured at least every six months in the 2-hour composite sample or in the qualified sample:
   a) Arsenic,
   b) Chromium, total, c)
   Copper,
   d) Nickel,
   e) Lead and
   f) Zinc.

(2) The annual mean values pursuant to Part C paragraph 1 sentence 1 and paragraph 5 sentences 1 and 2 shall be calculated from the results of the measurements pursuant to paragraph 1 numbers 1 and 2.

(3) Operators of plants for the production of particle boards, wood fibre boards or wood fibre mats with a

Production capacity of 600 m3 or more per day must prepare an annual report in accordance with Annex 2, point 3.

(4) The measurements of the parameters pursuant to paragraph 1 shall be carried out using the analysis and measurement methods specified in Annex 1 or using officially recognised monitoring methods. The state regulations for self-monitoring remain unaffected by the operator's obligations pursuant to paragraphs 1 to 3.

Appendix 15 Production of hide glue, gelatine and bone glue

(Source: BGBl. I 2004, 1129)

A **Scope**

(1) This Annex shall apply to waste water the pollutant load of which originates mainly from the processing of animal by-products and residues from leather production into hide glue, bone glue, gelatine or naturin.

(2) This Annex shall not apply to waste water from indirect cooling systems and from process water treatment.

B **General requirements** There are no

requirements beyond those set out in Section 3.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour composite sample mg/l
Biochemical oxygen demand in 5 days (BOD5)	25
Chemical oxygen demand (COD)	110

	Qualified sample or 2-hour composite sample mg/l
Ammonium nitrogen (NH4-N)	10
Nitrogen, total, as the sum of ammonium, nitrite and nitrate nitrogen (Ntotal)	30
Phosphorus, total	2

(2) The requirements for ammonium nitrogen and total nitrogen apply to a wastewater temperature of 12 °C or more in the effluent of the biological reactor of the wastewater treatment plant and provided that the raw load of total nitrogen on which the water law permit is based is more than 100 kg per day. A higher concentration of up to 50 mg/l for total nitrogen may be permitted in the water law permit if the reduction in the total nitrogen load is at least 85 percent. The reduction refers to the ratio of the nitrogen load in the inflow to that in the effluent in a representative period, which should not exceed 24 hours. The loads are to be based on total bound nitrogen (TNb).

(3) The requirement for total phosphorus shall apply if the raw load of total phosphorus on which the water permit is based is more than 20 kg per day.

Appendix 16 Hard coal processing

(Source: BGBl. I 2004, 1129 - 1130)

A **Scope** This Annex applies to waste

water containing pollutants mainly from coal processing.

B **General requirements** There are no

requirements beyond those set out in Section 3.

C **Wastewater requirements for the discharge point**

The following requirements apply to the discharge of wastewater into the water body:

Chemical oxygen demand (COD) 100 mg/l		Qualified sample or 2-hour mixed sample
Filterable substances	80 mg/l	sample

Annex 17 Manufacture of ceramic products

(Source: BGBl. I 2004, 1130 - 1131)

A **Scope** (1) This Annex applies to

waste water containing pollutants originating mainly from the industrial manufacture of ceramic products.

(2) This Annex shall not apply to waste water from indirect cooling systems, from process water treatment or to sanitary waste water.

B **General requirements**

(1) Waste water from the refractory sector and the manufacture of grinding tools, split tiles, tiles and bricks must not be discharged into water bodies. Sentence 1 does not apply to the cleaning and maintenance of production facilities or to the washing of raw materials.

(2) The discharge of waste water shall only be permitted if it results from the production of

1. Piezo ceramic at least 50 percent,
2. tableware products at least 50 percent and
3. Sanitary ceramics at least 30 percent

has been reused.

C **Wastewater requirements for the discharge point**

The following requirements apply to the wastewater at the point of discharge into the water body:

	Qualified sample or 2-hour composite sample mg/l
Filterable substances	50
Chemical oxygen demand (COD)	80
Phosphorus, total	1.5

D **Requirements for waste water before mixing**

(1) Before being mixed with other waste water, waste water shall meet the following requirements:

	Qualified sample or 2-hour composite sample mg/l
Adsorbable organically bound halogens (AOX)	0.1
Lead	0.3
cadmium	0.07
Chrome, total	0.1
Cobalt	0.1
copper	0.1
nickel	0.1
zinc	2

For AOX, the values for the sample apply.

(2) The requirements under paragraph 1 shall not apply if the total amount of waste water produced does not exceed 4 m3 per day and no waste water comes from the glazing area.

(3) In the case of a wastewater generation of up to 8 m3 per day, the requirements of Part D paragraph 1 and for the filterable substances from Part C shall also be deemed to be met if a wastewater treatment plant approved by a general building inspectorate approval or otherwise under state law is installed and operated, regularly maintained in accordance with the approval and checked for its proper condition before commissioning and at regular intervals of not longer than 5 years in accordance with state law.

E **Requirements for the location of the seizure** There

are no additional requirements for the wastewater at the location of the seizure.

F **Requirements for existing discharges** For existing discharges

of waste water from installations which were lawfully in operation before 1 June 2000 or whose construction was lawfully started on that date, the provisions of Parts B, C and D shall apply only to the extent that no different requirements are laid down in paragraphs 1 to 4.

(1) Waste water from the production of split boards and tiles may be discharged, in derogation from Part B, paragraph 1, if at least 50 percent of it has been reused in the production process.

(2) Waste water from the manufacture of piezoceramics may be discharged, in derogation from Part B, paragraph 2, number 1, if at least 30 percent of it has been reused.

(3) Waste water from the sanitary ceramics and tableware manufacturing sector may, in derogation from Part B, paragraph 2, numbers 2 and 3, be discharged without reuse.

(4) Where more water is reused than that required in paragraphs 1, 2 and 3, higher concentrations of AOX and COD than those specified in Parts C and D may be permitted, provided that the loads resulting from paragraphs 1, 2 and 3 are complied with.

Annex 19 Pulp production

(Source: BGBl. I 2004, 1132 - 1133)

A **Scope** (1) This Annex applies to

waste water containing pollutants mainly from the manufacture of bleached pulp by the sulphite or sulphate process.

(2) This Annex shall not apply to waste water from the production of pulp from annual crops, nor to waste water from indirect cooling systems and from process water treatment.
(3) The requirements set out in Part C, paragraphs 1 and 3, and Part D, paragraphs 1 and 3, are emission limit values within the meaning of Section 1, paragraph 2, sentence 1.

B **General requirements**

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. Reduction of water consumption, for example by optimising water management by measuring the main water consumption points, narrowing the water circuits, countercurrent flow and reusing used process water;

2. largely wastewater-free debarking;

3. Avoidance of contamination of the bark and wood with sand and stones through appropriate internal handling of the wood;

4. optimized wood pulping through further cooking and oxygen delignification; 5. closed washing and sorting of the

unbleached pulp; 6. capture of at least 98 percent of the organic substance dissolved during

cooking through the use of water-saving washing processes;

7. Utilization of by-products from pulp washing, for example tall oil extraction in
sulfate process;

8. Neutralization and evaporation of the washing solution; 9. Utilization

of the evaporation concentrate (thickened liquor) and recovery of the pulping chemicals; 10. Stripping and subsequent reuse of the

highly concentrated evaporation condensates; 11. Pulp bleaching without the use of elemental chlorine and chlorine-containing

bleaching chemicals, with the exception of
Chlorine dioxide in the production of elemental chlorine-free sulfate pulp;

12. Partial closure of the bleaching plant circuit; 13. Collection of all leakage

water; 14. Dimensioning of the evaporation

plant taking into account peak loads; 15. Avoidance of the use of organic complexing agents that cause a DOC degradation

rate after 28 days
of 80 percent in accordance with the procedure set out in Annex 1, number 406; if this is not possible, the quantities used must be minimised and the pollutant load reduced in accordance with what is technically possible.

(2) Waste water treatment plants shall be constructed and operated in such a way that odour emissions are avoided, for example by optimum mixing and continuous dewatering of the sludge.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	24-hour mixed sample	
Total organic carbon (TOC)	kg/t	12
Chemical oxygen demand (COD)	kg/t	25
Biochemical oxygen demand in 5 days (BSB5)	mg/l	30
Phosphorus, total	mg/l	2.0

	24-hour mixed sample	
Nitrogen, total, as sum of ammonium, Nitrite and nitrate nitrogen (Ntot)	mg/l	10
Total bound nitrogen (TNb)	mg/l	20
Toxicity to fish eggs (GEi)		2

The requirement for toxicity to fish eggs (GEi) refers to the sample.

(2) The production-specific load values (kg/t) pursuant to paragraph 1 are calculated from the ratio of the pollutant load to the production capacity for air-dry pulp in tonnes per day on which the water law permit is based. The pollutant load is calculated by multiplying the concentration value of the 24-hour composite sample by the volume of the waste water flow in 24 hours that corresponds to the sampling.

(3)Without prejudice to the requirements laid down in paragraphs 1 and 2, the following annual average values in kilograms per tonne of air-dry pulp produced in waste water shall not be exceeded:

	Bleached Sulphate pulp kg/ t	Bleached Sulphite pulp kg/t
Chemical oxygen demand (COD)	13	30
Filterable substances	1.5	1.5
Total bound nitrogen (TNb)	0.25	0.30
Phosphorus, total	0.030	0.050

(4) The parameters referred to in paragraph 3 shall be measured in accordance with Part H, paragraph 1, number 1(a) and (b). The production-specific load value (kg/t) for the parameters referred to in paragraph 3 shall be calculated from the ratio of the pollutant load to the production of air-dry pulp attributable to the period of sampling.
The pollutant load is calculated by multiplying the concentration value of the 24-hour mixed sample by the volume of the wastewater flow in 24 hours that corresponds to the sampling. The results of the measurements according to sentence 1 are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply.

D **Requirements for waste water before mixing** (1) Before being mixed with other waste water, waste water must not contain chlorine and chlorine-containing bleaching agents or adsorbable organically bound halogens (AOX) from bleaching. Notwithstanding sentence 1, waste water from the production of elemental chlorine-free sulphate pulp may contain up to 0.25 kg AOX per tonne of pulp in the 24-hour mixed sample.
(2) The production-specific load value for the AOX parameter (kg/t), which is to be measured in accordance with paragraph 1, sentence 2, is calculated from the ratio of the pollutant load to the production capacity for air-dry pulp in tonnes per day on which the water law permit is based. The pollutant load is calculated by multiplying the concentration value of the 24-hour mixed sample by the volume of the wastewater flow in 24 hours that corresponds to the sampling.
(3) Without prejudice to the requirements of paragraph 1, an annual average value for AOX in waste water of 0.20 kg/t of pulp produced from the sulphate pulp process or of 1.5 mg/l in the production of sulphite pulp must not be exceeded. The value for the production of sulphite pulp does not apply if the totally chlorine-free bleaching process is used in the production of sulphite pulp. The AOX parameter must be measured in accordance with Part H paragraph 1 number 2 letter a or letter b. The production-specific load value (kg/t) is calculated from the ratio of the pollutant load to the production of air-dry pulp attributable to the period of sampling. The pollutant load is calculated by multiplying the concentration value of the 24-hour mixed sample by the volume of the waste water flow in 24 hours that corresponds to the sampling. The results of the measurements according to sentence 3 are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply.

E **Requirements for waste water at the site of the seizure** There are no additional requirements for waste water at the site of the seizure.

F **Requirements for existing discharges** For existing discharges

of waste water from installations which were lawfully in operation before 1 August 2001 or whose construction was lawfully started on that date, a COD value of 40 kg/t shall apply, by way of derogation from Part C, paragraph 1.

G **Waste disposal requirements** There are no

waste disposal requirements.

H **Operator obligations**

There are no requirements under waste law.

(1) At least the following measurements shall be carried out in the waste water:

1. At the point of discharge into the water body, the following parameters are to be measured in the 24-hour composite sample as to measure follows:

   (a) daily measurement of COD and filterable solids;

   (b) weekly measurement of BOD5, TNb and total phosphorus;

   c) monthly measurement of ethylenediaminetetraacetic acid (EDTA) and diethylenetriaminepentaacetic acid (DTPA), if these substances are used in the process.

2. Before mixing with other wastewater, the following parameters shall be measured in the 24-hour composite sample as follows:

   (a) in the production of pulp bleached without elemental chlorine, monthly measurement of AOX; (b) in the production of

   pulp bleached without total chlorine, once every two months measurement of AOX, if AOX is produced by the addition of chemicals or raw materials;

   (c) annual measurement of lead, cadmium, copper, nickel, mercury and zinc.

(2) The annual mean values for the parameters according to Part C paragraph 3 and the annual mean value for the AOX parameter related to the pulp produced from the sulphate pulp process according to Part D paragraph 3 sentence 1 are derived from the mean values of the production-specific load values weighted according to daily production, which are determined from the results of the measurements according to paragraph 1. The annual mean value for the AOX related to the production of sulphite pulp according to Part D paragraph 3 sentence 1 is calculated from the results of the measurements according to paragraph 1.

(3) An annual report shall be prepared in accordance with Annex 2, point 3. At least every three years, this report shall also demonstrate that

1. it has been re-examined whether it is appropriate to refrain from using the products referred to in Part B, paragraph 1, number 15. substances is possible,
2. the use of these substances is still necessary,
3. existing alternatives have been evaluated and
4. possible measures to minimize the quantities used have been implemented.

The residual pollutant load from the use of these substances must be estimated.

(4) The measurements of the parameters pursuant to paragraph 1 shall be carried out using the analysis and measurement methods specified in Annex 1 or using officially recognised monitoring methods. The state regulations for self-monitoring remain unaffected by the operator's obligations pursuant to paragraphs 1 to 3.

Annex 20 Processing of animal by-products

(Source: BGBl. I 2004, 1133 - 1134; for the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to waste water the pollutant load of which is mainly generated during the collection, transport, storage, treatment and processing of animal by-products not intended for human consumption, in storage establishments, intermediate treatment establishments and processing establishments for Category 1, 2 and 3 material within the meaning of Regulation (EC) No 1774/2002 of the European Parliament and of the Council of 3 October 2002 laying down health rules concerning animal by-products not intended for human consumption (OJ EC No L 273, p. 1).

(2) This Annex does not apply to waste water from indirect cooling systems.

B **General requirements**

The pollutant load must be kept as low as possible by taking the following measures:

1. Keeping the raw material cool during storage and ensuring rapid processing, 2. Using undenatured salt for hide and skin preservation, 3. Retaining brines from hide salting using suitable methods such as dry disposal or return to production.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour composite sample mg/l
Chemical oxygen demand (COD)	150
Biochemical oxygen demand in 5 days (BOD5)	25
Nitrogen, total, as the sum of ammonium, nitrite and nitrate nitrogen (Ntotal)	50

(2) The requirement for total nitrogen shall apply at a waste water temperature of 12 °C and above in the effluent of the biological reactor of the waste water treatment plant.
(3) If, in the case of pond systems designed for a retention time of 24 hours or more, a sample is clearly coloured by algae, the COD and BOD5 shall be determined from the algae-free sample. In this case, the values laid down in paragraph 1 shall be reduced by 15 mg/l for COD and by 5 mg/l for BOD5.

D **Requirements for waste water before mixing** Before being mixed with waste water from other sources, the waste water must not exceed a value of 0.1 mg/l for adsorbable organically bound halogens (AOX) in the sample. This requirement is also considered to be met if the cleaning and disinfection agents or other operating and auxiliary materials used do not contain any organically bound halogen compounds or halogen-releasing substances.
Proof can be provided by the fact that the operating and auxiliary materials used are listed in an operating log and, according to the manufacturer's information, do not contain any of the substances or groups of substances mentioned in sentence 1.

Annex 22 Chemical industry

(Source: BGBl. 2024 I No. 66, pp. 3 – 11)

Section I: General part

A Scope

(1) This Annex shall apply to waste water containing pollutants originating mainly from the manufacture of substances by chemical, biochemical or physical processes, including the associated pre-, intermediate and post-treatment. It shall also apply to operationally contaminated rainwater arising in the said area.

(2) This Annex shall not apply to waste water discharges into public sewerage systems of less than 10 m3 per day. This Annex shall also not apply to waste water from the manufacture of soda ash or from the manufacture of potash fertilizers.

(3) For waste water resulting from the manufacture of substances and preparations by mixing, dissolving or filling (formulating) and which is discharged into a body of water or a waste water treatment plant without being combined with another waste water stream falling within the scope of this Annex, only Part B, paragraphs 1 and 5 shall apply. The requirements under sentence 1 shall apply to the place where the waste water is generated.

(4) The requirements set out in Part C paragraph 3 number 1 sentence 1, numbers 2 and 3 and paragraphs 4 and 5 are emission limit values within the meaning of Section 1 paragraph 2 sentence 1.

B General requirements

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. Multiple use and recycling, 2. Use of wastewater-free processes for vacuum generation and exhaust air purification, 3. Retention or recovery of substances by processing mother liquors and by optimised Procedures and

4. Pretreatment of wastewater streams containing pollutants that

a) may impair the functionality of the final biological treatment or b) are not adequately treated in the final wastewater treatment

in particular organic compounds that are poorly biodegradable or cannot be eliminated by the final wastewater treatment, as well as volatile pollutants such as benzene and volatile halogenated organic compounds.

(2) Waste water not requiring treatment shall be discharged separately from waste water requiring treatment.

(3) Retention capacities for waste water must be provided and measures must be taken to ensure proper reuse, treatment or disposal of retained waste water in order to prevent uncontrolled emissions in the event of unscheduled operating conditions. The extent of the retention capacities and the measures must be proportionate to the risk. The discharger must carry out an appropriate risk assessment.

(4) If there are several wastewater-generating establishments at the site, the holder of the water permit shall establish in an appropriate form, with the operational managers of the other wastewater-generating establishments, the tasks, responsibilities and cooperation with regard to proper wastewater disposal.

(5) Evidence of compliance with the general requirements shall be provided in an operational wastewater register. In addition to the information specified in Annex 2, point 1, the wastewater register shall contain the following information:

1. Information on syntheses, processes and plants that generate waste water, including a description of the main chemical reactions in the form of reaction equations and the most important side reactions and

2. Data on the biological eliminability of the organic pollutant load of the wastewater streams.

(6) Wastewater treatment plants pursuant to Section 60(3) sentence 1 number 2 of the Water Resources Act as well as associated sewer systems and plants for the dewatering of sewage sludge in connection with wastewater disposal shall be constructed and operated in such a way that odour and noise emissions are avoided.

C Wastewater requirements for the discharge point

(1) For waste water, the requirements set out in paragraphs 2 to 6 shall apply to the point of discharge into the water body.

(2) The water permit shall limit:

1. the total TOC load to be maintained in 0.5 or 2 hours,
2. the TOC concentration to be maintained in the qualified sample or in the 2-hour composite sample as well as
3. the COD concentration to be maintained in the qualified sample or in the 2-hour composite sample as three times the TOC concentration as defined in point 2 or as the result of multiplying the TOC concentration as defined in point 2 by a site-specific factor for the COD/TOC ratio to be determined.

The basis for the determinations according to sentence 1 is a determination of the permissible total annual TOC load. This is the sum of the annual loads of the individual wastewater streams. The individual wastewater streams are included in the determination of the permissible total annual load with the following TOC concentrations:

For wastewater streams whose TOC concentration at the point of origin of the wastewater

1. more than 16 000 mg/l, a TOC concentration of 800 mg/l applies,
2. is more than 250 mg/l, a TOC concentration corresponding to a reduction of the TOC by 90 percent corresponds,
3. is 250 mg/l or less, a TOC concentration of 25 mg/l applies, 4. is less than 25 mg/l, the actual TOC concentration at the place of origin applies.

If process-integrated measures are applied to reduce the TOC load with the approval of the competent authority, the TOC load at the point of origin of the waste water shall be used as the basis for determining the load before the measure is applied.

To monitor the total TOC load to be complied with in accordance with sentence 1 number 1, the TOC concentration in the qualified sample or in the 2-hour composite sample must be measured. The actual total TOC load is calculated by multiplying the measured TOC concentration by the volume of the wastewater flow in 0.5 or 2 hours that corresponds to the sampling.

The requirements for the total TOC load to be observed according to sentence 1 number 1 are deemed to be met if, in compliance with Part B, a TOC concentration of 25 mg/l is maintained in the qualified sample or in the 2-hour composite sample and nothing to the contrary is specified in the water law permit.

(3) In addition, the following requirements shall be met by the waste water in the qualified sample or the 2-hour mixed sample provided:

1. Total nitrogen as sum of ammonium, nitrite and nitrate nitrogen (Ntotal): 50 mg/l.
   In the water law permit, a higher concentration of up to 75 mg/l can be set if the nitrogen load is reduced by 75 percent,
2. Total phosphorus: 2.0 mg/l,
3. Toxicity:

Toxicity to fish eggs	GI = 2
Toxicity to Daphnia	GD = 8
Toxicity to algae	GA = 16
Toxicity to luminescent bacteria	GL = 32
Mutagenic potential (umu test)	GM = 1.5

(4) For the parameters TOC, filterable solids, TNb and Ntot, the following annual average concentration values shall be observed if the following annual discharged loads are exceeded:

parameter	Annual freight	concentration (Annual average)
TOC	3.3 tonnes/year	33 mg/l1,2,3
Filterable substances	3.5 tonnes/year	35 mg/l
Tnb	2.5 tonnes/year	25 mg/l4,5,6
Nges	2.0 tonnes/year	20 mg/l4,5,6

1 The annual mean value for TOC may be up to 100 mg/l if
(a) the annual average elimination rate for pre- and post-treatment is at least 90 percent and

(b) in the case of biological treatment, at least one of the following conditions is met:

aa) the BOD5 value in the effluent is not more than 20 mg/l and the COD sludge load is not more than 0.25 kg COD/kg organic dry matter in the sludge or

bb) the design and operation of the treatment plant are geared to targeted nitrification aligned.

2 The annual mean value for TOC may be more than 100 mg/l if
(a) the annual average elimination rate for pre- and post-treatment is at least 95 percent amounts,

(b) one of the conditions referred to in footnote 1(b) is met, and

(c) the TOC in the influent to the final waste water treatment plant is more than 2.0 g/l on an annual average and the influent contains a high proportion of poorly degradable organic compounds.

3 The annual mean value for TOC does not apply to wastewater whose main pollutant load comes from the Production of methylcellulose comes

4 Either the annual mean value for TNb or for Ntotal applies .

5 The annual mean value for TNb and Nges does not apply to wastewater treatment plants without biological Wastewater treatment.

6 The annual mean value for TNb and Nges can be up to 40 mg/l for TNb and up to 35 mg/l for Nges , if the elimination rate in the pre- and final treatment is at least 70 percent.

(5) For the parameters adsorbable organically bound halogens (AOX) and heavy metals, If the annual discharged loads specified below exceed the following concentration values in Annual averages must be met:

parameter	Annual freight	concentration (Annual average)
AOX	100 kg/year	1.0mg/l1
Chrome, total	2.5 kg/year	0.025 mg/l2,3,4
copper	5.0 kg/year	0.050 mg/l2,3,5
nickel	5.0 kg/year	0.050 mg/l2.3
zinc	30 kg/year	0.30 mg/l2,3,6

1 The annual average does not apply to wastewater whose main pollutant load comes from the production of iodized X-ray contrast media or from the manufacture of propylene oxide or epichlorohydrin according to the Chlorohydrin process.

[2] The annual average does not apply to inorganic wastewater whose main pollutant load comes from the production of inorganic heavy metal compounds.

[3] The annual average does not apply to wastewater whose main pollutant load comes from the processing of metal-contaminated solid inorganic raw materials.

[4] The annual average does not apply to wastewater whose main pollutant load comes from the production of organochromic compounds.

[5] The annual average value does not apply to waste water whose main pollutant load comes from the production of organocopper compounds or from the production of vinyl chloride monomer or 1,2-dichloroethane by oxychlorination.

[6] The annual average does not apply to wastewater whose main pollutant load comes from the production of viscose fibres.

(6) The parameters referred to in paragraphs 4 and 5 shall be measured in accordance with Part H paragraph 1. The results of the measurements shall be equivalent to the results of state monitoring. Section 6 paragraph 1 shall not apply.

D Requirements for waste water before mixing

(1) The requirements set out in paragraphs 2 to 4 shall apply to waste water before it is mixed with other waste water.

