

UV Lamp Requirements for Microbiology Testing

Can Laboratories Utilize an Alternative to the 6-Watt Lamp?

ELAP is aware of an LED UV lamp (LED Lamp) being marketed toward laboratories as a replacement for a mercury-based 6-watt Ultraviolet (UV) Lamp (6-watt Lamp) required by Standard Methods. Until this product is included in Standard Methods and approved for use by US EPA, laboratories may not utilize LED Lamps as a replacement for the method-required 6-watt Lamp. ELAP is monitoring this situation and plans to implement future US EPA guidance and allowances once granted.

If the Laboratory is Already Using this Product

Laboratories that have purchased and are currently utilizing this new LED Lamp must:

- Stop using the LED Lamp for compliance testing
- Revert to the required 6-watt Lamp for microbial identification (e.g. SM 9223 B)
- Identify the scope of affected results and notify clients as to how much data could be impacted
- Notify clients who received results of analysis from the use of an LED Lamp

ELAP is providing additional context in this document to aid laboratories with their explanations to impacted clients.

Background

During the analysis of *E. coli* by Standard Methods 9223 B, a sample containing total coliform is examined under ultraviolet (UV) light to determine sample fluorescence. A fluorescing sample indicates presence of *E. coli* bacteria. Although the method allows different types of media in sample analysis, denoted in parenthesis in ELAP's Fields of Accreditation, only a specific wattage UV Lamp can be used to determine fluorescence in the sample. Laboratories must utilize a 6-watt UV Lamp as the method does not identify any alternatives or equivalent instrumentation.

Standard Methods 9020B, Section 4, subsection I.2 mandates the use of a 6-watt UV Lamp operating at a wavelength of 365–366 nm and includes explicit requirements to maintain proper lamp performance and replacement of the 6-watt Lamp UV bulb annually or as needed. These requirements remain consistent across both the 23rd and currently newest 24th edition of Standard Methods. No alternatives are identified by the methods, and the current method explicitly states: “6-W lamps must be used because faint fluorescence may not be visible when using 4-W lamps.”

US EPA Determination

Upon consultation with US EPA, ELAP confirmed that the LED Lamp cannot replace the method-defined 6-watt Lamp. As identified by US EPA, under title 40 of the Code of Federal Regulations (CFR), sections 141 and 136 incorporate the methods by reference.

- **Drinking Water Compliance** (40 C.F.R. § 141) - Modifications beyond those defined in the method are not permitted for Safe Drinking Water Act compliance testing.
- **Wastewater Compliance** (See 40 C.F.R. § 136.6.) - Testing under the Clean Water Act (CWA) allows for some additional flexibility. However, US EPA determined that the use of the LED UV Lamp does not fall into the flexibility identified in 40 CFR 136.6, as this regulatory section only applies to modifications to chemical methods. US EPA clarifies this flexibility on its CWA Methods website and references it in the [EPA's Frequently Asked Questions](#). In discussions with US EPA, representatives verbally indicated, "this flexibility does not apply to drinking water methods or to CWA microbiological or biological methods."

Based on US EPA's responses and guidance, the LED Lamp would not classify for approval in the Alternative Testing Programs. It would need to be validated and included as an allowable option published in Standard Methods. For those interested in participating in the validation process, please reach out to the [Standard Methods Committee](#) for more information.

Until the LED Lamp is included in Standard Methods and approved for use by US EPA, laboratories cannot utilize the LED Lamp as a replacement for the method-required 6-watt Lamp.

Additional Resources

California is not alone in this situation. US EPA is communicating this to all other state ELAPs. As one example, see [news from MN ELAP](#).

[Clean Water Act Alternative Test Procedures Q & A](#)

Work on approving this technology by joining the [Standard Methods Committee](#)

(This FAQ was last updated on October 12, 2026)