Reagents from A – Z

		Model	Measuring Range	Cuvette (mm)	ml*	Order No.	No.	CC	photoLab® SW	S6	S12	Spektral	pHotoFlex
Acid Capacity up to pH 4.3													
	●	01762	0.20-8.00 mmol/l	round		252 059	90	–	–	●	●	●	–
Ag Silver	■	14831	0.25 - 3.00 mg/l Ag (total-Ag: 100 °C or 120 °C, 1 h) Digestion reagents are contained in the test set	10, 20	10	250 448	100	–	–	–	●	●	–
Al Aluminium													
	■	14825	0.020 - 1.20 mg/l Al	10, 20, 50	5	250 425	300	✔	✔	–	●	●	●
	TP	Al-1 TP	0.00 - 0.22 mg/l Al	round, 28	20	251 400	100	–	–	–	–	–	●
Antimony:		Please ask for application leaflets											
AOX	●	00675	0.05-2.50 mg/l AOX	round	100	252 023	25	–	–	●	●	●	–
Arsenic	■	01747*	0.001 - 0.100 mg/l As	10, 20	350	252 063	30	–	–	–	●	●	●
	also required:	00731 As-2*	Arsenic reagent As-2			252 064	50						
	also required:	08780 As-7*	Arsenic reagent As-7			252 065	38						
	also required:	AS absorption tube				252 066	1						
Ascorbic acid:		Please ask for application leaflets											
Au Gold	●	14821	0.5 - 12.0 mg/l Au	10	2	250 436	80	✔	✔	–	●	●	–
B Boron	■	14839	0.050 - 0.800 mg/l B	10, 20	5	250 427	60	–	–	–	●	●	–
	●	00826	0.05 - 2.00 mg/l B	round	4	252 041	25	–	✔	–	●	●	–
Br_2 Bromine													
	■	00605	0.020 - 10 mg/l Br_2	10, 20, 50	10	252 014	200	–	–	–	●	●	–
C_2H_5OH Alcohol													
	●	14965	0.40 - 5.00 g/l Alcohol	round	0.2	252 031	25	–	–	●	●	●	–
C_6H_5OH Phenol													
	■	00856	0.002 – 0.100 mg/l C_6H_5OH 0.025 – 5.000 mg/l C_6H_5OH	20 10, 20, 50	200 10	252 058	50 250	–	✔	–	●	●	–
	●	14551	0.10 - 2.50 mg/l C_6H_5OH	round	10	250 412	25	–	✔	–	●	●	–
Ca Calcium	■	14815	5 - 160 mg/l Ca	10, 20	0.1	250 428	100	–	✔	–	●	●	–
	●	00858	10 - 250 mg/l Ca	round	1	252 047	25	–	–	–	●	●	–
Cd Cadmium													
	●	14834	0.025 - 1.000 mg/l Cd	round	5	250 314	25	✔	–	●	●	●	●
	■	01745	0.002- 0.500 mg/l Cd	10, 20, 50	10	252 051	55	–	–	–	●	●	–
Cl Chloride	●	14730	5 - 125 mg/l Cl	round	1	250 353	25	✔	✔	●	●	●	–
	■	14897	2.5 - 250 mg/l Cl	10	1, 5	250 491	100	✔	✔	–	●	●	–
Cl_2 Chlor	●	00595	0.03 - 6.00 Cl_2	round	5	250 419	200	–	–	●	●	●	●
	●	00597	0.03 - 6.00 Cl_2	round	5	250 420	200*	–	–	●	●	●	●
	■	00598/1	0.010 - 6.00 Cl_2	10, 20, 50	10	252 010	1200	–	–	–	●	●	–
	■	00598/2	0.010 - 6.00 Cl_2	10, 20, 50	10	252 011	200	–	–	–	●	●	–
	■	00599	0.010 - 6.00 Cl_2	10, 20, 50	10	252 012	200*	–	–	–	●	●	–
	■	00602/1	0.010 - 6.00 Cl_2	10, 20, 50	10	252 013	200	–	–	–	●	●	–
	■	00602/2	0.010 - 6.00 Cl_2	10, 20, 50	10	252 055	1200	–	–	–	●	●	–
	■	14828	replaced by 00598, 00599, 00602										
	■	14732	replaced by ClO_2 00608 and Ozone 00607										
	TP	Cl-1 TP	0 - 2.00 mg/l Cl2	round, 28	10	251 401	100	–	–	–	–	–	●
	TP	Cl-2 TP	0.0 - 5.0 mg/l Cl_2	round, 28	25	251 402	100	–	–	–	–	–	●

● = Reaction cuvettes tests; ■ = Reagent tests; TC* = Cuvette test; TP* = Powder pillows; CC = CombiCheck test; SW = Sea water; ml* = Sample volume; * = available Q1/2005

