Table A.1 — Techniques for sample preservation — Physicochemical and chemical analysis of inorganic analytes

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Acidity and alkalinity	ISO 9963-1:1994[34] No reference to ISO 5667-3	PE, borosilicate glass	Fill the sample bottle completely and exclude air. Analyse preferably immediately after collection.	Method not provided by reference	Method provided by reference	A
	ISO/TS 15923-2:2017[83] Refers informatively to ISO 5667-3	Method not provided by reference	Method not provided by reference.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 5667-3 (for acidity)	PE, borosilicate glass	See ISO 9963-1:1994[34] and ISO/TS 15923-2:2017[83].	2 d	Best practice	A
	ISO 5667-3 (for alkalinity)	PE, borosilicate glass	See ISO 9963-1:1994[34] and ISO/TS 15923-2:2017[83].	14 d	Best practice	A
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 12020:1997[54] No reference to ISO 5667-3	Suitable plastics, no polyolefins (can contain traces of Al)	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 10566:1994[43] Refers normatively to ISO 5667-3	PE	For the dissolved fraction of aluminium: Filter on site or as soon as possible after sampling. Acidify by adding 0,30 ml HNO_3 (6.2.4) per 100 ml of sample. For acid-soluble aluminium: Acidify to pH 1,2–1,5 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO/TS 15923-2:2017[83] Refers informatively to ISO 5667-3	Method not provided by reference	Method not provided by reference.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 5667-3	See ISO/TS 15923-2:2017[83].	See ISO/TS 15923-2:2017[83].	1 month	Best practice	A

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Ammonium	ISO 15923-1:2013[82] Refers normatively to ISO 5667-3	Plastics or glass	Waters shall be filtered on site.	1 d	Validated method[132]	BDEGSW
	ISO 14911:1998[70] Refers normatively to ISO 5667-3	PE	Waters shall be filtered on site. Acidify to pH 3 ± 0,5 with HNO_3 (6.2.4).	1 d	Method provided by reference	A
	ISO 11732:2005[51] Refers normatively to ISO 5667-3	Glass, polyolefins, PTFE	Water shall be filtered on site. Acidify to pH 1 to pH 2 with H_2SO_4 (6.2.5). Store samples in the dark or use dark-coloured bottles.	14 d	Method provided by reference	DGSW
	ISO 7150-1:1984[18] No reference to ISO 5667-3	PE or glass	Method not provided by reference.	Method not provided by reference	Method provided by reference	DGW
	ISO 23695:2023[122] Refers normatively to ISO 5667-3	Method not provided by reference	Preliminary filtration on site is necessary.	Only provided as soon as possible for non-preserved samples	Method provided by reference	DGSW
		Method not provided by reference	Acidify to pH < 2 with H_2SO_4 (6.2.5).	Method not provided by reference for acidi- fied samples	Method provided by reference	DGSW
	ISO 5667-3	Plastics	Waters shall be filtered on site. Freeze to below –18 °C.	1 month	Best practice	A
		Plastics or glass	Waters shall be filtered on site. Acidify to pH 1 to pH 2 with H_2SO_4 (6.2.5).	21 d	Best practice	A

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Antimony	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17378-1:2014[92] Refers normatively to ISO 5667-3	Borosilicate glass, plastics	Acidify to pH < 2 with HCl (6.2.3).	Method not provided by reference	Method provided by reference	DGRS
	ISO 17378-2:2014[93] Refers normatively to ISO 5667-3	Borosilicate glass, plastics	Acidify to pH < 2 with HCl (6.2.3).	Method not provided by reference	Method provided by reference	DGRS
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52], ISO 17294-2:2016[90], ISO 17378-1:2014[92] and ISO 17378-2:2014[93].	See ISO 15586:2003[74], ISO 11885:2007[52], ISO 17294-2:2016[90], ISO 17378-1:2014[92] and ISO 17378-2:2014[93].	1 month	Best practice	A
Arsenic	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17378-1:2014[92] Refer normatively to ISO 5667-3	Borosilicate glass, plastics	Acidify to pH < 2 with HCl (6.2.3).	Method not provided by reference	Method provided by reference	DGRS
	ISO 17378-2:2014[93] Refer normatively to ISO 5667-3	Borosilicate glass, plastics	Acidify to pH < 2 with HCl (6.2.3).	Method not provided by reference	Method provided by reference	DGRS
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52], ISO 17294-2:2016[90], ISO 17378-1:2014[92] and ISO 17378-2:2014[93].	See ISO 15586:2003[74], ISO 11885:2007[52], ISO 17294-2:2016[90], ISO 17378-1:2014[92] and ISO 17378-2:2014[93].	1 month	Best practice	A (except SW)
				6 months	Validated method[149]	SW

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Barium	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 14911:1998[70] Refers normatively to ISO 5667-3	PE	Only for dissolved barium: Filter through a membrane filter (pore size 0,45 µm) and acidify to pH 3 ± 0,5 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 11885:2007[52], ISO 17294-2:2016[90] and ISO 14911:1998[70].	See ISO 11885:2007[52], ISO 17294-2:2016[90] and ISO 14911:1998[70].	1 month	Best practice	A
Beryllium	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A
Biochemical oxygen demand (BOD)	ISO 5815-1:2019[6] Refers normatively to ISO 5667-3	Plastics or glass	Store samples in the dark or use dark-colour- ed bottles.	1 d	Method provided by reference	A
		Plastics	Freeze to below −18 °C. Store samples in the dark or use dark-coloured bottles.	1 month (6 months if >50 mg/l)	Validated method[149]	A
Boron	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A
Bromate	ISO 15061:2001[71] Refers normatively to ISO 5667-3	PE	Remove any ozone from the sample, for ex- ample, add 50 mg of ethylenediamine (6.1.8) to 1 l of sample immediately after sampling.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15061:2001[71].	See ISO 15061:2001[71].	1 month	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Bromide	ISO 10304-1:2007[37] Refers normatively to ISO 5667-3	PE	No preservation required.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 10304-1:2007[37].	See ISO 10304-1:2007[37].	1 month	Best practice	A
Bromine resid- ual	ISO 5667-3	Plastics or glass, dark coloured	Analyse on site.	5 min	Best practice	A
Cadmium	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	For the total fraction of cadmium: Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 5961:1994[7] Refers normatively to ISO 5667-3	PE, borosilicate glass	For the total fraction of cadmium: Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: FA, FEP	For the total fraction of cadmium: Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: FA, FEP	For the total fraction of cadmium: Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52], ISO 17294-2:2016[90] and ISO 5961:1994[7].	See ISO 15586:2003[74], ISO 11885:2007[52], ISO 17294-2:2016[90] and ISO 5961:1994[7].	1 month	Best practice	A (ex- cept SW)
				6 months	Validated method[149]	SW

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Calcium	ISO 6058:1984[8] – Refers normatively to ISO 5667-3	PE	Solutions containing sodium cyanide must not be acified. This method does not require preservation of a sample.	Method not provided by reference	Method provided by reference	DGS
	ISO 7980:1986[22] No reference to ISO 5667-3	PE, PP	Acidify to pH 1 to 2 with HCl (6.2.3).	Method not provided by reference	Method provided by reference	DGS
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, PEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: FA, PEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 14911:1998[70] Refers normatively to ISO 5667-3	PE	Only for dissolved calcium: Filter through a membrane filter (pore size 0,45 µm) and acidify to pH 3 ± 0,5 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO/TS 15923-2:2017[82] Refers informatively to ISO 5667-3	Method not provided by reference	Method not provided by reference.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 5667-3	See ISO 6058:1984[8], ISO 7980:1986[22], ISO 11885:2007[52], ISO 17294-2:2016[90], ISO 14911:1998[70] and ISO/TS 15923-2:2017[82].	See ISO 6058:1984[8], ISO 7980:1986[22], ISO 11885:2007[52], ISO 17294-2:2016[90], ISO 14911:1998[70] and ISO/TS 15923-2:2017[82].	1 month	Best practice	A
Carbon dioxide	ISO 9439:1999[29] No reference to ISO 5667-3	Plastics or glass	Analyse preferably on site.	Method not provided by reference	Method provided by reference	W
	ISO 5667-3	See ISO 9439:1999[29].	See ISO 9439:1999[29].	1 d	Best practice	A