(2) The water permit shall limit:

1. the total AOX load to be complied with in 0.5 or 2 hours and
2. the AOX concentration to be maintained in the qualified sample or in the 2-hour composite sample.

The basis for the determinations according to sentence 1 is a determination of the permissible total annual AOX load. This is the sum of the annual loads of the individual wastewater streams. The individual wastewater streams are included in the determination of the permissible total annual load with the following AOX concentrations and loads:

1. Wastewater from the production of epichlorohydrin, propylene oxide and butylene oxide: 3.0 mg/l, 2. Wastewater from the single-stage production of acetaldehyde: 30 g/t, 3. Wastewater from the production of AOX-relevant organic dyes, organic pigments and aromatic intermediates, if these are mainly used for the production of organic dyes: 8.0 mg/l,
4. Wastewater from the production of AOX-relevant active pharmaceutical ingredients: 8.0 mg/l, 5. Wastewater from the production of C1-CHCs by methane chlorination and methanol esterification and from the production of carbon tetrachloride and tetrachloroethylene by perchlorination: 10 g/t,
6. Waste water from the production of 1,2-dichloroethane (DCE), including further processing to vinyl chloride (VCM): 2.0 g/t. The loading value refers to the production capacity for purified DCE. The capacity is to be determined taking into account the proportion of DCE that is not cracked in the VCM unit coupled to the DCE production unit and is returned to the production circuit in the DCE purification plant.
7. Waste water from the production of polyvinyl chloride (PVC): 5.0 g/t,
8. Waste water streams in which an AOX concentration of 0.10 mg/l is exceeded and an AOX Concentration of 1.0 mg/l is not exceeded without targeted measures: 0.30 mg/l, 9. waste water streams not separately regulated from the manufacture, processing or use of substances in which a concentration of 1.0 mg/l is exceeded or is not exceeded by targeted measures: 1.0 mg/l or 20 g/t.

   The freight value refers to the capacity of the organic target products. It does not apply to the application of substances.

To monitor the total AOX load to be complied with in accordance with sentence 1 number 1, the AOX concentration in the qualified sample or in the 2-hour mixed sample must be measured. The actual total AOX load is calculated by multiplying the measured AOX concentration by the volume of the wastewater flow in 0.5 or 2 hours that corresponds to the sampling. The AOX requirements according to sentences 1 to 6 do not apply to organoiodine substances in wastewater from the manufacture and filling of X-ray contrast media.

(3) The water permit shall limit:

1. for the parameters mercury, cadmium, copper, nickel, lead, chromium, total, zinc and tin the total loads to be maintained per parameter in 0.5 or 2 hours and
2. the concentration to be maintained of the substances referred to in point 1 in the qualified sample or in the 2-hour mixed sample.

The basis for the determinations pursuant to sentence 1 is a determination of the permissible Total annual freight. This is the sum of the annual freight of the individual Wastewater streams. The individual wastewater streams enter the treatment plant with the following concentrations of the respective substances.
Determination of the permissible total annual freight:

parameter	Concentration for determining annual loads (mg/l)	
	I	II
mercury	0.050	0.0010
cadmium	0.20	0.0050
copper	0.50	0.10
nickel	0.50	0.050
Lead	0.50	0.050
Chrome, total	0.50	0.050
zinc	2.0	0.20
tin	2.0	0.20

The values in column I are for waste water streams from production, processing or application of these substances. The values in column II are for waste water streams that do not result from the manufacture, further processing or application of these substances, but are nevertheless contaminated with such substances, use.

For monitoring the total load of the individual substances to be complied with according to sentence 1 number 1, the Measure the concentration of the respective substances in the qualified sample or in the 2-hour composite sample. The actual total load of the respective substance results from a multiplication of the measured Concentration with the volume of wastewater flow in 0.5 or 2 hours, which is corresponds.

(4) A waste water stream may only be mixed with another waste water stream falling within the scope of this Annex, or mixed with other waste water if

1. it is demonstrated that the TOC load of this waste water stream determined for the place of origin is reduced by at least 80 percent or
2. the TOC residual amount discharged from the respective wastewater stream into the water body is 20 kg per day, 300 kg per year or 1 kg per tonne of production capacity of the organic target product.

For the proof of load reduction according to sentence 1 number 1, for aerobic biological Waste water treatment plants the result of an investigation according to number 407 of Annex 1 and for other Wastewater treatment plants shall be based on the TOC elimination rate of these plants.

E Wastewater requirements for the site of the incident

For chromium VI, a concentration of 0.10 mg/l must be maintained in the sample.

F Requirements for existing discharges

(1) By way of derogation from Part B, paragraph 2, in the case of existing installations for the discharge of waste water requiring treatment Wastewater treatment plants that were legally in operation before 24 June 2020 or whose construction was started at that time has been lawfully started, with the consent of the competent authority, not requiring treatment Wastewater should be discharged together with wastewater requiring treatment.

(2) The requirement for mutagenic potential (umu test) under Part C paragraph 3 number 3 shall be complied with for existing discharges from installations which were lawfully in operation before 1 January 1999 or whose construction was lawfully started on that date, by 24 June 2024 at the latest.

(3) The competent authority may exempt from the requirements of Part D paragraph 4 existing discharges of waste water from installations which were lawfully in operation before 1 January 1999 or whose construction was lawfully started on that date: 1. Waste water from the spray drying of liquid and solid polycondensates based on the reaction

of

Phenolsulfonic acid and formaldehyde,

2. Waste water from the production of arylides and from the production of azo-, isoindoline-, quinacridone- and dioxazine pigments,

3. Wastewater from the production of metamizole from aniline and sodium nitrite.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators shall measure the following parameters in the waste water at the point of discharge into the water body in the flow-proportional 24-hour composite sample as follows:

parameter	Minimum frequency
TOC	Daily
Filterable substances	Daily
Nges or TNb	Daily
Pges	Daily
AOX	Monthly
Chromium, total, copper, nickel, zinc, lead	Monthly
Other heavy metals, if limited in the water law permit	Monthly

In the case of wastewater flows with proven small fluctuations in volume flow and concentration, the measurements can also be carried out in the 24-hour mixed sample taken proportionally to time, as determined by the authorities. If the available data series demonstrate a clear stability of the measurement results, the frequency of measurements can be reduced as determined by the authorities.

(2) The annual mean values for the parameters referred to in Part C, paragraphs 4 and 5, shall be calculated from the results of the measurements referred to in paragraph 1.

(3) An annual report shall be drawn up in accordance with Annex 2, point 3.

(4) The measurements of the parameters pursuant to paragraph 1 shall be carried out using the analysis and measurement methods specified in Annex 1 or using officially recognised monitoring methods. The state regulations for self-monitoring remain unaffected by the operator's obligations pursuant to paragraphs 1 to 3.

Section II: Requirements for waste water from specific areas of origin

For waste water from the production of basic organic chemicals in accordance with the following scope A, the requirements of the following Parts B to H apply in addition to the requirements of Section I.

A Scope

(1) This Section applies to waste water from the production of 1,2-dichloroethane (DCE), vinyl chloride (VCM), Dinitrotoluene (DNT), toluenediamine (TDA), toluene diisocyanate (TDI), methylenediphenyldiamine (MDA) and Methylene diphenyl diisocyanate (MDI).

(2) The requirements referred to in Part C, paragraph 1 are emission limit values within the meaning of Section 1, paragraph 2, sentence 1.

B General requirements

In the production of DCE by oxychlorination in a fluidized bed reactor, the discharge of catalyst particles in the wastewater by appropriate process engineering measures as far as possible. reduce.

C Wastewater requirements for the discharge point

(1) In waste water from DCE production plants, the following annual mean values in grams or micrograms per tonne of DCE produced by oxychlorination:

parameter	Requirement (annual average)
Copper1	0.20g/t
Copper2	0.040g/t
PCDD/PCDF	0.30 µg I-TEQ/t

The requirements for copper apply if the copper load in the wastewater mainly comes from the production of DCE by oxychlorination

1 with fluidized bed reactor

2 with fixed bed reactor.

For the DCE parameter, an annual average value of 0.05 grams per tonne of purified DCE must be maintained. Purified DCE is the sum of the amount of DCE produced and the amount from VCM production to purification amount of DCE recycled.

(2) The annual mean values referred to in paragraph 1 shall be determined from the measured values referred to in Part H paragraph 1. To calculate the production-specific load values, the annual mean concentrations for Copper, DCE and PCDD/PCDF. These annual average values are to be calculated with the annual wastewater volume of the discharge point and divide by the quantity of product produced in that year.
The annual mean value for the concentration of the parameter DCE shall be calculated from daily mean values obtained from the measured values of each sampling day.

(3) The parameters referred to in paragraph 1 shall be measured in accordance with Part H, paragraph 1. The results of the measurements shall be results of state surveillance. Section 6 paragraph 1 does not apply.

D Requirements for waste water before mixing

There are no requirements beyond those set out in Section I Part D.

E Wastewater requirements for the site of the incident

(1) In the wastewater from the production of DCE and from the production of VCM, after the wastewater stripper The following monthly average concentration values must be observed:

parameter	Concentration (monthly average)
DCE	0.40 mg/l
VCM	0.050 mg/l

The parameters shall be measured in accordance with Part H, paragraph 2.

The monthly mean values are calculated from the results of the measurements according to Part H, paragraph 2. The monthly mean value is to be calculated from the daily mean values which have been calculated from the measured values of each sampling day.

(2) In waste water from the production of DCE by oxychlorination in the fluidised bed process, the following annual average concentration values shall be observed at the outlet of the pre-treatment plant:

parameter	Concentration (annual mean) 0.60 mg/l
copper	0.80 ng I-
PCDD/PCDF	TEQ/l 30 mg/l
Filterable substances	

The parameters shall be measured in accordance with Part H, paragraph 2.

The annual mean values are calculated from the results of the measurements according to Part H, paragraph 2.

(3) During the production of DNT, a production-specific TOC load of 1.0 kg/tonne of DNT produced on a monthly average shall be maintained at the outlet of the waste water pre-treatment plant of the DNT plant.

The TOC parameter shall be measured in accordance with Part H, paragraph 2.

To calculate the production-specific TOC load, the monthly average value of the TOC concentration must first be determined. This monthly average value must be multiplied by the wastewater quantity determined for the same month and divided by the amount of DNT produced in the same month.

(3a) By way of derogation from paragraph 5 of Section 3, mixing is possible if it is demonstrated through a load balance that the joint pre-treatment of waste water before discharge into the water body results in at least an equivalent reduction in the load for copper, PCDD/PCDF and filterable substances. In these cases, the requirements of paragraph 3 are deemed to be met.

(4) During the production of TDI, a production-specific TOC load of 0,10 kg/tonne of TDI produced on an annual average shall be maintained at the outlet of the production plant.

The TOC parameter shall be measured in accordance with Part H, paragraph 2.

(5) During the production of MDI, a production-specific TOC load of 0,20 kg/tonne of MDI produced on an annual average shall be maintained at the outlet of the production plant.

The TOC parameter shall be measured in accordance with Part H, paragraph 2.

(6) To calculate the production-specific TOC load in accordance with paragraphs 5 and 6, the annual mean value of the TOC concentration shall first be determined. This annual mean value shall be multiplied by the quantity of waste water determined for the same year and divided by the quantity of product manufactured in the same year.

(7) The results of the measurements pursuant to paragraphs 1 to 5 shall be equivalent to the results of State monitoring. Section 6(1) shall not apply to the mean values pursuant to paragraphs 1 to 5.

F Requirements for existing discharges

If existing discharges of waste water from installations that were lawfully in operation before 1 March 2024 or whose construction was lawfully started on that date do not meet the requirements of Part E paragraph 1 sentence 1, paragraph 4 sentence 1, paragraph 5 sentence 1 or paragraph 6 sentence 1, the necessary adaptation measures must be taken within reasonable time limits to be determined by the competent authority.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators shall determine the following parameters in the waste water at the point of discharge into the water body as follows:
measure when waste water is discharged from plants for the specified productions:

parameter	production	Minimum frequency
copper	DCE (oxychlorination)	Monthly
aniline	MDA	Monthly
Chlorinated solvents	MDI, TDI	Monthly
DCE	DCE, VCM	Monthly
PCDD/PCDF	DCE (oxychlorination)	Quarterly

Unless otherwise stated, measurements are made in the flow-proportional 24-hour composite sample
For wastewater flows with proven low fluctuations in volume flow and in the
Concentration, the measurements can also be taken in the time-proportional
24-hour mixed sample. If the available data series show a clear stability of the measurement results
proven, the frequency of measurements can be reduced according to official regulations.

The DCE parameter is determined as a daily mean value from at least three samples on one day
at intervals of at least 30 minutes.

(2) Operators shall measure the following parameters in the waste water at the specified sampling location or
Measurement to be taken as follows:

parameter	production	Minimum frequency
TOC	DNT	Weekly1
TOC	MDI, TDI	Monthly
DCE	DCE, VCM	Daily
VCM	DCE, VCM	Daily
PCDD/PCDF	DCE	Quarterly
copper	DCE	Daily
Filterable substances	DCE	Daily

1 In the case of discontinuous discharge of waste water, the minimum frequency of monitoring is once per
Derivation.

The parameters DCE and VCM are determined as daily mean values from at least three samples
on one day at intervals of at least 30 minutes. For wastewater streams with proven low
Fluctuations in the volume flow and concentration can affect the measurements after official determination
also in time-proportionate 24-hour composite samples.

The minimum frequency can be reduced to monthly measurements for the parameters copper and filterable substances
provided that the elimination performance is adequately controlled by monitoring appropriate control parameters
becomes.

(3) Evidence of compliance with the requirements of this Section shall be an integral part of the annual report pursuant to
Section I, Part H, paragraph 3.

(4) The measurements of the parameters referred to in paragraphs 1 and 2 shall be carried out using the analytical and measuring methods specified in
Annex 1 or in accordance with officially recognized monitoring procedures. The state-legal
Provisions for self-monitoring remain unaffected by the operator's obligations under paragraphs 1 to 3.

Annex 23 Plants for the biological treatment of waste

(Source: BGBl. I 2004, 1137 - 1138;
For the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to

1. Waste water whose pollutant load originates mainly from plants for the biological treatment of municipal waste and other wastes to be treated as municipal waste, and
2. the rainwater that is specifically contaminated in the area of this facility.

(2) This Annex shall not apply to waste water from plants for the treatment of separately collected bio-waste, from compost production plants, from indirect cooling systems and from process water treatment.

B **General requirements**

(1) The volume flow and pollutant load of the waste water from plants pursuant to Part A, paragraph 1 shall be kept as low as possible as possible through the following measures:

1. Extensive recycling and multiple use of process water,
2. Avoidance of rainwater entering waste storage and waste treatment areas by Enclosure, roofing or covering.

(2) Waste water may only be discharged into water bodies if process water from the process and Exhaust air treatment of mechanical-aerobic-biological treatment plants not fully utilized within the process In this case, the requirements of Parts C and D apply.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
Chemical oxygen demand (COD)	mg/l	200
Biochemical oxygen demand in 5 days (BOD5)	mg/l	20
Nitrogen, total, as sum of ammonium, Nitrite and nitrate nitrogen (Ntot)	mg/	70
Phosphorus, total	l mg/	3
Hydrocarbons, total	l mg/l	10
Toxicity to fish eggs (GEi)		2

The requirement for total hydrocarbons refers to the sample.

(2) A value established for total nitrogen shall also be deemed to have been complied with if it is defined as "total bound nitrogen". Nitrogen (TNb)" is determined and complied with.

D **Requirements for waste water before mixing**

(1) Before being mixed with other waste water, waste water shall meet the following requirements:

	Qualified sample or 2-hour mixed sample mg/l
Adsorbable organically bound halogens (AOX)	0.5
mercury	0.05
cadmium	0.1
Chrome, total	0.5
Chromium VI	0.1
nickel	1

	Qualified sample or 2-hour composite sample mg/l
Lead	0.5
copper	0.5
zinc	2
arsenic	0.1
Cyanide, easily released	0.2
Sulfide, easily released	1

For AOX, chromium VI, readily releasable cyanide and readily releasable sulphide, the values for the sample apply.

(2) Waste water may be mixed with other waste water, with the exception of waste water resulting from the surface disposal of waste, for the purpose of joint biological treatment only if it is expected that at least one of the following conditions will be met:

1. In terms of toxicity to fish eggs, luminescent bacteria and daphnia of a representative
   After carrying out an elimination test using a biological laboratory flow-through treatment plant (e.g. plant in accordance with DIN 38412-L 26), the following requirements are not exceeded for the wastewater sample:

Toxicity to fish eggs	GE = 2,
Toxicity to Daphnia	GD = 4 and
Toxicity to luminescent bacteria	GL = 4.

   Measures such as nitrification in the biological laboratory treatment plant or maintaining a constant pH value must be taken to ensure that the GEi value is not exceeded due to ammonia (NH3). The wastewater can be diluted as desired when starting up the biological laboratory treatment plant.
   If there is a nutrient deficiency, nutrients can be added. No dilution water may be added during the test phase.
2. A DOC elimination rate of 75 percent is achieved in accordance with the procedure set out in Annex 1, point 408 reached.
3. The wastewater already has a COD concentration of less than 400 mg/l before joint biological treatment with other wastewater.

In the event of significant changes, but at least every two years, proof of compliance with these requirements must be provided.

Appendix 24 Iron, steel and malleable foundry

(Source: BGBl. I 2004, 1138 - 1140)

A **Scope**

(1) This Annex shall apply to waste water containing a pollutant load originating mainly from any of the following sectors of the manufacture of iron, steel and malleable cast iron:

1. Melting plant,
2. Pouring, cooling and emptying area,
3. Cleaning,
4. Mould production and sand preparation,
5. Core making and
6. System cleaning. (2) This Annex does not apply to waste water from indirect cooling systems and from process water treatment.

B **General requirements**

(1) The waste water shall not contain any organically bound halogens resulting from solvents and cleaning agents
Proof that the requirement is met can be provided by checking all
solvents and cleaning agents used are listed in an operating log and manufacturer information
that these solvents and cleaning agents do not contain organically bound halogens.
(2) Waste water from sand regeneration shall not be discharged.
(3) Waste water from the core making plant may only be discharged if it meets at least the requirements of
Annex 1 Part C for size class 4.

C **Wastewater requirements for the discharge point**

(1) The waste water from one of the areas referred to in Part A, paragraph 1 shall be subject to the following conditions for discharge into the
The following requirements apply to water bodies:

		Qualified sample or 2-hour mixed sample
Chemical oxygen demand (COD)	g/t	100
iron	g/t	5
Hydrocarbons, total	g/t	5
Phenol index after distillation and Dye extraction	g/t	2.5
Cyanide, easily released	g/t	0.5
Toxicity to fish eggs (GEi)		2

(2) The production-specific load values (g/t) refer to those of the water law approval
underlying production capacity (produced good castings). The pollutant load is calculated from the
Concentration values of the qualified sample or the 2-hour composite sample and from the
Sampling corresponding wastewater volume flow is determined.
(3) Toxicity to fish eggs (GEi) refers to a production-specific

Wastewater volume flow of 0.5 m3 per ton of good cast iron produced. Corresponds to the
The numerical value calculated for the production-specific wastewater volume flow does not correspond to a dilution factor of the
If the dilution sequence specified in the determination procedure is not met, the next higher dilution factor applies.

D **Requirements for waste water before mixing**

(1) Waste water from one of the areas referred to in Part A shall be treated with the following substances before being mixed with waste water from
other areas of origin, the following requirements apply:

	Qualified sample or 2-hour mixed sample g/t
arsenic	0.05
cadmium	0.05
Lead	0.25
Chrome, total	0.25
copper	0.25
nickel	0.25
zinc	1
Adsorbable organically bound halogens (AOX)	0.5

(2) The production-specific load values (g/t) refer to the load values underlying the water law authorisation.
production capacity (produced good castings). The pollutant load is calculated from the concentration values
the qualified sample or the 2-hour composite sample, for AOX from the sample, and from the
Sampling corresponding wastewater volume flow is determined.

Appendix 25 Leather production, fur finishing, leather pulp production

(Source: BGBl. I 2004, 1140 - 1141; for the individual changes see footnote)

A **Scope** (1) This Annex shall apply

to waste water containing pollutants originating mainly from leather manufacture, fur processing, leather pulp manufacture and hide and skin preservation.

(2) This Annex shall not apply to waste water from indirect cooling systems or to waste water discharges from

less than 100 m3 1. per year, unless it is one of the following wastewater streams:

Waste water from liming using sulphides,

2. Waste water from chrome tanning,

3. Waste water from dyeing with copper- and chromium-containing dyes,

4. Waste water containing volatile organic halogen compounds from the use of solvents and contains cleaning agents.

(3) The requirements set out in Part C, paragraphs 1, 3, 5 and 6, and in Parts D and E are emission limit values within the meaning of Section 1, paragraph 2, sentence 1.

B **General requirements**

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. Reduction of water consumption in all wet process steps by:

a) optimisation of water management, b) use of batch

washing processes and c) use of short fleets;

2. Reduction of pollutant loads in raw waste water from the process steps of hide and skin preservation, in particular by:

(a) use of hides and skins free from the following ectoparasiticides for which or for whose components environmental quality standards are laid down in accordance with Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013 amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy (OJ L 226, 24.8.2013, p. 1):

(aa) DDT,

bb) Cyclodiene pesticides Aldrin, Dieldrin, Endrin, Isodrin,

cc) Chlorpyrifos,

(dd) Cypermethrin and hexachlorocyclohexane, including lindane.

Proof can be provided by specifying in the supply contract that the hides and skins must not contain any of the ectoparasiticides mentioned.

(b) Use of fresh hides and skins which have been subjected to were kept cool,

(c) Use of preserved hides and skins which have been preserved exclusively with biocides which have been approved in accordance with the provisions of Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products (OJ L 167, 27.6.2012, p. 1) for product-type 9 in Annex V to the Regulation, or which are being examined for this use in the existing active substances programme in accordance with Commission Delegated Regulation (EU) No 1062/2014 of 4 August 2014 on the work programme for the systematic review of all existing active substances contained in biocidal products pursuant to Regulation (EU) No 528/2012 of the European Parliament and of the Council (OJ L 294, 10.10.2014, p. 1).

Proof can be provided by specifying in the supply contract that the hides and skins may only contain the tested biocides or the biocides approved for product type 9.

d) use of undenatured salt;

3. Reduction of pollutant loads in raw wastewater from the water workshop process steps, in particular by:

(a) use of clean hides and skins, (b) retention of salt from hide salting by mechanical means, (c) use of appropriate treatment methods such as dry disposal of the salt or Reuse,

(d) hair-preserving liming, if the use of the hair is possible, (e) reducing the use of inorganic sulphides by using organic Sulphur compounds or enzymes in the dehairing of cattle hides,

(f) reducing the use of ammonium in descaling;

4. Reduction of pollutant loads in raw waste water from tanning, in particular by:

(a) maximising the depletion of chrome tanning agents, (b) recovering chromium III where reuse in the tannery is possible, (c) optimising vegetable tanning methods, e.g. through the use of barrel tanning or pre-tanning agents;

5. Reduction of pollutant loads in raw waste water from retanning and wet finishing by optimising retanning, dyeing and fatliquoring, e.g. through the use of amphoteric polymers;

6. Avoidance of the use of complexing agents which do not achieve a DOC degradation rate of at least 80 percent after 28 days in accordance with the procedure set out in Annex 1, number 406. If avoidance is not possible, the quantities used must be minimized and emissions reduced in accordance with technical possibilities;

7. Avoid the use of per- or polyfluorinated chemicals. If this is not possible, the quantities used must be minimized and emissions reduced as far as technically possible.

(2) The contamination of waste water with adsorbable organically bound halogens (AOX) shall be kept as low as possible by selecting and using appropriate cleaning and disinfection agents or other operating and auxiliary materials.

(3) Waste water shall not contain:

a) volatile organic halogen compounds resulting from the use of solvents and cleaning agents originate,

b) Alkylphenol ethoxylates (APEO) from detergents and cleaning agents used in the process.