		Model	Measuring Range	Cuvette (mm)	ml*	Order No.	No.	CC	photoLab® SW	S6	S12	Spektral	pHotoFlex
ClO_2 Chlorine dioxide													
	■	00608	0.020 - 10.00 mg/l ClO_2	10, 20, 50	10	252 017	150	–	–	–	●	●	–
	■	14732	replaced by ClO_2 00608 and Ozone 00607										
ClO_2 Chlorine dioxide/Chlorine/Ozone													
	■	14732	replaced by ClO_2 00608 and Ozone 00607										
CN Cyanid (free and easily liberatable cyanide)													
	●	14561	0.010 - 0.500 mg/l CN	round	5	250 344	25	–	–	●	●	●	●
	■	09701	0.002 - 0.500 mg/l CN	10, 20, 50	5, 10	250 492	100	–	–	–	●	●	–
Copper-plating bath:			See reagent-free tests										
Cr Chromate (chromium VI and total chromium)													
	●	14552	0.05 - 2.00 mg/l Cr	round	10	250 341	25	–	✔*	●	●	●	●
	■	14758	0.01 - 3.00 mg/l Cr	10, 20, 50	5	250 433	250	–	✔	–	●	●	–
CrO_3 Chromium plating bath:			See reagent-free tests										
Cu Copper	●	14553	0.05 - 8.00 mg/l Cu	round	5	250 408	25	–	✔	●	●	●	●
	■	14767	0.02 - 6.00 mg/l Cu	10, 20, 50	10	250 441	250	–	✔	–	●	●	●
	TP	Cu-1 TP	0.0 - 5.0 mg/l Cu	round, 28	10	251 403	100	–	–	–	–	–	●
Cu plating bath:			See reagent-free tests										
Detergents:			See Surfactants: anionic, cationic, nonionic										
F Fluoride	●	14557	0.10 - 1.5 mg/l F	round	5	250 365	25	–	✔	–	●	●	●
	■	14598	0.10 - 20.0 mg/l F	10	5 resp. 0.5	252 048	100	–	–	–	●	●	–
Fe Iron	●	14549	0.05 - 4.00 mg/l Fe	round	5	250 349	25	✔	✔	●	●	●	●
	●	14896	1.0 - 50.0 mg/l Fe	round	1	250 361	25	–	–	●	●	●	–
	■	14761/1	0.005 - 5.00 mg/l Fe	10, 20, 50	5	250 435	1000	✔	✔	–	●	●	●
	■	14761/2	0.005 - 5.00 mg/l Fe	10, 20, 50	5	250 439	250	✔	✔	–	●	●	●
	■	00796	0.010 - 5.00 mg/l Fe	10, 20, 50	8	252 042	150	✔	✔	–	●	●	–
	TP	Fe-1 TP	0.0 - 1.8 mg/l Fe	round, 28	10	251 404	100	–	–	–	–	–	●
	TP	Fe-2 TP	0 - 3.0 mg/l Fe	round, 28	10	251 405	100	–	–	–	–	–	●
H_2O_2 Hydrogen peroxide													
	●	14731	2.0 - 20.0 mg/l H_2O_2	round	10	250 402	25	–	✔	–	●	●	–
Halogens (total):			See Cl_2, Br_2, I_2, ClO_2, O_3										
Hazen:			See reagent-free tests: Coloration										
Heavy metals:			See lead, cadmium, chromium										
HCHO Formaldehyde													
	●	14500	0.10 - 8.00 mg/l HCHO	round	2	250 406	25	–	–	●	●	●	–
	■	14678	0.02 - 8.00 mg/l HCHO	10, 20, 50	3	250 331	100	–	–	–	●	●	–
I_2 Iodine	■	00606	0.050 - 10.00 mg/l I_2*	10, 20, 50	10	252 015	200	–	–	–	●	●	–
Iodine number:			See reagent-free tests: Coloration										

● = Reaction cuvettes tests; ■ = Reagent tests; TC* = Cuvette test; TP* = Powder pillows; CC = CombiCheck test; SW = Sea water; ml* = Sample volume; * = available Q1/2005