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Carbon, total organic (TOC)	ISO 8245:1999[25] Refers normatively to ISO 5667-3	PE or glass	Acidify to pH 1 to pH 2 with H_2SO_4 (6.2.5) or H_3PO_4 (6.2.2). If loss of volatile organic compounds is suspected due to release of carbon dioxide upon acidification, then acidification is not suitable. Cool and analyse within 8 h.	7 d	Method provided by reference	DGMSW
		Plastics	Freeze to below –18 °C.	1 month	Method provided by reference	DGMSW
	ISO 20236:2018[111] No reference to ISO 5667-3	PE or glass	Store the sample in the dark.	2 d	Method provided by reference	A
		PE or glass	Acidify to pH ≤ 2 with H_2SO_4 (6.2.5) or HCl (6.2.3).	8 d	Method provided by reference	A
		PE or glass	Freeze to below –18 °C.	1 month	Method provided by reference	A
	ISO 21793:2020[118] No reference to ISO 5667-3	PE or glass	Store the sample in the dark.	2 d	Method provided by reference	A
		PE or glass	Acidify to pH ≤ 2 with H_2SO_4 (6.2.5) or HCl (6.2.3).	8 d	Method provided by reference	A
Carbon, dissolved organic (DOC)	ISO 8245:1999[25] Refers normatively to ISO 5667-3	PE or glass	Waters shall be filtered on site. Acidify to pH 1 to pH 2 with H_2SO_4 (6.2.5) or H_3PO_4 (6.2.2).	7 d	Method provided by reference	DGMSW
		Plastics	Freeze to below –18 °C.	1 month	Method provided by reference	DGMSW
	ISO 20236:2018[111] No reference to ISO 5667-3	PE or glass	Waters shall be filtered on site. Store the sample in the dark.	2 d	Method provided by reference	A
		PE or glass	Waters shall be filtered on site. Acidify to pH ≤ 2 with H_2SO_4 (6.2.5) or HCl (6.2.3).	8 d	Method provided by reference	A
	ISO 21793:2020[118] No reference to ISO 5667-3	PE or glass	Store the sample in the dark.	2 d	Method provided by reference	A
		PE or glass	Acidify to pH ≤ 2 with H_2SO_4 (6.2.5) or HCl (6.2.3).	8 d	Method provided by reference	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Chemical oxygen demand (CODCr)	ISO 6060:1989[9] No reference to ISO 5667-3	PE or glass	If the samples have to be stored prior to analysis, add 10 ml of sulfuric acid (6.2.5) per litre of sample and store in the dark.	Several months	Method provided by reference	A
	ISO 15705:2002[79] Refers normatively to ISO 5667-3	PP or glass	Acidify to pH 1 to pH 2 with H_2SO_4 (6.2.5).	5 d	Method provided by reference	A
		Plastics	Freeze to below –18 °C.	1 month	Method provided by reference	A
	ISO 5667-3	See ISO 15705:2002[79].	Acidify to pH 1 to pH 2 with H_2SO_4 (6.2.5).	6 months	Validated method[149]	SW
			Freeze to below –18 °C.	6 months	Validated method[150]	SW
Chloramine	ISO 5667-3	Plastics or dark coloured glass	Analyse on site.	5 min	Best practice	A
Chlorate	ISO 10304-4:2022[39] Refers informatively to ISO 5667-3	PE or glass	Add NaOH (6.1.2 or 6.2.6) to pH 10 ± 0,5.	Method not provided by reference	Method provided by reference	A, with low contamination
	ISO 5667-3	See ISO 10304-4:2022[39].	See ISO 10304-4:2022[39].	7 d	Best practice	
Chloride	ISO 9297:1989[27] Refers normatively to ISO 5667-3	Glass	If the pH of the sample is outside the range of 5 to 9,5, adjust the pH using HNO_3 (6.2.4) or NaOH (6.1.2 or 6.2.6) as appropriate.	Several months	Method provided by reference	A
	ISO 15682:2000[78] Refers informatively to ISO 5667-3	Plastics or glass	No preservation required.	1 month	Method provided by reference	
	ISO 10304-1:2007[37] Refers normatively to ISO 5667-3	PE	No preservation required.	Method not provided by reference	Method provided by reference	
	ISO 15923-1:2013[82] Refers normatively to ISO 5667-3	Method not provided by reference	Method not provided by reference.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 10304-4:2022[39] Refers informatively to ISO 5667-3	PE or glass	Add NaOH (6.1.2 or 6.2.6) to pH 10 ± 0,5.	Method not provided by reference	Method provided by reference	A, with low contamination
	ISO 5667-3	See ISO 10304-4:2022[39].	See ISO 10304-4:2022[39].	1 month	Best practice	A, with low contamination

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Chlorine dioxide	ISO 5667-3	Plastics or dark coloured glass	None required, analyse on site.	5 min	Best practice	A
Chlorine, residual	ISO 5667-3	Plastics or dark coloured glass	Analyse on site.	5 min	Best practice	A
Chlorine, free	ISO 7393-2:2017[19] Refers normatively to ISO 5667-3	Plastics or glass	Analyse on site.	5 min	Method provided by reference	A (provided additional halogens and other oxidizing agents are present in negligible amounts)
		Chlorine-demand-free dark coloured glass	If analysis on site analysis is not possible, analyse directly after arrival in the lab.	5 min	Method provided by reference	A (provided additional halogens and other oxidizing agents are present in negligible amounts)
	ISO 5667-3	Plastics or glass	Analyse directly on site.	5 min	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Chlorine, total	ISO 7393-2:2017[19] Refers normatively to ISO 5667-3	Plastics or glass	Analyse on site.	5 min	Method provided by reference	A (provided additional halogens and other oxidizing agents are present in negligible amounts)
		Chlorine-demand-free dark coloured glass	If analysis on site analysis is not possible, analyse directly after arrival in the lab.	5 min	Method provided by reference	A (provided additional halogens and other oxidizing agents are present in negligible amounts)
	ISO 5667-3	Plastics or glass	Analyse directly on site.	5 min	Best practice	A
Chlorite	ISO 10304-4:2022[39] Refers informatively to ISO 5667-3	PE or dark coloured glass	Add NaOH (6.1.2 or 6.2.6) to pH 10 ± 0,5.	Method not provided by reference	Method provided by reference	A, with low contamination
	ISO 5667-3	See ISO 10304-4:2022[39].	See ISO 10304-4:2022[39].	7 d	Best practice	A, with low contamination

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Chlorophyll	ISO 10260:1992[35] No reference to ISO 5667-3	Plastics or glass	Filter (6.3.2) preferably on site. Store sam- ples in the dark or use dark-coloured bottles.	8 h	Method provided by reference	MS
			After filtration (6.3.2) and extraction with hot ethanol, freeze to below –25 °C.	extract 30 d	Method provided by reference	MS
			After filtration (6.3.2) and extraction with hot ethanol, store at 4 °C.	3 d	Method provided by reference	MS
	EN 17899[100][c] Refers normatively to ISO 5667-3	Plastics or glass	If plant material is present, pre-filtering shall be carried out over plankton gauze of a mesh width of 1 mm. The water samples should be filtered as quickly as possible, at the latest 24 h after the sample was taken. Freezing of the water samples is not permit- ted.	1 d	Method provided by reference	A
	ISO 5667-3	Plastics or glass	Store samples in the dark or use dark-colour- ed bottles.	1 d	Validated method[152]	S
			Filter (6.3.2) and store samples in the dark or use dark-coloured bottles.	1 d	Best practice	MS
			After filtration (6.3.2), freeze to below –18 °C.	Filter plus residue 14 d	Best practice	MS
			After filtration (6.3.2), freeze to below –80 °C.	Filter plus residue 1 month	Best practice	MS
Chromium	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A, except SW
				6 months	Validated method[149]	SW

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Chromium(VI)	ISO 23913:2006[127] Refers normatively to ISO 5667-3	Plastics or borosilicate glass	No preservation allowed.	1 d	Method provided by reference	A
	ISO 18412:2005[106] Refers normatively to ISO 5667-3	Plastics or borosilicate glass	No preservation allowed.	4 d	Method provided by reference	D and weakly contaminat- ed GS
	ISO/TS 15923-2:2017[83] Refers informatively to ISO 5667-3	Method not provided by reference	Method not provided by reference.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 24384[128] Refers normatively to ISO 5667-3	Plastics or borosilicate glass	Samples are filtered through a 0,45 µm filter. The sample preparation shall be completed not later than 24 h after sampling.	1 d	Method provided by reference	DGSW
		Plastics or borosilicate glass	After the chelating pretreatment, the samples shall be stored cool and dark at (3 ± 2) °C.	14 d	Method provided by reference	DGSA
Cobalt	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A
Colour	ISO 7887:2011[20] Refers normatively to ISO 5667-3	Plastics or glass	Store samples in the dark or use dark-colour- ed bottles.	5 d	Method provided by reference	A
	ISO 5667-3	See ISO 7887:2011[20].	See ISO 7887:2011[20].	5 min	Best practice	A (except G)
			For groundwater rich in iron (II), ana- lyse on site.	5 min	Best practice	G
Conductivity	ISO 7888:1985[21] No reference to ISO 5667-3	Plastics or glass except soda glass	Analyse preferably on site.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 7888:1985[21].	See ISO 7888:1985[21].	1 d	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Copper	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: FA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: FA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A, except SW
				6 months	Validated method[149]	SW
Cyanide, easily liberated	ISO 14403-1:2012[68] Refers normatively to ISO 5667-3	Plastics or glass	Add NaOH (6.1.2 or 6.2.6) to adjust the pH > 12. Store samples in the dark or use dark-coloured bottles.	7 d	Method provided by reference	A
	ISO 14403-2:2012[69] Refers normatively to ISO 5667-3	Plastics or glass	Add NaOH (6.1.2 or 6.2.6) to adjust the pH > 12. Store samples in the dark or use dark-coloured bottles.	7 d	Method provided by reference	A
Cyanide, free (pH = 6)	ISO 17690:2015[96] Refers normatively to ISO 5667-3	Containers protecting the sample from UV-light	Add NaOH (6.1.2 or 6.2.6) to adjust the pH = 11 ± 0,1. Store samples in the dark or use dark-coloured bottles.	6 d < 1 d if sulfide is present	Method provided by reference	A
Cyanide, total	ISO 14403-1:2012[68] Refers normatively to ISO 5667-3	Plastics or glass	Add NaOH (6.1.2 or 6.2.6) to adjust the pH > 12. Store samples in the dark or use dark-coloured bottles.	7 d	Method provided by reference	A
	ISO 14403-2:2012[69] Refers normatively to ISO 5667-3	Plastics or glass	Add NaOH (6.1.2 or 6.2.6) to adjust the pH > 12. Store samples in the dark or use dark-coloured bottles.	7 d	Method provided by reference	A
	ISO 22066:2020[120] Refers normatively to ISO 5667-3	Containers protecting the sample from UV-light	Add NaOH (6.1.2 or 6.2.6) to adjust the pH = 11 ± 0,1. Store samples in the dark or use dark-coloured bottles.	6 d <1 d if sulfide is present	Method provided by reference	A
	ISO 5667-3	Plastics or glass	See ISO 14403-1:2012[68], ISO 14403-2:2012[69], ISO/TS 17379-1:2013[94] and ISO 22066:2020[120].	14 d 1 d if sulfide is present	Validated method[138]	A
Cyanochloride	ISO 5667-3	Plastics	Method not provided by reference.	1 d	Best practice	A