For fur degreasing, the requirement of Part E, paragraph 1 applies with regard to volatile organic halogen compounds.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
Chemical oxygen demand (COD)	mg/l	250
Biochemical oxygen demand in 5 days (BOD5)	mg/l	25
Ammonium nitrogen (NH4-N)	mg/l	10
Phosphorus, total	mg/l	2.0
Adsorbable organically bound halogens (AOX)	mg/l	0.50

	Qualified sample or 2-hour mixed sample
Toxicity to fish eggs (GEi)	2

(2) The requirement for ammonium nitrogen shall apply to a waste water temperature of 12 °C or higher in the effluent from the biological reactor of the waste water treatment plant. Instead of 12 °C, the time limit from 1 May to 31 October may also be applied.

(3) For waste water where it is assumed that its chemical oxygen demand (COD) content in the influent to the biological stage is more than 2 500 mg/l on average per month, by way of derogation from paragraph 1, the COD value to be used in the 2-hour composite sample or the qualified random sample shall be at least 90 per cent lower than the COD, but not more than 500 mg/l.

(4) The reduction in COD refers to the ratio of the pollutant load in the influent of the biological stage to that in the effluent of the central wastewater treatment plant in 24 hours. The pollutant load in the influent is determined by the biological load on which the water law permit is based. The extent of the reduction is to be assessed on the basis of the design and functioning of the wastewater treatment plant.

(5) For the discharge of waste water from fur processing, a value for toxicity to fish eggs of GEi = 4 applies.

(6) In waste water, the value for filterable substances, determined in accordance with Part H paragraph 2 number 1 letter d and paragraph 3, must not exceed a monthly average of 35 mg/l at the point of discharge into the water body. The results of the discharger's measurements are treated as equivalent to the results of state monitoring. Section 6 paragraph 1 of the Waste Water Ordinance does not apply. Sentences 1 and 2 apply to installations for the tanning, including retanning, of animal hides or skins with a processing capacity of twelve tonnes of finished products or more per day.

D **Requirements for waste water before mixing** The following requirements apply to waste water before it is mixed with other waste water: 1. For waste water from steeping, liming and deliming, including rinsing, a value of 2.0 mg/l sulphide, easily released, must be observed in the qualified random sample or the 2-hour mixed sample.

2. For waste water from tanning, including wilting, and from wet finishing (neutralisation, retanning, dyeing, fatliquoring), each including rinsing, or from leather pulp production, a value of 1.0 mg/l chromium, total, shall be observed in the qualified random sample or the 2-hour composite sample.

E **Wastewater requirements for the site of the incident**

(1) The waste water from fur degreasing may only contain those halogenated solvents that may be used in accordance with the Second Ordinance for the Implementation of the Federal Immission Control Act in the currently valid version. This requirement is also deemed to have been met if proof is provided that only permitted halogenated solvents are used. In addition, the value of 0.10 mg/l for VOCs (sum of trichloroethene, tetrachloroethene, 1.1.1-trichloroethane, dichloromethane - calculated as chlorine) must be observed in the sample.

(2) Waste water from the fur dyeing process, including rinsing, must not exceed a value of 0.050 mg/l chromium VI in the sample. Section 6 paragraph 1 shall not apply.

F **Requirements for existing discharges** For existing discharges of waste water, the requirements set out in Part C, paragraph 6 must be met by 16 February 2017 at the latest.

G **Waste disposal requirements** There are no waste disposal requirements.

H **Operator obligations** (1) The requirements of Part H shall apply to operators of installations for the tanning, including retanning, of hides or skins with a processing capacity of 12 tonnes or more of finished products per day.

(2) The following measurements shall be carried out in the waste water:

1. At the point of discharge, the following parameters shall be measured at least weekly in the 2-hour composite sample or in the qualified sample:
   a) chemical oxygen demand (COD),
   b) biochemical oxygen demand in 5 days (BOD5),
   c) Ammonium nitrogen (NH4-N) and
   d) filterable substances.
2. Before mixing, the following parameters shall be measured at least weekly in the 2-hour mixed sample or in the qualified sample:
   a) Sulphide, easily released and
   b) Chromium, total.

(3) The monthly mean value referred to in Part C(6) shall be calculated from at least four measurement results determined in accordance with paragraph 2(1)(d).

(4) An annual report shall be prepared in accordance with Annex 2, point 3. The annual report shall indicate the monthly waste water quantities from individual processes for which requirements under Parts C and D of this Annex apply.

(5) The parameters referred to in paragraph 2 shall be measured in accordance with Annex 1 or in accordance with officially recognised monitoring procedures. The provisions of state law governing self-monitoring shall remain unaffected by the operator's obligations under paragraphs 1 to 4.

Appendix 26 Stones and earth

(Source: BGBl. I 2004, 1141 - 1142)

A **Scope**

(1) This Annex shall apply to waste water, including production-specific contaminated rainwater, the pollutant load of which originates mainly from the following production sectors:

1. Extraction and processing of natural stone, quartz, sand and gravel as well as production of bleaching earth, lime and dolomite,
2. Production of sand-lime brick,
3. Manufacture of concrete and concrete products and
4. Production of fibre cement.

(2) This Annex shall not apply to

1. Waste water discharged into a surface water body resulting from the extraction of mineral resources provided that the water is used only for washing the products extracted there and does not contain any substances other than those extracted and provided that it is guaranteed that these substances do not enter other waters,
2. Sanitary wastewater,
3. Waste water from indirect cooling systems and from process water treatment and 4. Waste water from flue gas scrubbing.

B **General requirements**

There are no requirements beyond those set out in Section 3.

C **Requirements for waste water at the point of discharge** (1) The following requirements apply to waste water from one of the areas referred to in Part A, paragraph 1 at the point of discharge into the water body:

	Area 1	Area 2
	Qualified sample or 2-hour composite sample mg/l	
Filterable substances	100	100
Chemical oxygen demand (COD)	-	150

(2) During the manufacture of concrete and concrete products, production waste water shall not be discharged.
(3) During the manufacture of fibre cement, waste water shall not be discharged.
(4) The requirement under paragraph 3 shall not apply if the production unit is routinely cleaned or maintained
In this case, the following requirements apply:

	Qualified sample or 2-hour mixed sample mg/l
Chemical oxygen demand (COD)	80
Filterable substances	30

D **Requirements for waste water before mixing**

The waste water from the cleaning and maintenance of the plants for the production of fibre cement is
Mixing with other waste water requires the following requirements:

	Qualified sample or 2-hour mixed sample mg/l	sample mg/l
AOX	-	0.1
Chrome, total	0.4	-
Chromium VI	-	0.1

Annex 27 Treatment of waste by chemical and physical processes (CP plants) and waste oil processing

(Source: BGBl. I 2004, 1142 - 1144;
For the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to waste water whose pollutant load originates mainly from installations of the following types:
Areas of origin:

1. Used oil pretreatment and reprocessing,
2. Treatment of waste,
3. Regeneration of loaded ion exchangers and adsorption materials as well as
4. Internal cleaning of containers and receptacles after storage and transport.

It also applies to operationally contaminated rainwater that accrues in the areas mentioned.
(2) This Annex shall not apply to waste water from indirect cooling systems and from
Process water treatment, from the biological treatment of waste, from the separate treatment of
liquid waste from photographic processes of silver halide photography and from waste incineration
It also does not apply to waste water from installations pursuant to paragraph 1 numbers 2, 3 and 4 which are used in conjunction with
Productions from areas of origin for which the requirements are laid down in another Annex to this
Regulation and whose quality corresponds to that of the waste water from these areas of origin
corresponds.

B **General requirements**

The pollutant load must be kept as low as possible by reducing the amount of waste water from the Container cleaning after storage and transport through multiple use and extensive recycling of the cleaning water as well as retention and recovery of products is possible.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
Chemical oxygen demand (COD)	mg/l	200
Nitrite nitrogen (NO2-N)	mg/l	2
Nitrogen, total, as the sum of ammonium, nitrite and Nitrate nitrogen (Ntot)	mg/l	30
aluminum	mg/l	3
iron	mg/l	3
Fluoride, total	mg/l	30
Phosphorus, total	mg/l	2
Phenol index after distillation and dye extraction	mg/l	0.15
Toxicity to fish eggs (GEi)		2
Toxicity to luminescent bacteria (GL)		4
Toxicity to Daphnia (GD)		4

(2) A value established for total nitrogen shall also be deemed to have been complied with if it is defined as "total bound nitrogen". Nitrogen (TNb)" is determined and complied with.

D **Requirements for waste water before mixing**

(1) Before being mixed with other waste water, waste water shall meet the following requirements:

	sample mg/l	Qualified sample or 2-hour mixed sample mg/l
Adsorbable organically bound halogens (AOX)	1	-
arsenic	-	0.1
Lead	-	0.5
cadmium	-	0.2
Chrome, total	-	0.5
Chromium VI	0.1	-
copper	-	0.5
nickel	-	1
mercury	-	0.05
zinc	-	2
Cyanide, easily released	0.1	-
Sulfide, easily released	1	-
Chlorine, free	0.5	-
Benzene and derivatives	-	1

	Sample mg/l	Qualified sample or 2-hour composite sample mg/l
Hydrocarbons, total	20	-

(2) Waste water may only be mixed with other waste water for the purpose of joint biological treatment if it is expected that at least one of the following two conditions will be met:

1. In terms of toxicity to fish eggs, luminescent bacteria and daphnia of a representative
   After carrying out an elimination test using a biological laboratory flow-through treatment plant (e.g. plant in accordance with DIN 38412-L 26), the following requirements are not exceeded for the wastewater sample:

Toxicity to Fish eggs	GE = 2,
Toxicity to Daphnia	GD = 4 and
Toxicity to Luminous bacteria	GL = 4.

   Measures such as nitrification in the biological laboratory treatment plant or maintaining a constant pH value must be taken to ensure that the GEi value is not exceeded due to ammonia (NH3). The wastewater can be diluted as desired when starting up the biological laboratory treatment plant.
   If there is a nutrient deficiency, nutrients can be added. No dilution water may be added during the test phase.

2. A DOC elimination rate of 75 percent is achieved in accordance with the procedure set out in Annex 1, point 408 reached.

In the event of significant changes, otherwise at least every 2 years, proof of compliance with the requirements must be provided.

E **Requirements for waste water at the site of generation Waste** water generated

in CP plants must not be discharged into water bodies if it originates from the joint treatment of liquid waste from photographic processes in silver halide photography and other sources and contains organic complexing agents that do not achieve a DOC degradation rate of 80 percent after 28 days in accordance with the procedure in Annex 1, number 406. The requirement in sentence 1 is deemed to have been met if it is proven that the producers and suppliers of the waste supplied have provided information that none of the complexing agents named in sentence 1 were used from input or auxiliary materials or that it is ensured that the aqueous waste from photographic processes is incinerated.

F **Requirements for existing discharges**

For existing discharges of waste water from installations which were legally in operation before 1 August 2002 or whose construction was legally started on that date, the COD requirements shall not apply to waste water from the treatment of bilge, slop and ballast water on bilge oil receiving and treatment vessels.

Annex 28 Manufacture of paper or paperboard

(Source: BGBl. I 2018, 1340 - 1344)

A Scope

(1) This Annex shall apply to waste water containing pollutants originating mainly from the manufacture of paper or paperboard.

(2) This Annex shall not apply to waste water from

1. indirect cooling systems,

2. process water treatment, 3. fibre production,

in which chemicals are used to extract non-cellulose components from wood or annual plants, and 4. the further processing of paper and cardboard.

(3) The requirements set out in Part C paragraph 8 sentence 1 and Part D paragraph 4 sentence 1 are emission limit values within the meaning of Section 1 paragraph 2 sentence 1.

B General requirements

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. Collection and treatment of contaminated rainwater from the waste paper storage area in the waste water treatment plant before discharge into a body of water, including stabilisation of the waste paper storage area with a solid surface covering;

2. Avoid the use of organic complexing agents that cause DOC degradation after 28 days of 80 percent in accordance with the procedure set out in Annex 1, number 406; if this is not possible, the quantities used must be minimised and the pollutant load reduced in accordance with what is technically possible;

3. Avoid the use of wet strength agents that contain adsorbable organically bound halogens or contribute to their formation; if this is not possible, the quantities used must be minimized and the pollutant load must be reduced in accordance with technical possibilities;
4. Avoid the use of chemical additives that contain per- or polyfluorinated chemicals

or contribute to their formation; if this is not possible, the quantities used must be minimised and the pollutant load reduced in accordance with technical possibilities;

5. in the oxidative bleaching of wood pulp

(a) use of high consistency bleach, (b) use of calcium

hydroxide or magnesium hydroxide instead of sodium hydroxide, or (c) use of other suitable methods to reduce the

pollutant load;

6. Reducing water consumption, for example by optimising water management by measuring the main water consumption points, separating and narrowing the water circuits, countercurrent flow or reusing used process water; 7. reducing the use of nutrient-containing additives; 8. minimising fibre losses; 9. pre-treatment

or recycling of the coating colour waste water generated during coating.

(2) Waste water shall not contain:

1. organic halogen compounds, benzene, toluene and xylenes resulting from the use of solvents and cleaning products;

2. Alkylphenol ethoxylates (APEO).

(3) An operating log shall be kept in accordance with Annex 2, point 2. Compliance with the requirements of paragraph 1, points 2 to 4 and paragraph 2 shall be demonstrated in the operating log by listing all input materials and by indicating that, according to the manufacturer, they do not contain any of the substances or groups of substances referred to in paragraph 1, points 2 to 4 or paragraph 2.

(4) When constructing waste water treatment plants, different alternative treatment processes shall be compared and weighed against each other. Preference shall be given to those treatment processes which, while achieving the same level of treatment success, also achieve the best results in terms of the following aspects:

1. Energy efficiency; 2.

Minimization of chemical use, exhaust air emissions and the amount of sludge generated;

3. Usability of the sludge.

The execution of the comparisons and considerations as well as the reasons for the decision must be documented.

(5) Waste water treatment plants shall be constructed and operated in such a way that odour emissions are avoided for example, by optimal mixing of the wastewater and continuous drainage of the mud.

C Wastewater requirements for the discharge point

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
	mg/l	kg/t
Filterable substances	50	–
Biochemical oxygen demand in 5 days (BSB5)	25	–
Total bound nitrogen (TNb)	20	–
Nitrogen, total, as sum of ammonium, Nitrite and nitrate nitrogen (Ntot)	10	–
Phosphorus, total	2.0	–
Organically bound carbon, total (TOC)	–	0.90
Chemical oxygen demand (COD)	–	3.0

(2) The requirement for filterable substances under paragraph 1 shall not apply if the waste water is treated biologically becomes.

(3) In the water law permit, a value of
up to 50 mg/l if the production-specific BOD5 load does not exceed 1 kg/t
exceeds.

(4) By way of derogation from paragraph 1, the water permit may contain a value for TNb of up to 25 mg/l and for Waste water from the manufacture of pressboard may also be subject to a value for TNb of more than 25 mg/l if the Dischargers must explain and document the need for an increased value.

(5) If the waste water originates from the manufacture of paper in which more than 50 percent of the pulp is deinked or bleached, a higher load for the TOC may be specified in the water law permit, in derogation from paragraph 1. of up to 1.8 kg/t and for the COD of up to 5 kg/t.

(6) If the waste water originates from the manufacture of highly refined paper or specialty paper, deviating from paragraph 1 in the water law permit, a higher load for the TOC of up to 2.0 kg/t and approved for COD of up to 5 kg/t.

(7) The production-specific freight values (kg/t) referred to in paragraphs 1, 3, 5 and 6 shall be calculated from the Ratio of pollutant load to machine capacity in tonnes per day, which is the water law approval The pollutant load is calculated by multiplying the concentration value of the qualified sample or the 2-hour composite sample with the volume of the wastewater stream that was sampled corresponds.

(8) Without prejudice to the requirements of paragraphs 1 to 7, the following substances may not be present in waste water from plants for the production of of paper, cardboard or paperboard with a production capacity of 20 tonnes or more per day, the following Annual average values in kilograms per tonne of product produced are not exceeded:

	Production of wood pulp papers	Production of paper mainly from waste paper without deinking	Production of paper mainly from waste paper with deinking	Non-integrated Paper and Excluding cardboard factories Specialty paper mills	Non-integrated Specialty paper mills
	kg/t				
Chemical Oxygen demand (COD)	4.01ÿÿ	1.4	3.02ÿÿ	1.5	3.03ÿÿ
Filterable Fabrics	0.45	0.20	0.304ÿ	0.35	1.0
Total bound Nitrogen (TNb)	0.105ÿ	0.090	0.106ÿ	0.106	0.40
Phosphorus, total	0.010	0.00507	0.0108	0.012	0.040

1 When producing paper in which more than 70 percent of the fibre is bleached, a COD value of 6 kg/t may not be exceeded.

2 During the production of hygiene paper, a COD value of 4 kg/t must not be exceeded.

3 In the production of highly refined paper and in paper mills with more than one grade change per day on an annual average, a COD value of 5 kg/t may not be exceeded.

4 During the production of hygiene paper, a value of 0.4 kg/t for filterable substances must not be exceeded.

5 If the use of organic complexing agents is unavoidable, a higher value for the TNb can be specified in the water permit if the discharger explains and documents the need for an increased value.

6 In the production of hygiene paper, a TNb value of 0.15 kg/t must not be exceeded.

7 For paper mills with a specific waste water quantity of 5 m³/t product or more, a value for phosphorus of 0.0080 kg/t must not be exceeded.

8 In the production of hygiene paper, a phosphorus value of 0.015 kg/t must not be exceeded.

(9) In the case of paper mills designed to manufacture several products, the relevant requirement for each parameter shall be determined by means of a mixture calculation, taking into account the quantity of the respective waste water partial stream, and shall be specified in the water permit.

(10) The parameters pursuant to paragraph 8 shall be measured in accordance with Part H paragraph 1 number 1 letters a and b. The production-specific load value (kg/t) for the parameters pursuant to paragraph 8 is calculated from the ratio of the pollutant load to the production attributable to the sampling period. The pollutant load is calculated by multiplying the concentration value of the 24-hour mixed sample by the volume of the wastewater flow in 24 hours that corresponds to the sampling. The results of the measurements pursuant to sentence 1 are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply.

D Requirements for waste water before mixing

(1) For the waste water before mixing with other waste water, a value for adsorbable organically bound halogens (AOX) of 10 g/t in the qualified random sample or in the 2-hour composite sample shall be observed, subject to paragraph 2.

(2) For AOX, a higher loading may be permitted in the following areas, subject to the requirements of Part B, paragraph 1, point 3, up to the following values:

	Wet strength papers (less than 25 percent relative wet breaking resistance)	Wet-strength papers (at least 25 percent relative wet fracture resistance)	Decorative papers
	Qualified sample or 2-hour composite sample g/t		
Adsorbable organically bound halogens (AOX)	50	80	80

(3) The production-specific load values (g/t) referred to in paragraphs 1 and 2 shall be calculated from the ratio of the pollutant load to the machine capacity in tonnes per day on which the water law authorisation is based.
The pollutant load is calculated by multiplying the concentration value of the qualified sample or the 2-hour composite sample by the volume of the wastewater stream corresponding to the sampling.

(4) Without prejudice to the requirements of paragraphs 1 and 2, an annual average value of 50 g/t of product produced for the AOX parameter in waste water from the manufacture of wet-strength paper and decorative paper in plants with a production capacity of 20 tonnes or more per day must not be exceeded. The AOX parameter must be measured in accordance with Part H paragraph 1 number 2 letter a. The production-specific load value (g/t) is calculated from the ratio of the pollutant load to the production attributable to the period of sampling. The pollutant load is calculated by multiplying the concentration value of the 24-hour mixed sample by the volume of the waste water flow in 24 hours that corresponds to the sampling. The results of the measurements according to sentence 2 are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply.

E Wastewater requirements for the site of the incident

There are no additional requirements for wastewater at the site of the incident.

F Requirements for existing discharges

No different requirements apply to existing discharges.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators of installations for the manufacture of paper, cardboard or paperboard with a production capacity of 20 tonnes or more per day must carry out at least the following measurements in the wastewater:

1. At the point of discharge into the water body, the following parameters are to be measured in the 24-hour composite sample as follows: to eat:

   (a) daily measurement of COD and filterable solids;

   (b) weekly measurement of BOD5, TNb and total phosphorus;

   (c) monthly measurement of ethylenediaminetetraacetic acid (EDTA) and diethylenetriaminepentaacetic acid (DTPA) if these substances are used in the process.

2. Before mixing with other wastewater, the following parameters shall be measured in the 24-hour composite sample as follows:

   a) in the production of wet-strength papers and decorative papers, measurement of AOX once every two months; if the operator proves that no AOX is generated in the process and no AOX-containing Additives or raw materials are used, can be added to the product in accordance with official regulations Measurement of AOX can be omitted;

(b) annual measurement of lead, cadmium, copper, nickel, mercury and zinc.

(2) The annual mean values for the parameters referred to in Part C, paragraph 8, and in Part D, paragraph 4 shall be the daily production-weighted mean values of the production-specific freight values determined from the results of the measurements referred to in paragraph 1.

(3) Operators of plants for the manufacture of paper, cardboard or paperboard with a production capacity of 20 tonnes or more per day shall prepare an annual report in accordance with Annex 2, point 3. At least every three years, the report shall also demonstrate that

1. it has been re-examined whether it is appropriate to refrain from using the measures listed in Part B, paragraph 1, numbers 2 to 4 mentioned substances is possible,
2. the use of these substances is still necessary,
3. existing alternatives have been evaluated and
4. possible measures to minimize the quantities used have been implemented.

The residual pollutant load from the use of these substances must be estimated.

(4) The measurements of the parameters pursuant to paragraph 1 shall be carried out using the analysis and measurement methods specified in Annex 1 or using officially recognised monitoring methods. The state regulations for self-monitoring remain unaffected by the operator's obligations pursuant to paragraphs 1 to 3.

Annex 29 Iron and steel production

(Source: BGBl. I 2004, 1145 - 1147; for the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to waste water the pollutant load of which originates essentially from one or more of the following production sectors:

1. Sintering plants,
2. Pig iron production in the blast furnace and slag granulation,
3. Pig iron desulphurisation,
4. Crude steel production,
5. Secondary metallurgy,
6. Continuous casting, hot forming,
7. Hot production of pipes,
8. Cold production of strip,
9. Cold production of pipes, profiles, bright steel and wire, 10. continuous

surface finishing of semi-finished and semi-finished products made of steel.

(2) This Annex shall not apply to waste water from coking plants, to waste water from cooling systems for indirect cooling and from process water treatment.

(3) The requirements set out in Part C paragraphs 1 and 2, Part D paragraphs 1, 4 and 5 and Part F numbers 1 and 2 are emission limit values within the meaning of Section 1 paragraph 2 sentence 1.

B **General requirements** (1) Waste water

from sintering plants, from pig iron desulphurisation and from crude steel production shall not be discharged into any body of water.

(2) The waste water shall not contain any organically bound halogens originating from solvents and cleaning agents.

(3) The pollutant load shall be kept as low as possible by the following measures:

1. Extensive recycling of process water from the gas scrubbers and other process water,
2. Reuse of process water and cooling water,
3. Slag granulation using process water or cooling water,
4. Use of polluted rainwater collected from paved areas,
5. Multiple use of rinse water using suitable processes such as cascade rinsing or Circulation flushing technology using ion exchangers,
6. Recovery or recycling of suitable bath ingredients from rinsing baths into the Process baths,
7. Reduction of the discharge of ingredients from treatment baths for surface finishing by means of suitable procedures such as splash protection and stripping,
8. Bath maintenance to extend the service life using suitable processes such as membrane filtration, Ion exchanger or electrolysis.

C **Wastewater requirements for the discharge point**

(1) The waste water from production areas 2 and 5 to 10 listed in Part A, paragraph 1 shall be subject to the following
The following requirements apply to the point of discharge into the water body:

Manufacturing areas	2	5	6	7	8	9	10
Qualified sample or 2-hour composite sample mg/l							
Chemical oxygen demand (COD)	100	50	40	200	200	300	300
Filterable substances	30	–	20	–	–	–	–
iron	5.0	5.0	5.0	5.0	3.0	5.0	5.0
Hydrocarbons, total	–	–	5.0	10	10	10	5.0
Nitrite nitrogen (NO2-N)	–	–	–	–	5.0	5.0	–
Phosphorus, total	–	–	–	–	2.0	2.0	2.0
Fluoride, dissolved	–	–	–	–	30	30	–
Toxicity to fish eggs (GEi)	6	2	2	2	6	6	6

(2) In pig iron production with coal injection and in foundry pig iron production with
If secondary raw materials containing iron are predominantly used, the COD value is 200 mg/l.
(3) For manufacturing area 10, the requirement for total phosphorus only applies to surface finishing with integrated phosphating.
(4) The requirements for total hydrocarbons refer to the sample.