Reagents from A – Z

	Model	Measuring Range	Cuvette (mm)	ml*	Order No.	No.	CC	photoLab® SW	S6	S12	Spektral	pHotoFlex
K Potassium												
●	14562	5.0 - 50.0 mg/l K	round	2	250 407	25	–	✔	●	●	●	–
●	00615	30 - 300 mg/l K	round	0.5	252 020	25	–	✔	●	●	●	–
Mg Magnesium												
●	00815	5.0 - 75.0 mg/l Mg	round	1	252 043	25	–	✔	●	●	●	●
Mn Manganese												
■	01739	0.005 – 2.000 mg/l Mn	10, 20, 50	8	252 056	250	–	–	–	●	●	–
■	14770	0.01 - 10.0 mg/l Mn	10, 20, 50	5	250 442	500	✔	✔	–	●	●	●
●	00816	0.10 - 5.00 mg/l Mn	round	7	252 035	25	✔	–	●	●	●	●
TP	Mn-1 TP	0.0 - 20.0 mg/l Mn	round, 28	10	251 406	100	–	–	–	–	–	●
Mo Molybdenum												
●	00860	0.02 - 1.00 mg/l Mo	round	10	252 040	25	–	–	–	●	●	–
TP	Mo-1 TP	0,0 - 35.0 mg/l Mo	round, 28	10	251 407	100	–	–	–	–	–	●
Monochloramine												
■	01632	0.05 – 10.0 mg/l Cl_2	10, 20, 50		252 057	150	–	–	–	●	●	–
N_2H_4 Hydrazine												
■	09711	0.005 - 2.00 mg/l N_2H_4	10, 20, 50	5	250 493	100	–	–	–	●	●	–
N_{Total} Total Nitrogen												
●	14537	0.5 - 15.0 mg/l N_{Total} (120 °C, 1 h)	round	10	250 358	25	✔	–	●	●	●	●
●	14763	10 - 150 mg/l N_{Total} (120 °C, 1 h)	round	1	250 494	25	✔	–	●	●	●	–
●	00613	0.5 - 15.0 mg/l N_{Total} (120 °C, 1 h)	round	10	252 018	25	✔	–	●	●	●	–
TC	N_{tot}1 TC (LR)	0 - 25.0 mg/l N_{Total} (120°C, 30 min.)	round, 16	2; 2	251 995	50	–	–	–	–	–	●
TC	N_{tot}2 TC (HR)	5 - 150 mg/l N_{Total} (120°C, 30 min.)	round, 16	0.5; 2	251 996	50	–	–	–	–	–	●
Na Sodium ●	00885	10 - 300 mg/l Na	round	0.5	252 044	25	–	–	●	●	●	–
NH_4 Ammonium												
●	14739	0.010 - 2.000 mg/l NH_4-N 0.01 - 2.60 mg/l NH_4^+	round	5	250 495	25	✔	–	●	●	●	–
●	A5/25	0.20 - 8.00 mg/l NH_4-N 0.26 - 10.3 mg/l NH_4^+	round	1	250 323	25	✔	✔	●	●	●	●
●	14544	0.5 - 16.0 mg/l NH_4-N 0.6 - 20.6 mg/l NH_4	round	0.5	250 329	25	✔	✔	●	●	●	–
●	14559	4.0 - 80.0 mg/l NH_4-N 5.2 - 103.0 mg/l NH_4	round	0.1	250 424	25	✔	✔	●	●	●	–
■	14752	0.010 - 3.00 mg/l NH_4-N 0.013 - 3.86 mg/l NH_4	10, 20, 50	5	250 426	500	✔	✔	–	●	●	●
■	00683	2.0 - 150 mg/l NH_4-N 2.6 - 193 mg/l NH_4	10	0.1, 0.2	252 027	100	✔	✔	–	●	●	–
TP	NH_4-1 TP	0 - 0.5 mg/l NH_4-N 0 - 0.64 mg/l NH_4	round, 28	10	251 408	100	–	–	–	–	–	●
TC	NH_4-2 TC (LR)	0 - 2.5 mg/l NH_4-N 0 - 3.2 mg/l NH_4	round, 16	2	251 997	50	–	–	–	–	–	●
TC	NH_4-3 TC (HR)	0 - 50 mg/l NH_4-N 0 - 64 mg/l NH_4	round, 16	0.1	251 998	50	–	–	–	–	–	●

● = Reaction cuvettes tests; TC* = Cuvette test; CC = CombiCheck test; ml* = Sample volume;
■ = Reagent tests; TP* = Powder pillows; SW = Sea water; * = available Q1/2005

