

Spectrophotometer and Colorimeter Measurement Parameter List - 2024

Table 6. Measurement parameters, applicable instruments, reagent catalog numbers, and remarks. Unit is mg/L unless otherwise stated.

Parameter	Measurement Range	DR6000	DR3900	DR1900	DR900	Reagent Cat. No.	Remarks
Aluminum	0.008-0.800	•	•	•	•	2242000-CN	
	0.002-0.250	•	•	•		2603700-CN	
	0.02-0.50	•	•	•		TNT848-CN	
Arsenic	0-0.200	•	•	•		1457142-CN; 134-49; 1458042; 1456842-CN; 1446949-CN; 14476-24; 1447624-CN; 79501-CN .	Additional items required: cotton balls (2572-01); arsenic distillation apparatus; general distillation apparatus; distillation heater; 25 mL square sample cell (26126-02).
Barium	2-100	•	•	•		1206499-CN	
Benzotriazole / Tolytriazole	1.0-16.0 (Benzotriazole), 1.0-20.0 (Tolytriazole)	•	•	•	•	2141299-CN	Additional items required: UV lamp; graduated 25 mL sample cell 17042-00. Colorimeters do not require the sample cell.
Boron	0.2-14.0	•	•	•		1417099-CN	
	0.05-2.50	•	•	•		TNT877-CN	
Bromine	0.05-4.50	•	•	•	•	2105669-CN	
Monochloramine	0.1-10.0 (as Cl ₂)	•	•	•		2805145-CN	
	0.04-4.50 (as Cl ₂)	•	•	•	•	2802246-CN	DR6000/DR3900/DR1900 require the multi-pathlength sample cell (48643-02); colorimeters do not require it.
Chloride	0.1-25.0	•	•	•		2319800-CN	
	1.0-1000	•	•	•		TNT879-CN	
Chlorine Dioxide	0.04-5.00	•	•	•	•	2770900-CN	
	1-50 (direct reading)	•	•	•	•	-	
	5-1000 (direct reading)	•	•	•		-	
	0.01-1.00	•	•	•		2242300-CN	
Free Chlorine	0.02-2.00	•	•	•	•	2105569-CN	
	0.02-2.00	•	•			2556900-CN	Requires additional flow cell. See the relevant product ordering guide for ordering information.
	0.04-4.50	•	•	•	•	2802299-CN	DR6000/DR3900/DR1900 require the multi-pathlength sample cell (48643-02); colorimeters do not require it.
	0.05-2.00	•	•	•		TNT866-CN	Indophenol method.
	0.1-10.0	•	•	•	•	1407099-CN	DR6000/DR3900/DR1900 require the multi-pathlength sample cell (48643-02); colorimeters do not require it.
	0.09-5.00	•	•	•	•	2105545-CN	
Total Chlorine	0.02-2.00	•	•	•	•	2105669-CN	
	0.02-2.00	•	•	•		2557000-CN	Requires additional flow cell. See the relevant product ordering guide for ordering information.
	0.1-10.0	•	•	•	•	1406499-CN	DR6000/DR3900/DR1900 require the multi-pathlength sample cell (48643-02); colorimeters do not require it.
	2-500ug/L	•	•	•		2563000-CN	Requires additional flow cell. See the relevant product ordering guide for ordering information.
	0.09-5.00	•	•	•	•	2105645-CN	
Free & Total Chlorine	0.05-2.00	•	•	•		TNT867-CN	
Hexavalent Chromium	0.010-0.700	•	•	•	•	1271099-CN	
Total Chromium	0.01-0.70	•	•	•	•	2242500-CN	Requires additional 25 mL sample bottle (24019-06); DR900 does not require it.
Hexavalent & Total Chromium	0.03-1.00	•	•	•		TNT854-CN	
Cobalt	0.01-2.00	•	•	•		2651600-CN	
Color	3-200 degrees	•	•			-	Requires additional 5 cm pathlength rectangular cell (26292-50). Turbid samples should be filtered through a 0.45 um membrane.
	15-500 degrees	•	•	•	•	-	Turbid samples should be filtered through a 0.45 um membrane.