D **Requirements for waste water before mixing**

(1) The waste water from production areas 2 and 5 to 10 listed in Part A, paragraph 1 shall be subject to
Mixing with other waste water requires the following requirements:

Manufacturing areas	2	5	6	7	8	9	10
Qualified sample or 2-hour composite sample mg/l							
Lead	0.5	0.5	–	–	–	–	0.5
Chrome, total	–	0.5	0.5	0.5	0.5	0.5	0.5
Chromium VI	–	–	–	–	0.1	0.1	0.1
copper	–	–	–	–	–	–	0.5

Manufacturing areas	2	5	6	7	8	9	10
Qualified sample or 2-hour composite sample mg/l							
nickel	–	0.5	0.5	0.5	0.5	0.5	0.5
zinc	2.0	2.0	2.0	2.0	2.0	2.0	2.0
tin	–	–	–	–	–	–	2.0
Cyanide, easily released	0.4	–	–	–	–	–	0.2
Adsorbable organically bound Halogens (AOX)	–	–	–	–	–	–	1.0

(2) The requirements for AOX, chromium VI and cyanide, easily released, refer to the sample.
(3) In the water law permit, for production area 2, the parameter cyanide, slightly released, a higher concentration of up to 0.8 mg/l may be permitted if the production-specific Cyanide load does not exceed 0.12 g/t.
(4) For hot-rolled wide strip plants, the following applies, in derogation from the requirements for production area 6 for chromium, total, and nickel each have a value of 0.2 mg/l.
(5) For the production of foundry pig iron using predominantly ferrous secondary raw materials, Deviating from the requirements for production area 2 for zinc, a value of 4.0 mg/l.

E **Wastewater requirements for the site of the incident**

(1) The waste water shall not contain organic complexing agents which result in a DOC degradation rate of 80 percent in accordance with the procedure set out in Annex 1, number 406.
(2) The requirement referred to in Part B(2) shall be met for the place of the seizure.
(3) Proof that the requirements of paragraphs 1 and 2 are met may be provided by that the operating and auxiliary materials used are listed in an operating log and According to the manufacturer's information, the product does not contain any of the substances or groups of substances referred to in paragraphs 1 and 2.

F **Requirements for existing discharges**

(1) For existing waste water discharges, the requirements set out in Part A, paragraph 3 shall be met by by 8 March 2016. By way of derogation from this, the requirements of Part C paragraph 1 shall apply to the Parameters Chemical Oxygen Demand (COD), total phosphorus and toxicity to fish eggs (GEi) from by 6 September 2014.
(2) For existing discharges of waste water from installations lawfully in operation before 1 August 2002 or whose construction had been lawfully started at that time, may not, in derogation from Part B Paragraph 1, waste water from gas cleaning is generated during crude steel production. In this case, the following Requirements:

1. Requirements for wastewater at the point of discharge into the water body

Qualified sample or 2-hour composite sample		
Chemical oxygen demand (COD)	mg/l	50
iron	mg/l	5.0
Toxicity to fish eggs (GEi)		2

2. Requirements for waste water before mixing

Qualified sample or 2-hour composite sample mg/l	
Lead	0.5
Chrome, total	0.5
nickel	0.5
zinc	2.0

Annex 31 Water treatment, cooling systems, steam generation

(Source: BGBl. I 2004, 1147 - 1150; for
the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to waste water containing the pollutant load essentially from

1. the treatment of drinking water, swimming pool water and bathing pool water (filling and circulation water) and Process water,
2. Cooling systems of power plants and cooling systems for indirect cooling of industrial and commercial processes and 3.

other sources of steam generation

comes from.

(2) This Annex shall not apply to waste water from the scrubbing of flue gases from combustion plants, from the scrubbing of flue or waste gases from the incineration and co-incineration of waste and from the

Control area of nuclear power plants. It also does not apply to waste water discharges of less than 10 m3 per week. It also does not apply to waste water generated when emptying swimming pools.

B **General requirements**

(1) Waste water shall not contain the following substances and groups of substances resulting from the use of operating and auxiliary materials:

1. Organic complexing agents (except phosphonates and polycarboxylates) which do not achieve a DOC degradation rate of 80 percent after 28 days according to the procedure in Annex 1 number 406, 2. Chromium and mercury
compounds, nitrite, organometallic compounds (metal-carbon bond) and mercaptobenzothiazole,
3. Zinc compounds from cooling water conditioning agents from the venting of main cooling circuits in power plants,
4. Microbicidal agents in the fresh water cooling of power plants in the flow-through process.

(2) Waste water from fresh water cooling of industrial and commercial processes in the flow or outflow and from power plants in the flow and from the flushing of cooling circuits may only contain microbicidal active substances after shock treatment has been carried out. This does not apply to the use of hydrogen peroxide or ozone.

(3) Proof that the requirements of paragraph 1 are met may be provided by listing the operating and auxiliary materials used in an operating log and, according to the manufacturer's information, not containing any of the substances or groups of substances referred to in paragraph 1.
(4) The authorisation under water law may take into account the pollutant load per parameter that was present in the water at the time of abstraction from a body of water (previous pollution), provided that the extracted load is still present at the time of discharge into the body of water.
(5) In the case of storage tanks, all values laid down in Parts C, D and E shall apply to the sample. The values refer to the quality of the waste water before discharge.

C **Wastewater requirements for the discharge point**

The following requirements apply to the wastewater at the point of discharge into the water body:

1. Water treatment

(a) For the filterable substances, a value of 50 mg/l applies in the qualified sample or the 2-hour composite sample. This requirement does not apply to the discharge of waste water resulting from the treatment of water from flowing waters whose discharge (Q) at the time of sampling exceeds the mean water flow (MQ); screen spray water is also excluded.

b) Wastewater from filter backwashing must be returned to the treatment process. Excepted from this is filter backwashing water from the treatment of process water from surface, well and sump water, provided that this has been mechanically treated without additives, as well as from drinking water and swimming and bathing pool water.

c) For waste water from the treatment of swimming pool water, a value for the chemical oxygen demand (COD) of 30 mg/l shall apply in the qualified sample or the 2-hour composite sample.

2. Cooling systems

	Flooding of Main cooling circuits of power plants (Drain water from the circulation cooling system)	Drainage of other cooling circuits
	Sample mg/l	
Chemical Oxygen demand (COD)	30	40 After cleaning with dispersants, a value of 80 applies.
Phosphorus, total	1.5 If only inorganic phosphorus compounds are used, a value of 3 applies.	3 If only zinc-free cooling water conditioning agents are used, a value of 4 applies. If the zinc-free conditioning agents used contain only inorganic phosphorus compounds, a value of 5 applies.

3. Steam generation

	Wastewater from other Sources of steam generation
	Qualified sample or 2-hour composite sample mg/l
Chemical oxygen demand (COD)	50 For wastewater from condensate desalination, a value of 80 applies.
Phosphorus, total	3
Nitrogen, total, as the sum of ammonium, nitrite and Nitrate nitrogen (Ntot)	10

The requirement for the parameter total nitrogen only applies to power plants with an installed thermal capacity of at least 1 000 MW. A value set for total nitrogen is also considered to be met if it is determined and met as "total bound nitrogen (TNb)" .

D **Requirements for waste water before mixing**

The following requirements apply to the wastewater before it is mixed with other wastewater:

1. Water treatment

	Qualified sample or 2-hour mixed sample mg/l	sample mg/l
arsenic	0.1	-
Adsorbable organic bound halogens (AOX)	-	0.2
Adsorbable organic bound halogens (AOX) in regeneration water of ion exchangers	-	1

These requirements do not apply to the discharge of screen spray water.

2. Cooling systems with drainage from other cooling circuits

	sample mg/l
zinc	4
Adsorbable organically bound halogens (AOX)	0.15

3. Steam generation

	Wastewater from other sources of steam generation	
	Qualified sample or 2-hour mixed sample mg/l	sample mg/l
zinc	1	-
Chrome, total	0.5	-
cadmium	0.05	-
copper	0.5	-
Lead	0.1	-
nickel	0.5	-
Vanadium	4	-
Hydrazin	-	2
Chlorine, free	-	0.2
Adsorbable organic bound halogens (AOX)	-	0.5

E **Wastewater requirements for the site of the incident**

(1) The following requirements shall be met by waste water from any of the following areas after carrying out a Shock treatment with microbicidal agents:

		Wastewater from the Fresh water cooling of industrial and commercial processes and Power plants in operation	Flooding of Main cooling circuits of power plants (Floodwater from the circulation cooling)	Flooding other Cooling circuits
		sample		
Adsorbable organic bound halogens (AOX)	mg/l	0.15	0.15	0.5

		Wastewater from the Fresh water cooling of industrial and commercial processes and Power plants in operation	Flooding of Main cooling circuits of power plants (Drain water from the circulation cooling system)	Flooding of other Cooling circuits
		sample		
Chlorine dioxide and other Oxidants (expressed as Chlorine)	mg/l	0.2	0.3	0.3
Toxicity to Luminous bacteria (G(deep)L)		-	12	12

(2) The requirement for toxicity to luminescent bacteria GL shall also be deemed to be met if the discharge line remains closed until a GL value of 12 or less is reached in accordance with the manufacturer's instructions on application concentration and degradation behaviour and this is demonstrated in an operating logbook.

F **Requirements for existing discharges** For existing discharges of

waste water from plants for the treatment of swimming pool or bathing pool water (circulating water) which were legally in operation before 1 August 2002 or whose construction was legally started on that date, only the requirements of Parts B and C apply.

Annex 32 Processing of rubber and latexes, manufacture and processing of rubber

(Source: BGBl. I 2004, 1150 - 1151)

A **Scope**

(1) This Annex shall apply to waste water the pollutant load of which originates essentially from one or more of the following sources:

1. Processing of solid rubber

1.1 Rubber compounds, blanks and rubber solutions, 1.2 Extrusion articles,

1.3 Rubber and rubber-metal articles in moulds, 1.4 Rubberised fabrics

and other reinforcements, 1.5 Tyres;

2. Processing of latex.

(2) This Annex shall not apply to waste water from the treatment of metal parts before bonding with rubber, from indirect cooling systems, from the backing of textile floor coverings and other fabrics and from process water treatment.

(3) For discharges of less than 1 m3 of waste water per day, only Part B of this Annex shall apply. Part B shall apply to the place where the wastewater is generated.

B **General requirements**

The pollutant load must be kept as low as possible after examining the conditions in each individual case by the following Measures are possible:

1. Use of water-saving processes for direct cooling of rubber compounds including an associated aqueous release agent application, 2. Use of wastewater-

free processes when cleaning the internal mixers (kneaders), 3. Use of water-saving processes when

washing and cleaning rubber products,

4. Reduction of wastewater pollution by mechanical separation of salt deposits after
Salt bath vulcanization,
5. Multiple use of rinsing water for cleaning molds and mandrels,
6. Use of water-saving processes for the treatment of exhaust air in the application areas
Rubber solutions, rubberized fabrics and other reinforcements in the application areas 1.1
and 1.4,
7. Wastewater-free floor cleaning in application area 1.1,
8. Avoid high molecular weight, water-soluble release agents (polyglycols) that cause DOC
Elimination rate after 7 days of 80 percent according to the procedure in Annex 1 number 408
cannot be reached.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
Chemical oxygen demand (COD)	mg/l	150
Biochemical oxygen demand (BOD5)	mg/l	25
Nitrogen, total, as the sum of ammonium, nitrite and Nitrate nitrogen (Ntot)	mg/	20
Phosphorus, total	l mg/l	2
Toxicity to fish eggs (GEi)		2

(2) For waste water from salt bath vulcanisation, an additional concentration value for nitrite nitrogen (NO2-N) applies of 3 mg/l.

D **Requirements for waste water before mixing**

(1) Before being mixed with other waste water, waste water shall meet the following requirements:

	Qualified sample or 2-hour mixed sample mg/l
zinc	2
Lead	0.5
Adsorbable organically bound halogens (AOX)	1

The AOX requirements apply to the sample.
(2) For waste water from areas 1.1 and 1.4 according to Part A paragraph 1, a
Concentration value of 0.1 mg/l, for waste water from the flushing of direct cooling water circuits for the
Toxicity to luminescent bacteria GL a dilution factor of GL = 12 in the qualified sample or
the 2-hour mixed sample.

Annex 33 Scrubbering of waste gases from the incineration of waste

(Source: BGBl. I 2004, 1150 - 1151;
For the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to waste water the pollutant load of which originates mainly from the scrubbing of smoke or waste gases resulting from the incineration of waste within the meaning of Article 42 of Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated prevention and control of pollution) (OJ L 334, 17.12.2010, p. 17).

(2) This Annex shall not apply to waste water from other industrial exhaust gas scrubbing plants, closed-loop cooling systems from power plants and industrial processes, from other sources of steam generation and from Scrubbering of flue gases from combustion plants.

B **General requirements**

Waste water from the exhaust gas purification of domestic waste incineration plants must not be discharged into a body of water become.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample mg/l
Chemical oxygen demand (COD) - Use of quicklime - Use of limestone	 80 150
sulfate	2 000
sulfite	20
Fluoride, dissolved	30
Toxicity to fish eggs (GEi)	2

(2) By way of derogation from Section 6 (3), the COD value shall also be deemed to be complied with if three times the value of the TOC, determined in milligrams per litre, does not exceed this value. Notwithstanding Section 6 Paragraph 1, the maximum permissible excess for all parameters 50 percent. The requirements for the chemical oxygen demand apply after deduction of the COD pre-load added with the feed water.

D **Requirements for waste water before mixing**

(1) Before being mixed with other waste water, waste water shall meet the following requirements:

	24-hour mixed sample	
mercury	mg/l	0.03
cadmium	mg/l	0.05
Thallium	mg/l	0.05
arsenic	mg/l	0.15
Lead	mg/l	0.1
Chrome, total	mg/l	0.5
copper	mg/l	0.5
nickel	mg/l	0.5
zinc	mg/l	1.0
Dioxins and furans as the sum of the individual substances according to Annex Dioxins calculated in accordance with Part 2 of Directive 2010/75/EU and Furans	ng/l	0.3

(2) Filterable substances may not exceed 30 mg/l in 95 per cent of the 24-hour composite sample. measurements and a value of 45 mg/l in all measurements must not be exceeded; Section 6 paragraph 1 does not apply.
(3) For the parameters referred to in paragraphs 1 and 2, the water permit shall specify the total load in 24 hours. The pollutant load is calculated from the concentration values of the 24-hour composite sample and determined from the wastewater volume flow corresponding to the sampling.

(4) By way of derogation from Section 6 (1), the values for heavy metals shall be deemed to be complied with if the values not more than once a year or in no more than 5 percent of cases if more than 20 samples are taken per year

Notwithstanding Section 6 Paragraph 1, the value for dioxins and furans must not be exceeded if only two measurements are carried out in one year.

E **Requirements for waste water at the site of the seizure** There are no additional requirements for waste water at the site of the seizure.

F **Requirements for existing discharges** (1) Part B shall not apply to existing discharges of waste water from the exhaust gas purification of domestic waste incineration plants that were lawfully in operation before 1 August 2002 or whose construction was lawfully started on that date, if the waste generated during the operation of the exhaust gas purification plant cannot be properly and safely recycled or disposed of in another way that is compatible with the public good. In this case, Parts C and D shall apply, plus the following requirements:

	Freight in milligrams per tonne of waste
cadmium	15
mercury	9
Chrome, total	150
nickel	150
copper	150
Lead	30
zinc	300
Sulfide, easily released	60

(2) The waste load reference value refers to the capacity of the domestic waste incineration plant on which the water law decision is based.
(3) By way of derogation from paragraph 1 of Section 6, the maximum permissible excess for all parameters shall be 50 percent. The pollutant load (mg/t) is determined from the concentration values of the qualified sample or the 2-hour composite sample and from the wastewater volume flow corresponding to the sampling.

Appendix 35 Chip manufacturing

(Source: BGBl. I 2022, 90 - 93)

A Scope

(1) This Annex shall apply to waste water containing a pollutant load originating mainly from chip manufacturing, including

1. the associated pre-, intermediate and post-treatment, 2. the mask production and the parts cleaning, provided that the waste water has a comparable composition such as the wastewater from chip production, and
3. the in-house recycling of wafers, provided that the waste water has a comparable composition such as wastewater from chip production.

(2) This Annex shall not apply to waste water from

1. indirect cooling systems, 2. the treatment of process water, including ultrapure water, and 3. the production of silicon single crystals and the separation of the single crystals into wafers.

B General requirements

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. Extension of the service life of process solutions,
2. Minimizing the flushing water requirement by
    a) the use of water-saving flushing techniques such as
        aa) Cascade flushing or
        bb) Circulation of the rinsing water via ion exchangers,
    b) filtration techniques or
    (c) other procedures which have similar effects,
3. Multiple use of suitable rinsing water in the production process or use of suitable rinsing water in other operating areas after treatment by circulation via ion exchangers, by filtration techniques or other methods that are similar in their effect,
4. Recovery of valuable materials from used process solutions and from suitable Wastewater partial streams,
5. Separation and treatment of waste water streams, insofar as material recycling of the sludge is possible and requirements under other legislation do not oppose,
6. Minimization of waste water from exhaust air collection and treatment,
7. Minimizing the formation of adsorbable organically bound halogens (AOX) by
    a) Use of hydrochloric acid, which does not contain higher contamination by organic halogen compounds than is permitted according to DIN EN 939 (September 2016 edition),
    b) Use of iron and aluminium salts in wastewater treatment, which do not cause higher pollution with organic halogen compounds than 100 milligrams, each based on a kilograms of iron or aluminium in the treatment agents used, or
    c) Use of cyanide-free process solutions instead of cyanide process solutions,
8. Avoid using photoresists for photolithographic processes in which per- or polyfluorinated compounds (PFCs) are contained; the use of these paints cannot be dispensed with the amount used in production and the pollutant load in the waste water are accordingly to reduce the technical possibilities,
9. No more organosulfides in wastewater treatment; may use Organosulfides cannot be avoided, the amount used must be minimized and, if necessary, to completely retain excesses in the wastewater by reprecipitation with metal salts or by other appropriate means.

(2) Compliance with the requirements of paragraph 1 shall be documented in an operational wastewater register in accordance with Annex 2 Number 1 to document.

C Wastewater requirements for the discharge point

The following requirements apply to the wastewater at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
aluminum	mg/	2.0
Total organic carbon (TOC)	l mg/l	20
Chemical oxygen demand (COD)	mg/l	60
Biochemical oxygen demand in 5 days (BOD5)	mg/l	15
Fluoride, dissolved	mg/l	30
Phosphorus, total	mg/l	1.0

	Qualified sample or 2-hour mixed sample	
Ammonium nitrogen (NH4-N)	mg/l	10
Nitrite nitrogen (NO2-N)	mg/l	2.0
iron	mg/l	3.0
Filterable substances (suspended substances)	mg/l	15
Toxicity to fish eggs (GEi)		2

D Requirements for waste water before mixing

The following requirements apply to the wastewater before it is mixed with other wastewater:

	Qualified sample or 2-hour mixed sample * mg/l
antimony	0.50
Adsorbable organically bound halogens (AOX) **	0.10
arsenic	0.20
barium	3.0
Lead	0.50
cerium	0.50
Chrome, total	0.20
Cobalt	1.0
Germanium	0.50
Gold	0.50
hafnium	0.50
copper	0.50
molybdenum	0.50
nickel	0.50
palladium	0.50
platinum	0.50
Praseodym	0.50
Ruthenium	0.50
Sulfide, easily released	1.0
titanium	1.0
tungsten	2.0
zinc	2.0
tin	2.0
zirconium	0.50

* For batch systems, all requirements refer to the sample.

** For AOX, the value in the sample applies.

E Wastewater requirements for the site of the incident

(1) The following requirements shall be imposed on waste water at the place of origin:

	Sample mg/ l
cadmium	0.050
Chromium VI	0.10
Cyanide, easily released	0.20
selenium	1.0
Silver	0.10
Thallium	0.50
mercury	0.00050

(2) The waste water shall not contain any organic complexing agents which do not achieve a DOC degradation rate of at least 80 per cent after 28 days in accordance with Annex 1, point 406.

(3) By way of derogation from point 5 of Section 2, the place where the waste water is generated is the outlet of the pre-treatment plant for the respective parameter.

F Requirements for existing discharges

For existing discharges of waste water from facilities that were lawfully in operation before 28 January 2022 or whose construction was lawfully started on that date, the requirements of this Annex shall apply from 1 July 2022. Until the end of 30 June 2022, the requirements of Annex 54 in the version valid on 27 January 2022 shall apply to discharges pursuant to sentence 1.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

If process chemicals containing PFCs are used or have been used, the operator is obliged to 1. record the quantities of

process chemicals containing PFCs used in the operating logbook in accordance with Annex 2, No. 2 Letter e for each dosing point and

2. to measure PFCs in treated waste water prior to discharge at least annually, unless the authority specifies something else.

Annex 36 Production of hydrocarbons

(Source: BGBl. 2024 I No. 66, pp. 11 – 13)

A Scope

(1) This Annex shall apply to waste water whose pollutant load originates mainly from the following areas of Production of hydrocarbons comes from:

1. Production of certain hydrocarbons, mainly olefin hydrocarbons with 2 to 4 carbon atoms and benzene, toluene and xylenes from mineral oil products by cracking with the aid of steam (steam cracking),

2. Production of pure hydrocarbons or certain mixtures of hydrocarbons from mineral oil products by physical separation methods,

3. Conversion of hydrocarbons into other hydrocarbons by the chemical processes of hydrogenation, dehydrogenation, alkylation, dealkylation, hydrodealkylation, isomerization or disproportionation.

It also applies to operationally contaminated rainwater that accrues in the area mentioned and comes into contact with hydrocarbons in the process area of the manufacturing plants.

(2) This Annex shall not apply to waste water from the production of pure paraffins from slack wax, from petroleum refining, from indirect cooling systems and from process water treatment.

(3) The requirements set out in Part C paragraphs 2 to 4 and Part D paragraph 1 are emission limit values within the meaning of Section 1 paragraph 2 sentence 1.

B General requirements

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. Multiple use and recycling, 2. Use of wastewater-free processes for vacuum generation and exhaust air purification, 3. Retention or recovery of substances through optimized processes, 4. Pre-treatment of wastewater streams containing pollutants that

a) may impair the functionality of the final biological treatment or b) are not adequately treated in the final wastewater treatment

in particular organic compounds that are poorly biodegradable or cannot be eliminated by the final wastewater treatment, as well as volatile pollutants such as benzene.

(1a) During the production of aromatics, no waste water shall be generated from aromatics extraction plants resulting from the use of wet solvents.

(1b) The following requirements shall apply to the production of short-chain olefins:

1. the recovery of hydrocarbons from the quench water of the first stage of fractionation shall be maximized and the quench water shall be reused in the generation of process steam and
2. The spent alkaline scrubbing liquid resulting from the removal of hydrogen sulphide from the fission gases shall be stripped to reduce the organic load.

(2) Waste water not requiring treatment shall be discharged separately from waste water requiring treatment.

(3) Retention capacities for waste water and measures for the proper reuse, treatment or disposal of retained waste water must be provided in an amount appropriate to the risk in order to prevent uncontrolled emissions in the event of unscheduled operating conditions. The discharger must carry out an appropriate risk assessment.

(4) If there are several wastewater-generating establishments at the site, the holder of the water permit shall establish in an appropriate form, with the operational managers of the other wastewater-generating establishments, the tasks, responsibilities and cooperation with regard to proper wastewater disposal.

(5) Evidence of compliance with the general requirements shall be provided in an operational wastewater register. In addition to the information specified in Annex 2, point 1, the wastewater register shall contain the following information:

1. Information on syntheses, processes and plants generating waste water, including a description
of the main chemical reactions in the form of conversion equations as well as the most important
Side reactions and

2. Data on the biological eliminability of the organic pollutant load of the wastewater streams.

(6) Wastewater treatment plants pursuant to Section 60 paragraph 3 sentence 1 number 2 of the Water Resources Act and associated sewerage systems and sewage sludge dewatering systems in connection with the Wastewater disposal systems must be constructed and operated in such a way that odour and noise emissions are avoided become.

