



Laboratory Grade Water

Type 3 water is the lowest laboratory water grade, recommended for glassware rinsing, heating baths and filling autoclaves, or to feed Type 1 lab water systems.

Type 2 laboratory grade water is used in general laboratory applications such as buffers, pH solutions and microbiological culture media preparation; as feed to Type 1 water systems, clinical analyzers, cell culture incubators and weathering test chambers; and for preparation of reagents for chemical analysis or synthesis.

Type 1 laboratory grade water is required for critical laboratory applications such as HPLC mobile phase preparation, blanks and sample dilution in GC, HPLC, AA, ICP-MS and other advanced analytical techniques; preparation of buffers and culture media for mammalian cell culture and IVF; production of reagents for molecular biology applications (DNA sequencing, PCR); and preparation of solutions for electrophoresis and blotting.

Laboratory Water Specifications

Water quality requirements vary based on the sensitivity of applications. The table below outlines the common laboratory water specifications based on the recommendations of ASTM® and ISO® 3696 standards.

Contaminant	Parameter and unit	Type 3	Type 2	Type 1
Ions	Resistivity (MΩ•cm @ 25°C)	>0.05	>1.0	>18.0
Organics	TOC (ppb)	<200	<50	<10
Pyrogens	(EU/mL)	NA	NA	<0.03
Particulates	Particulates > 0.2 μm (units/mL)	NA	NA	<1
Colloids	Silica (ppb)	<1000	<10	<10
Bacteria	Bacteria (cfu/mL)	<1000	<100	<1