		Model	Measuring Range	Cuvette (mm)	ml*	Order No.	No.	CC	photoLab® SW	S6	S12	Spektral	pHotoFlex
Ni Nickel	●	14554	0.10 - 6.00 mg/l Ni	round	5	250 409	25	✔	–	●	●	●	–
	■	14785	0.02 - 5.00 mg/l Ni	10, 20, 50	5	250 443	250	✔	–	–	●	●	–
Nickel plating bath:		See reagent-free tests											
Nitrogen (total):		See N_{Total}											
NO_2 Nitrite													
	●	N4/25	0.020 - 0.600 mg/l NO_2-N 0.05 - 2.00 mg/l NO_2	round	4	250 343	25	–	✔	●	●	●	●
	■	14776/1	0.005 - 1.000 mg/l NO_2-N 0.016 - 3.29 mg/l NO_2	10, 20, 50	5	250 445	1000	–	✔	–	●	●	●
	■	14776/2	0.005 - 1.000 mg/l NO_2-N 0.016 - 3.29 mg/l NO_2	10, 20, 50	5	250 440	335	–	✔	–	●	●	●
	TP	NO_2-1 TP	0.0 - 0.2 mg/l NO_2-N 0 - 0,66 mg/l NO_2	round, 28	10	251 409	100	–	–	–	–	–	●
	TC	NO_2-2 TC	0.03 - 0.6 mg/l NO_2-N (LR) 0.1 - 2.0 mg/l NO_2 (LR)	round, 16	2	251 994	24	–	–	–	–	–	●
			0.3 - 3 mg/l NO_2-N (HR) 0.99 - 9.9 mg/l NO_2	round, 16	0,5								
NO_3 Nitrat	●	14556	0.10 - 3.00 mg/l NO_3-N 0.4 - 13.3 mg/l NO_3	round	2	250 411	25	✔	✔	–	●	●	–
	●	N1/25	0.5 - 23.0 mg/l NO_3-N 2 - 100 mg/l NO_3	round	0.5	250 342	25	✔	–	●	●	●	–
	●	14542	0.5 - 18.0 mg/l NO_3-N 2.2 - 79.7 mg/l NO_3	round	1.5	250 410	25	✔	–	●	●	●	●
	●	14764	1.0 - 50.0 mg/l NO_3-N 4 - 221 mg/l NO_3	round	0.5	250 347	25	✔	–	●	●	●	–
	●	00614	23 - 225 mg/l NO_3-N 102 - 996 mg/l NO_3	round	0.1	252 019	25	–	–	●	●	●	–
	■	14942	0.2 - 17.0 mg/l NO_3-N 0.9 - 75.3 mg/l NO_3	10, 20, 50	1	250 422	50	✔	✔	–	●	●	–
	■	14773	0.2 - 20.0 mg/l NO_3-N 0.9 - 88.5 mg/l NO_3	10, 20	1.5, 3	250 444	100	✔	–	–	●	●	–
	■	09713	0.1 - 25.0 mg/l NO_3-N 0.45 - 110.7 mg/l NO_3	10, 20, 50	0.5	250 421	90	✔	–	–	●	●	–
	TC	NO_3-1 TC	0 - 30.0 mg/l NO_3-N 0-133 mg/l NO_3	round, 16	2	251 993	50	–	–	–	–	–	●
O_2 BOD Biochemical oxygen demand													
	●	00687	0.5 - 3000 mg/l BOD	round	–	252 028	50	–	✔	●	●	●	–
O_2 COD Chemical oxygen demand													
	●	14560	4.0 - 40.0 mg/l COD (148 °C, 2 h)	round	3	250 303	25	✔	–	●	●	●	–
	●	C1/25	15 - 160 mg/l COD (148 °C, 2 h)	round	2	250 302	25	✔	–	●	●	●	●
	●	14895	15 - 300 mg/l COD (148 °C, 2 h)	round	2	250 359	25	✔	–	●	●	●	–
	●	14690	50 - 500 mg/l COD (148 °C, 2 h)	round	2	250 304	25	✔	–	●	●	●	–
	●	C2/25	100 - 1500 mg/l COD (148 °C, 2 h)	round	2	250 308	25	✔	–	●	●	●	●
	●	14691	300 - 3500 mg/l COD (148 °C, 2 h)	round	2	250 351	25	✔	–	●	●	●	–
	●	14555	500 -10000 mg/l COD (148 °C, 2 h)	round	1	250 309	25	✔	–	●	●	●	–

(continuation see next page)

● = Reaction cuvettes tests; ■ = Reagent tests; TC* = Cuvette test; TP* = Powder pillows; CC = CombiCheck test; SW = Sea water; ml* = Sample volume; * = available Q1/2005