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Dissolved solids (dry residue): See total solids (total residues)						
Fluoride	ISO 10304-1:2007[37] Refers normatively to ISO 5667-3	Plastics, but not PTFE	Method not provided by reference.	Method not provided by reference	Best practice	A
	ISO 10359-1:1992[40] Refers normatively to ISO 5667-3	Plastics, but not PTFE	Not provided (only for dissolved fluoride).	3 d	Method provided by reference	DGSR (low contamination level)
	ISO 10359-2:1994[41] Refers normatively to ISO 5667-3	Plastics, but not PTFE	Not provided (only for total inorganic fluoride).	3 d	Method provided by reference	EW (high levels)
	ISO/TS 17951-1:2016[102] Refers informatively to ISO 5667-3	Plastics, but not PTFE	Method not provided by reference.	1 month	Method provided by reference	A (except D)
	ISO/TS 17951-2:2016[103] Refers informatively to ISO 5667-3	Plastics, but not PTFE	Method not provided by reference.	1 month	Method provided by reference	A (except D)
	ISO/TS 15923-2:2017[83] Refers informatively to ISO 5667-3	Plastics, but not PTFE	Filtration prior to analysis.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 5667-3	Plastics, but not PTFE	Method not provided by reference.	1 month	Best practice	A
Hydrazine	ISO 5667-3	Glass	Acidify with HCl (6.2.3) to 1 mol/l. Store samples in the dark or use dark-coloured bottles.	1 d	Best practice	A
Hydrogencarbonates: See acidity and alkalinity						
Iodide	ISO 10304-3:1997[38] Refers normatively to ISO 5667-3	PE or glass	Filtrate prior to analysis.	1 month	Method provided by reference	A
		PE	If immediate analysis is not possible, samples can be cooled or freezed (to below −18 °C).	1 month	Method provided by reference	A
	ISO 5667-3	See ISO 10304-3:1997[38].	See ISO 10304-3:1997[38].	1 month	Best practice	A
Iodine	ISO 5667-3	Glass	Store samples in the dark or use dark-coloured bottles.	1 d	Best practice	A

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Iron(II)	ISO/TS 15923-2:2017[83] Refers informatively to ISO 5667-3	Method not provided by reference	Filtration prior to analysis.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 5667-3	Plastics or borosilicate glass	Acidify to pH 1 to pH 2 with HCl (6.2.3).	7 d	Best practice	A
Iron	ISO 6332:1988[10] No reference to ISO 5667-3	Glass	For the total fraction of iron: Acidify the sample immediately after collection to pH 1. For the the total soluble fraction of iron: Fil- ter the sample immediately after filtration.	7 d	Method provided by reference	A
	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 6332:1988[10], ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 6332:1988[10], ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A
Kjeldahl nitrogen	ISO 5663:1984[3] No reference to ISO 5667-3	Plastics or glass or borosilicate glass	Acidify to pH 1 to pH 2 with H_2SO_4 (6.2.5).	Method not provided by reference	Method provided by reference	W
	ISO 5667-3	Plastics	Freeze to below –18 °C.	6 months	Validated method[137]	SW

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Lead	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: FA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: FA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A (except SW)
				6 months	Validated method[149]	SW
Lithium	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: FA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: FA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 14911:1998[70] Refers normatively to ISO 5667-3	PE	Acidify to pH 3 ± 0,5 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 14911:1998[70].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 14911:1998[70].	1 month	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Magnesium	ISO 7980:1986[22] No reference to ISO 5667-3	PE, PP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGS
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 14911:1998[70] Refers normatively to ISO 5667-3	PE	Only for dissolved magnesium: Filter through a membrane filter (0,45 µm) and acidify to pH 3 ± 0,5 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 7980:1986[22], ISO 15586:2003[74], ISO 11885:2007[52] and ISO 14911:1998[70].	See ISO 7980:1986[22], ISO 15586:2003[74], ISO 11885:2007[52] and ISO 14911:1998[70].	1 month	Best practice	A
Manganese	ISO 6333:1986[11] No reference to ISO 5667-3	PE, glass	Acidify the sample with sulfuric acid (6.2.5) until the pH is approximately, but not less than 1.	Method not provided by reference	Method provided by reference	DS
	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 14911:1998[70] Refers normatively to ISO 5667-3	PE	Only for dissolved manganese: Filter through a membrane filter (0,45 µm) and acidify to pH 3 ± 0,5 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 6333:1986[11], ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 6333:1986[11], ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Mercury	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PFA, FEP, quartz, HDPE, PTFE	Add 1 ml HCl (6.2.3) per 100 ml of water to ensure pH < 1.	Method not provided by reference	Method provided by reference	A
	ISO 17852:2006[97] Refers normatively to ISO 5667-3	PTFE, FEP, borosilicate glass, quartz	Add 15 ml HCl (6.2.3) and 2 ml potassium bromide – potassium bromate reagent per 100 ml of sample. Make sure solution stays yellow after addition of acid and oxidator. Otherwise add more potassium bromide – potassium bromate reagent.	7 d	Method provided by reference	DGRS (W after additional step)
	ISO 12846:2012[55] Refers normatively to ISO 5667-3	FEP, glass	Add HCl (6.2.3) 1 ml/100 ml. Particular care is needed to ensure that the sample is free from contamination.	2 d	Validated method[142]	DGRSW
		FEP, glass	Stabilization with digestion step using a potassium bromide – potassium bromate reagent takes place within the laboratory.	1 month	Best practice	DGRSW
	ISO 5667-3	See ISO 17294-2:2016[90], ISO 17852:2006[97], ISO 12846:2012[55].	See ISO 17294-2:2016[90], ISO 17852:2006[97], ISO 12846:2012[55].	1 month	Best practice	A
Molybdenum	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Nickel	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	6 months	Validated method[149]	SW
		See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A (except SW)

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Nitrate	ISO 13395:1996[66] Refers normatively to ISO 5667-3	PE or glass	Acidify with HCl (6.2.3) to pH ± 2.	1 d	Method provided by reference	A
			Freeze to below –20 °C.	8 d	Method provided by reference	A
	ISO 15923-1:2013[82] Refers normatively to ISO 5667-3	Method not provided by reference	Method not provided by reference.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 10304-1:2007[37] Refers normatively to ISO 5667-3	PE	Method not provided by reference.	Method not provided by reference	Method provided by reference	A
	ISO 23696-1:2023[123] Refers normatively to ISO 5667-3	Method not provided by reference	Analyse as soon as possible. Freeze to below –18 °C for longer storage periods. For nitrate in wastewater and surface water on-site filtration is mandatory.	Method not provided by reference	Method provided by reference	DGSW
	ISO 23696-2:2023[124] Refers normatively to ISO 5667-3	Method not provided by reference	Analyse as soon as possible. Freeze to below –18 °C for longer storage periods. For nitrate in wastewater and surface water on-site filtration is mandatory.	Method not provided by reference	Method provided by reference	DGSW
	ISO 5667-3	Plastics or glass	Not provided.	1 d	Best practice	A
		Plastics or glass	Acidify to pH 1 to pH 2 with HCl (6.2.3).	7 d	Best practice	A
		Plastics	Freeze to below –18 °C.	1 month	Best practice	A
		Plastics or glass	Waters shall be filtered on site.	4 d	Validated method[144][150]	SW