C Wastewater requirements for the discharge point

(1) For waste water, the requirements set out in paragraphs 1 to 4.

parameter	Qualified sample or 2-hour mixed sample
TOC	33 mg/l
COD	100 mg/l
Nges	20 mg/l
Pges	1.3 mg/l
Hydrocarbons, total	1.5 mg/l
Toxicity to fish eggs GEI	2

(2) For the parameter filterable substances, if the annual discharged load exceeds 3.5 t/a, a Annual average value of 35 mg/l must not be exceeded.

(3) For the following heavy metals, if the discharged quantities specified below are exceeded, Annual loads shall comply with the following concentration values on an annual average:

parameter	Annual freight	concentration (Annual average)
Chrome, total	2.5 kg/year	0.025 mg/l
copper	5.0 kg/year	0.050 mg/l
nickel	5.0 kg/year	0.050 mg/l
zinc	30 kg/year	0.30 mg/l

(4) The parameters referred to in paragraphs 2 and 3 shall be measured in accordance with Part H, paragraph 1. The results of the Measurements are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply.

D Requirements for waste water before mixing

The following requirements apply to wastewater before it is mixed with other wastewater:

parameter	Qualified sample or 2-hour mixed sample	sample
Adsorbable organically bound Halogens (AOX)		0.10 mg/l
Phenol index after distillation and Dye extraction	0.10 mg/l	
Benzene and derivatives	0.050 mg/l	
Sulfide, easily released	0.40 mg/l	

E Wastewater requirements for the site of the incident

There are no additional requirements for wastewater at the site of the incident.

F Requirements for existing discharges

By way of derogation from Part B, paragraph 2, in the case of installations for the discharge of waste water requiring treatment, which are were legally in operation before 1 March 2024 or whose construction had legally begun on that date
has been discharged, with the consent of the competent authority, waste water not requiring treatment together with
wastewater requiring treatment.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators shall determine the following parameters in the waste water at the point of discharge into the water body in the flow-proportional 24-hour composite sample as follows:

parameter	Minimum frequency
TOC	Daily
Filterable substances	Daily
Nges or TNb	Daily
Pges	Daily
AOX	Monthly
Chromium, total, copper, nickel, zinc, lead	Monthly
Other heavy metals, if present in the limited to water law approval	Monthly

For wastewater streams with proven low fluctuations in volume flow and concentration
the measurements can also be carried out in the time-proportional sample, in accordance with official regulations
If the existing data series demonstrate a clear stability of the measurement results, the
The frequency of measurements may be reduced as further specified by the authorities.

(2) The annual mean values for the parameters referred to in Part C, paragraphs 2 and 3 shall be calculated from the results of the Measurements according to paragraph 1.

(3) An annual report shall be drawn up in accordance with Annex 2, point 3.

(4) The measurements of the parameters referred to in paragraph 1 shall be carried out using the analysis and measurement methods set out in Annex 1 or according to officially recognized monitoring procedures. The state regulations for the
Self-monitoring remains unaffected by the operator's obligations under paragraphs 1 to 3.

Annex 37 Manufacture of inorganic pigments

(Source: BGBl. 2024 I No. 66, pp. 13 – 16)

A Scope

(1) This Annex shall apply to waste water whose pollutant load originates mainly from the following areas:
the manufacture of inorganic pigments by chemical or physical processes, including
associated pre-, intermediate- and post-treatment:

1. Lead and zinc pigments,
2. Lithopone, zinc sulphide pigments and precipitated barium sulphate,
3. Silicate fillers,

4. Iron oxide pigments,
5. Chromium oxide pigments,
6. Mixed phase pigments, pigment and color body mixtures and frits as well as
7. Titanium dioxide,
7.1. Chloride process,
7.2. sulfate process,
7.2.1. Step germination process,
7.2.2. Combined germination process.

It also applies to operationally contaminated rainwater that accrues in the area mentioned.

(2) This Annex shall not apply to waste water from:

1. the manufacture of substances and preparations by mixing, dissolving or filling (formulating), 2. the manufacture of highly dispersed oxides, 3. the manufacture of clay carrier pigments,
4. the manufacture of titanium dioxide microrutiles, 5. indirect cooling systems and 6. the treatment of process water.

(3) The requirements set out in Part C paragraphs 1, 3 and 4 and in Part D paragraph 1 are emission limit values within the meaning of Section 1 paragraph 2 sentence 1.

B General requirements

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. multiple use and recycling, 2. the use of wastewater-free processes for vacuum generation and exhaust air purification, 3. the retention or recovery of substances by treating mother liquors and by optimized processes,
4. the pre-treatment of waste water streams containing pollutants that cannot be adequately treated in the final waste water treatment, in particular heavy metals.

(2) Waste water not requiring treatment shall be discharged separately from waste water requiring treatment.

(3) Retention capacities for waste water and measures for the proper reuse, treatment or disposal of retained waste water shall be provided in an amount appropriate to the risk in order to prevent uncontrolled emissions in the event of unscheduled operating conditions. The discharger shall carry out an appropriate risk assessment.

(4) If there are several wastewater-generating establishments at the site, the holder of the water permit shall establish in an appropriate form, with the operational managers of the other wastewater-generating establishments, the tasks, responsibilities and cooperation with regard to proper wastewater disposal.

(5) Evidence of compliance with the general requirements shall be provided in an operational wastewater register. In addition to the information specified in Annex 2, point 1, the wastewater register shall contain the following information:

1. Information on syntheses, processes and plants that generate waste water, including a description of the main chemical reactions in the form of reaction equations and the most important side reactions,
2. Data on the biological eliminability of the organic pollutant load of the wastewater streams.

(6) Wastewater treatment plants pursuant to Section 60 paragraph 3 sentence 1 number 2 of the Water Resources Act and associated sewerage systems and sewage sludge dewatering systems in connection with the Wastewater disposal systems must be constructed and operated in such a way that odour and noise emissions are avoided become.

(7) Waste water from the production of titanium dioxide may only be discharged if

1. a targeted reduction of pollutants for iron, titanium and vanadium has been carried out and
2. the waste water does not contain waste within the meaning of Article 67 of Directive 2010/75/EU.

C Wastewater requirements for the discharge point

(1) For waste water from one of the areas referred to in Part A, paragraph 1, the following provisions shall apply to the point of discharge into the Waters meet the following requirements:

Area		1	2	3	4	5	6	7
parameter	Qualified sample or 2-hour composite sample							
TOC	mg/l	33	33	33	33	25	33	33
COD	mg/l	100	100	100	100	70	100	100
NH4-N	mg/l	–	–	–	10	–	–	–
chloride	kg/t	–	–	–	–	–	–	1.2
sulfate	kg/t	–	–	600 16003 1200			–	5004
sulfite	mg/l	–	20	–	–	20	–	–
iron	kg/t	–	–	–	0.505	–	–	–
GEi		2	2	2	2	2	2	2

1 For the production of titanium dioxide by the sulphate process when using slag, following requirements:

1. For production using the step-germination process: 70 kg/t.
2. For production using the combined germination process: 165 kg/t

2 For the production of titanium dioxide by the chloride process according to Annex VIII, Part 1, point 2 The following requirements apply to point (c) of Directive 2010/75/EU:

1. When using natural rutile: 130 kg/t,
2. when using synthetic rutile: 228 kg/t,
3. when using slag: 330 kg/t.
4. For discharges into coastal waters pursuant to Section 3 No. 2 of the Water Resources Act of 31 July 2009 (BGBl. I p. 2585) and for transitional waters according to Section 2 No. 2 of the Surface Water Ordinance of 20 June 2016 (Federal Law Gazette I p. 1373) may be used An emission value of 450 kg/t for slag should be set.
5. If more than one feedstock is used, the emission values for chloride shall be proportional to the Quantity of raw materials used.

3 The requirement applies to the production of iron oxide pigments using the precipitation and Penniman processes. For production using the aniline process, a value of 40 kg/t applies.

4 The requirement only applies to the production of titanium dioxide using the sulphate process.

5 The requirement applies to iron oxide pigments and technical iron oxides. For transparent and high-purity For iron oxide pigments a value of 1 kg/t applies.

(2) The production-specific freight values (kg/t) referred to in paragraph 1 shall be calculated from the ratio of Pollutant load to the production capacity on which the water law permit is based.

Pollutant load is calculated by multiplying the concentration value of the qualified sample or
the 2-hour composite sample with the volume of the wastewater stream corresponding to the sampling.

(3) For the parameter 'filterable substances', if the load exceeds 3.5 tonnes/year, a concentration
of 35 mg/l on an annual average. This requirement does not apply to the production of titanium dioxide (range
7).

(4) For the following heavy metals, if the discharged quantities specified below are exceeded,
Annual loads shall comply with the following concentrations as annual average values:

parameter	Annual freight	concentration (Annual average)
Chrome, total	2.5 kg/year	0.025 mg/l
copper	5.0 kg/year	0.050 mg/l
nickel	5.0 kg/year	0.050 mg/l
zinc	30 kg/year	0.30 mg/l

The annual average values do not apply to wastewater whose main pollutant load comes from the production of inorganic
heavy metal compounds, as well as for waste water whose main pollutant load comes from the processing
metal-contaminated solid inorganic raw materials.

(5) The parameters referred to in paragraphs 3 and 4 shall be measured in accordance with Part H, paragraph 1. The results of the
Measurements are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply.

D Requirements for waste water before mixing

(1) Waste water from any of the areas referred to in Part A, paragraph 1 shall be subjected to the following
other wastewater the following requirements apply:

Area		1	2	4	5	6	7.1	7.2
parameter	Qualified sample or 2-hour composite sample							
aniline	kg/t			0.201				
barium	mg/l		2.0					
Lead	kg/t	0.040					0.0050	0.030
cadmium	mg/l		0.010					
	g/t						0.20	2.0
Chrome, total	mg/l					0.50		0.502
	kg/t	0.030			0.020		0.010	0.0502
Cobalt	mg/l					1.0		
copper	mg/l					0.50		
	kg/t						0.010	0.020
nickel	mg/l					0.50		
	kg/						0.0050	0.015
mercury	tg/						0.10	1.5
Sulfide, easily released	t mg/		1.0					
zinc	l mg/l	2.0	2.0			0.50		

1 The requirement only applies to production using the aniline process.

2 Either the concentration requirement or the production-specific load requirement applies.

(2) The production-specific load values (kg/t and g/t) pursuant to paragraph 1 are calculated from the ratio of the pollutant load to the production capacity on which the water law permit is based. The pollutant load is calculated by multiplying the concentration value of the qualified random sample or the 2-hour composite sample by the volume of the wastewater flow corresponding to the sampling.

E Wastewater requirements for the site of the incident

There are no additional requirements for wastewater at the site of the incident.

F Requirements for existing discharges

By way of derogation from Part B(2), in the case of existing installations for the discharge of waste water requiring treatment which were lawfully in operation before 1 March 2024 or whose construction was lawfully started on that date, waste water not requiring treatment may, with the consent of the competent authority, be discharged together with waste water requiring treatment.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators shall measure the following parameters in the waste water at the point of discharge into the water body in the flow-proportional 24-hour composite sample as follows:

parameter	Minimum frequency
TOC	Daily
Filterable substances	Daily
Chromium, total, copper, nickel, zinc, lead	Monthly
Other heavy metals, if limited in the water law permit	Monthly
Nges or TNb	Daily1

1 The parameter is to be measured only for the production of iron oxide pigments (range 4).

In the case of wastewater flows with proven small fluctuations in volume flow and concentration, the measurements can also be carried out in the time-proportional sample in accordance with official regulations. If the available data series demonstrate a clear stability of the measurement results, the frequency of measurements can be reduced in accordance with more detailed official regulations.

(2) The annual mean values for the parameters referred to in Part C, paragraphs 3 and 4, shall be calculated from the results of the measurements referred to in paragraph 1.

(3) An annual report shall be drawn up in accordance with Annex 2, point 3.

(4) The measurements of the parameters pursuant to paragraph 1 shall be carried out using the analysis and measurement methods specified in Annex 1 or using officially recognised monitoring methods. The state regulations for self-monitoring remain unaffected by the operator's obligations pursuant to paragraphs 1 to 3.

Annex 38 Textile manufacturing, textile finishing

(Source: BGBl. I 2004, 1155 - 1157; for the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to waste water containing pollutants originating mainly from the commercial and industrial processing and treatment of textile materials and yarns and from textile finishing.

(2) This Annex shall not apply to waste water

1. from the washing of raw wool,
2. from the photography and electroplating sector (e.g. production of printing stencils and printing cylinders), 3.

from the dry cleaning of textiles using solvents with
Halogenated hydrocarbons according to the Second Ordinance on the Implementation of the Federal Immission Control Act in its currently valid version,

4. from process water treatment and from indirect cooling systems.

(3) For discharges of less than 5 m3 of waste water per day, only Part B and the COD requirements shall apply in accordance with Part C of this Annex.

B **General requirements**

The pollutant load must be kept as low as possible after examining the conditions in each individual case by the following Measures are possible:

1. Treatment and reuse of the washing water from the printing works, which is generated during the washing of the printing blankets and during the cleaning of the printing equipment (stencils, rollers, chassis, preparation buckets, etc.),
2. Avoidance of synthetic sizing agents which do not achieve a DOC elimination rate of 80 percent after 7 days in accordance with the procedure set out in Annex 1, number 408,
3. No organic complexing agents are used which do not achieve a DOC degradation rate of 80 percent after 28 days in accordance with the procedure in Annex 1 number 406. The use of phosphonates, polyacrylates and maleic acid copolymers for textile finishing is excluded.
4. Avoidance of surfactants that have a DOC elimination rate of 80 percent after 7 days according to the Process according to Annex 1 number 408. Surfactants are organic surface-active substances with washing and wetting properties which, at a concentration of 0.5 percent and a temperature of 20 °C, reduce the surface tension of distilled water to 0.045 N/m or less,
5. No chlorinating pre-treatment of wool and wool blend substrates,
6. Avoid the use of alkylphenol ethoxylates (APEO) except for polymer dispersions that are used on textile are applied to the surface and remain there for 99 percent,
7. Minimise the amount and retain or reuse of:
   - 7.1 synthetic sizing agents from desizing,
   - 7.2 Residual dye block liquors,
   - 7.3 Remaining equipment block fleets,
   - 7.4 Residual liquors from coating and laminating,
   - 7.5 Residual liquors from the back coating of textile floor coverings and other fabrics,
   - 7.6 Residual printing pastes,
8. Treatment of the partial streams listed under point 7, where reuse is not possible, by processes which ensure an elimination of at least 80 per cent of COD or TOC or, in the case of residual ink pad liquors and residual printing pastes, of at least 95 per cent of the colouring.

Proof of compliance with the general requirements must be provided in an operational wastewater register.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
Chemical oxygen demand (COD)	mg/l	160
Biochemical oxygen demand in 5 days (BOD5)	mg/l	25
Phosphorus, total	mg/l	2

	Qualified sample or 2-hour mixed sample	
Ammonium nitrogen (NH4-N)	mg/l	10
Nitrogen, total, as the sum of ammonium, nitrite and nitrate nitrogen (Ntotal)	mg/l	20
sulfite	mg/l	1
Toxicity to fish eggs (GEi)		2
Coloration: Spectral absorption coefficient at		
436 nm (yellow range)	-1m	7
525 nm (red range)	-1m	5
620 nm (blue range)	-1m	3

The requirements for ammonium nitrogen and total nitrogen apply at a wastewater temperature of 12 °C and higher in the effluent of the biological reactor of the wastewater treatment plant.
(2) The requirement for total phosphorus shall not apply to waste water from the use of organic Phosphorus compounds for flame retardancy.

D **Requirements for waste water before mixing**

(1) Before being mixed with other waste water, waste water shall meet the following requirements:

	Qualified sample or 2-hour mixed sample mg/l
Adsorbable organically bound halogens (AOX)	0.5
Sulfide, easily released	1
Chrome, total	0.5
copper	0.5
nickel	0.5
zinc	2
tin	2

The AOX requirement applies to the sample.
(2) Waste water from the following areas shall not contain a higher pollutant load than the load which are derived from the following concentration values and the waste water volume flow derived from Part B results in:

	Chrome, total mg/l	copper mg/l	nickel mg/l
Residual dye block liquors	0.5	0.5	0.5
Dyeing liquors of more than 3 % exhaust dyeing and less than 70% fixation rate	0.5	0.5	0.5
Residual printing pastes, not reusable	0.5	0.5	0.5

Proof of compliance with the requirements must be provided in an operational wastewater register.
(3) In the continuous pretreatment of knitted fabrics made of synthetic fibres or fibre blends with predominant synthetic fibre content, the wastewater contains a total concentration of hydrocarbons of 20 mg/l must be observed.

E **Wastewater requirements for the site of the incident**

(1) The waste water shall not contain

1. chlorine-organic carriers (dye accelerators), 2. chlorine-releasing bleaching agents, except sodium chlorite for bleaching synthetic fibres, 3. free chlorine from the use of sodium chlorite,
4. Arsenic, mercury and their compounds as well as organotin compounds from use as Preservatives, 5. alkylphenol ethoxylates (APEO) from detergents and cleaning agents, 6. chromium VI compounds from use as oxidizing agents for sulphur dyes and vat dyes, 7. EDTA, DTPA and phosphonates from use as softeners in process water, 8. unused, unused residues of chemicals, dyes and textile auxiliaries and 9. residual printing pastes in printing equipment from printing.

(2) The waste water may only contain those halogenated solvents which may be used in dry-cleaning operations in accordance with the Second Ordinance on the Implementation of the Federal Immission Control Act of 10 December 1990 (Federal Law Gazette I p. 2694). This requirement shall be deemed to have been met if it is demonstrated that only permitted halogenated hydrocarbons are used.
(3) The concentration of chromium VI in the waste water must not exceed 0.1 mg/l in the sample. Section 6(1) shall not apply.
(4) Proof that the requirements of paragraph 1 are met may be provided by listing the operating and auxiliary materials used in an operating log and, according to the manufacturer's information, not containing any of the substances or groups of substances referred to in paragraph 1.

F **Requirements for existing discharges** For existing discharges of waste water from installations that were legally in operation before 1 June 2000 or whose construction was legally started on that date, the following different requirements apply:

1. The requirements of Part D, paragraph 2 for dyeing liquors with more than 3 percent exhaust dyeing and less than 70 percent fixation rate and Part E, paragraph 1, no. 9 shall not apply.
2. In derogation from Part D, paragraph 1, a value of 1 mg/l shall apply to the AOX in the sample.
3. For copper, in derogation from Part D paragraphs 1 and 2, a value of 1 mg/l applies.

Annex 39 Non-ferrous metal production

(Source: BGBl. I 2020, 1294 – 1297)

A Scope

(1) This Annex shall apply to waste waters the pollutant load of which derives mainly from the production and casting of the following non-ferrous metals, including by-products thereof, and from the Semi-finished products of the following non-ferrous metals:

1. Copper,
2. Lead,
3. Tin,
4. Zinc,
5. Cadmium,
6. Precious metals,
7. Nickel,
8. Cobalt,
9. Ferroalloys,

10. Aluminum.

(2) This Annex shall not apply to waste water from indirect cooling systems and from process water treatment.

(3) The requirements set out in Part C, sentence 1 and Part D, paragraph 1 are emission limit values within the meaning of Section 1 Paragraph 2, sentence 1.

B General requirements

Wastewater generation and pollutant loads must be kept as low as possible by the following measures:

1. extensive recycling and reuse as well as series connection of washing, cooling and Process water,
2. Multiple use of treated wastewater and use of rainwater in suitable Applications,
3. Reuse of aqueous solutions such as pickling solutions, acids and alkalis,
4. Separation of wastewater streams requiring treatment from wastewater streams not requiring treatment,
5. Avoiding wastewater-intensive process technologies,
6. Evaporative crystallization of the washing water produced in plants for washing Waelz oxide,
7. Recovery of metals from process solutions.

C Wastewater requirements for the discharge point

The following requirements apply to the wastewater at the point of discharge into the water body:

		Production and casting the under part A Paragraph 1 Numbers 1 to 9 listed Non-ferrous metals including By-products and Semi-finished product production	Generation of Aluminium oxide	generation from aluminum	Casting of aluminium and production of Aluminium semi-finished products
	Qualified sample or 2-hour composite sample				
Organically bound Carbon, total (TOC)	mg/l	50	20	15	20
Chemical oxygen demand (COD)	mg/l	2001	60	60	80
iron	mg/l	3.0	–	–	–
Hydrocarbons, in total	mg/l	–	–	2.0	5.0
aluminum	mg/l	–	6.0	3.0	–
Fluoride, dissolved	mg/l	–	–	30	30
Toxicity to Fish eggs (GEi)		4	–	–	–

1 During the primary production of zinc and lead, production-specific oxidizable inorganic Compounds such as sulphide, sulphite or thiosulphate, the COD in the wastewater must not exceed a concentration of 320 mg/l must not be exceeded.

The requirements for total hydrocarbons apply to the sample.

In the water law permit, the pollutant load per parameter that is present in the water at the time of extraction from a body of water (previous pollution) should be taken into account, provided that the extracted load was discharge into the water body is still present.

For the scope of application according to Part A paragraph 1 number 1, the value for the iron parameter according to Sentence 1 of the table row “Iron” is a value of 4.0 mg/l.

D Requirements for waste water before mixing

(1) Before being mixed with other waste water, waste water shall meet the following requirements:

	Production and casting of1					
	copper	Lead and tin	Zinc and cadmium	Precious metals	Nickel and Cobalt	Ferroalloys
	Qualified sample or 2-hour composite sample mg/l					
cadmium	0.10	0.10	0.10	0.050	0.10	0.050
mercury	0.020	0.020	0.020	0.020	0.020	0.020
zinc	1.0	1.0	1.0	0.40	1.0	1.0
Lead	0.50	0.50	0.20	0.50	0.50	0.20
copper	0.50	0.20	0.10	0.30	0.50	0.50
arsenic	0.10	0.10	0.10	0.10	0.30	0.10
nickel	0.50	0.50	0.10	0.50	2.0	2.0
Thallium	1.0	1.0	1.0	1.0	–	–
Chrome, total	0.50	0.50	0.50	0.50	–	0.20
Chromium VI	–	–	–	–	–	0.050
Cobalt	1.0	0.10	1.0	1.0	0.50	–
Silver	0.10	0.10	0.10	0.10	–	–
tin	2.0	2.0	2.0	2.0	–	–
Sulfide, light releasable	1.0	1.0	1.0	1.0	–	–
Adsorbable organic bound Halogens (AOX)	1.0	1.0	1.0	1.0	–	–

1 Each including by-products and semi-finished product production.

The requirements for sulfide, readily releasable, and AOX apply to the sample.

(2) By way of derogation from Section 6 paragraph 1 sentence 1, the maximum permissible exceedance for cadmium and Mercury 50 percent.

E Wastewater requirements for the site of the incident

(1) Waste water from the production and casting of non-ferrous metals such as lead, copper, zinc and precious metals, including the by-products and semi-finished products made from these metals,
at the site of the attack in the sample for chromium VI and for cyanide, easily released, each had a value of 0.10 mg/ l. Paragraph 6(1) shall not apply.

(2) Waste water from the treatment of exhaust air from the chlorine refining of aluminium may only be discharged if the
The use of chlorine, chlorine-releasing substances and fresh water is kept as low as possible.
The following requirements apply:

Chlorine, free	sample	0.50 mg/l
Hexachlorobenzene (HCB)	Qualified sample or 2-hour mixed sample	0.0030 mg/l
Adsorbable organically bound halogens (AOX)	sample	1.0mg/l

For hexachlorobenzene, a production-specific loading value of 0.30 mg per tonne of chlorinated treated
Aluminium (alloy) must be observed.

F Requirements for existing discharges

No different requirements apply to existing discharges.

G Waste disposal requirements

From the sludge produced during wastewater treatment, the metals or metal compounds
to recover, insofar as this is technically feasible and financially reasonable in the individual case.