Photometers
Reagents from A – Z

		Model	Measuring Range	Cuvette (mm)	ml*	Order No.	No.	CC	photoLab® SW	S6	S12	Spektral	pHotoFlex
O_2 COD Chemical oxygen demand *(continuation)*													
TC		COD1 TC (LR)	0 - 150 mg/l COD (148 °C, 2 h)	round, 16	2	251 990	25	–	–	–	–	–	●
TC		COD2 TC (MR)	0 - 1500 mg/l COD (148 °C, 2 h)	round, 16	2	251 991	25	–	–	–	–	–	●
TC		COD3 TC (HR)	0 - 15000 mg/l COD (148 °C, 2 h)	round, 16	0,2	251 992	25	–	–	–	–	–	●
O_2 COD Chemical oxygen demand (HG free)													
	●	09772	10 - 150 mg/l COD (148 °C, 2h)	round	2	250 301	25	✔	–	●	●	●	–
	●	09773	100 - 1500 mg/l COD (148 °C, 2h)	round	2	250 306	25	✔	–	●	●	●	–
O_2 Oxygen	●	14694	0.5 - 12.0 mg/l O_2	round	-	250 403	25	–	–	●	●	●	–
O_3 Ozone	■	00607/1	0.010 - 4.00 mg/l O_3	10, 20, 50	10	252 016	200	–	–	–	●	●	●
	■	00607/2	0.010 - 4.00 mg/l O_3	10, 20, 50	10	252 054	1200	–	–	–	●	●	●
	■	14732	replaced by ClO_2 00608 and Ozone 00607										
Organic Acids (volatile)													
	●	01763	50-3000 mg/l	round		252 060	100	–	–	●	●	●	–
Pb Lead	●	14833	0.10 - 5.00 mg/l Pb	round	5	250 313	25	✔	–	●	●	●	–
	■	09717	0.010 - 5.00 mg/l Pb	10, 50	8	252 034	50	✔	–	–	●	●	●
pH	●	01744	pH 6.4 – 8.6	round	10	252 050	280	–	✔	●	●	●	–
Phosphate (total): See PO_4 Phosphate													
PO_4 Phosphate													
	●	P4/25	0.05 - 1.50 mg/l PO_4-P 0.05 - 1.50 mg/l P_{Total}** 0.20 - 4.50 mg/l PO_4	round	4	250 366	25	✔	✔*	●	●	●	●
	●	14543	0.05 - 5.00 mg/l PO_4-P 0.05 - 5.00 mg/l P_{Total}** 0.2 - 15.3 mg/l PO_4	round	5	250 324	25	✔	✔*	●	●	●	–
	●	P5/25	0.3 - 15.0 mg/l PO_4-P 0.3 - 15.0 mg/l P_{Total}** 1.0 - 45.0 mg/l PO_4	round	0.5	250 368	25	✔	✔	●	●	●	●
	●	14546	0.5 - 25.0 mg/l PO_4-P 1.5 - 76.7 mg/l PO_4	round	5	250 413	25	✔	✔	●	●	●	●
	●	14729	0.5 - 25.0 mg/l PO_4-P 0.5 - 25.0 mg/l P_{Total}** 1.5 - 76.7 mg/l PO_4	round	1	250 334	25	✔	✔	●	●	●	–
	●	00616	3.0 - 100.0 mg/l PO_4-P 10 - 307 mg/l PO_4	round	0.2	252 021	25	–	✔	●	●	●	–
	■	14848	0.01 - 5.00 mg/l PO_4-P 0.03 - 15.3 mg/l PO_4	10, 20, 50	5	250 446	420	✔	✔	–	●	●	●
	■	14842	0.5 - 30.0 mg/l PO_4-P 1.5 - 92.0 mg/l PO_4	10, 20	5	250 447	400	–	✔	–	●	●	–
	■	00798	1.0 - 100 mg/l PO_4-P 3 - 307 mg/l PO_4	10	8	252 045	100	–	✔	–	●	●	–
TP		PO_4-1 TP	0 - 0.82 mg/l PO_4-P 0 - 2.5 mg/l PO_4	round, 28	10	251 410	100	–	–	–	–	–	●
TC		PO_4-2 TC	0 - 1.6 mg/l PO_4-P 0 - 5 mg/l PO_4	round, 16	5	251 989	50	–	–	–	–	–	●
TC		PO4-3 TC	0 - 1.1 mg/l PO_4-P 0 - 1.1 mg/l P_{Total} (digestion) 0 - 3.5 mg/l PO_4	round, 16	5	251 988	50	–	–	–	–	–	●

● = Reaction cuvettes tests; ■ = Reagent tests; TC* = Cuvette test; TP* = Powder pillows; CC = CombiCheck test; SW = Sea water; ml* = Sample volume; * = available Q1/2005

		Model	Measuring Range	Cuvette (mm)	ml*	Order No.	No.	CC	photoLab® SW	S6	S12	Spektral	pHotoFlex
S Sulfide/Hydrogensulfide													
	●	14779	0.02 - 1.50 mg/l S	10, 20, 50	5	250 450	220	–	–	–	●	●	–
Si Silicate/Silicic acid													
	■	14794	0.005- 5.00 mg/l Si	10, 20, 50	5	250 438	300	–	✔	–	●	●	–
	■	00857	0.5 - 500 mg/l Si	10	4/0.5	252 046	100	–	–	–	●	●	–
	TP	Si-1 TP (LR)	0 - 1.6 mg/l SiO_2 0 - 0.7 mg/l Si	round, 28	10	251 411	100	–	–	–	–	–	●
	TP	Si-2 TP (HR)	0 - 100 mg/l SiO_2 0 - 47 mg/l Si	round, 28	10	251 412	100	–	–	–	–	–	●
Sn Tin	●	14622	0.10 - 2.50 mg/l Sn	round	5	250 401	25	–	✔	–	●	●	–
SO_3 Sulfite	●	14394	1.0 - 20.0 mg/l SO_3	round	3	250 416	25	–	–	–	●	●	–
	■	01746	1.0-60.0 mg/l SO_3	10	2	252 053	150	–	–	–	●	●	–
SO_4 Sulfate	●	14548	5 - 250 mg/l SO_4	round	5	250 414	25	✔	✔	●	●	●	●
	●	00617	50 - 500 mg/l SO_4	round	2	252 022	25	✔	✔	●	●	●	–
	●	14564	100 - 1000 mg/l SO_4	round	1	250 415	25	✔	✔	●	●	●	–
	■	14791	25 - 300 mg/l SO_4	10, 20	2.5	250 449	200	✔	–	–	●	●	–
	TP	SO4-1 TP	0 - 70 mg/l SO_4	round, 28	10	251 413	100	–	–	–	–	–	●
Surfactants													
a-Ten (anionic)	●	14697	0.05 - 2.00 mg/l a-Ten	round	5	250 333	25	–	–	–	●	●	–
c-Ten (cationic)	●	01764	0.05 - 1.50 mg/l CTAB	round	5	252 062	25	–	–	–	●	●	–
n-Ten (nonionic)	●	01787	0.10 - 7.50 mg/l Triton X-100	round	4	252 061	25	–	–	–	●	●	–
TOC Total organic carbon													
	●	14878	5.0 - 80.0 mg/l TOC	round	3	252 036	25	–	–	●	●	●	–
	●	14879	50 - 800 mg/l TOC	round	3	252 037	25	–	–	●	●	●	–
also required:		TOC Screw Caps (252 038)											
available:		TOC Standard Solution 1000 mg/l (250 499)											
Total nitrogen:		See N_{Total}											
Total phosphate:		See PO_4 Phosphate											
Kieselsäure:		siehe Silicium											
Water hardness, RH Residual hardness													
	●	14683	0.075 - 0.750 °d 0.50 - 5.00 mg/l Ca	round	4	250 404	25	–	–	●	●	●	–
Water hardness, total hardness													
	●	00961	0.7 - 30.1 °d 5 - 215 mg/l Ca	round	1	252 039	25	–	–	●	●	●	●
Zn Zinc	●	00861	0.1 - 2.00 mg/l Zn	round	2	252 049	25	–	–	●	●	●	–
	●	14566	0.20 - 5.00 mg/l Zn	round	0.5	250 417	25	✔	–	●	●	●	–
	■	14832	0.05 - 2.50 mg/l Zn	10	5	250 451	90	–	–	–	●	●	–
Necessary reagent:		06146	Zinc reagent 6			250 452	180						