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Nitrite	ISO 6777:1984[14] No reference to ISO 5667-3	Glass	Analyse as soon as possible within 24 h of collection.	1 d	Method provided by reference	DGW
	ISO 13395:1996[66] Refers normatively to ISO 5667-3	PE or glass	Acidify with HCl (6.2.3) to pH ± 2.	1 d	Method provided by reference	A
			Freeze to below –20 °C.	8 d	Method provided by reference	A
	ISO 15923-1:2013[82] Refers normatively to ISO 5667-3	Method not provided by reference	Method not provided by reference.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 10304-1:2007[37] Refers normatively to ISO 5667-3	PE	Method not provided by reference.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	Plastics or glass	Waters shall be filtered on site.	4 d	Validated method[144][150]	SW
Nitrogen total	ISO 20236:2018[111] No reference to ISO 5667-3	Plastics or glass	Store the samples in the dark.	2 d	Method provided by reference	A
			Acidify to pH ≤ 2 with H_2SO_4 (6.2.5) or HCl (6.2.3).	8 d	Method provided by reference	A
		Plastics	Freeze to below –18 °C.	1 month	Method provided by reference	A
	ISO 23697-1:2023[125] Refers normatively to ISO 5667-3	Method not provided by reference	Analyse as soon as possible. Homogenize the sample to avoid any losses of ST-TN_b.	Method not provided by reference	Method provided by reference	GSW
	ISO 23697-2:2023[126] Refers normatively to ISO 5667-3	Method not provided by reference	Analyse as soon as possible. Homogenize the sample to avoid any losses of ST-TN_b.	Method not provided by reference	Method provided by reference	GSW
	ISO 29441:2010[130] Refers normatively to ISO 5667-3	Plastics or glass	Acidify to pH ± 2 with H_2SO_4 (6.2.5).[a]	1 month	Method provided by reference	A
		Plastics	Freeze to below –18 °C.	8 d	Method provided by reference	A
Odour	ISO 5667-3	Glass	A quantitative analysis can be carried out on site.	6 h	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Orthophosphates, dissolved: See phosphate						
Oxygen	ISO 5813:1983[4] No reference to ISO 5667-3	Glass, narrow-mouthed glass flasks	Fix the oxygen on site. Store samples in the dark.	1 d	Method provided by reference	A
	ISO 5814:2012[5] No reference to ISO 5667-3	Plastics or glass	Analyse directly on site. If direct measurement in the water body is not possible, the measurement can also be taken in a gas-tight connected flow-through device or immediately after sampling as a discrete sample.	5 min	Method provided by reference	A (M: correction needed)
	ISO 17289:2014[89] No reference to ISO 5667-3	Plastics or glass	Analyse directly on site. If direct measuring in the water body is not possible, the measuring can also take place in a gastight connected flow-through device or immediately after fit for purpose sampling as a discrete sample.	5 min	Method provided by reference	A
Permanganate index (CODMn)	ISO 8467:1993[26] No reference to ISO 5667-3	Plastics or glass	Acidify to pH 1 to pH 2 with H_2SO_4 (6.2.5).	2 d	Method provided by reference	D (only water for consumption)
		Plastics or glass	Store samples in the dark.	2 d	Method provided by reference	D (only water for consumption)
	ISO 5667-3	Plastics	Freeze to below –18 °C.	1 month	Best practice	A
pH	ISO 10523:2008[42] Refers normatively to ISO 5667-3	PE or glass Exclude air by use of a specially shaped stopper	Analyse preferably on site.	1 d	Validated method[131][147]	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Phosphate	ISO 6878:2004[15] No reference to ISO 5667-3	Preferably glass, otherwise PE, PVC	Filter through a membrane filter (0,45 µm).	Method not provided by reference	Method provided by reference	A
	ISO 15923-1:2013[82] Refers normatively to ISO 5667-3	Plastics	Waters shall be filtered on site.	Method not provided by reference	Method provided by reference	A
	ISO 15681-1:2003[76] Refers normatively to ISO 5667-3	Plastics, glass or borosilicate glass	Filter through a membrane filter (0,45 µm).	1 d	Method provided by reference	A (range for M)
	ISO 15681-2:2018[77] Refers normatively to ISO 5667-3	Plastics, glass or borosilicate glass	Filter through a membrane filter (0,45 µm).	1 d	Method provided by reference	A (range for M)
Phosphorus	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	GSW
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 6878:2004[15] No reference to ISO 5667-3	Preferably glass, otherwise PE, PVC	Acidify to pH ± 1 with H_2SO_4 (6.2.5).	Method not provided by reference	Method provided by reference	A
	ISO 15681-1:2003[76] Refers normatively to ISO 5667-3	Plastics, glass or borosilicate glass	Acidify to pH < 2 with H_2SO_4 (6.2.5).	1 month	Method provided by reference	A (range for M)
		Plastics, glass or borosilicate glass	Freeze to below –18 °C.	1 month	Method provided by reference	A (range for M)
	ISO 15681-2:2018[77] Refers normatively to ISO 5667-3	Plastics, glass or borosilicate glass	Acidify to pH ≤ 2 with H_2SO_4 (6.2.5).	1 month	Method provided by reference	A (range for M)
		Plastics, glass or borosilicate glass	Freeze to below –18 °C.	1 month	Method provided by reference	A (range for M)
	ISO 5667-3	Plastics	Freeze to below –18 °C.	6 months	Validated method[149]	GS

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Potassium	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 14911:1998[70] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH 3 ± 0,5 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 14911:1998[70], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 14911:1998[70], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A
Selenium	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4) or HCl (6.2.3).	Method not provided by reference	Method provided by reference	A
	ISO/TS 17379-1:2013[94] Refer normatively to ISO 5667-3	Plastics, glass	Acidify to pH < 2 with HCl (6.2.3).	Method not provided by reference	Method provided by reference	DGRS
	ISO/TS 17379-2:2013[95] Refer normatively to ISO 5667-3	Plastics, glass	Acidify to pH < 2 with HCl (6.2.3).	Method not provided by reference	Method provided by reference	DGRS
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52], ISO 17294-2:2016[90] ISO/TS 17379-1:2013[94] and ISO/TS 17379-2:2013[95].	See ISO 15586:2003[74], ISO 11885:2007[52], ISO 17294-2:2016[90] ISO/TS 17379-1:2013[94] and ISO/TS 17379-2:2013[95].	1 month	Best practice	A
Silicates	ISO 16264:2002[84] No reference to ISO 5667-3	Plastics	Waters shall be filtered on site. If filtration on site is not possible then store samples cool but do not freeze.	24 h	Method provided by reference	A
	ISO 15923-1:2013[82] Refers normatively to ISO 5667-3	Method not provided by reference	Waters shall be filtrated on site.	Method not provided by reference	Method provided by reference	BDEGSW
	ISO 5667-3	Plastics	Waters shall be filtered on site. If filtration on site is not possible then store samples cool but do not freeze.	1 month	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Silver	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A
Sodium	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 14911:1998[70] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH 3 ± 0,5 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 14911:1998[70], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 14911:1998[70], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A
Solids, suspended	EN 872:2005[1] Refers normatively to ISO 5667-3	Plastics or glass	Analyse preferably within 4 h.	2 d	Method provided by reference	GSW
	ISO 5667-3	Plastics or glass	Method not provided by reference.	2 d	Best practice	A
Sulfate	ISO 10304-1:2007[37] Refers normatively to ISO 5667-3	Plastics or glass	Filter on site through a membrane filter (0,45 µm) or as soon as possible after sam- pling.	Method not provided by reference	Method provided by reference	A
	ISO 15923-1:2013[82] Refers normatively to ISO 5667-3	Method not provided by reference	Filter on site through a membrane filter (0,45 µm) or as soon as possible after sam- pling.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	Plastics or glass	Filter on site through a membrane filter (0,45 µm) or as soon as possible after sam- pling.	1 month	Best practice	A

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Sulfide (easily liberated)	ISO 13358:1997[65] Refers normatively to ISO 5667-3	Glass	Fix the sulfide on site by adding 2 ml zinc acetate solution per l (6.2.1). Add NaOH (6.1.2) if the pH is not between 8,5 and 9,0.	3 d	Method provided by reference	A
	ISO 5667-3	Plastics	Fix the sulfide on site by adding 2 ml zinc acetate solution per l (6.2.1). Add NaOH (6.1.2) if the pH is not between 8,5 and 9,0.	7 d	Best practice	A
			If samples are chlorinated, Note b applies.	7 d	Best practice	A
Sulfite	ISO 10304-3:1997[38] Refers normatively to ISO 5667-3	Plastics or glass	Fix the sulfite on site by addition of 1 ml EDTA solution (6.2.8) per 100 ml of sample.	2 d	Method provided by reference	A
	ISO 5667-3	Glass	See ISO 10304-3:1997[38].	3 d	Best practice	A
Surfactants, anionic	ISO 5667-3	Glass	Method not provided by reference.	3 d	Best practice	A
			Add formaldehyde solution (6.2.12, see warning).	4 d	Best practice	A
			Freeze to below −18 °C.	1 month	Best practice	A
Surfactants, cationic	ISO 5667-3	Glass	Method not provided by reference.	2 d	Best practice	A
Surfactants, non-ionic	ISO 5667-3	Glass	Add formaldehyde solution (6.2.12, see warning).	1 month	Best practice	A
Tin	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH 1 to pH 2 with HCl (6.2.3) or HNO_3 (6.2.4). HCl (6.2.3) should be used if the hydride technique is used for analysis.	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3			Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Validated method[137]	A
Total hardness: See calcium						
Total solids (total residues, dry extract)	ISO 5667-3	Plastics or glass	Method not provided by reference.	7 d	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.1

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Turbidity	ISO 7027-1:2016[16] No reference to ISO 5667-3	Glass or plastics	Store samples in the dark or use dark-coloured bottles. Analyse preferably on site.	1 d	Method provided by reference	A
	ISO 7027-2:2019[17] No reference to ISO 5667-3	on site	Analyse on site.	on site	Method provided by reference	A
	ISO 5667-3	See ISO 7027-1:2016[16] and ISO 7027-2:2019[17].	Analyse on site.	on site	Validated method[152]	A
Uranium	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	Plastics or borosilicate glass	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 17294-2:2016[90].	See ISO 17294-2:2016[90].	2 months	Best practice	A
Vanadium	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A
Zinc	ISO 15586:2003[74] Refers normatively to ISO 5667-3	PE, PP, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGSW
	ISO 11885:2007[52] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 17294-2:2016[90] Refers normatively to ISO 5667-3	PE-HD, PTFE For low concentrations: PFA, FEP	Acidify to pH < 2 with HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	6 months	Validated method[147]	SW
		See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	See ISO 15586:2003[74], ISO 11885:2007[52] and ISO 17294-2:2016[90].	1 month	Best practice	A (except SW)

Key

A all water types
B boiler water (related term: cooling water)
D drinking water (related term: domestic water)
E eluate
G ground water (related term: raw water)
M marine water (related term: seawater)
R rain water
S surface water (related terms: raw water, environmental water)
W waste water

[a] Not recommended for simultaneous persulfate oxidation/digestion procedures.