H Operator obligations

(1) The requirements set out in paragraphs 2 to 5 shall apply to operators of installations for the following industrial activities:

1. Production of non-ferrous metals from ores, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes;
2. Melting, alloying or refining of non-ferrous metals with a melting capacity of 4 tonnes per day or more for lead and cadmium or 20 tonnes per day or more for other non-ferrous metals.

(2) In waste water from plants producing the following non-ferrous metals, including the
by-products and semi-finished products from these non-ferrous metals are the following
Parameters in the 2-hour composite sample or in the qualified sample at least once a month
measure:

1. at the point of discharge into the water body:

Production of non-ferrous metals parameters to be measured	
Copper, lead, tin, zinc, cadmium, Precious metals, nickel and cobalt	Iron and sulfate
Ferroalloys	iron
aluminum	Aluminium, fluoride, dissolved and filterable substances

2. before mixing with other waste water:

Production of non-ferrous metals	Parameters to be measured
Copper, lead and tin	Arsenic, cadmium, copper, nickel, lead, zinc, mercury, antimony and tin
Zinc and cadmium	Arsenic, cadmium, copper, nickel, lead, zinc and mercury
Precious metals	Arsenic, cadmium, copper, nickel, lead, zinc, mercury and silver
Nickel and cobalt	Arsenic, cadmium, copper, nickel, lead, zinc, mercury and cobalt
Ferroalloys	Arsenic, cadmium, copper, nickel, lead, zinc, mercury, chromium, total, and Chromium VI

If the available data series demonstrate a clear stability of the measurement results, the frequency
the measurements can be reduced according to official regulations.

(3) The quantity of fresh water required for industrial activities, the total quantity of waste water and the quantity of
The resulting wastewater streams must be recorded daily.

(4) An annual report shall be drawn up in accordance with Annex 2, point 3.

(5) The measurements of the parameters referred to in paragraph 2, sentence 1 shall be carried out using the analysis and measurement methods set out in Annex 1
or according to officially recognized monitoring procedures. The state regulations for
Self-monitoring remains unaffected by the operator's obligations under paragraphs 1 to 4.

Appendix 40 Metalworking, metal processing

(Source: BGBl. I 2004, 1159 - 1162;
For the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to waste water containing the pollutant load essentially from the following
Areas of origin including the associated pre-, intermediate and post-treatment:

1. Electroplating,
2. Pickling plant,
3. Anodizing plant,
4. Burnishing,
5. Hot-dip galvanizing plant, hot-dip tinning plant,
6. Hardening shop,
7. Printed circuit board manufacturing,
8. Battery manufacturing,
9. Enamelling company,
10. Mechanical workshop,
11. Vibratory grinding,
12. Paint shop.

(2) This Annex shall not apply to waste water from cooling systems and process water treatment, or to
Rainwater.

B **General requirements**

The pollutant load must be kept as low as possible by taking the following measures: 1.

Treatment of process baths using suitable methods such as membrane filtration, ion exchangers,
Electrolysis, thermal processes to achieve the longest possible service life of the process baths,

2. Retention of bath contents by means of suitable procedures such as low-carryover transport of goods,
Splash protection, optimized bath composition,
3. Multiple use of rinsing water using suitable processes such as cascade rinsing, circuit rinsing technology
using ion exchangers,
4. Recovery or recycling of suitable bath ingredients from rinsing baths into the
Process baths,
5. Recovery of ethylenediaminetetraacetic acid (EDTA) and its salts from chemical copper baths
and their rinsing baths.

C **Wastewater requirements for the discharge point**

(1) The waste water from one of the areas of origin specified in Part A, paragraph 1 shall be subject to the following conditions:
The following requirements are placed on the water:

Areas of origin	1	2	3	4	5	6	7	8	9	10	11	12
	Qualified sample or 2-hour composite sample											

aluminum	mg/l	3	3	3	-	-	-	-	-	2	3	3	3
Ammonium nitrogen	mg/l	100	30	-	30	30	50	50	50	20	30	-	-
Chemical Oxygen demand (COD)	mg/l	400	100	100	200	200	400	600	200	100	400	400	300
iron	mg/l	3	3	-	3	3	-	3	3	3	3	3	3
Fluoride, dissolved	mg/l	50	20	50	-	50	-	50	-	50	30	-	-
Nitrite nitrogen	mg/l	-	5	5	5	-	5	-	-	5	5	-	-
Hydrocarbons, in total	mg/l	10	10	10	10	10	10	10	10	10	10	10	10
Phosphorus, total	mg/l	2	2	2	2	2	2	2	2	2	2	2	2
Toxicity to Fish eggs (GEi)		6	4	2	6	6	6	6	6	4	6	6	6

(2) The requirement for hydrocarbons refers to the sample.
(3) When electroplating glass, only the requirement for toxicity to fish eggs of GEi = 2 applies.

D **Requirements for waste water before mixing**

(1) Waste water from one of the areas of origin referred to in Part A, paragraph 1 shall be subjected to the following treatment other waste water, subject to paragraphs 2 to 5, the following requirements shall apply:

Areas of origin	2	1		3	4	5	6	7	8	9	10	11	12
	Qualified sample or 2-hour composite sample												
AOX													
mg/l	1	1	1	1	1	1	1	1	1	1	1	1	1
arsenic													
mg/l	0.1		-	-	-	-	-	0.1	0.1	-	-	-	-
barium													
mg/l	-	-	-	-	-	-	2	-	-	-	-	-	-
Lead													
mg/l	0.5		-	-	-	0.5	-	0.5	0.5	0.5	0.5	-	0.5
cadmium													
mg/l	0.2		-	-	-	0.1	-	-	0.2	0.2	0.1	-	0.2
kg/t	0.3		-	-	-	-	-	-	1.5	-	-	-	-
Chlorine, free													
mg/l	0.5	0.5		-	0.5	-	0.5	-	-	-	0.5	-	-
Chrome, in total													
mg/l	0.5	0.5	0.5			-	-	0.5	-	0.5	0.5	0.5	0.5

chrome VI												
mg/l	0.1	0.1	0.1	0.1			-	-	0.1	-	0.1	0.1		-	0.1
cyanide, light releasable												
mg/l	0.2		-	-	-	-	1	0.2	-	-	0.2	-	-
Cobalt												
mg/l	-	-	-	1	-	-	-	-	-	1	-	-	-
copper												
mg/l	0.5	0.5		-	-	-	-	0.5	0.5	0.5	0.5			0.5	0.5
nickel												
mg/l	0.5	0.5		-	0.5	-	-	0.5	0.5	0.5	0.5			0.5	0.5
mercury												
mg/l	-	-	-	-	-	-	-	-	0.05	-	-	-	-
kg/t	-	-	-	-	-	-	-	-	0.03	-	-	-	-
selenium												
mg/l	-	-	-	-	-	-	-	-	-	1	-	-	-
Silver												
mg/l	0.1		-	-	-	-	-	0.1	0.1		-	-	-	-
Sulfide, light releasable												
mg/l	1	1	-	1	-	-	1	1	1	-	-	-
tin												
mg/l	2	-	2	-	2	-	2	-	-	-	-	-
zinc												
mg/l	2	2	2	-	2	-	-	2	2	2	2	2

(2) The requirements for AOX and chlorine, free and all requirements for batch plants refer to the sample. For chemical-reductive nickel deposition, a value of 1 mg/l applies for nickel.
(3) When electroplating glass, only the requirements for copper and nickel apply.
(4) In primary cell production (origin 8), a value of 0,1 mg/l applies for cadmium.
(5) The requirement for AOX in the areas of origin electroplating and mechanical workshops also applies as complied with if

1. the hydraulic oils, lubricating agents and water displacers used in production do not contain organic halogen compounds,
2. the hydrochloric acid used in production and waste water treatment does not have a higher contamination by organic halogen compounds and chlorine, as defined in DIN EN 939 (edition April 2000) for hydrochloric acid for the treatment of process water,
3. the iron and aluminium salts used in wastewater treatment do not cause a higher burden on organic halogen compounds than 100 milligrams, based on one kilogram of iron or Aluminium in the treatment agents used,
4. after examining the possibility in each individual case

   a) cyanide baths are replaced by cyanide-free ones,

   b) cyanides are detoxified without the use of sodium hypochlorite and

c) only cooling lubricants are used in which organic halogen compounds are not are included.

(6) The requirements as production-specific load values in the table in paragraph 1, column 1 for cadmium and column 8 for cadmium and mercury refer to the respective quantity of cadmium or mercury used. They are deemed to be met if the requirements in Part B and in Part E, paragraphs 2 or 4, and the respective concentration values for cadmium or mercury in columns 1 and 2 of the table in paragraph 1 are not exceeded.

E **Requirements for waste water at the site of the occurrence** (1) The waste water

may only contain those halogenated solvents that may be used in accordance with the Second Ordinance for the Implementation of the Federal Immission Control Act in the currently valid version. This requirement is also deemed to have been met if proof is provided that only permitted halogenated solvents are used. In addition, a value of 0.1 mg/l must be observed for VOCs (sum of trichloroethene, tetrachloroethene, 1.1.1-trichloroethane, dichloromethane - calculated as chlorine) in the sample.

(2) For waste water containing mercury, a value of 0,05 mg/l mercury shall be observed in the qualified sample or the 2-hour composite sample.
(3) Waste water from degreasing baths, demetallising baths and nickel baths shall not contain EDTA.
(4) For waste water from baths containing cadmium, including rinsing, a value of 0,2 mg/l cadmium in the qualified sample or the 2-hour composite sample shall be observed.
(5) The place where the waste water is generated is the outlet of the pre-treatment plant for the respective parameter.

Annex 41 Manufacture and processing of glass and artificial mineral fibres

(Source: BGBl. I 2004, 1162 - 1163; for the individual changes see footnote)

A **Scope** (1) This Annex applies to

waste water whose pollutant load originates mainly from the manufacture and processing of glass and artificial mineral fibres, including processing.
(2) This Annex shall not apply to waste water from indirect cooling systems and from process water treatment, as well as from the electroplating of glass and the machining of optical lenses in points of sale for the purpose of fitting them to spectacle frames.

(3) The requirements set out in Part C paragraphs 1 and 2 and Part D paragraph 1 number 1 sentence 3, number 2 and paragraph 2 numbers 4 and 5 are emission limit values within the meaning of Section 1 paragraph 2 sentence 1.

B **General requirements**

(1) In addition to the requirements under Section 3, the following general requirements shall apply to reduce the Water consumption:

1. Leaks and losses must be avoided as far as possible, 2. Cooling water and rinsing

water must be reused as far as possible after treatment, 3. Water must be kept in largely closed circuits.

(2) The waste water must not contain any halogenated hydrocarbons originating from auxiliary materials and additives such as cooling lubricants. Proof that the waste water does not contain halogenated hydrocarbons can be provided by information from the manufacturers stating that the feedstocks or auxiliary materials used do not contain any halogenated hydrocarbons.

(3) Waste water shall not contain:

1. Grinding sludge from the mechanical processing of lead glass, special glass, optical glass and Flat glass,
2. Etching sludge from the chemical surface treatment of lead glass, special glass and optical glass,
3. Silver and copper-containing sludges from the silvering and coppering of flat glass.

(4) During the chemical surface treatment of lead glass, special glass and optical glass, no waste water shall be generated from the exhaust gas scrubbing.

(5) During the manufacture of mineral fibres, no waste water shall be discharged from the exhaust gas scrubbing process.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	sample mg/l	Qualified sample or 2-hour mixed sample mg/l
Filterable substances	30	–
Chemical oxygen demand (COD)	–	130
sulfate	–	1 0001ÿÿ
Fluoride, dissolved	–	6.02
Hydrocarbons, total3	15	–
Ammonium nitrogen4	–	10

1 By way of derogation, for plants in which only acid polishing takes place, a Value of 3 000 mg/l.

2 By way of derogation, the following applies to plants in which only acid polishing takes place, as well as to Plants where opal glass is manufactured or processed, for fluoride, dissolved, a value of 30 mg/l.

3 The parameter only applies to hydrocarbons that do not contain fluorine and only to plants where Compressed air condensates are treated or cooling lubricants are used.

4 The parameter only applies to plants for the production and further processing of mineral fibres.

(2) The pH value of the waste water at the point of discharge into the water body shall not exceed 6,5. and not exceed a value of 9.0. Section 6 paragraph 1 does not apply.

D **Requirements for waste water before mixing**

(1) Waste water from mechanical processing in the field of lead glass, special glass, optical glass, Flat glass must meet the following requirements before it is mixed with other waste water:

1. Waste water must be recycled unless it is generated during the operation of hand-held grinding equipment. Waste water may only be discharged if it cannot be carried away by closed circuits and spraying or during the complete renewal of the circulation on the occasion of longer Shutdowns (e.g. company holidays), maintenance, cleaning and production changes are essential or in the case of blasting and grinding machines, a recycling system is required due to harmful effects on the machines is not possible. If waste water is discharged, the following requirements apply:

	Qualified sample or 2-hour mixed sample mg/l
arsenic	0.3
antimony	0.3
barium	3.0
Lead	0.3

2. If auxiliary or additive substances are used which contain one or more of the following contain heavy metals, the following requirements apply to the wastewater:

	Qualified sample or 2-hour mixed sample mg/l
copper	0.3
nickel	0.5
Chrome, total	0.3
cadmium	0.05
Tin1	0.5
Zinc2	0.5
Bor3	3.0

1 The parameter only applies to systems in which hot end coating with tin compounds is used becomes.

2 The parameter only applies to systems in which zinc selenite is used to decolorize the glass.

3 The parameter only applies to plants in which borosilicate glass is manufactured or processed. For plants, which produce or process less than 20 t/d, the above value does not apply. In these cases, the To reduce boron emissions as much as possible using technical means.

3. (deleted)

(2) To the waste water from chemical surface treatment in the field of lead glass, special glass, optical glass The following requirements apply before mixing with other waste water:

1. For lead and arsenic, a loading value of 50 g/t applies, based on the hydrofluoric acid (HF) input.
2. For companies with an acid consumption of less than 1 t HF (100 percent) in 4 weeks, the following applies to lead and Arsenic each has a loading value of 250 g/t HF used.
3. The requirements under points 1 and 2 refer to the pollutant concentration in of the qualified sample or the 2-hour composite sample (C) in grams per cubic meter, a Wastewater generation in the 4 weeks prior to sampling (Q) in cubic metres, hydrofluoric acid use in 4 weeks before sampling (HF) in tonnes, a concentration of acid in % (P). The specific Pollutant load (F) is calculated using the formula:
   F = (C x Q x 100)/(HF x P)
4. For barium, a concentration value of 3.0 mg/l in the qualified sample or the 2-hour Mixed sample.
5. If auxiliary or additive substances are used which contain one or more of the following contain heavy metals, the following requirements apply to the wastewater:

	Qualified sample or 2-hour mixed sample mg/l
copper	0.3
nickel	0.5
Chrome, total	0.3
cadmium	0.05
Tin1	0.5
Zinc2	0.5
Bor3	3.0

[1] The parameter only applies to systems in which hot end coating with tin compounds is used.

[2] The parameter only applies to systems in which zinc selenite is used to decolorize the glass.

[3] The parameter only applies to plants that manufacture or process borosilicate glass. The value mentioned does not apply to plants that produce or process less than 20 t/d. In these cases, boron emissions must be reduced as far as possible using technical means.

(3) For waste water from silvering and coppering of flat glass (mirror production) a value of 6.0 mg/m2 copper, 3.0 mg/m2 silver and 30 mg/m2 zinc, each based on the production capacity of glass area per hour. The production-specific load values refer to the production capacity on which the water law permit is based. The pollutant load per hour is determined from the pollutant concentration (qualified random sample or 2-hour mixed sample) and the wastewater volume flow per hour.

E **Wastewater requirements for the site of the incident**

The requirements set out in Part B, paragraphs 3, 4 and 5 shall be met for the place where the seizure occurred.

F **Requirements for existing discharges** For existing waste water discharges, the requirements set out in Part A, paragraph 3 must be complied with by 8 March 2016 at the latest. By way of derogation from this, the requirements set out in Part C, paragraph 1 for the chemical oxygen demand (COD) parameter must be complied with from 6 September 2014.

Appendix 42 Alkali chloride electrolysis

(Source: BGBl. 2024 I No. 66, pp. 16 – 18)

A Scope

(1) This Annex applies to waste water containing pollutants mainly from chloride-alkali electrolysis.

(2) This Annex shall not apply to waste water from cooling systems and from process water treatment, or from fused salt electrolysis of sodium chloride or from alkali chloride electrolysis for the production of alcoholates and dithionites.

(3) The requirements set out in Parts C, E and F are emission limit values within the meaning of Section 1(2), first sentence.

B General requirements

(1) Waste water from the alkali chloride electrolysis unit shall be returned to the production process as far as technically possible.

(2) Waste water shall not contain mercury or asbestos. These requirements shall be deemed to be met if mercury and asbestos are not used in the production process of the alkali chloride electrolysis unit.

(3) The generation of waste water and emissions of chloride shall be kept to a minimum. This shall be achieved in particular by the following measures:

1. Recycling of process streams from the alkali chloride electrolysis unit,
2. Concentration of brine filtration sludge,
3. Recycling of saline wastewater from other production processes,
4. Use of wastewater for solution treatment.

When using the membrane process, the following additional measures should be taken:

1. Return of the brine,

2. Purification of the brine before returning to the electrolysis by nanofiltration or an equivalent process.

(4) Emissions of chlorate shall be kept as low as possible. This shall be achieved in particular by the following measures:

1. Use of high purity brine, 2. Acidification
of the brine before electrolysis, 3. Reduction of chlorate
with acid,
4. catalytic reduction of chlorate, 5. use of chlorate-
containing wastewater streams in other production units.

When using the membrane process, the following additional measures should be taken:

1. Use of high-performance membranes, 2. Use of
high-performance electrodes with appropriate coatings.

(5) Retention capacities for waste water and measures for the proper reuse, treatment or disposal of retained waste water shall be provided in an amount appropriate to the risk in order to prevent uncontrolled emissions in the event of unscheduled operating conditions. The discharger shall carry out an appropriate risk assessment.

(6) Evidence of compliance with the general requirements must be provided in an operational wastewater register. In addition to the information specified in Annex 2, point 1, the wastewater register must contain information on syntheses, processes and plants that generate wastewater, including a description of the main chemical reactions in the form of conversion equations and the most important secondary reactions.

(7) Waste water not requiring treatment shall be discharged separately from waste water requiring treatment.

C Wastewater requirements for the discharge point

(1) The following requirements shall apply to the point of discharge of waste water into the water body:

parameter	Qualified sample or 2-hour mixed sample
COD	50 mg/l
TOC	20 mg/l
Filterable substances	35 mg/l
Toxicity to fish eggs GEi	2

D Requirements for waste water before mixing

There are no requirements placed on the wastewater before it is mixed with other wastewater.

E Wastewater requirements for the site of the incident

(1) The waste water in the sample shall not contain more than 2,5 mg/l of adsorbable organically bound halogens (AOX) and 0,20 mg/l of free chlorine.

(2) The requirement referred to in Part B(2) shall be met for the place of the seizure.

F Requirements for existing discharges

(1) By way of derogation from Part D, in the case of discharges from installations which were lawfully in operation before 1 March 2024 or whose construction was lawfully started on that date, the concentration of 3,0 mg/l for the AOX parameter in the sample in the waste water from the diaphragm-process alkali chloride electrolysis operating unit shall be maintained before mixing with other waste water.

(2) By way of derogation from Part B, paragraph 7, in the case of existing installations for the discharge of waste water requiring treatment
Wastewater treatment plants that were legally in operation before 1 March 2024 or whose construction was started on that date
has been lawfully started, with the consent of the competent authority, not requiring treatment
Wastewater should be discharged together with wastewater requiring treatment.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators shall determine the following parameters in the waste water at the point of discharge into the water body in the
flow-proportional 24-hour composite sample as follows:

parameter	Minimum frequency
TOC	Weekly
Filterable substances	Daily
AOX	Monthly
Heavy metals, if permitted under water legislation Admission limited	Monthly

For wastewater streams with proven low fluctuations in volume flow and concentration
the measurements can also be carried out in the time-proportional sample, in accordance with official regulations
If the existing data series demonstrate a clear stability of the measurement results, the
The frequency of measurements may be reduced as further specified by the authorities.

(2) At least the following measurements shall be taken in the waste water at the site of the occurrence:

parameter	Sampling	Minimum frequency
AOX, chlorate, chloride and free chlorine	sample	Monthly
Copper, nickel, sulfate	Qualified sample or 2-hour mixed sample	Yearly
Free chlorine (redox potential)	Continuously	Continuously

(3) An annual report shall be drawn up in accordance with Annex 2, point 3.

(4) The measurements of the parameters referred to in paragraphs 1 and 2 shall be carried out using the analysis and measurement methods specified in
Annex 1 or in accordance with officially recognized monitoring procedures. The state-legal
Provisions for self-monitoring remain unaffected by the operator's obligations under paragraphs 1 to 3.

**Annex 43 Manufacture of man-made fibres, films and sponge cloth by the viscose process
and cellulose acetate fibres**

(Source: BGBl. 2024 I No. 66, pp. 18 – 22)

A Scope

(1) This Annex shall apply to waste water whose pollutant load consists essentially of one or more of the
the following manufacturing areas including the associated precursors:

1. Viscose filament yarn,
2. Viscose-based artificial casing and sponge cloth,
3. Cellophane,
4. Cellulose acetate fiber.

It also applies to operationally contaminated rainwater that accrues in the area mentioned.

(2) This Annex shall not apply to waste water from indirect cooling systems and from process water treatment.

(3) The requirements set out in Part C paragraphs 1, 3 and 4 and Part D paragraph 1 are emission limit values within the meaning of Section 1 paragraph 2 sentence 1 of the Waste Water Ordinance.

B General requirements

(1) The amount of waste water and the load of pollutants shall be kept as low as possible by the following measures:

1. Use of water-saving processes in washing and cleaning processes (e.g. coil washing, cable washing, filter cloth washing) such as multiple use, countercurrent washing and circulation,
2. Condensation of vapours (e.g. during spinning bath preparation) by indirect cooling or via cooling tower circuit,
3. Use of wastewater-free processes for vacuum generation and exhaust air purification, 4. Reduction of spinning bath losses (e.g. during channel rinsing), 5. Reprocessing and recycling of excess lye, 6. Recovery and reuse of acetic acid and acetone in the production of cellulose acetate fibres,
7. Use of pulp that does not contain a higher content of organically bound halogens, measured as AOX (according to DIN 38414, Part 18 (July 2019 edition)) of 150 g/t pulp, 8. Use of bleaching baths that contain neither chlorine nor chlorine-releasing agents, 9. Use of preparations that achieve a DOC elimination rate of 80 percent after 7 days in accordance with the procedure in Annex 1 number 408, or retention, recycling, separate disposal or treatment of unused preparations from application to fibers or films, from the preparation station and from the supply lines,
10. Pretreatment of waste water streams containing pollutants that will be eliminated during the final cannot be adequately treated by wastewater treatment, in particular organic compounds that are poorly biodegradable or cannot be eliminated by final wastewater treatment, as well as volatile pollutants such as benzene and volatile halogenated organic compounds.

(2) Proof that the requirements for bleaching baths are met may be provided by listing the bleaching baths used in an operating logbook and by documenting their use and by providing information from the manufacturer that the bleaching baths do not contain chlorine or chlorine-releasing agents.

(3) Waste water not requiring treatment shall be discharged separately from waste water requiring treatment.

(4) Retention capacities for waste water and measures for the proper reuse, treatment or disposal of retained waste water must be provided in an amount appropriate to the risk in order to prevent uncontrolled emissions in the event of unscheduled operating conditions. The operator must carry out an appropriate risk assessment.

(5) If there are several wastewater-generating establishments at the site, the holder of the water permit shall establish in an appropriate form, with the operational managers of the other wastewater-generating establishments, the tasks, responsibilities and cooperation with regard to proper wastewater disposal.

(6) Evidence of compliance with the general requirements shall be provided in an operational wastewater register. In addition to the information specified in Annex 2, point 1, the wastewater register shall contain the following information:

1. Information on syntheses, processes and plants that generate waste water, including a description of the main chemical reactions in the form of reaction equations and the most important side reactions,
2. Data on the biological eliminability of the organic pollutant load of the wastewater streams.

