Differences Between Standard Methods 5210 22nd and 23rd Edition

5210 A. Introduction	
22nd Edition - 2001	**23rd Edition - 2016**
The seeding and dilution procedures provide an estimate of the BOD at pH 6.5 – 7.5	The seeding and dilution procedures provide an estimate of the BOD at pH 6 – 8

5210 B. 5-Day BOD Test	
22nd Edition - 2001	**23rd Edition - 2016**
Apparatus	
Mentions only the use of glass bottles	Specifies that disposable plastic bottles are acceptable if they meet all method quality-control checks
Does not specify type of dissolved oxygen probe	Specifies that an oxygen-sensitive membrane electrode or oxygen-sensitive optical probe may be used
Reagents	
Use reagent grade or better for all chemicals and use distilled or equivalent water, preferably sterilized for making all solutions	Use reagent grade or better for all chemicals and use distilled or equivalent reagent grade water, for making all solutions
Allylthiourea (ATU) solution cannot be stored for more than 2 weeks	Allylthiourea (ATU) solution cannot be stored for more than 2 weeks at ≤ 6°C without freezing
Store all GGA mixtures at ≤ 4°C	Store all GGA mixtures at ≤ 6°C without freezing, unless manufacturing states otherwise
Preparatory Procedures	
Keep grab and composite samples at ≤ 4°C between collection / composition and analysis if hold time is greater than 2 hours	Keep grab and composite samples at ≤ 6°C between collection / composition and analysis if hold time is greater than 2 hours
Do not analyze samples after 24 hours	Recommended hold time is 24 hours; however, the US EPA allows for a 48-hour hold time
Adjusted pH of samples between 7.0 – 7.2, if required	Adjusted pH of samples between 6.5 – 7.5, if required
Testing Procedures	
Five dilutions are recommended if experience with a particular sample does not produce at least three bottles having acceptable minimum DO depletions and residuals limits	Two dilutions are allowed if experience with a particular samples source produces at least one bottle with acceptable minimum DO depletions and residual limits

22nd Edition - 2001	23rd Edition - 2016
Testing Procedures	
For dilutions greater than 1:100, make a primary dilution before making final dilution in the bottle	For dilutions greater than 1:300, make a primary dilution before making final dilution in volumetric cylinders or flasks
Data Analysis and Reporting	
Not Applicable	If all dilutions result in a DO depletion of <2.0mg/L and the sample was diluted, select the bottle with the largest volume (least diluted) and calculate the report as if the dilution had depleted 2.0mg/L
Precision and Bias	
Detection limits are established by the minimum DO depletion and minimum DO residuals as follows: • The lower detection limit for unseeded samples that require dilution is 2 mg/L multiplied by the dilution factor as established by the requirement for a minimum DO depletion of 2 mg/L • The lower limit for seeded samples that require dilution is ~1 mg/L as established by the minimum depletion of 2 mg/L minus the maximum seed correction which should be < ~1mg/L • The lower limit for unseeded samples that require no dilution is equal to the detection limit of the DO measurement method (~0.1 mg/L) • The lower detection limit for seeded samples that require no dilution is 0 mg/L as established by the difference between the sample DO depletion and the seed correction	Reporting limits are established by the minimum DO depletion and minimum DO residuals as follows: • The lower reporting limit for unseeded samples that require no dilution is equal to the detection limit of the DO measurement method (~0.1 mg/L) • The lower reporting limit for seeded samples that require no dilution – except for seed, nutrient, mineral and buffer solutions (S > 0, P = 1) – is the difference between sample DO depletion and seed correction