[b] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling).

[c] Under preparation.

Table A.2 — Techniques for the preservation of samples — Physicochemical and chemical analysis of

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Adsorbable organic halides (AOX)	ISO 9562:2004[30] No reference to ISO 5667-3	Plastics or glass Glass is preferred if the concentration is suspected to be low	Acidify to pH 1 to pH 2 with HNO_3 (6.2.4). Store samples in the dark or use dark-coloured bottles.[a]	Method not provided by reference	Method provided by reference	A
			If volatile organic halogen compounds, for example chlorinated solvents, are expected, it is recommended to start analysis within 24 h after sampling.	1 d	Method provided by reference	A
	ISO 5667-3	Plastics or glass	Acidify to pH 1 to pH 2 with HNO_3 (6.2.4). Store samples in the dark or use dark-coloured bottles.[a]	5 d	Best practice	A
		Plastics	In the absence of volatile compounds: Freeze to below −18 °C.	1 month	Best practice	A
Alkanes, short-chain polychlorinated (SCCPs)	ISO 12010:2019[53] Refers normatively to ISO 5667-3	Glass	Rinse bottles with 2 ml isooctane.	Method not provided by reference	Best practice	DGSW
	ISO 5667-3	Glass	Method not provided by reference.	1 month	Best practice	A
Alkylmercury compounds	ISO 21863:2020[119] Refers normatively to ISO 5667-3	Glass, PTFE	Filtration on site, acidify to pH 1,4 with HCl (6.2.3), Alternatively acidify in the lab < 48 h.	6 months	Method provided by reference	A
Chlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs)	ISO 18073:2004[105] No reference to ISO 5667-3	Amber glass with a screw cap, lined with fluoropolymer	Maintain aqueous samples in the dark at 0 °C to 4 °C. If residual chlorine is present in aqueous samples, add 80 mg of $Na_2S_2O_3$ (6.1.1) per litre of sample. If sample pH is greater than 9, adjust to pH 7 to pH 9 with H_2SO_4 (6.2.5).	1 y	Method provided by reference	A (waste waters: containing <1 % mass solids)
Chlorinated solvents: See volatile organic compounds						
Cyclic volatile methylsiloxanes (cVMS)	ISO 20596-1:2018[113] Refers informatively to ISO 5667-3	Glass (no silicon materials)	Method not provided by reference.	4 d	Method provided by reference	A
	ISO 20596-2:2021[114] No reference to ISO 5667-3	Glass (no silicon materials)	Add 8 LDPE particles to each 125 ml uniquely labelled sample jar with lid.	14 d	Method provided by reference	A
Detergents: See surfactants						
Extractable organic halides (EOX)	ISO 5667-3	Glass	If samples are chlorinated, footnote a applies.	1 month	Validated method[146]	DG
			If samples are chlorinated, footnote a applies. Acidify to pH 1 to pH 2 with HNO_3 (6.2.4) or H_2SO_4 (6.2.5).	1 month	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling). Under

[b] development.

Table A.2

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
EOX (inclusive volatiles)	ISO 5667-3	Glass	If samples are chlorinated, footnote a applies.	4 d	Validated method[146]	SW
Hydrocarbons	ISO 17943:2016[101] Refers normatively to ISO 5667-3	Glass with ground glass stopper or with screw cap, lined with PTFE	Store samples in the dark or use dark-coloured bottles.[a]	5 d	Method provided by reference	DGSW
	ISO 9377-2:2000[28] Refers normatively to ISO 5667-3	Glass with ground glass stopper or with screw cap, lined with PTFE	Acidify to pH < 2 with mineral acid.	4 d	Method provided by reference	SW
	ISO 5667-3	Glass	Acidify to pH 1 to pH 2 with HCl (6.2.3), HNO_3 (6.2.4) or H_2SO_4 (6.2.5).	1 month	Best practice	A, except SW
Microcystins	ISO 20179:2005[110] Refers informatively to ISO 5667-3	Method not provided by reference Avoid the use of plastics whenever possible.	Store the samples in the dark.	2 d	Method provided by reference	DG
	ISO 22104:2021[121] Refers informatively to ISO 5667-3	Amber glass, with PTFE screw caps	Preserve with 150 mg/l of sodium thiosulfate (6.1.1) as a neutralizing additive to remove chlorine: add 0,75 ml of sodium thiosulfate preservative solution (6.1.1) to 500 ml sample. Store the samples in the dark.	21 d	Method provided by reference	DS
Monocyclic aromatic hydrocarbons: See volatile organic compounds						
Oil and grease	ISO 5667-3	Glass	Acidify to pH 1 to pH 2 with H_2SO_4 (6.2.5) or HCl (6.2.3) or HNO_3 (6.2.4). Fill bottle to ~90 %, leave sufficient headspace.	1 month	Best practice	A
Organic chlorine: see EOX						
Organotin compounds	ISO 17353:2004[91] Refers normatively to ISO 5667-3	Glass	Store samples in the dark or use dark-coloured bottles.	1 d	Method provided by reference	DMSW
	ISO 5667-3	See ISO 17353:2004[91].	See ISO 17353:2004[91].	7 d	Best practice	A (except DMSW)

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling). Under

[b] development.

Table A.2

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Perfluoroalkyl and polyfluoroalkyl substances (PFAS)	EN 17892[99][b] Refers normatively to ISO 5667-3	PE, PP	Store the water sample at (4 ± 3) °C.	60 d	Method provided by reference	D
			Store the water sample at ≤ −15 °C.	180 d	Method provided by reference	D
	ISO 21675:2019[116] Refers normatively to ISO 5667-3	PE, PP (glass only for specified compounds)	8:2 FTUCA in seawater less than 4 weeks.	28 d	Method provided by reference	A (up to 2 g/l solid particular material)
Pesticides, carbamates	ISO 5667-3	Glass	If samples are chlorinated, footnote a applies.	14 d	Best practice	A
	ISO 5667-3	Plastics	Freeze to below −18 °C.	1 month	Best practice	A
Pesticides, phenoxyalkanoic herbicides alkylhalogenated phenoxy acids, hydroxybenzonitriles and bentazone	ISO 15913:2000[81] Refers normatively to ISO 5667-3	Glass, dark coloured	Method not provided by reference.	3 d	Method provided by reference	DG
	ISO 5667-3	Glass with PTFE cap liner or septum	If samples are chlorinated, footnote a applies.	14 d	Best practice	A (except DG)

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling). Under

[b] development.

Table A.2

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Pesticides containing organochlorine and chlorobenzenes *α*-endosulfan, *β*-endosulfan, endosulfan sulfate, *cis*-chlordane, *trans*-chlordane, *cis*-heptachlorepoxide, *trans*-heptachlorepoxide, heptachlor, *α*-HCH, *β*-HCH, *γ*-HCH, *δ*-HCH, aldrin, dieldrin, endrin, isodrin, telodrin, hexachlorobutadiene, o,p′-DDD, o,p′ DDE, o,p′-DDT, p,p′-DDD, p,p′-DDE, p,p′-DDT, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,3,5-trichloroben- zene, 1,2,3,4-tetrachlorobenzene, 1,2,3,5, tetrachlorobenzene, 1,2,4,5-tetrachloroben-zene, pentachloroben-zene, hexachloroben-zene	ISO 6468:1996[13] No reference to ISO 5667-3	Dark coloured glass with PTFE cap liner	Sample endosulfan separately keep at pH < 2, others adjust to pH 5,0 to pH 7,5. If pH is outside that range, adjust pH; extract preferably within 24 h.	Preferably 1 d	Method provided by reference	DGS
	ISO 5667-3	Dark coloured glass with PTFE cap liner	See ISO 6468:1996[13].	7 d	Validated method[133][134][136][139][140][143][144][145]	G
Pesticides containing organophosphorus, chlorpyrifos-ethyl, chlorpyrifos-methyl, diazinon, dichlorvos, dimethoate, disulfoton, fenthion, malathion mevinphos, parathion-ethyl, parathion-methyl	ISO 10695:2000[44] No reference to ISO 5667-3	Dark coloured glass with PTFE cap liner	Some organophosphorus compounds can degrade rapidly in an aqueous environment. Therefore, unless stability trials indicate otherwise, extract the sample within 1 d of collection of phosphorus compounds.	1 d	Method provided by reference	DGSW (up to 0,05 g/l solids)
	ISO 5667-3	Dark coloured glass with PTFE cap liner	See ISO 10695:2000[44].	7 d	Validated method[142][144]	W

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling). Under

[b] development.