Copper	0.04-5.00	•	•	•	•	2105869-CN	
	0.1-8.0	•	•	•		TNT860-CN	For total copper measurement, add sample preparation reagent TNT890. The DRB200 reactor requires 20 mm digestion wells.

Parameter	Measurement Range	DR6000	DR3900	DR1900	DR900	Reagent Cat. No.	Remarks
	1-210ug/L	●	●	●	●	2603300-CN	
Cyanide	0.002-0.240	●	●	●	●	2430200-CN	If distillation is required, use an additional distillation apparatus.
	0.01-0.6	●	●	●		TNT862-CN	
Cyanuric Acid	5-50mg/L		●	●		246066-CN	
	7-55mg/L				●		
Fluoride	0.02-2.00	●	●	●	●	44449-CN	
	0.1-2.5	●	●	●		TNT878-CN	
Formaldehyde	3-500ug/L	●	●	●		2257700-CN	
Hardness	0.05-4.00 CaCO ₃	●	●	●	●	2319900-CN	
	20-350 CaCO ₃ , 3 5-100 Ca, 3-50 Mg	●	●	●		TNT869-CN	
Total Hardness	8-1000ug/L CaCO ₃	●	●	●		2603100-CN	Requires a 1-inch square capped plastic sample cell, 24102-12.
	4-1000ug/L CaCO ₃	●	●	●		2589549-CN+ 2589723-CN	
Hydrazine	4-600ug/L	●	●	●	●	179032-CN	
Iodine	0.07-7.00	●	●	●		2105669-CN	
Iron	0.009-1.400	●	●	●	●	230166-CN	
	0.009-1.400	●	●	●		230149-CN	Requires additional flow cell. See the relevant product ordering guide for ordering information.
	0.2-6.0	●	●	●		TNT858-CN	For total iron measurement, add sample preparation reagent TNT890; the DRB200 reactor requires 20 mm digestion wells. If sample color and turbidity are high, add blank reagent TNT919.
	0.3-100 ug/L	●				230149-CN	Requires 10 cm pathlength cell [2629201], adapter [LZV887], and dropper bottle [2937606].
Ferrous Iron	0.02-3.00	●	●	●	●	103769-CN	
Total Iron	0.01-1.80	●	●	●	●	2544800-CN	
	0.02-3.00	●	●	●	●	2105769-CN	
	0.012-1.800	●	●	●	●	2608799-CN	
Lead	5-150ug/L	●	●	●		2375000-CN	
	3-300ug/L		●	●	●	1420299-CN	Chloroform must be purchased separately.
						1261699-CN	
						245053-CN	
						245026-CN	
	0.1-2.0	●	●	●		TNT850-CN	For total lead measurement, add sample preparation reagent TNT890; the DRB200 reactor requires 20 mm digestion wells.
Manganese	0.1-20.0	●	●	●	●	2430000-CN	
	0.006-0.700	●	●	●	●	2651700-CN	
Mercury	0.1-2.5ug/L	●	●	●		2658300-CN	Requires cold-vapor mercury apparatus, vacuum pump, and thermometer.
Molybdate	0.2-40.0 Mo	●	●	●	●	2604100-CN	
	0.02-3.00 Mo	●	●	●	●	2449400-CN	
Nickel	0.02-1.80	●	●	●		212368	Chloroform must be purchased separately; also requires a 25 mL capped sample cell, 26126-02.
						212468	
	0.006-1.000	●	●	●	●	2651600-CN 2242600-CN(DR890)	
	0.1-6.0	●	●	●		TNT856-CN	For total nickel measurement, add sample preparation reagent TNT890; the DRB200 reactor requires 20 mm digestion wells.