(7) Wastewater treatment plants pursuant to Section 60 paragraph 3 sentence 1 number 2 of the Water Resources Act and associated sewerage systems and sewage sludge dewatering systems in connection with the
Wastewater disposal systems must be constructed and operated in such a way that odour and noise emissions are avoided become.

C Wastewater requirements for the discharge point

(1) For waste water from one of the areas referred to in Part A, paragraph 1, the following provisions shall apply to the point of discharge into the Waters meet the following requirements:

Areas		1	2	3	4
parameter	Qualified sample or 2-hour mixed sample				
TOC	kg/t	7.0	7.0	17	0.70
COD	kg/t	20	20	50	2.0
Nges	mg/l	10	50	10	10
Pges	mg/l	2.0	2.0	2.0	2.0
Sulfide, easily released	mg/l	0.30	0.30	0.30	–
GEi		2	2	2	2

(2) The production-specific load values for the COD parameter in kg/t refer to those of the Production capacity of the organic target products underlying the water law permit.
Pollutant load is calculated from the concentration values of the qualified sample or the 2-hour composite sample and determined from the wastewater volume flow corresponding to the sampling.

(3) For the parameters TOC, filterable solids, TNb and Ntot, if the following limits are exceeded,
The following annual average concentration values shall be observed for the discharged annual loads:

parameter	Annual freight	concentration (Annual average)
TOC	3.3 tonnes/year	33 mg/l1
Filterable substances	3.5 tonnes/year	35 mg/l
Tnb [2]	2.5 tonnes/year	25 mg/l3,4
Nges [2]	2.0 tonnes/year	20 mg/l3,4

[1] The annual mean value for TOC may be up to 100 mg/l if
(a) the annual average elimination rate for pre- and post-treatment is at least 90 percent and

(b) in the case of biological treatment, at least one of the following conditions is met:

I. the BOD5 value in the effluent is not more than 20 mg/l and the COD sludge load is not more than 0.25 kg COD/kg organic dry matter in the sludge or

II. The design and operation of the treatment plant are geared towards targeted nitrification aligned.

[2] Either the annual mean value for TNb or for Ntotal applies .

[3] The annual mean value for TNb and Nges does not apply to wastewater treatment plants without biological Wastewater treatment and wastewater from production areas 1, 3 and 4.

4 The annual mean value for TNb and Ntot for wastewater from production area 2 can be up to 40 mg/l and up to 35 mg/l for Ntot if the elimination rate in the pre- and final treatment in the The annual average is at least 70 percent.

(4) For the parameters adsorbable organically bound halogens (AOX) and heavy metals, If the annual discharged loads specified below exceed the following concentration values in Annual averages must be met:

parameter	Annual freight	concentration (Annual average)
AOX	100 kg/a	1.0mg/l
Chrome, total	2.5 kg/a	0.025 mg/l
copper	5.0 kg/a	0.050 mg/l
nickel	5.0 kg/a	0.050 mg/l
zinc	30 kg/a	0.30 mg/l1

1 The annual average does not apply to waste water whose main pollutant load comes from the production of viscose fibres.

(5) The parameters referred to in paragraphs 3 and 4 shall be measured in accordance with Part H, paragraph 1. The results of the Measurements are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply.

D Requirements for waste water before mixing

(1) Waste water from any of the areas referred to in Part A, paragraph 1 shall be subjected to the following other wastewater the following requirements apply:

Areas		1	2	3	4
parameter	Qualified sample or 2-hour mixed sample				
zinc	mg/l	1.0			
copper	g/t				7.0
AOX	g/t	40	30	30	8.0

For AOX, the values for the sample apply.

(2) For waste water from bobbin washing, cable washing, spinning and spinning bath treatment, the Production of viscose filament yarn a production-specific load for zinc of 8.0 kg/t.

(3) The production-specific load values in g/t and kg/t refer to those of the water law authorisation underlying production capacity of the organic target products. The pollutant load is determined from the Concentration values of the qualified sample or the 2-hour composite sample, for AOX from the sample, and determined from the wastewater volume flow corresponding to the sampling.

E Wastewater requirements for the site of the incident

The waste water from washing and rinsing baths may only contain organic complexing agents which achieve a DOC degradation rate of 80 percent after 28 days in accordance with the procedure set out in Annex 1, number 406.

F Requirements for existing discharges

(1) For existing discharges of waste water from bobbin washing, cable washing, spinning and Spinning bath preparation for the production of viscose filament yarn applies, in derogation from Part D, to the Manufacturing process with integrated thread washing in the spinning machine a production-specific freight value of 12 kg/t zinc, calculated according to Part D paragraph 3.

(2) By way of derogation from Part B(3), in the case of existing installations for the discharge of waste water requiring treatment which were lawfully in operation before 1 March 2024 or whose construction was lawfully started on that date, waste water not requiring treatment may, with the consent of the competent authority, be discharged together with waste water requiring treatment.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators shall measure the following parameters in the waste water at the point of discharge into the water body in the flow-proportional 24-hour composite sample as follows:

parameter	Minimum frequency
TOC	Daily
Filterable substances	Daily
Nges or TNb	Daily
Pges	Daily
AOX	Monthly
Chromium, total, copper, nickel, zinc, lead	Monthly
Other heavy metals, if limited in the water law permit	Monthly

In the case of wastewater flows with proven small fluctuations in volume flow and concentration, the measurements can also be carried out in the time-proportional sample in accordance with official regulations. If the available data series demonstrate a clear stability of the measurement results, the frequency of measurements can be reduced in accordance with more detailed official regulations.

(2) The annual mean values for the parameters referred to in Part C, paragraphs 3 and 4, shall be calculated from the results of the measurements referred to in paragraph 1.

(3) An annual report shall be drawn up in accordance with Annex 2, point 3.

(4) The measurements of the parameters pursuant to paragraph 1 shall be carried out using the analysis and measurement methods specified in Annex 1 or using officially recognised monitoring methods. The state regulations for self-monitoring remain unaffected by the operator's obligations pursuant to paragraphs 1 to 3.

Annex 45 Petroleum processing

(Source: BGBl. I 2004, 1166 - 1167; for the individual changes see footnote)

A **Scope** (1) This Annex applies to

waste waters containing pollutants originating mainly from the processing of petroleum (crude oil) or its products in refineries. This includes refineries which partly or exclusively produce lubricating oil.

(2) This Annex shall not apply to waste water from the production of hydrocarbons, from indirect cooling systems and from process water treatment.
(3) The requirements set out in Part C, paragraphs 1 and 3, and Part D, paragraphs 1 and 3, are emission limit values within the meaning of Section 1, paragraph 2, sentence 1.

B **General requirements**

Wastewater generation and pollutant loads must be kept as low as possible by the following measures:

1. Multiple use of partial water streams;

2. Pretreatment of wastewater streams containing pollutants that will be eliminated during the final wastewater treatment cannot be adequately treated;

3. Separation of waste water not requiring treatment from waste water requiring treatment; 4. Recovery of solvents used in the base oil production process by closed litigation;

5. Neutralisation of the hydrofluoric acid from the alkylation process or precipitation of the hydrofluoric acid by the addition of CaCl2 or AlCl3 or other suitable substances and separation of the precipitated substances;

6. Regeneration of sulphuric acid from the alkylation process and neutralisation of the resulting wastewater stream.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour composite sample mg/l
Total organic carbon (TOC)	25
Chemical oxygen demand (COD)	80
Biochemical oxygen demand in 5 days (BOD5)	15
Nitrogen, total, as the sum of ammonium, nitrite and nitrate nitrogen (Ntotal)	20
Phosphorus, total	1.3
Hydrocarbons, total	1.5

(2) Without prejudice to the requirements of paragraph 1, the water permit shall specify pollutant loads which result from the values multiplied by a specific waste water quantity of 0.5 m3 per tonne of input product. For the production of lubricating oil, a specific waste water quantity of 1.3 m3 per tonne of input product is to be used as a basis.

(3) At the point of discharge into the water body, the following annual mean values in the waste water shall not be exceeded:

	mg/l
Filterable substances	25
Total bound nitrogen (TNb)	25
Chemical oxygen demand (COD)	80

The parameters according to sentence 1 are to be measured according to Part H paragraph 1 sentence 1 number 1 letters a and c. The The results of the measurements are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply.

D **Requirements for waste water before mixing**

(1) Before being mixed with other waste water, waste water shall meet the following requirements:

	Qualified Sample or 2-hour composite sample mg/l	Sample mg/l
Phenol index after distillation and Dye extraction	0.10	
Adsorbable organically bound halogens (AOX)		0.10
Sulfide, easily released	0.40	

	Qualified Sample or 2-hour composite sample mg/l	Sample mg/ l
Cyanide, easily released		0.070

The requirements for AOX and cyanide apply to the sample.
(2) In addition to the requirements under paragraph 1, pollutant loads shall be determined which result from the specified concentration values and a specific waste water generation of 0.5 m3 /t feed product.

For the production of lubricating oil, a specific wastewater generation of 1.3 m3 /t feed product is to be assumed.
(3) The following annual mean values shall not be exceeded in waste water before mixing with other waste water:

	mg/l
Lead	0.030
cadmium	0.0080
nickel	0.10
mercury	0.0010
benzene	0.050

The parameters according to sentence 1 are to be measured according to Part H paragraph 1 sentence 1 number 2 letters a and b.
The results of the measurements are equivalent to the results of state monitoring. Section 6 paragraph 1 does not apply. Sentences 1 to 4 do not apply to refineries for the production of lubricating oil.

E **Requirements for waste water at the site of origin** For waste water from the final paraffining process, a value of 0.5 mg/l for adsorbable organically bound halogens (AOX) must be observed in the sample.

F **Requirements for existing discharges** For existing discharges of waste water from installations that were legally in operation before 31 August 2018 or whose construction had legally started on that date, the requirements for TOC under Part C paragraph 1 and the requirements for COD under Part C paragraph 3 and Part H paragraph 1 number 1 letter c only need to be met from 31 August 2021. Part H paragraph 1 number 1 letter a applies until 31 August 2021.
August 2021 with the proviso that COD is to be measured daily instead of TOC.

G **Waste disposal requirements** There are no waste disposal requirements.

H **Operator obligations**

(1) At least the following measurements shall be carried out in the waste water:

1. At the point of discharge into the water body, the following parameters shall be measured in the 2-hour composite sample or in the qualified sample as follows:

   (a) daily measurement of TOC, total hydrocarbons, filterable solids and Tnb;

   b) weekly measurement of BOD5;

   c) annual measurement of COD.

2. Before mixing with other wastewater, the following parameters are to be determined in the 2-hour composite sample or in the qualified sample as follows:

   (a) monthly measurement of the phenol index and of benzene, toluene, ethylbenzene and xylene; (b) quarterly measurement of lead, cadmium, nickel, mercury and vanadium.

   For refineries producing lubricating oil, sentence 1 applies, with the proviso that only the phenol index is to be measured.

(2) The annual mean values for the parameters referred to in Part C, paragraph 3, and Part D, paragraph 3 shall be calculated from the Results of the measurements referred to in paragraph 1.

(3) An annual report shall be drawn up in accordance with Annex 2, point 3.

(4) The measurements of the parameters referred to in paragraph 1 shall be carried out using the analysis and measurement methods set out in Annex 1 or according to officially recognized monitoring procedures. The state regulations for the Self-monitoring remains unaffected by the operator's obligations under paragraphs 1 to 3.

Appendix 46 Coal coking

(Source: BGBl. I 2004, 1167 - 1168;
For the individual changes see footnote)

A **Scope**

(1) This Annex shall apply to waste water whose pollutant load originates mainly from the coking of hard coal comes from.

(2) This Annex shall not apply to waste water from the processing of coal recyclables such as tar, phenolate liquor, Crude phenol oil and crude benzene as well as from indirect cooling systems and from process water treatment.

(3) The requirements referred to in Part C, paragraph 1, and Part D, paragraph 1 are emission limit values within the meaning of Section 1 paragraph 2 sentence 1.

B **General requirements**

(1) When wet quenching coke, the amount of fresh water used shall be minimised and the Firefighting water should be reused as far as possible. Other process water may only be used if in which the concentration values in the tables in Part C, paragraph 1 and D, paragraph 1 are not exceeded.

(2) Activated sludge from the waste water treatment plant in which waste water is treated in accordance with Part A, paragraph 1, shall be to supply coal to the coking plant.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
	g/t	mg/l
Biochemical oxygen demand in 5 days (BOD5)	9.0	20
Chemical oxygen demand (COD)	–	220
Nitrogen, total, as the sum of ammonium, nitrite and nitrate nitrogen (Ntotal)	9.0	35
Total bound nitrogen (TNb)	12	–
Phosphorus, total	–	2.0

(2) For the chemical oxygen demand (COD), an effluent value shall be determined in the qualified sample or the 2-hourly composite sample which corresponds to a reduction in COD of at least 90 percent. The reduction refers to the ratio of the COD load in the inflow to that in the outflow of the Wastewater treatment plant over a representative period not exceeding 24 hours.

(3) The production-specific load values (g/t) refer to the load values underlying the water law authorisation. coking capacity, expressed in the amount of feed coal with a mass fraction of water of 10 percent in 2 hours. If coal with a lower water content is used, the coking capacity to this water content. The pollutant load is calculated from the concentration values of the qualified sample or the 2-hour composite sample and from the sample corresponding to the Wastewater volume flow determined.

D **Requirements for waste water before mixing**

(1) The following requirements shall be imposed on waste water before it is mixed with other waste water:

	Qualified sample or 2-hour mixed sample	
	g/t	mg/l
Benzene and derivatives	0.03	–
Sulfide, easily released	0.03	0.1
Polycyclic aromatic hydrocarbons (PAHs)	0.015	0.05
Phenol index after distillation and dye extraction	0.15	0.5
Thiocyanate (SCN-)	–	4.0
Cyanide, easily released	0.03	0.1
Toxicity to fish eggs (GEi)	2	

(2) The requirements for the parameters sulphide, readily releasable, phenol index, thiocyanate, cyanide, readily releasable and toxicity to fish eggs (GEi) shall not apply if the waste water is additionally treated together with other waste water in a biological treatment plant before being discharged into a water body and, after treatment, meets the requirements of Annex 1, Part C for size class 4. In this case, the discharger shall check these parameters at the point of discharge at least once a year and communicate the results of the check to the competent authority.

(3) The production-specific load values (g/t) refer to the coking capacity underlying the water law permit, expressed in the amount of coal used with a mass proportion of water of 10 percent in 2 hours. If coal with a lower water content is used, the coking capacity must be converted to this water content. The pollutant load is determined from the concentration values of the qualified random sample or the 2-hour mixed sample and from the wastewater volume flow corresponding to the sampling.

E **Wastewater requirements for the site of the incident**

There are no additional requirements for wastewater at the site of the incident.

F **Requirements for existing discharges**

For existing waste water discharges, the requirements set out in Part A, paragraph 3 must be met by 8 March 2016 at the latest. By way of derogation from this, the requirements set out in Part C, paragraph 1 for the parameters total phosphorus and total nitrogen, as the sum of ammonium, nitrite and nitrate nitrogen, must be met.

(Nges) from 6 September 2014. The review according to Part D Paragraph 2 Sentence 2 is to be carried out from 8 March 2016.

Annex 47 Combustion plants

(Source: BGBl. I 2022, 93 - 94)

A Scope

(1) This Annex applies to waste water containing pollutants originating mainly from the operation of combustion plants.

(2) This Annex shall not apply to waste water from

1. Cooling systems of power plants and industrial processes, 2. Other

sources of emissions from steam generation and process water treatment, 3. Plants in which only

waste is burned, and 4. Combustion plants without wet flue gas scrubbing

with a rated thermal input of less than 50
Megawatt.

(3) The requirements set out in Part C(1), with the exception of the requirements for TOC and COD
and the requirements set out in Part D are emission limit values within the meaning of Section 1 Paragraph 2 Sentence 1.

B General requirements

(1) Wastewater generation and pollutant loads shall be kept as low as possible by the following measures
is:

1. Recirculation of process water for multiple use,
2. operational use of rainwater requiring treatment,
3. Operation of the flue gas scrubber with the maximum possible chloride concentration with the
   The aim is to reduce the heavy metal load,
4. Cooling of boiler ash by circulation of the cooling medium water or by air cooling or
5. Treatment of waste water by a suitable combination of processes such as precipitation, flocculation,
   Neutralization, filtration, ion exchange, membrane processes, addition of adsorbents or other
   appropriate procedures.

(2) Waste water requiring treatment shall not be mixed with waste water not requiring treatment prior to treatment.
Wastewater can be mixed.

C Wastewater requirements for the discharge point

(1) The following shall be applied to the waste water from flue gas scrubbers at the point of discharge into the water body:
Requirements:

		Qualified sample or 2-hour mixed sample
Filterable substances		30 mg/l
Chemical oxygen demand (COD)		
–	Use of quicklime	80 mg/l
–	Use of limestone	150 mg/l
Total organic carbon (TOC)		
–	Use of quicklime	25 mg/l
–	Use of limestone	50 mg/l
sulfate		2 000 mg/l
sulfite		10 mg/l
Fluoride, dissolved		15 mg/l
Toxicity to fish eggs (GEi)		2

(2) The water permit may specify the pollutant load for COD and TOC that will be present in the water at the time of
was present at the time of withdrawal from a water body (previous pollution), provided that the extracted
pollutant load is still present when discharged into the water body.

(3) By way of derogation from Section 6(1), sentence 1, the values for the parameters referred to in paragraph 1 may not exceed 50
percent may be exceeded.

D Requirements for waste water before mixing

The following are added to the wastewater from the flue gas scrubber before it is mixed with other wastewater:
Requirements:

	Qualified sample or 2-hour mixed sample mg/l
arsenic	0.050
cadmium	0.0050
mercury	0.0030
Chrome, total	0.050
nickel	0.050
copper	0.050
Lead	0.020
zinc	0.20
Thallium	0.050
Sulfide, easily released	0.10

E Wastewater requirements for the site of the incident

There are no additional requirements for wastewater at the site of the incident.

F Requirements for existing discharges

The requirement under Part B, paragraph 1, number 4 does not apply to existing waste water discharges.

G Waste disposal requirements

There are no requirements under waste law.

H Operator obligations

(1) Operators of combustion plants with a rated thermal input of 50 megawatts or more shall participate in the
At least the following measurements must be carried out in the wastewater at the point of discharge into the water body:

1. continuous measurement of pH, temperature and volume of the wastewater stream,
2. monthly measurement in the qualified sample or in the 2-hour composite sample
   (a) all parameters referred to in Part C, paragraph 1, and in Part D, except GEi and
   b) the parameters chloride and TNb and
3. Measurement of the volume of the waste water stream corresponding to the samples taken in accordance with point 2.

(2) An annual report shall be drawn up in accordance with Annex 2, point 3.

(3) The measurements of the parameters referred to in paragraph 1 shall be carried out using the analysis and measurement methods set out in Annex 1 or
according to officially recognized monitoring procedures. The state regulations for the
Self-monitoring remains unaffected by the operator's obligations under paragraphs 1 and 2.

Appendix 48 (deleted)

Annex 49 Wastewater containing mineral oil

(Source of the original text: BGBl. I 2004, 1173 - 1174)

A **Scope**

(1) This Annex shall apply to waste water the pollutant load of which originates mainly from establishments in which waste water containing mineral oil is regularly generated during the de-preservation, cleaning, maintenance, repair and recycling of vehicles and vehicle parts.
(2) This Annex shall not apply to waste water from

1. the treatment of bilge, slop and ballast water from ships, 2. metalworking and painting,
3. the interior cleaning of transport containers.

B **General requirements**

(1) The pollutant load shall be kept as low as possible by the following measures:

1. extensive recycling of washing water in systems for mechanical vehicle cleaning, 2. avoidance of additional wastewater pollution through measures to reduce the growth of microorganisms in recycling systems.

(2) In addition to paragraph 1, the pollutant load shall be reduced after examining the possibilities in each individual case by the following: Measures to keep to a minimum:

1. Wastewater-free operation of the workshop,
2. Recirculation of washing water from the cleaning of vehicle parts and de-preservation, 3. Minimizing the amount of rainwater contaminated with mineral oil, 4. Waste water discharges from the circulation systems of mechanical vehicle washing systems only from the service water supply.

(3) Waste water shall not contain:

1. organic complexing agents which achieve a DOC elimination rate of at least 80 percent after 28 days in accordance with the procedure set out in Annex 1, number 406, 2. organically bound halogens originating from washing and cleaning agents or other operating and auxiliary materials.

Proof that the requirements are met can be provided by listing all detergents and cleaning agents or other operating and auxiliary materials used in each case in an operating log and, according to the manufacturer's information, not containing any of the detergents and cleaning agents or substances or groups of substances mentioned.

C **Wastewater requirements for the discharge point**

The following requirements apply to the wastewater at the point of discharge into the water body:

	Qualified sample or 2-hour composite sample (mg/l)
Chemical oxygen demand (COD)	150
Biochemical oxygen demand (BOD5)	40

D **Requirements for waste water before mixing**

There are no additional requirements placed on the wastewater before it is mixed with other wastewater.

E **Waste water requirements for the site of the source** (1) The waste water shall contain a total hydrocarbon content of 20 mg/l in the sample. This requirement shall not apply to a waste water flow of less than 1 m3 per day.
(2) The requirement under paragraph 1 sentence 1 shall also be deemed to be met if a wastewater treatment plant approved by a general building inspectorate for plants for the limitation of hydrocarbons in wastewater containing mineral oil or otherwise approved under state law is installed, operated and regularly maintained in accordance with the approval and is checked for its proper condition before commissioning and at regular intervals of not longer than five years in accordance with state law.

(3) Only waste water containing easily separated washing and cleaning agents or unstable emulsions that do not impair the cleaning performance of the system may be discharged into light liquid separator systems. Within the meaning of this Annex, easily separated cleaning agents are those that form temporarily stable or unstable emulsions in combination with light liquids, ie that de-emulsify after the cleaning process.

(4) The requirement under paragraph 1 sentence 1 shall also be deemed to be met for waste water from mechanical vehicle cleaning if the excess water is drained from the service water reservoir of the recirculation system.
(5) The place where the waste water is generated is the outlet of the pre-treatment plant for hydrocarbon-containing waste water.

F **Requirements for existing discharges** For existing discharges of

waste water from installations that were legally in operation before 1 June 2000 or whose construction was legally started on that date, the following different requirements apply:

1. The requirement for the pollutant load according to Part B Paragraph 1 No. 1 applies after examination of the possibilities in Individual case.
2. For waste water from mechanical vehicle cleaning, the value for total hydrocarbons according to Part E, paragraph 1 is deemed to be complied with.
3. When calculating the waste water generation according to Part E, paragraph 1, sentence 2, waste water from mechanical Vehicle cleaning not taken into consideration.

Appendix 50 Dental treatment

(Source: BGBl. I 2004, 1175; for individual changes see footnote)

A **Scope** (1) This Annex applies to

waste water containing pollutants originating mainly from treatment areas in dental surgeries and dental clinics where amalgam is produced.
(2) This Annex shall not apply to waste water from film processing or to sanitary waste water.

B **General requirements** There are no

requirements beyond those set out in Section 3.

C **Wastewater requirements for the discharge point**

There are no additional requirements for the wastewater at the point of discharge into the water body.

D **Requirements for waste water before mixing** No additional requirements

are placed on the waste water before it is mixed with other waste water.

E **Requirements for waste water at the site of origin** (1) The amalgam load of the

raw waste water from the treatment plants shall be reduced by 95 per cent at the site of origin.

(2) The requirement under paragraph 1 shall be deemed to be met if

1. into the wastewater outlet of the treatment sites before mixing with the other sanitary wastewater, a

   Amalgam separator is installed and operated and has a separation efficiency of at least 95 percent,

2. Waste water generated when handling amalgam is passed through the amalgam separator, 3. Procedures are used to

extract waste water from the treatment areas which keep the use of water to a minimum so that the amalgam separator can maintain its prescribed level of efficiency,

4. the amalgam separator is regularly maintained and emptied in accordance with the approval and written or electronic evidence is kept of this (maintenance report, acceptance certificate for separated material) and

5. the amalgam separator before commissioning and at intervals of no longer than 5 years after
State law is checked for its proper condition.

F **Requirements for existing discharges**

No different requirements apply to existing discharges.