Table A.2

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Pesticides containing organophosphorus glyphosate	ISO 21458:2008[115] No reference to ISO 5667-3	Plastics, e.g. polyolefin	If samples are chlorinated, footnote a applies.	7 d	Method provided by reference	A
			Freeze to below –18 °C.	1 month	Method provided by reference	A
	ISO 16308:2014[85] Refers normatively to ISO 5667-3	Glass, PE, PP	If samples are chlorinated, footnote a applies.	1 d/7 d after filtration	Method provided by reference	A (except M)
Pesticides containing organonitrogen, atrazine, propazine, simazine, terbutryn	ISO 10695:2000[44] No reference to ISO 5667-3	Dark coloured glass with PTFE cap liner	Some organic nitrogen compounds can degrade rapidly in an aqueous environment. Therefore, unless stability trials indicate otherwise, extract the sample within 2 d of collection of nitrogen compounds.	2 d	Method provided by reference	DGSW (up to 0,05 g/l solids)
	ISO 11369:1997[47] Refers normatively to ISO 5667-3	Dark coloured glass with PTFE cap liner	Water samples are stored in the dark or in dark glass.	7 d	Method provided by reference	D(G)
	ISO 5667-3	See ISO 10695:2000[44] and ISO 11369:1997[47].	See ISO 10695:2000[44] and ISO 11369:1997[47].	1 month	Validated method[142][144]	W
Petroleum and derivatives: See hydrocarbons						
Pharmaceutical ingredients, transformation products and other organic substances	ISO 21676:2018[117] No reference to ISO 5667-3	Glass (coloured), keep dark	If samples are chlorinated, footnote a applies.	21 d	Method provided by reference	DGSW

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling). Under

[b] development.

Table A.2

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Phenols	ISO 6439:1990[12] Refers normatively to ISO 5667-3	Glass	Acidify the sample to pH of approximately 4 with H_3PO_4 (6.2.2).	1 d	Method provided by reference	DSW
	ISO 14402:1999[67] Refers normatively to ISO 5667-3	PTFE, glass	Acidify to pH < 2 with HCl (6.2.3) or H_2SO_4 (6.2.5). Store samples in the dark or use dark-coloured bottles.	1 d	Method provided by reference	EGSW
	ISO 8165-1:1992[23] Refers normatively to ISO 5667-3	Glass or borosilicate glass with PTFE cap liner	Acidify to pH < 4 with H_3PO_4 (6.2.2) or H_2SO_4 (6.2.5)[a].	21 d	Method provided by reference	DGS
	ISO 8165-2:1999[24] Refers normatively to ISO 5667-3	Glass, dark coloured	Acidify to pH < 2 with H_2SO_4 (6.2.5)[a].	7 d	Method provided by reference	DGS
	ISO 18857-1:2005[108] Refers normatively to ISO 5667-3	Glass Glass (preferably dark coloured) with ground glass stopper, or with screw cap, lined with PTFE	Acidify to pH < 2 with HCl (6.2.3) or H_2SO_4 (6.2.5).	14 d	Method provided by reference	DGSW
	ISO 18857-2:2009[109] Refers normatively to ISO 5667-3	Glass Glass (preferably dark coloured) with ground glass stopper, or with screw cap, lined with PTFE	Acidify to pH < 2 with HCl (6.2.3) or H_2SO_4 (6.2.5).[a]	14 d	Method provided by reference	DGSW
	ISO 5667-3	Glass	Acidify to pH < 4 with H_3PO_4 (6.2.2) or H_2SO_4 (6.2.5).	21 d	Best practice	A
Phthalates	ISO 18856:2004[107] Refers normatively to ISO 5667-3	Dark coloured glass with PTFE cap liner	Store samples in the dark or use dark-coloured bottles.	4 d	Method provided by reference	DGSW

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling). Under

[b] development.

Table A.2

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Polychlorinated biphenyls (PCBs)	ISO 6468:1996[13] No reference to ISO 5667-3	Dark coloured glass, with PTFE cap liner	Adjust to pH 5,0 to pH 7,5. If pH is outside that range, adapt pH; preferably extract within 24 h.[a]	1 d	Method provided by reference	DGSW
	ISO 17858:2007[98] Refers informatively to ISO 5667-3	Amber glass with a screw cap, with fluoropolymer or metal foil liner	Maintain aqueous samples in the dark ≤ 4 °C. If residual chlorine is present in aqueous samples, add 80 mg of $Na_2S_2O_3$ (6.1.1) per litre of water. If the sample pH is > 9, adjust to pH 7 to pH 9 with 1 mol/l H_2SO_4 (6.2.5). Store sample extracts in the dark until analysed.	1 y	Method provided by reference	A(waste waters: containing <1 % suspended solids)
	ISO 5667-3	See ISO 6468:1996[13] and ISO 17858:2007[98].	See ISO 6468:1996[13] and ISO 17858:2007[98].	7 d	Validated method[133][134][136][139][140][143][144][145]	G
Polychlorinated naphthalenes (PCNs), mono- to octa-	ISO/TS 16780:2015[86] Refers normatively to ISO 5667-3	Dark coloured glass	Store samples in the dark or use dark-coloured bottles. If pH > 9, adjust to pH = 7 with H_2SO_4 (6.2.5). [a]	1 y	Method provided by reference	A (<2 g/l solids)
	ISO 5667-3	See ISO/TS 16780:2015[86].	See ISO/TS 16780:2015[86].	1 month	Best practice	A
Polycyclic aromatic hydrocarbons (PAHs)	ISO 17993:2002[104] Refers normatively to ISO 5667-3	Glass, with PTFE cap liner	If samples are chlorinated, footnote a applies.	1 d (after addition of n-hexane to be stored up to 3 d)	Method provided by reference	DGS(W)
	ISO 28540:2011[129] Refers normatively to ISO 5667-3	Glass, with PTFE cap liner	If samples are chlorinated, footnote a applies.	Method not provided by reference	Method provided by reference	DGSW
	ISO 5667-3	See ISO 17993:2002[104] and ISO 28540:2011[129].	See ISO 17993:2002[104] and ISO 28540:2011[129].	7 d (for naphthalene only 4 d)	Validated method[151]	A
Trihalomethanes: See volatile organic compounds						

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling). Under

[b] development.

Table A.2

Analyte to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Volatile organic compounds Volatile halogenated hydrocarbons, monocyclic aromatic hydrocarbons and other solvent like organic compounds	ISO 10301:1997[36] No reference to ISO 5667-3	Glass with a solid glass stopper, PTFE	If reaction between free halogens and organic matter in the sample, to produce trihalogenated methanes, is to be eliminated, add an axcess of $Na_2S_2O_3$ (6.1.1) prior to sampling.	If storage is unavoidable, carry out the extraction within 2 d.	Method provided by reference	DGSW
	ISO 17943:2016[101] Refers normatively to ISO 5667-3	Glass with ground glass stopper or with screw cap, lined with PTFE	Store samples in the dark or use dark-coloured bottles. [a]	5 d	Method provided by reference	DGSW
	ISO 15680:2003[75] Refers normatively to ISO 5667-3	Glass, with PTFE cap liner or (head-space) vials with PTFE cap liner	Acidify to pH = 2 with HCl (6.2.3), HNO_3 (6.2.4), H_2SO_4 (6.2.5) or $NaHSO_4$ (6.2.18).[a] For purge-and-trap, HCl (6.2.3) interferes.	5 d	Method provided by reference	DGSM, W (diluted)
	ISO 11423-1:1997[48] No reference to ISO 5667-3	Glass, with PTFE cap liner Longer use: conical shoul- der bottle in the dark	No preservation added[a].	Preferably in 2 d	Method provided by reference	A
	ISO 11423-2:1997[49] No reference to ISO 5667-3	Glass, with PTFE cap liner Longer use: conical shoul- der bottle in the dark	No preservation added[a].	Preferably in 2 d	Method provided by reference	A
	ISO 20595:2018[112] Refers normatively to ISO 5667-3	Glass, with PTFE cap liner	See ISO 5667-3 or preservation with copper sulfate, sodium azide or the measurement-ready headspace vial shall be frozen horizontally.	Method not provided by reference	Method provided by reference	DGSW
	ISO 5667-3	See ISO 10301:1997[36], ISO 17943:2016[101], ISO 15680:2003[75], ISO 11423-1:1997[48], ISO 11423-2:1997[49] and ISO 20595:2018[112].	See ISO 10301:1997[36], ISO 17943:2016[101], ISO 15680:2003[75], ISO 11423-1:1997[48], ISO 11423-2:1997[49] and ISO 20595:2018[112].	7 d	Validated method[135][148]	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] If the sample is suspected to have been chlorinated, for each 1 000 ml of sample, add 80 mg of $Na_2S_2O_3 \cdot 5H_2O$ (6.1.1) to the container after collection of sample (or after sampling). Under

[b] development.