Nitrate	0.3-30 NO ₃ -N	●	●	●	●	2106169-CN	
	0.1-10.0 NO ₃ -N; 0-5.0 NO ₃ -N (DR900)	●	●	●	●	2106169-CN	
	0.1-10.0 NO ₃ -N (UV direct-reading method)	●					
	0.01-0.50 NO ₃ -N	●	●	●	●	2429800-CN	
	0.2-30.0 NO ₃ -N	●	●	●	●	2605345-CN	
	0.23-13.5 NO ₃ -N	●	●	●		TNT835-CN	

Parameter	Measurement Range	DR6000	DR3900	DR1900	DR900	Reagent Cat. No.	Remarks
	5-35 NO3-N	●	●	●		TNT836-CN	
Total Alkalinity	25-400 CaCO3	●	●	●		TNT870-CN	
Nitrite	0.002-0.300mg/L NO2-N	●	●	●		2107169-CN	
	0.005-0.35mg/L NO2-N				●	2107169-CN	
	2-150mg/L NO2-N				●	2107569-CN	
	2-250mg/L NO2-N	●	●	●		2107569-CN	
	0.003-0.500mg/L NO2-N	●	●	●	●	2608345-CN	
	0.015-0.600mg/L NO2-N	●	●	●		TNT839-CN	
	0.6-6.0mg/L NO2-N	●	●	●		TNT840-CN	
	2-90mg/L NO2-N	●	●	●		TNT841-CN	
Ammonia Nitrogen	0.02-2.50mg/L NH3-N	●	●	●	●	2458200-CN (Nessler method) 2604545-CN (Salicylate method)	For turbid samples, the Nessler method requires distillation pretreatment using a general distillation apparatus and heater.
	0.01-0.50mg/L NH3-N	●	●	●	●	2668000-CN	
	0.4-50.0mg/L NH3-N	●	●	●	●	2606945-CN	Distillation is required when interference is severe; use a general distillation apparatus and heater.
	0.50-5.00 mg/L NH3-N	●	●	●		TNT829-CN	
	2-47mg/L NH3-N	●	●	●		TNT832-CN	
	0.015-2.00mg/L NH3-N	●	●	●		TNT830-CN	
	1-12mg/L NH3-N	●	●	●		TNT831-CN	
	47-130 mg/L NH3-N	●	●	●		TNT833-CN	
	100-1800 mg/L NH3-N	●	●	●		TNT834-CN	
	10-100 mg/L NH3-N	●	●	●		TNT837-CN	
Free Ammonia	0.0-0.50 mg/L NH3-N	●	●	●	●	2879200-CN	DR6000/DR3900/DR1900 require the multi-pathlength sample cell (48643-02); colorimeters do not require it.
Total Nitrogen	2-150mg/L N 10-150mg/L N (DR900)	●	●	●	●	2714100-CN	Requires DRB200 with 16 mm digestion wells.
	0.5-25.0mg/L N	●	●	●	●	2672245-CN	Requires DRB200 with 16 mm digestion wells.
	1-16mg/L N	●	●	●		TNT826-CN	Requires DRB200 with 20 mm digestion wells.
	5-40mg/L N	●	●	●		TNT827-CN	Requires DRB200 with 20 mm digestion wells.
	20-100mg/L N	●	●	●		TNT828-CN	Requires DRB200 with 20 mm digestion wells.
Total Nitrogen (National Standard Method)	0.05-15mg/L N	●				9780400	
Total Inorganic Nitrogen	0.2-25.0mg/L N	●	●	●	●	2604945-CN +2604545-CN	
Total Kjeldahl Nitrogen	1-150mg/L	●	●	●	●	2495300	Requires total Kjeldahl nitrogen digestion apparatus (23130-21).
	0-16mg/L (when nitrite-N is negligible)	●	●	●		TNT880-CN	The DRB200 reactor requires both 20 mm and 13 mm digestion wells.
Organic Matter, UV Absorption	N/A	●				-	Water samples must be filtered through a 0.45 um membrane.
Total Organic Carbon (TOC)	100-700mg/L C	●	●	●		2760445-CN	
	20-700mg/L C				●		
	0.3-20.0mg/L C	●	●	●	●	2760345-CN	
	15-150mg/L C	●	●	●	●	2815945-CN	
	30-300 mg/L C	●	●	●		TNT811-CN	Requires additional DRB200 reactor with 13 mm digestion wells.
	1.5-30 mg/L C	●	●	●		TNT810-CN	Requires additional DRB200 reactor with 13 mm digestion wells.
Chemical Oxygen Demand (CODCr)	3-150mg/L COD	●	●	●	●	2125825-CN	Requires additional DRB200 reactor.