● = Reaction cuvettes tests; ■ = Reagent tests; TC* = Cuvette test; TP* = Powder pillows; CC = CombiCheck test; SW = Sea water; ml* = Sample volume; * = available Q1/2005

CombiCheck

CombiCheck solutions are ready-to-use multi-parameter standards. Each package contains a standard solution and an addition solution. Both solutions can be used directly **without dilution** for quality assurance.

- The standard solution is used to check the accuracy of the results for the complete system: procedure - analytical method - reagents - photometer.
- The addition solution is used to check sample-dependent influences by measuring the recovery rate and to determine the most suitable sample preparation method.

The maximum number of determinations which can be made with a **CombiCheck** standard solution depends on the test set used. With the addition solution 280 determinations are always possible.
Read also all test kit instructions!

Storage: 35.6 … 46.4 °F (+2 … +8 °C)

Model				Order No.
14676	CombiCheck 10			250 482
	Parameter	**Concentration**	**Suitable for test set model**	**Max. no. of determinations**
	Ammonium	4.00 mg/l NH_4-N	A5/25 14558	90 90
	Chloride	25.0 mg/l Cl	14730	90
	COD	80 mg/l COD	C1/25 14540	45 30
	Nitrate	2.5 mg/l NO_3-N	14556 14542 14773	45 60 60
	Phosphate	0.80 mg/l PO_4-P	P4/25 14543 14848	22 18 9
	Sulfate	100 mg/l SO_4	14548 14791 00617	18 40 48

Model				Order No.
14675	CombiCheck 20			250 483
	Parameter	**Concentration**	**Suitable for test set model**	**Max. no. of determinations**
	Ammonium	12.0 mg/l NH_4-N	14544	180
	Chloride	60 mg/l Cl	14730	90
	COD	750 mg/l COD	C2/25 14541	45 30
	Nitrate	9.0 mg/l NO_3-N	N1/25 14542 14563 14773 14942 09713	180 60 90 60 60 180
	Phosphate	8.0 mg/l PO_4-P	P5/25 14729	180 90
	Sulfate	500 mg/l SO_4	14564	90

Model				Order No.
14677	CombiCheck 30			250 484
	Parameter	**Concentration**	**Suitable for test set model**	**Max. no. of determinations**
	Cadmium	0.500 mg/l Cd	14834	19
	Copper	2.00 mg/l Cu	14553 14767	19 19
	Iron	1.00 mg/l Fe	14549 14761 00796	19 9 12
	Manganese0	1.00 mg/l Mn	14770 00816	9 13

Model				Order No.
14692	CombiCheck 40			250 485
	Parameter	**Concentration**	**Suitable for test set model**	**Max. no. of determinations**
	Aluminium	0.75 mg/l Al	14825	19
	Nickel	2.00 mg/l Ni	14554 14785	19 19
	Lead	2.00 mg/l Pb	14833 09717	19 11
	Zinc	2.00 mg/l Zn	14566	190

Model				Order No.
14695	CombiCheck 50			250 486
	Parameter	**Concentration**	**Suitable for test set model**	**Max. no. of determinations**
	Ammonium	1.00 mg/l NH_4-N	14739 14752	19 19
	Nitrogen	5.0 mg/l N_{Total}	14537 00613	9 9
	COD	20.0 mg/l COD	14560	32

Model				Order No.
14696	CombiCheck 60			250 487
	Parameter	**Concentration**	**Suitable for test set model**	**Max. no. of determinations**
	COD	250 mg/l COD	14690 14895	48 48
	Chloride	125 mg/l Cl	14897	96