Table A.3 — Techniques for sample preservation — Hydrobiological

Organism group to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source[a]	Type(s) of water
Counting and identification						
Benthic macro-invertebrates, large organisms	EN 17136:2019[88] No reference to ISO 5667-3	Plastics or glass	Samples are cooled during transport and are sorted at latest the next day (best practice) into practically defined groups of taxa. Identification can be done when invertebrates are still alive.	48 h (best practice)	Method provided by reference and best practice	S
		Plastics or glass	Samples are cooled during transport and are sorted at latest the next day (best practice) into practically defined groups of taxa. Add ethanol 96 % (6.2.9) to the sample to give a final volume fraction of 70 % to 75 %.	1 y (ISO 5667-3)	Method provided by reference and best practice	S
Benthic macro-invertebrates, small organisms (e.g. reference collections)	ISO 5667-3	Glass	Transfer to ethanol preservative solution (6.2.13; see warning to 6.2.12). Special methods are required for invertebrate groups that are distorted by normal preservative treatment (e.g. platyhelminthes).	Indefinitely (ISO 5667-3)	Best practice	S
Algae and phytoplankton	EN 15204:2006[72] No reference to ISO 5667-3	Glass or plastics with tight fitting lid	Samples need to be cooled gradually.	36 h	Method provided by reference	MS
			Add, as soon as possible but within 24 h after sampling, 0,5 to 1 part (vol) of [acid (6.2.10) or alkaline (6.2.11)] Lugol's solution[a] to 200 parts (vol) of sample. Store samples in the dark and at room temperature.	21 d	Method provided by reference	MS
			Add, as soon as possible but within 24 h after sampling, 0,5 to 1 part (vol) of [acid (6.2.10) or alkaline (6.2.11)] Lugol's solution[a] to 200 parts (vol) of sample. Store samples cooled in the dark.	1 y	Method provided by reference	MS
Microalgae	ISO 5667-3	Glass or plastics with tight fitting lid	See 'algae and phytoplankton'.	1 y	Best practice	MS
		Plastics with tight fitting lid	Freeze to below –18 °C. Special procedures can be necessary with groups which are changed by standard applied preservation methods.	1 y	Best practice	MS

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Alkaline Lugol's solution (6.2.11) is generally applicable in fresh water and acidic Lugol's solution (6.2.10) in marine water with delicate flagellates. For specific determination, see specific standard. Addition of more Lugol's solution can be necessary if decolourization occurs. Oversaturation (deep/brown colouring) should be avoided, yet enough Lugol's solution (6.2.10 or 6.2.11) should be added to turn the sample to a cognac or straw colour. Fill bottle to ~ 90 %, leave sufficient headspace to allow homogenization.

Table A.3

Organism group to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source[a]	Type(s) of water
Macrophytes	EN 15460:2007[73] No reference to ISO 5667-3	Plastic bags or containers	Analyse preferably on site. Surveys should be undertaken between late Spring and early Autumn (normally May to late September, but this is dependent on local climatic conditions), when macrophyte growth will be optimal. If samples are taken to the laboratory, specimens are best preserved between sheets of newspaper or blotting paper. Also, preservation with ethanol may be used especially for fine-leaved, small species as macrophytes can become brittle when dried.	On site	Method provided by reference	S
		Glass or plastics with tight fitting lid	If analysis is not performed on site, transport to the laboratory. Make sure the macrophytes cannot dry out or decay due to too high humidity.	48 h	Best practice	S
	EN 15460:2007[73] No reference to ISO 5667-3	Glass or plastics with tight fitting lid	Dry preferably on white paper, covered with foil, between regularly refreshed newspapers in a plant press.	Indefinitely	Best practice	S
		Glass or plastics with tight fitting lid	Add ethanol (6.2.9) to the sample to give a final volume fraction of 70 % to 75 %. Fill bottle to ~ 90 %, leave sufficient headspace to allow homogenization.	1 y	Best practice	S
Benthic diatoms/ Pelagic diatoms	EN 15708:2009[80] No reference to ISO 5667-3	Glass or plastics with tight fitting lid	In case of samples from a polluted location.	48 h	Method provided by reference	S
			In normal situation (not too polluted).	5 d	Method provided by reference	S
			Add neutralized formaldehyde solution (6.2.12, see warning) to give a final concentration of 1 %.	1 y or more	Method provided by reference	S
	ISO 5667-3	Glass or plastics with tight fitting lid	Add ethanol (6.2.9) to the sample after cleaning of cell contents (e.g. with hydrogenperioxide) to give a final volume fraction of 70 % to 75 %. Fill bottle to ~ 90 % to leave sufficient headspace to allow homogenization.	6 months	Best practice	S
			Addition of 0,5 part to 1 part by volume of [acid 6.2.10) or alkaline (6.2.11)] Lugol's solution[a] to 200 parts by volume of sample. Cool to (3 ± 2) °C. Store samples in the dark.	6 months	Best practice	S

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Alkaline Lugol's solution (6.2.11) is generally applicable in fresh water and acidic Lugol's solution (6.2.10) in marine water with delicate flagellates. For specific determination, see specific standard. Addition of more Lugol's solution can be necessary if decolourization occurs. Oversaturation (deep/brown colouring) should be avoided, yet enough Lugol's solution (6.2.10 or 6.2.11) should be added to turn the sample to a cognac or straw colour. Fill bottle to ~ 90 %, leave sufficient headspace to allow homogenization.

Table A.3

Organism group to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source[a]	Type(s) of water
Zooplankton	ISO 5667-3	Glass or plastics with tight fitting lid	Add ethanol (6.2.9) to the sample to give a final volume fraction of 70 % to 75 %. Suitable for crusteaceans and rotiferans.	1 y	Best practice	S
			Add neutralized formaldehyde solution (6.2.12, see warning). It is recommended to add 40 g of saccharose $C_{12}H_{22}O_{11}$ in 1 l of formaldehyde solution.	1 y	Best practice	S
	ISO 5667-3	Glass or plastics with tight fitting lid	Add alkaline Lugol's solution (6.2.10). Addition of more acidic Lugol's solution[a] can be necessary if decolourization occurs.	6 months	Best practice	S
Fresh and dry mass						
Benthic macro-invertebrates, macrophytes, algae, zooplankton	ISO 5667-3	Plastics or glass	Do not freeze to below –18 °C. The analysis should be carried out as soon as possible and not later than 24 h.	24 h	Best practice	S
			Add neutralized formaldehyde solution (6.2.12, see warning). Note that fresh and dry (bio)mass determinations of periphyton and phytoplankton are usually based on the cell volume measure- ments made during counting and identification procedure from the preserved sample.	3 months minimum preservation time before analysis	Best practice	S
Mass of ash						
Benthic macro-invertebrates, macrophytes, algae	ISO 5667-3	Plastics or glass	Add neutralized formaldehyde solution (6.2.12, see warning). Note that fresh and dry (bio)mass determinations of periphyton and phytoplankton are usually based on the cell volume measure- ments made during couting and identification procedure from the preserved sample.	3 months minimum preservation time before analysis	Best practice	S
Dry mass and mass of ash						
Zooplankton	ISO 5667-3	Plastics or glass	Freeze to below –18 °C. Sample is filtered through preweighed glass-fibre membrane filters and then frozen to below –18 °C.	6 months	Best practice	S

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Alkaline Lugol's solution (6.2.11) is generally applicable in fresh water and acidic Lugol's solution (6.2.10) in marine water with delicate flagellates. For specific determination, see specific standard. Addition of more Lugol's solution can be necessary if decolourization occurs. Oversaturation (deep/brown colouring) should be avoided, yet enough Lugol's solution (6.2.10 or 6.2.11) should be added to turn the sample to a cognac or straw colour. Fill bottle to ~ 90 %, leave sufficient headspace to allow homogenization.

Table A.4 — Techniques for sample preservation — Microbiological

Analyte or activity to be studied	Reference	Type of container[a]	Preservation and storage conditions additional to Clauses 8 and 11	Recommended storage times	Maximum storage times	Source	Type(s) of water
Amoebae	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	1 d	4 d	Method provided by reference	A
Bacteriophages	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	2 d	3 d	Method provided by reference	A
Campylobacter (thermophilic spp.)	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards. Store at 3 °C ± 2 °C in contrast to the refrigerated storage of other microorganisms (5 °C ± 3 °C). Oxygen sensitive.	1 d	—	Method provided by reference	A
Clostridium perfringens (vegetative cells)	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	12 h	18 h	Method provided by reference	A
Cryptosporidium oocysts	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	1 d	4 d at ambient temperature	Method provided by reference	A
Culturable microorganisms (22 °C, 30 °C or 36 °C)	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	8 h	12 h	Method provided by reference	A
Cyanobacteria	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards. Lysis sometimes appears within a few hours.	2 d	3 d	Method provided by reference	A
E. coli (and coliform bacteria)	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	12 h	18 h	Method provided by reference	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Use bottles that are sterile inside and outside in case of immersion in clean waters. Use a reducing agent if the water is expected to contain an oxidant (see ISO 19458).

Table A.4

Analyte or activity to be studied	Reference	Type of container[a]	Preservation and storage conditions additional to Clauses 8 and 11	Recommended storage times	Maximum storage times	Source	Type(s) of water
Enterococci	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	12 h	18 h	Method provided by reference	A
Enteroviruses	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	2 d	3 d	Method provided by reference	A
		Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	1 month	—	Method provided by reference	A
Giardia cysts	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	1 d	4 d	Method provided by reference	A
Helminth eggs	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	2 d	3 d	Method provided by reference	A
		Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards. Sample stabilized at pH = 2.	—	7 d	Method provided by reference	A
Legionella spp.	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards. The recommended storage time of 1 d is also acceptable at ambient temperature.	1 d	2 d	Method provided by reference	A
Pseudomonas aeruginosa	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards. Recommended storage time at ambient temperature within 8 h and at 5 °C ± 3 °C within 12 h is allowed.	8 h	12 h	Method provided by reference	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Use bottles that are sterile inside and outside in case of immersion in clean waters. Use a reducing agent if the water is expected to contain an oxidant (see ISO 19458).