	20-1500mg/L COD	●	●	●	●	2125925-CN	
	200-15000mg/L COD	●	●	●	●	2415925-CN	
	0.7-40mg/L COD	●	●	●		2415825-CN	
	1-60mg/L COD	●	●	●		TNT820-CN	
	3-150mg/L COD	●	●	●		TNT821-CN	

Parameter	Measurement Range	DR6000	DR3900	DR1900	DR900	Reagent Cat. No.	Remarks
	20-1500mg/L COD	●	●	●		TNT822-CN	
	250-15000mg/L COD	●	●	●		TNT823-CN	
	5000-60000mg/L COD	●	●	●		TNT824-CN	
	25-1000mg/L COD	●	●	●		TNT825-CN	Mercury-free reagent digestion method; requires additional DRB200 reactor.
	15-150 mg/L	●	●	●	●	2038225-CN	165 deg C, 20-minute rapid digestion method; requires additional DRB200 reactor.
	100-1000 mg/L	●	●	●	●	2038325-CN	
Chemical Oxygen Demand (CODCr, High-Chloride Samples)	7-70mg/L COD	●	●	●		TNT815-CN	Maximum chloride masking capacity: 20,000 ppm.
	70-700mg/L COD	●	●	●		TNT816-CN	
Permanganate Index (CODMn)	0.50-5.00 mg /L	●	●	●	●	25156000-CN	Requires additional DRB200 reactor.
Dissolved Oxygen	10-1000ug/L O2				●	2501025-CN	
	6-800ug/L O2	●	●	●		2501025-CN	DR6000/DR3900/DR1900 require an additional 10 mL capped sample cell, 24276-06; colorimeters do not require it.
	0.3-15.0mg/L O2	●	●	●	●	2515025-CN	
	1.0-40.0mg/L O2	●	●	●		2515025-CN	
Oxygen Scavengers	5-600ug/L carbohydrazide	●	●	●	●	2446600-CN	Requires additional 25 mL sample cell, 24019-06. DR900 does not require it.
	3-450ug/L DEHA	●	●	●	●		
	9-1000ug/L hydroquinone	●	●	●	●		
	13-1500ug/L erythorbic acid	●	●	●	●		
	15-1000ug/L methyl ethyl ketoxime	●	●	●	●		
Ozone	0.01-0.25mg/L O3	●	●	●	●	2516025-CN	
	0.01-0.75mg/L O3	●	●	●	●	2517025-CN	
	0.01-1.50mg/L O3	●	●	●	●	2518025-CN	
	0.01-1.35 mg/L O3	●	●	●	●	2105669-CN	DPD method. Contact HACH for details.
Volatile Phenols	0.002-0.200mg/L	●	●	●		42449-CN	Chloroform must be purchased separately.
						87299-CN	
						183699-CN	
Phenol	5-150mg/L	●	●	●		TNT868-CN	
Phosphonate	UV digestion method (multiple ranges0.02-2.50 or1.0-125.0)	●	●	●	●	2429700-CN	Requires additional 25 mL capped sample bottle (17042-00) and UV lamp. DR900 series does not require the sample bottle.
Acid-Hydrolyzable Phosphorus	0.07-5.0 PO4 ³⁻				●	2742745-CN	
	0.06-3.50 PO4 ³⁻	●	●	●			
Orthophosphate (Reactive Phosphorus)	0.23-30.00 PO4 ³⁻	●	●	●	●	2244100-CN	
	0.3-45.0 PO4 ³⁻	●	●	●	●	2076032-CN	
	1.0-100.0 PO4 ³⁻	●	●	●	●	2767345-CN	
	19-3000 ug/L PO4 ³⁻	●	●	●		2678600	Requires additional flow cell. See the relevant product ordering guide for ordering information.
	0.06-5.00 PO4 ³⁻	●	●	●	●	2742545-CN	
	0.02-2.50 PO4 ³⁻	●	●	●	●	2106069-CN	For high-turbidity/high-color samples, pretreatment powder pillow reagent (14501-99) is recommended.
	5.0-90.0 PO4 ³⁻	●	●	●		TNT846-CN	For high-turbidity/high-color samples, an additional blank sample vial (TNT919) is recommended for sample blanking.
Total Phosphorus	0.06-3.50 PO4 ³⁻	●	●	●	●	2742645-CN	Requires DRB200 with 16 mm digestion wells.