Model				Order No.
14689	CombiCheck 70			250 488
	Parameter	**Concentration**	**Suitable for test set model**	**Max. no. of determinations**
	Ammonium	50.0 mg/l NH_4-N	14559 00683	950 480
	COD	5000 mg/l COD	14555	95
	Nitrogen	50.0 mg/l N_{Total}	14763	95

Model				Order No.
14738	CombiCheck 80			250 489
	Parameter	**Concentration**	**Suitable for test set model**	**Max. no. of determinations**
	COD	1.500 mg/l COD	14691	48
	Nitrate	25.0 mg/l NO_3-N	14764	190
	Phosphate	15.0 mg/l PO_4-P	14729	95

Accessories

Standard Solutions

Parameter	Conc. in mg/l	Amount in ml	Model	Order No.
Aluminium	1000	500	19770	250 460
Ammonium	1000	500	19812	250 461
AOX	20	85 (8-16 Checks)	00680	252 026
Lead	1000	500	19776	250 462
Boron	1000	500	19500	250 463
BOD	210	10 bottles for 10 x 1l	00718	252 030
Cadmium	1000	500	19777	250 464
Calcium	1000	500	19778	250 465
Chloride	1000	500	19897	250 466
Chromium	1000	500	19779	250 467
Chromate	1000	500	19780	250 468
COD 160	100	30	KCSB 100	250 356
COD 1500	400	30	KCSB 400	250 357
Iron	1000	500	19781	250 469
Fluoride	1000	500	19814	250 470
Potassium	1000	500	70230	252 471
Silicic acid (Silicon)	1000	500	70236	252 472
Copper	1000	500	19786	250 473
Manganese	1000	500	19789	250 474
Nickel	1000	500	19792	250 475
Nitrate	1000	500	19811	250 476
Nitrite	1000	500	19899	250 477
Phosphate	1000	500	19898	250 478
Silver	1000	500	19797	250 479
Sulfate	1000	500	19813	250 480
TOC	1000	100	09017	250 499
Zinc	1000	500	19806	250 481

Standard solutions which limited stability, to be freshly prepared at regular intervals:

- Free chlorine
- Bound chlorine
- Formaldehyde
- Hydrazine
- Hydrogen peroxide
- Hydrogen sulfide
- Phenol
- Silicon
- Sulfide
- Sulfite
- Anionic surfactants

PhotoCheck

AQA/IQC: Comprehensive testing aid for optics and measurement linearity!

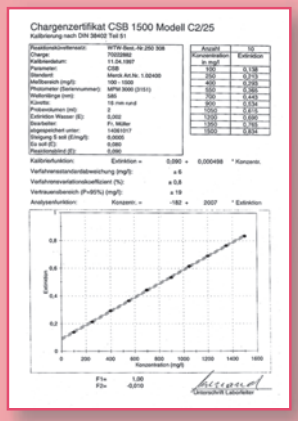
The stable colored solutions are used for checking the filter and the wavelength settings 445 nm/446 nm, 520 nm/525 nm as well as 690 nm. The correctness of the wavelength setting and the linearity of the extinction measurement are checked with 4 solutions per wavelength. The control is fast and comfortable, via a simple, menu-guided function. The traceability of this testing aid to international standards is guaranteed by checking the solutions in a reference photometer monitored with primary standards (NIST standards). These values are documented accordingly.

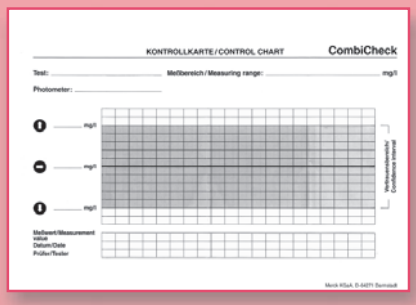
PipeCheck

Testing aid for the right pipetting volume!

The appropriate test solution is diluted with distilled water using the pipette to be checked and the extinction of the dilute solution is compared with that of a reference solution. Pipettes with a variation in volume of more than ± 2.5 % must be regarded as being faulty.

General Information





- The current **analytical procedure** is included in each package.
- **Certificates** for test sets ■ and ● can be found on the WTW homepage www.WTW.com.
- **Storage:** if no other information is provided then the test set can be stored at **59 to 77 °F (+15 to +25 °C)**.
- WTW recommends regularly checking reagents and photometers, e.g. with **PhotoCheck** and **CombiCheck.**
- Reaction cuvette tests are marked with ● and have only **one** measuring range. The cuvette information is "round", i.e. the outer diameter of the test cuvette is 16 mm. Reaction cuvette tests are pre-prepared rapid tests, with only **one** measuring range.
- Reagent tests are marked with ■. The measuring range information applies to the total useable measuring range for this method without sample dilution and normally involves changing a (rectangular) cuvette.
- The designation **TC** and **TP** stands for new test sets without charge certificate, that are suited for pHotoFlex. **TC** are reaction cuvette tests in 0.63 in (16 mm) cuvettes, **TP** are powder tests and are used in 0.63 in and 1.1 in (16 mm and 28 mm) cuvettes according to their measuring range.
- All reagent tests require, e.g. reaction vessels or RK 14/25 empty cuvettes and rectangular cuvettes
- Round cuvettes are not suitable for repeated use and are not to be used with reagent tests.
- In some tests a second citation form is given for the measuring ranges, e.g. nitrate as nitrate (NO_3) and as nitrate nitrogen (NO_3-N). Other possible units and citation forms which can be set are contained in the operating instruction for the instrument.
- Tests which require a **digestion** (e.g. COD) are marked with the digestion temperature and time (e.g. 298.4 °F/148 °C, 2 h). Thermoreactors from WTW are equipped with appropriate programs.