Table A.4

Analyte or activity to be studied	Reference	Type of container[a]	Preservation and storage conditions additional to Clauses 8 and 11	Recommended storage times	Maximum storage times	Source	Type(s) of water
Salmonella spp. and other *Enterobacteriaceae*	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards.	12 h	18 h	Method provided by reference	A
Spores of sulfide-reducing bacteria (*Clostridium* spp.)	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards. In raw waters die-off is observed after 24 h.	1 d	3 d	Method provided by reference	A
Total bacteria for epifluorescence	ISO 19458:2006 Refers normatively to ISO 5667-3	Plastics or glass	However, the maximum storage times depend on type of water, physiological state of the microorganisms and the analytical method, these maximum storage times shall be followed unless otherwise specified in specific standards. Recommended storage at ambient temperature. Sample to be stabilized in dust-free vial, + formaldehyde (final concentration 3 %) in the dark.	—	1 y	Method provided by reference	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

[a] Use bottles that are sterile inside and outside in case of immersion in clean waters. Use a reducing agent if the water is expected to contain an oxidant (see ISO 19458).

Table A.5 — Techniques for sample preservation — Radiochemical analytes and

Analyte or activity to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Gross alpha activity	ISO 9696:2017[31] Refers normatively to ISO 5667-3	PE/PE-HD/PP	If the measurement of the activity in the filtered water is required, carry out filtration immediately on collection and before acidification.	Method not provided by reference	Method provided by reference	DG
	ISO 10704:2019[46] Refers normatively to ISO 5667-3	PE/PE-HD/PP	If necessary, concentrated nitric acid (6.2.4) may be used [it is recommended to avoid hydrochloric acid (6.2.3)].	Method not provided by reference	Method provided by reference	A
	ISO 11704:2018[50] Refers normatively to ISO 5667-3	PE/PE-HD/PP	If possible, acidify immediately with nitric acid (6.2.4) to a value not lower than pH 1,7 ± 0,2 or pH 2,7 ± 0,2 if thermal preconcentration is desired.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	PE/PE-HD/PP	Acidify to pH < 2 with HNO_3 (6.2.4). Do not acidify if the sample is evaporated immediately on a planchette for analysis.	1 month	Best practice	A
			None Without acidification, however, store samples in the dark.	7 d	Best practice	A
Gross beta activity (except iodine radioisotopes)	ISO 9697:2018[32] Refers normatively to ISO 5667-3	PE/PE-HD/PP	If the measurement of the activity in the filtered water is required, carry out filtration immediately on collection and before acidification.	Method not provided by reference	Method provided by reference	DG
	ISO 10704:2019[46] Refers normatively to ISO 5667-3	PE/PE-HD/PP	If necessary, concentrated nitric acid (6.2.4) can be used [it is recommended to avoid hydrochloric acid (6.2.3)].	Method not provided by reference	Method provided by reference	A
	ISO 11704:2018[50] Refers normatively to ISO 5667-3	PE/PE-HD/PP	If possible, acidify immediately with nitric acid (6.2.4) to a value not lower than pH 1,7 ± 0,2 or pH 2,7 ± 0,2 if thermal preconcentration is desired.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	PE/PE-HD/PP	Acidify to pH < 2 with HNO_3 (6.2.4). Do not acidify if the sample is evaporated immediately on a planchette for analysis.	1 month	Best practice	A
			None Without acidification, however, store samples in the dark.	7 d	Best practice	A
Gamma-emitters	ISO 10703:2021[45] Refers normatively to ISO 5667-3	PE/PE-HD/PP	If radio-iodine is to be determined, HCl (6.2.3) should be used instead of HNO_3 (6.2.4) for acidification of the sample.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	PE/PE-HD/PP	Acidify to pH < 2 with HNO_3 (6.2.4). If possible, store samples in the dark.	1 month	Best practice	A
			None If a sample is not acidified, storage may be shorter if metals present are easily hydrolysed.	7 d	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

Table A.5 *(continued)*

Analyte or activity to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Actinides (alpha-emitters such as uranium, plutonium, americium, curium)	ISO 5667-3	PE/PE-HD/PP	Acidify to pH < 2 with HNO_3 (6.2.4). If possible, store samples in the dark.	2 months	Best practice	A
			None	7 d	Best practice	A
^{14}C	ISO 13162:2021[57] Refers normatively to ISO 5667-3	PE/PE-HD/PP, glass	The samples shall not be acidified to avoid the destruction of the carbonic equilibrium (CO_3^{2-}, HCO_3^-, H_2CO_3).	Method not provided by reference	Method provided by reference	A
	ISO 13168:2015[64] Refers normatively to ISO 5667-3	PE/PE-HD/PP, glass	Samples should not be acidified because of the shifting of the equilibrium of carbonated species.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	PE/PE-HD/PP	Add NaOH (6.2.4) to pH > 10. Fill bottle completely, leave no headspace and do not stir. If possible, store samples in the dark.	1 month	Best practice	A
			None. Only if pH > 7, fill the container completely to avoid any exchange between sample and the air above. If possible, store samples in the dark.	5 d	Best practice	A
Iodine (radioisotopes)	ISO 5667-3	PE/PE-HD/PP	Acidify to pH < 2 with HNO_3 (6.2.4). Where iodine-isotopes are measured with gross-beta-detection techniques, add KIO_3 (6.2.15) to prevent losses during evaporation. For gamma-spectrometry, acidification is sufficient. For gross-beta-determination, acidify to pH < 1 with HNO_3 (6.2.4); add 2 ml to 4 ml of NaOCl (6.2.14) per litre of sample, ensuring an excess of free chlorine. If possible, store samples in the dark.	7 d	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

Table A.5 *(continued)*

Analyte or activity to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Radon isotopes	ISO 13164-2:2013[58] Refers normatively to ISO 5667-3	Glass, aluminium metal	The container is filled completely in order to avoid the presence of air in contact with the water sampled. The sample shall be analysed as soon as possible after radioactive equilibrium has been achieved.	2 d	Method provided by reference	D
	ISO 13164-3:2013[59] Refers normatively to ISO 5667-3	Glass	The sample shall be analysed as soon as possible.	2 d	Method provided by reference	D
	ISO 13164-4:2015[60] Refers normatively to ISO 5667-3	Glass	The sample should neither be frozen nor overheated. Its preservation at temperature not higher than that of the sampled water is recommended.	2 d	Method provided by reference	D
	ISO 5667-3	Glass	Fill bottle completely, leave no headspace and do not stir. If possible, store samples in the dark.	1 d	Best practice	A
Radium	ISO 4685[2] Refers normatively to ISO 5667-3	PE/PE-HD/PP	The sample is filtered to remove suspended matter using a 0,45 µm filter. Acidify after filtration to 1 % (v/v) HNO_3 (6.2.4).	Method not provided by reference	Method provided by reference	DGRS
	ISO 13165-1:2022[61] Refers normatively to ISO 5667-3	PE, PTFE	When pre-concentration is desired, acidify the sample to pH 1 to pH 3 with HNO_3 (6.2.4). If necessary, carry out filtration immediately on collection and before acidification. Store samples in the dark.	1 month	Method provided by reference	D
	ISO 13165-2:2022[62] Refers normatively to ISO 5667-3	PE/PE-HD/PP	When pre-concentration is desired, acidify the sample to between pH 1 to pH 3 with HNO_3 (6.2.4). When neces- sary, carry out filtration immediately on collection and before acidification.	Method not provided by reference	Method provided by reference	A
	ISO 13165-3:2016[63] Refers normatively to ISO 5667-3	PE/PE-HD/PP	When pre-concentration is desired, acidify the sample to between pH 1 to pH 3 with HNO_3 (6.2.4). If required, the filtration is carried out during or immediately after collection and before acidification.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	PE/PE-HD/PP	Acidify to pH < 2 with HNO_3 (6.2.4). If possible, store samples in the dark.	2 months	Best practice	A
			None Without acidification, however, store samples in the dark.	2 months	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

Table A.5 *(continued)*

Analyte or activity to be studied	Reference	Type of container	Preservation and storage conditions additional to Clauses 8 and 11	Maximum storage times	Source	Type(s) of water
Strontium radioisotopes	ISO 13160:2021[56] Refers informatively to ISO 5667-3	PE/PE-HD/PP	Filtration should be done prior to the addition of the tracer or carrier and sufficient time should be allowed to attain chemical equilibrium before starting the test sample preparation.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	PE/PE-HD/PP	Acidify to pH < 2 with HNO_3 (6.2.4). If possible, store samples in the dark.	2 months	Best practice	A
Tritium	ISO 9698:2019[33] Refers normatively to ISO 5667-3	PE/PE-HD/PP, glass	The sample should not be acidified due to the high chemical quench caused by acids, and the potential presence of tritium in the acid.	Method not provided by reference	Method provided by reference	DGMRS
		Glass	Store the samples in glass containers.	>3 months	Best practice	A
	ISO 13168:2015[64] Refers normatively to ISO 5667-3	PE/PE-HD/PP, glass	Samples should not be acidified because of the shifting of the equilibrium of carbonated species.	Method not provided by reference	Method provided by reference	A
	ISO 5667-3	PE/PE-HD/PP, glass	Fill bottle completely, leave no headspace and do not stir. If samples are analysed without distillation, store samples in the dark.	3 months	Best practice	A

Key

A	all water types	M	marine water (related term: seawater)
B	boiler water (related term: cooling water)	R	rain water
D	drinking water (related term: domestic water)	S	surface water (related terms: raw water, environmental water)
E	eluate	W	waste water
G	ground water (related term: raw water)		

Table A.5 *(continued)*