	1.0-100.0 PO4 ³⁻	●	●	●	●	2767245-CN	Requires DRB200 with 16 mm digestion wells.
Reactive Phosphorus & Total Phosphorus	0.15-4.50 PO4 ³⁻	●	●	●		TNT843-CN	
	1.5-15.0 PO4 ³⁻	●	●	●		TNT844-CN	
	6-60 PO4 ³⁻	●	●	●		TNT845-CN	

Parameter	Measurement Range	DR6000	DR3900	DR1900	DR900	Reagent Cat. No.	Remarks
Potassium	0.1-7.0	●	●	●		2459100-CN	
Quaternary Ammonium Compounds	0.2-5.0 CTAB	●	●	●		2459200-CN	Additional item required: 25 mL sample bottle (17042-00). After this method, pink or purple residue may form on the sample cell; HACH Alconox cleaner (20880-00) makes cleaning easier.
Silica	1.0-100.0 SiO ₂	●	●	●	●	2429600-CN	
	0.01-1.60 SiO ₂	●	●	●	●	2459300-CN	
	3-1000 ug/L SiO ₂	●	●	●		2553500-CN	Requires 1-inch plastic colorimetric cell [2410222].
Silver	0.005-0.700	●	●	●		2296600-CN	When interferences such as cyanide, thiosulfate, or organic matter are present, sample digestion is required.
Sulfate	5-70				●	2106769-CN	
	2-70	●	●	●			
	40-150	●	●	●		TNT864-CN	
	150-900	●	●	●		TNT865-CN	
	0.1-2.0	●	●	●		TNT861-CN	
Sulfide	0.01-0.7 S				●	2244500-CN	
	5-800 ug/L S	●	●	●			
Sulfite	0.10-5.0	●	●	●		HPT430-CN	
Suspended Solids	5-750	●	●	●	●	-	
Tannic Acid and Lignin	0.1-9.0	●	●	●	●	2244600-CN	
Toxicity	0-100% inhibition rate	●	●	●	●	2597200-CN	Requires additional incubator.
Trihalomethanes	10-600 ug/L CHCl ₃	●	●	●		2790800-CN	Requires additional 20 mm DRB200 and digestion tubes [LZP065].
Volatile Acids	27-2800 CH ₃ COOH	●	●	●	●	2244700-CN	Requires additional capped sample cell (24019-06).
	50-2500 CH ₃ COOH	●	●	●		TNT872-CN	
Zinc	0.01-3.00	●	●	●	●	2429300-CN	
Urea	0-6 mg/L	●	●	●			Diacetyl monoxime spectrophotometric method; requires DRB200 and 16 mm digestion tubes [2517600]. Reagents must be prepared by the user. Contact HACH for details.
Oil in Water	0-4 mg/L	●					UV method with n-heptane as extraction solvent; requires a quartz 1 cm cuvette [4822800]. Contact HACH for details.
Ammonia in Air	0.16-3.3 [mg/m ³]	●	●	●		2458200-CN	Nessler method; sampling device and adsorption tube must be provided by the user. Contact HACH for details.
Ammonia in Air	0.16-3.3 [mg/m ³]	●	●	●		2604545-CN	Salicylate method; sampling device and adsorption tube must be provided by the user. Contact HACH for details.
Hydrogen Sulfide in Air	0.005-0.13 [mg/m ³]	●	●	●		2244500-CN	Sampling device and adsorption tube must be provided by the user. Contact HACH for details.
Nitrogen Oxides in Air	0.0024-2.0 [mg/m ³]	●	●	●			Requires 16 mm empty tubes [2517600]. Sampling device, adsorption tube, and reagents must be provided by the user. Contact HACH for details.
Formaldehyde in Air	0.0075-0.4 [mg/m ³]	●	●	●		2257700-CN	Requires DRB200 and 16 mm empty tubes [2517600]. Contact HACH for details.
Formaldehyde	0.5-10	●	●	●		TNT871-CN	
Anionic Surfactants	0.1-4.0	●	●	●		TNT874-CN	
Cationic Surfactants	0.2-2.0	●	●	●		TNT885-CN	
Nonionic Surfactants	0.2-6.0	●	●	●		TNT875-CN	
	6.0-200	●	●	●		TNT876-CN	