

# HACH LABORATORY QUICK GUIDE FOR CHEMICAL APPLICATIONS

From process monitoring to quality control to wastewater, Hach has the right tool for your challenging or routine applications. The comprehensive selection of Hach chemistries, spectrophotometers, electrochemistry meters and probes, and benchtop analyzers provides the broadest range of analyses in the industry.

## DR 6000 UV/vis Spectrophotometer and Chemistries

DR-Series Spectrophotometers and Hach chemistries are built on over 7 decades of water quality innovation to provide the most accurate and reliable results. Hach's integrated instrument-chemistry techniques are the industry standard.



## TitraLab® AT1000

The TitraLab® Analyzer is a one touch automatic titrator. Application packages cover a range of common chemical manufacturing parameters including pH, KF, alkalinity, conductivity, and hardness. The AT1000 makes titration an easy and reliable analysis for any user.



## SL1000 Portable Parallel Analyzer™ (PPA)

The SL1000 PPA is a revolution in portable analyses. With Hach's patented Chemkey® technology it is possible to measure up to six parameters simultaneously. Monitor boiler corrosion parameters faster, with less variability, and less hassle. Chemkey reagents measure hardness, alkalinity, iron, copper, ammonia, and phosphate while IntelliCAL probes measure pH, conductivity, and dissolved oxygen.



## TL23 Turbidimeter

Turbidity measurement has never been easier. The TL23 Turbidimeter is the standard for demanding industrial turbidity applications. With tungsten or LED light sources and proven optics, no other instruments deliver more reliable, accurate, and stable measurements.

## HQ440d Meter

Hach HQd meters and versatile assortment of IntelliCAL probes bring simplicity and consistency to electrochemical measurements. From pH, to DO, to ORP, to ISE—Hach electrochemical products deliver the highest quality results in an exceptionally sturdy package.



## Spectrophotometric Measurements

Parameter	Platform	Method	Range*
Total and Kjeldahl Nitrogen	DR-Series Spectrophotometer	TNT880	0-16 mg/L N
Nitrate	DR-Series Spectrophotometer	TNT835/836	0.23-35 mg/L NO <sub>3</sub> -N
Nitrite	DR-Series Spectrophotometer	TNT839/840	0.015-6 mg/L NO <sub>2</sub> -N
Ammonia	DR-Series Spectrophotometer	TNT830/831/832/833	0.015-130 mg/L NH <sub>3</sub> -N
Phosphate	DR-Series Spectrophotometer	TNT843/844/845/846	0.15-90 mg/L PO <sub>4</sub>
Sulfate	DR-Series Spectrophotometer	TNT864/865	40-900 mg/L SO <sub>4</sub>
Phenols	DR-Series Spectrophotometer	TNT868	5-150 mg/L Phenol
Anionic Surfactants	DR-Series Spectrophotometer	TNT874	0.1-4.0 mg/L SDS
Chemical Oxygen Demand	DR-Series Spectrophotometer	TNT820/821/822/823	1-15000 mg/L COD
Total Organic Carbon	DR-Series Spectrophotometer	TNT810/811	1.5-300 mg/L TOC
Boron	DR-Series Spectrophotometer	TNT877	0.05-2.50 mg/L B
Iron	DR-Series Spectrophotometer	TNT858	0.2-6.0 mg/L Fe
Copper	DR-Series Spectrophotometer	TNT860	0.1-8.0 mg/L Cu
Chlorine	DR-Series Spectrophotometer	8021/10069	0.02-10.0 mg/L Cl <sub>2</sub>
Hardness	DR-Series Spectrophotometer	8374/8030	4-4000 µg/L CaCO <sub>3</sub>
Molybdenum	DR-Series Spectrophotometer	8169/8036	0.02-40.0 mg/L Mo
Silica	DR-Series Spectrophotometer	8282/8186/8185	3-100000 µg/L SiO <sub>2</sub>
Hydrazine	DR-Series Spectrophotometer	8141	4-600 µg/L N <sub>2</sub> H <sub>4</sub>
Oxygen scavengers	DR-Series Spectrophotometer	8140	varies by analyte

\*Ranges reflect multiple chemistries. See Water Analysis Handbook for details.

## Electrochemical Measurements

Parameter	Platform	Electrode	Range
pH	HQd-Series Meter	PHC201	0-14 pH
Conductivity	HQd-Series Meter	CDC401	0.01-200000 µS/cm
BOD	HQd-Series Meter	LBOD101	0.1-20.0 mg/L O <sub>2</sub>
DO	HQd-Series Meter	LDO101	0.1-20.00 mg/L O <sub>2</sub>
ORP	HQd-Series Meter	MTC101 ORP	±1200 mV
Ammonia	HQd-Series Meter	ISENH3181	0.01-14000 mg/L NH <sub>3</sub> -N
Sodium	HQd-Series Meter	ISENA381	0.023-23000 mg/L Na
Chloride	HQd-Series Meter	ISECL181	0.1-35500 mg/L Cl

## Analyzers

Parameter	Platform	Method	Range
pH	AT1000	Potentiometric	0-14 pH
Alkalinity	AT1000	Potentiometric Titration	40-2000 mg/L CaCO <sub>3</sub>
Conductivity	AT1000	Potentiometric	0.01-200000 µS/cm
Hardness (ISE)	AT1000	Potentiometric Titration	20-720 mg/L CaCO <sub>3</sub>
Moisture (Karl Fischer)	AT1000	Volumetric Titration	0-100 % H <sub>2</sub> O
Chlorine (Total)	AT1000	Amperometric Titration	0.003-5 mg/L Cl <sub>2</sub>
Turbidity	TL23 Nephelometer	Nephelometric	0.01-10000 NTU
Total Organic Carbon	QbD1200 Analyzer	UV/Persulfate	0.4-100 mg/L TOC

## Microbiological Measurements

Parameter	Platform	Method	Range
Yeast and Mold	Paddle Test	DOC316.53.01223	10 <sup>2</sup> -10 <sup>6</sup> CFU
Total Aerobic Bacteria	Paddle Test	DOC316.53.01223	10 <sup>2</sup> -10 <sup>7</sup> CFU
ATP	LuminUltra	Luminescence	4x10 <sup>-12</sup> -1x10 <sup>-6</sup> M ATP

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