Virtually all offered tests are conform to standards according to DIN/ISO/EN/US EPA; please refer to the brochure "Product Details".

Reagent-free Tests

% transmittance
0 - 100 % T, 10, 20, 50 mm cuvette (self-absorption).

FAU turbidity
(EN ISO 7027) Determination of turbidity

Turbidity is caused in liquids by the presence of undissolved substances. For undissolved finely dispersed substances the turbidity can be measured by measuring the reduction in the intensity of a beam of light when passed through the liquid, or by measuring the intensity of the scattered radiation.

A formazin solution, which must be freshly prepared and is not commercially available, is used as a reference solution. According to EN ISO 7027, all instruments may be used which satisfy the following requirements: Incoming radiation in the range 800 nm to 920 nm, spectral bandwidth <60 nm or measurement at 550 nm, spectral bandwidth <30 nm, no divergent radiation. The results are given in FAU units (Formazin Attenuation Units) when the radiation passing through is measured.

Extinction

According to the Lambert-Beer law, the extinction $E = \varepsilon(\lambda) \cdot c \cdot d$ is proportional to the concentration of substances contained in the water. The proportionality constant $\varepsilon(\lambda)$ depends on the wavelength. These constants, and other data required for the determination of the solids in the water are stored in modern photometers as method data. The basic quantity measured is and remains the extinction.

Coloration
(EN ISO 7887: 1994)
If a layer of several meters of pure water is observed in transmitted light it appears to have a weakly blue coloration. This coloration can alter in the presence of contaminants to form a wide range of colorations. Natural waters are usually colored yellow-brown by contamination with iron or clay particles or humic matter.
(A green coloration can be produced by algae.) The "true" color of water is determined after filtration through a 0.45 µm filter

Normally most yellow-brown colored waters and the outflows of municipal sewage treatment plants can be measured at 436 nm. The outflows of industrial wastewater treatment plants show no sharp and distinctive extinction maxima. For the investigation of such water it is obligatory to measure at 436 nm (mercury line); the two other measuring wavelengths 525 nm and 620 nm can, depending on the filter used, vary slightly from these wavelengths. For discontinuous measurements the standard permits the use of filter photometers with a spectral bandwidth of < 20 nm for measurements at 436 nm, 525 nm and 620 nm. Thus, for example, instruments with 445 nm and 520 nm interference filters with a bandwidth of 10 nm are also suitable. For comparability with the standard, however, a spectrophotometer is required. The results are presented in m^{-1} together with the measuring wavelength, spectral bandwidth, water temperature and pH.

In some publications the result is given in DFZ (translucent coloration number); which is identical with the m^{-1} result.

(DIN ISO 6271: 19988)
Clear liquids, determination of the color number with the platinum-cobalt scale (Hazen color number, APHA color number). Spectrophotometers are mentioned as being suitable for measuring the stock solutions at 430 nm, 455 nm, 480 nm and 510 nm. According to the standard the measurement itself is carried out with a color comparator which allows a visual comparison.

Chrome-plating bath
Reagent-free measurement of the self-coloration of an electroplating bath. 5 ml of the sample are pipetted into a 100 ml volumetric flask, filled up to the mark with distilled water and well mixed. 4 ml of the diluted sample are pipetted into a 100 ml volumetric flask, filled up to the mark with distilled water and well mixed. 5 ml of the 1:500 dilution are placed in a screw-cap glass and 5 ml 40% sulfuric acid are added. The glass is sealed and the contents well mixed. The solution is filled into a rectangular cuvette for the measurement.

Nickel-plating bath
Reagent-free measurement of the self-coloration of an electroplating bath. 5 ml of the sample are pipetted into a round cuvette and 5 ml 40% sulfuric acid are added. The cuvette is sealed and the contents mixed. The solution is filled into a rectangular cuvette for the measurement.

Copper-plating bath
Reagent-free measurement of the self-coloration of an electroplating bath. 25 ml of the sample are pipetted into a 100 ml volumetric flask, filled up to the mark with distilled water and well mixed. 5 ml of the diluted sample are place in a screw-cap glass and 5 ml 40% sulfuric acid are added. The glass is sealed and the contents well mixed. The solution is filled into a rectangular cuvette for the measurement.

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