G **Waste disposal requirements**

The separated amalgam must be collected in a suitable container and disposed of in accordance with the requirements of the Part E in accordance with the applicable hygiene regulations and, insofar as the material to be separated is waste within the meaning of the German Recycling Management Act, in accordance with the waste disposal regulations to supply.

Annex 51 Surface disposal of waste

(Source: BGBl. I 2004, 1175 - 1177;
For the individual changes see footnote)

A **Scope**

This Annex applies to waste water whose pollutant load essentially comes from the surface deposition of waste.

B **General requirements**

The volume flow and the pollutant load of the leachate must be controlled by appropriate measures during The construction and operation of landfills should be kept as low as possible given the state of the art.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample	
Chemical oxygen demand (COD)	mg/l	200
Biochemical oxygen demand in 5 days (BOD5)	mg/l	20
Nitrogen, total, as sum of ammonium, Nitrite and nitrate nitrogen (Ntot)	mg/l	70
Phosphorus, total	mg/l	3
Hydrocarbons, total	mg/l	10
Nitrite nitrogen (NO2-N)	mg/l	2
Toxicity to fish eggs (GEi)		2

(2) For waste water which is expected to have a Chemical Oxygen Demand (COD) before treatment is more than 4 000 mg/l, notwithstanding paragraph 1, the COD shall be an effluent value of the qualified sample or 2-hour composite sample, which results in a reduction of COD by at least 95 percent. The reduction of COD refers to the ratio of the pollutant load in the inflow to of the effluent of the wastewater treatment plant in 24 hours. For the pollutant load of the inflow, the The load on the plant on which the permit is based is decisive. The extent of the reduction is based on the Basis for the design and functioning of the wastewater treatment plant.
(3) The requirement for total hydrocarbons refers to the sample. It does not apply to waste water from the disposal of municipal waste.
(4) The requirement for total nitrogen shall apply at a waste water temperature of 12 °C and above in the effluent of the biological reactor of the wastewater treatment plant. A fixed value for total nitrogen applies also considered to be complied with if it is complied with, determined as "total bound nitrogen (TNb)" . In the Water law approval may allow a higher concentration of up to 100 mg/l for total nitrogen if the reduction in nitrogen load is at least 75 percent. The reduction refers to refers to the ratio of the nitrogen load in the inflow to that in the effluent in a representative period,

which should not exceed 24 hours. The total bound nitrogen (TNb) is to be used as the basis for the loads.
place.

D **Requirements for waste water before mixing**

(1) Before being mixed with other waste water, waste water shall meet the following requirements:

	Qualified sample or 2-hour mixed sample mg/l
Adsorbable organically bound halogens (AOX)	0.5
mercury	0.05
cadmium	0.1
Chrome, total	0.5
Chromium VI	0.1
nickel	1
Lead	0.5
copper	0.5
zinc	2
arsenic	0.1
Cyanide, easily released	0.2
Sulfide, easily released	1

For AOX, chromium VI, readily releasable cyanide and readily releasable sulphide, the values for the sample apply.
(2) Waste water shall not be mixed with other waste water, except waste water from biological treatment plants.
treatment of waste may only be mixed for the purpose of joint biological treatment,
if it is expected that at least one of the following conditions will be met:

1. In terms of toxicity to fish eggs, luminescent bacteria and daphnia of a representative
   Wastewater samples are analyzed after an elimination test using a biological
   Laboratory continuous flow treatment plant (plant e.g. according to DIN 38412-L 26) does not meet the following requirements
   exceeded:

   Toxicity to fish eggs GE = 2,

   Toxicity to Daphnia GD = 4 and

   Toxicity to Luminous bacteria GL = 4.

   Through measures such as nitrification in the biological laboratory sewage treatment plant or pH value maintenance
   It must be ensured that an exceedance of the GEi value is not caused by ammonia (NH3)
   The wastewater may be diluted as desired for the start-up of the biological laboratory treatment plant.
   In case of nutrient deficiency, nutrients can be added. During the test phase, no
   Dilution water must be added.
2. A DOC elimination rate of 75 percent is achieved in accordance with the procedure set out in Annex 1, point
   408 reached.
3. The wastewater already has a certain concentration before it is treated biologically with other wastewater.
   COD concentration of less than 400 mg/l.

Appendix 52 Dry cleaning

(Source of the original text: BGBl. I 2004, 1177)

A **Scope**

This Annex applies to waste water whose pollutant load originates primarily from the dry cleaning of textiles and carpets as well as of goods made of fur and leather using solvents containing halogenated hydrocarbons in accordance with the Second Ordinance for the Implementation of the Federal Immission Control Act in its currently valid version.

B **General requirements** There are no

requirements beyond those set out in Section 3.

C **Requirements for waste water at the point of discharge** There are no additional

requirements for waste water at the point of discharge into the water body.

D **Requirements for waste water before mixing**

(1) Before mixing with other waste water, the waste water shall not exceed the following values for adsorbable organically bound halogens (AOX):

Filling capacity of the Dry cleaning machine	Concentration in the sample mg/l	1-hour load based on the filling capacity of the sample material and the 1-hour water quantity mg/kg
up to 50 kg of goods to be treated	0.5	-
more than 50 kg of goods to be treated	0.5	0.25

(2) If several dry cleaning machines are operated in the same establishment, the size class which shall be decisive is that resulting from the sum of the filling quantities of the individual machines for the goods to be treated.
(3) A value determined for AOX in paragraph 1 shall also be deemed to be complied with if the content of halogenated hydrocarbons in the waste water is determined using the individual substances used and the total, calculated as chlorine, does not exceed the values specified in paragraph 1.
(4) A value specified in paragraph 1 shall also be deemed to have been complied with if a waste water treatment plant approved by building permit or otherwise under state law is installed, operated and maintained in accordance with the permit and is checked for its proper condition before commissioning and at regular intervals of not longer than five years in accordance with state law.

E **Wastewater requirements for the site of the incident**

The waste water may only contain those halogenated solvents that may be used in dry cleaners according to the Second Ordinance on the Implementation of the Federal Immission Control Act of 10 December 1990 (Federal Law Gazette I p. 2694). This requirement is deemed to have been met if it can be proven that only permitted halogenated hydrocarbons are used.

Appendix 53 Photographic processes (silver halide photography)

(Source of the original text: BGBl. I 2004, 1177 - 1179)

A **Scope**

(1) This Annex shall apply to waste water containing pollutants originating mainly from photographic processes in silver halide photography or from the treatment of liquid wastes from such processes. Part B shall apply to the place where the waste water is generated.

(2) This Annex shall not apply to waste water from

1. indirect cooling systems and process water treatment,
2. other photochemical processes not covered by paragraph 1,
3. Operations with a film and paper throughput of not more than 200 m2 per year, if no waste water is generated from the treatment of baths.

B **General requirements**

(1) The pollutant load shall be kept as low as possible by the following measures:

1. Separate collection of fixing, developing, bleaching and bleach-fixing baths as well as their bath overflows for Bath treatment,
2. Reduction of bath carryover by suitable procedures such as splash protection, low-carryover film and paper transport,
3. Saving of flushing water through suitable processes such as cascade flushing, water saving circuit and Circulation,
4. Return of fixing baths, with the exception of the X-ray and microfilm areas, to a

   Recycling process with a paper and film throughput of more than 3 000 m2 per year.
5. Return of fixing baths, bleach-fixing baths, bleach baths and colour developers to a

   Recycling process with a paper and film throughput of more than 30 000 m2 per year.

(2) Waste water from the treatment of bleaching and bleach-fixing baths shall not contain organic complexing agents which have a DOC degradation rate of 80 percent after 28 days in accordance with the procedure in Annex 1 Cannot reach number 406.

(3) Chlorine or hypochlorite shall not be used in the treatment of baths.

(4) Proof that the requirements of paragraphs 2 and 3 are met may be provided by that the operating and auxiliary materials used are listed in an operating log and their use is documented and there are manufacturer information stating that the substances that are not may not be present in the operating and auxiliary materials used.

C **Wastewater requirements for the discharge point**

There are no additional requirements for the wastewater at the point of discharge into the water body.

D **Requirements for waste water before mixing**

(1) The following requirements shall be imposed on waste water before it is mixed with other waste water:

1. Wastewater from the treatment of baths

	Qualified Sample or 2-hour mixed sample mg/l	sample mg/l
Silver	0.7	-
Adsorbable organically bound Halogens (AOX)	-	0.5
Chrome, total	0.5	-
Chromium VI	-	0.1
tin	0.5	-
mercury	0.05	-
cadmium	0.05	-
Cyanide, total	2	-

2. Rinse water

   In plants with a film and paper throughput of more than 3 000 m2 per year, the discharge of Depending on the size of the company, the following loading values for silver in the rinse water are not exceeded become:

Film and paper throughput in m2 per year	Silver Cargo mg/sqm
more than 3 000 to 30 000	
- Black and white and X-ray photography	50
- Color photography	70

Film and paper throughput in m2 per year	Silver Cargo mg/sqm
more than 30 000	30

(2) A requirement for silver specified in paragraph 1 for a film and paper throughput of more than 3 000 to 30 000 m2 per year shall also be deemed to be met if a waste water treatment plant or another equivalent facility for reducing the silver load approved by a general building inspection authority or otherwise under state law is installed and operated, regularly maintained in accordance with the approval and checked for its proper condition before commissioning and at regular intervals of not longer than five years in accordance with state law.

Annex 54 Manufacturing of wafers and solar cells

(Source: BGBl. I 2004, 1179 - 1180; for
the individual changes see footnote)

A Scope

(1) This Annex shall apply to waste water containing pollutants mainly from the manufacture of wafers for semiconductor devices and of solar cells, including the associated pre-, intermediate and post-treatment.

(2) This Annex shall not apply to waste water from indirect cooling systems and from process water treatment, including retentates from ultrapure water treatment by membrane processes.

B General requirements

The pollutant load must be kept as low as possible after examining the conditions in each individual case by the following Measures are possible:

1. Use of water-saving flushing technology (e.g. timed flushing, immersion spray flushing technology, conductivity switch), 2.

Multiple use of suitable flushing water after treatment using processes such as recycling via Ion exchangers, membrane technology,

3. Multiple use of suitable rinsing water by further use in other areas, e.g. as Cooling or process water for steam generation, in cooling plants, in electroplating plants, printed circuit board production,

4. Recycling of exhaust air washing water, 5. Reuse

or disposal of process baths (e.g. acids, organic solvents) for Recycling.

C Wastewater requirements for the discharge point

A requirement for the toxicity of the waste water to fish eggs of GEi = 2 is set for the point of discharge into the water body .

D Requirements for waste water before mixing

The following requirements apply to the wastewater before it is mixed with other wastewater:

	Qualified sample or 2-hour composite sample mg/l	Sample mg/ l
Adsorbable organically bound Halogens (AOX)	-	0.5

	Qualified sample or 2-hour composite sample mg/l	sample mg/l
arsenic	0.2	-
Benzene and derivatives	0.05	-

E Wastewater requirements for the site of the incident

(1) Waste water from cleaning processes shall contain at the place of origin only those halogenated solvents which, according to the Second Ordinance on the Implementation of the Federal Immission Control Act in the This requirement is also deemed to be met if the
Proof is provided that only approved halogenated solvents are used. Furthermore,
VOCs (sum of trichloroethene, tetrachloroethene, 1,1,1-trichloroethane, dichloromethane - calculated as chlorine) Value of 0.1 mg/l in the sample must be maintained.

(2) Without prejudice to the requirements of paragraph 1, the following values shall be observed in waste water from galvanic processes: to comply with:

	sample mg/l
Lead	0.5
Chrome, total	0.5
Chromium VI	0.1
copper	0.5
nickel	0.5
Silver	0.1
tin	2
Sulfide, easily released	1
Cyanide, easily released	0.2
Chlorine, free	0.5

For chromium VI and cyanide, easily released, the values must not be exceeded; Section 6 paragraph 1 does not apply. Application. Ethylenediaminetetraacetic acid (EDTA) and its salts must not be present in wastewater.

(3) For waste water containing arsenic, a value of 0,3 mg/l arsenic in the sample shall be observed.

(4) For waste water containing cadmium and selenium, a value of 0.2 mg/l cadmium and 1 mg/l selenium in the Sample to be observed.

Appendix 55 Laundries

(Source of the original text: BGBl. I 2004, 1180 - 1181)

A **Scope**

(1) This Annex shall apply to waste water the pollutant load of which results mainly from the washing of contaminated textiles, carpets, mats and fleeces in factories and public institutions.
(2) This Annex shall not apply to waste water from:

1. Wool laundries,
2. textile cleaning in non-aqueous liquors,
3. textile manufacturing and finishing,

4. the preparation and processing of textile fibres and natural hair, 5. the washing of filter textiles and fleeces,

6. the washing of household textiles in coin-operated laundromats with self-service washing machines, 7. the washing of household textiles, restaurant and hotel textiles or other comparable textiles, if no organochlorine or chlorine-releasing detergents and washing aids or elemental chlorine are used, 8. indirect cooling systems.

B **General requirements**

(1) Waste water shall not contain:

1. organic complexing agents (excluding phosphonates) which have a DOC elimination rate of 28 days of less than 80 percent in accordance with the procedure set out in Annex 1, number 406,
2. Residues from filters and sieves as well as residues of washing agents, washing aids and other auxiliary materials arising from the emptying of packaging, containers and storage containers,
3. Biocides from the treatment of laundry in standing baths, 4. Organically bound halogens resulting from the use as solvents in the pre-cleaning of the laundry originate,
5. Organochlorine and chlorine-releasing compounds or chlorine from the use of detergents and washing aids, provided that they are not used in the rinse zone or the rinse bath when washing hospital and home linen and work clothing in the meat and fish processing industry.

(2) If chlorination chemicals are used to treat the process water, they shall be dosed in such a way that no higher concentration than 1 mg/l of free chlorine is to be expected in the inlet to the washing machine.
(3) Proof that the requirements of paragraph 1 are met may be provided by listing the detergents and auxiliaries used in an operating log and by stating that, according to the manufacturer, they do not contain any of the substances or groups of substances referred to in paragraph 1.

C **Wastewater requirements for the discharge point**

The following requirements apply to the wastewater at the point of discharge into the water body:

	Qualified sample or 2-hour composite sample mg/l
Chemical oxygen demand (COD)	100
Biochemical oxygen demand in 5 days (BOD5)	25
Nitrogen, total, as the sum of ammonium, nitrite and nitrate nitrogen (Ntotal)	20
Phosphorus, total	2

D **Requirements for waste water before mixing**

(1) The following conditions shall be applied to waste water from the following areas before it is mixed with other waste water:
Requirements:

Area	AOX g/t
Hospital and home linen	18
Work clothes of the meat and fish processing Commercial	40

The requirements do not apply if the proportion of this laundry is 10 percent or less of the washing capacity of the company.

(2) The requirements under paragraph 1 shall also be deemed to have been met if the discharger proves that
By using suitable washing procedures, compliance with the AOX load in the wastewater stream can be expected.
(3) The specific load values in paragraph 1 refer to the load values on which the water law permit is based.
washing capacity (dry weight of the laundry). The pollutant load is determined

- In the case of continuously operating car washes, the concentration value of the sample and the Sampling corresponding wastewater volume flow,
- in discontinuously operating washer-extractors from the concentration value of the Sample of the combined waste water from the washing process and the resulting Wastewater volume flow.

(4) The requirement under paragraph 1 for AOX for waste water from hospital and home laundry shall not apply in Epidemic case of notifiable infectious diseases.

(5) Waste water from washing cleaning cloths, work clothes *) , carpets and mats are
The following requirements are made before mixing with other waste water:

	Qualified sample or 2-hour mixed sample mg/l
Hydrocarbons, total	20
AOX	2
copper	0.5
Chrome, total	0.5
nickel	0.5
Lead	0.5
cadmium	0.1
mercury	0.05
zinc	2
arsenic	0.1

The requirements for hydrocarbons, total, and AOX refer to the sample.
(6) The requirements of paragraph 5 shall also be deemed to have been met if a building permit issued by the general building inspectorate
Approval for wastewater treatment plants for this application or otherwise approved under state law
Wastewater treatment plant installed, operated and regularly maintained in accordance with the approval and
before commissioning and at regular intervals of not longer than 5 years in accordance with national law on their
checked for proper condition.

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*) From the areas of metalworking, mechanical engineering, automotive companies and chemical companies.

Annex 56 Manufacture of printing plates, printed matter and graphic products

(Source of the original text: BGBl. I 2004, 1182 - 1183)

A **Scope**

(1) This Annex shall apply to waste water whose pollutant load originates mainly from the following areas:
including printing plate production and the associated pre-, intermediate- and post-treatment:

1. Typesetting and reproduction,
2. High pressure,
3. Flat printing (offset printing),
4. Screen printing and
5. Gravure printing.

(2) This Annex shall not apply to waste water from textile printing works other than printing plate manufacture (e.g. printing stencils and printing cylinders), from silver halide photography as well as from indirect cooling systems and from process water treatment.
(3) This Annex shall also not apply to waste water from establishments in the typesetting and reproduction, letterpress, planographic and screen printing sectors, where the use of fresh water necessary for production is less than

than 250 m3 per year, the wastewater is treated in a biological treatment plant and the following Wastewater streams are not discharged:

1. Typesetting and reproduction production area
   Waste water containing chromium or zinc from the processing of cartographic foils or colour foils;
2. High pressure area

   a) Waste water from cleaning processes of machines, equipment and printing forms with
      Ink residues or waste water from cleaning processes when using
      hydrocarbons,

   (b) waste water from the manufacture of metal clichés;

3. Flat printing area

   a) Waste water from the etching of multi-metal plates, b) Waste

   water from mechanical cleaning processes of machines, equipment and printing forms with
      c) adhesion of printing inks when cleaning chemicals are used simultaneously, c) negative plate

   developers containing copper, d) fountain solution;

4. Area of printing

   a) Waste water from cleaning or stripping processes when using heavy metal-containing
      Input materials (except copper from phthalocyanine pigments),

   b) Waste water from cleaning or stripping operations involving the simultaneous use of hydrocarbons, halogenated
      hydrocarbons or active chlorine, c) Waste water from the manufacture of metal

   sieves.

B **General requirements**

(1) The pollutant load shall be kept as low as possible by the following measures:

1. Extension of the service life of process solutions through multiple use or recycling via regeneration or cleaning stages,
2. Separation and treatment of aqueous and solvent-containing partial streams in gravure printing,
3. Avoidance of rinsing water by returning it to the working baths in gravure printing,
4. separate collection and utilization of warming water in gravure printing,
5. Saving of rinsing water when processing printing forms in flat and through printing by means of
   suitable processes such as cascade flushing and circuit flushing technology.

(2) Waste water shall not contain:

1. organic complexing agents which have a DOC degradation rate of less than 80 percent after 28 days
   in accordance with the procedure laid down in Annex 1, point 406,
2. Operating and auxiliary materials containing chlorine or chlorine-releasing substances as well as organically bound
   Halogens from solvents, detergents and cleaning agents,
3. Arsenic, mercury, cadmium and their compounds as well as colour pigments containing lead or chromium, with the exception of lead, cadmium and their compounds from colour pigments in ceramic screen printing,
4. organic solvents from cleaning textile dampening rollers in planographic printing and 5. residues of

   Chemicals, paints or additives.

The requirements under numbers 1 to 4 are deemed to be met if the operating and
Auxiliary materials and chemicals used are listed in an operating log, their use is documented and
according to the manufacturer, they do not contain any of the substances and groups of substances listed in sentence 1.

C **Wastewater requirements for the discharge point**

The following requirements apply to the wastewater at the point of discharge into the water body:

		Qualified sample or 2-hour mixed sample
Chemical oxygen demand (COD)	mg/l	160
Biochemical oxygen demand in five days (BSB5)	mg/l	25
Phosphorus, total	mg/l	2
Nitrogen, total, as sum of Ammonium, nitrite and nitrate nitrogen (Ntot)	mg/l	50
Hydrocarbons, total	mg/l	10
iron	mg/l	3
aluminum	mg/l	3
Toxicity to fish eggs (GEi)		4

The requirement for hydrocarbons refers to the sample.

D **Requirements for waste water before mixing**

(1) The waste water from the areas referred to in Part A, paragraph 1 shall be treated with the following substances before being mixed with other Wastewater is subject to the following requirements:

Areas	1	2	3	4	5
	Qualified sample or 2-hour composite sample mg/l				
Adsorbable organically bound Halogens (AOX)	-	1	1	1	1
Lead	-	-	-	1	-
cadmium	-	-	-	0.1	-
Chrome, total	1	1	1	1	1
Cobalt	-	-	1	1	-
copper	1	1	1	1	1
nickel	-	-	-	-	2
Silver	-	-	-	0.5	0.5
zinc	2	2	2	2	2

The AOX requirement and all requirements for batch plants refer to the sample.
(2) When using pigments containing heavy metals in ceramic screen printing in area 4, the following applies to filterable substances: a value of 30 mg/l in the qualified sample or 2-hour composite sample.

E **Wastewater requirements for the site of the incident**

(1) In waste water containing benzene and derivatives, a value of 10 mg/l for benzene and derivatives shall be set in the Sample to be observed.
(2) In waste water containing chromium, a value of 0.1 mg/l for chromium VI shall be observed in the sample.
(3) In cyanide-containing waste water from gravure printing, a value of 0.2 mg/l for cyanide, easily released, is to be set in the Sample to be observed.

Appendix 57 Wool laundries

(Source of the original text: BGBl. I 2004, 1184)

A **Scope**

(1) This Annex shall apply to waste water the pollutant load of which results mainly from washing and Carbonization of raw wool and the anti-felting of combed yarn.
(2) This Annex shall not apply to waste water from industrial water treatment, from indirect cooling systems and for rainwater.

B **General requirements**

(1) Waste water from the washing of raw wool, with the exception of rinsing water, shall not be discharged into water bodies become.
(2) The pollutant load shall be kept as low as possible by the following measures:

1. Wastewater-free pre-cleaning of barrels and containers,
2. Use of organic complexing agents that achieve a DOC degradation rate of 80 percent after 28 days in accordance with the procedure set out in point 406 of Annex 1.

(3) Waste water shall not contain:

1. Alkylphenol ethoxylates (APEO) from detergents and cleaning products,
2. Surfactants or other surface-active substances which do not meet the requirements for biodegradability pursuant to Section 3 of the Detergents and Cleaning Products Act in conjunction with the Surfactants Ordinance of 30. January 1977 (BGBl. I p. 244), last amended by the Ordinance of 4 June 1986 (BGBl. I p. 851), not fulfill.

(4) Proof that the requirements of paragraph 3 are met may be provided by the operating and auxiliary materials used are listed in an operating log and according to the information provided by the manufacturer's packaging must not contain any of the substances or groups of substances referred to in paragraph 3.

C **Wastewater requirements for the discharge point**

(1) The following requirements shall apply to waste water at the point of discharge into the water body:

	Qualified sample or 2-hour mixed sample		
	mg/l	kg/t	
Chemical oxygen demand (COD)	150	1.5	
Biochemical oxygen demand in 5 days (BSB5)	10	0.1	
Nitrogen, total, as sum of ammonium, Nitrite and nitrate nitrogen (Ntot)	30	0.3	
Total bound nitrogen (TNb)	40	0.4	
Phosphorus, total	2	0.02	
Toxicity to fish eggs (GEi)			2
Toxicity to Daphnia (GD)			2

(2) The production-specific load values (kg/t) in paragraph 1 refer to the load values under water legislation Raw wool processing capacity underlying the approval.
(3) The requirements for total nitrogen and total fixed nitrogen (TNb) shall apply to a Wastewater temperature of 12 °C and above in the effluent of the biological reactor of the wastewater treatment plant.

D **Requirements for waste water before mixing**

In waste water, before mixing with other waste water , a Dilution factor of GD = 2 must not be exceeded. This requirement does not apply if it is expected that

in a representative wastewater sample - original or after an elimination test using a biological laboratory flow-through treatment plant (e.g. according to DIN 38412-L26) - a value of GD = 2 is not exceeded for the toxicity to Daphnia.

E **Requirements for waste water at the site of occurrence** The

waste water from the felt-free finishing of wool tops must not contain chlorine or chlorine-releasing compounds from the pre-treatment of the tops. This requirement is deemed to be met if it is proven that chlorine or chlorine-releasing compounds are not used.