



# Memorandum

**To:** DEQ Water Quality Staff

**From:** Water Quality Permitting and Program Development; updated by Aliana Britson

**Date:** 7/22/2024

**Subject:** Implementation Instructions for Polychlorinated Biphenyls (CAS #: 1336363) Water Quality Criteria

## Criteria summary

Oregon water quality standards include numeric criteria for PCB to protect human health and aquatic life (OAR 340-041-0033(3) and (4), and Tables 30 and 40). Both criteria are based on total PCBs. Table 1, below, reflects the PCB criteria as published in the rule.

**Table 1: Water Quality Criteria**

Chemical	Human Health Criteria		Aquatic Life Criteria (Freshwater)		Aquatic Life Criteria (Saltwater)	
	Water + Org (µg/L)	Org Only (µg/L)	Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)
<b>Polychlorinated Biphenyls (PCBs)</b>	0.0000064 <sup>K</sup>	0.0000064 <sup>K</sup>	2 <sup>K</sup>	0.014 <sup>K</sup>	10 <sup>K</sup>	0.03 <sup>K</sup>

<sup>K</sup> This criterion applies to total PCBs (e.g. determined as Aroclors or congeners)

## Key issues

PCB criteria are expressed as total PCBs, determined as Aroclors or congeners. An Aroclor is a PCB mixture that was produced in many commercial and industrial products but was banned in the late 1970's due to its toxicity and persistence in the environment. EPA identifies 11 different common Aroclors<sup>1</sup>. In contrast, congeners are a variety of individual chlorinated biphenyls that form the chemical building blocks of Aroclors. There are 209 PCB congeners. Although the PCB footnote in OAR allows for Aroclor or congener analysis, federal monitoring requirements in 40 CFR 122 Appendix D Table II require certain categories of industrial facilities to monitor for specific Aroclors. **Domestic major facilities are required to monitor for all pollutants for which there are state standards** (40 CFR 122.21(j)(4)(iv)). Because the state standard is in Total PCBs, this can lead to confusion as to how PCBs should be measured for domestic major facilities.

## Analytical methods

There are no methods that analyze for Total PCBs. Obtaining results for Total PCBs would require summing the results from either all of the Aroclor analyses or results analyzing all 209 PCB congeners. 40 CFR Part 136 currently only specifies PCB methods for seven different

<sup>1</sup> [EPA Table of Aroclors](#) (revised as of November 2003)



Aroclors (i.e. PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260) and does not mention congeners. 40 CFR 136.1 specifies that 40 CFR 136 approved methods must be used whenever the “waste constituent” (aka pollutant) specified is required to be measured for the purposes of NPDES permitting.

### **Implementation instructions for NPDES permits**

To align with both state and federal requirements, the sum of the seven Aroclors (PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260) with 40 CFR approved methods will be used to determine compliance with the state water quality criteria for domestic major facilities. This same method will be used to determine compliance with the PCB criteria for Industrial permittees that are required to monitor PCBs under 40 CFR 122 Appendix D.

All permittees for which PCBs are a pollutant of concern must include monitoring for the seven Aroclors specified in 40 CFR 136. Reasonable potential analyses will use the sum of the Aroclors to determine potential exceedances of the criteria, and compliance with permit limits for PCBs will be determined using the sum of these Aroclors. For example, if a permittee reported 0.01 ug/L for PCB-1016, 0.02 ug/L for PCB-1221, 0.01 ug/L for PCB-1232, 0.03 ug/L for PCB-1242, 0.04 ug/L for PCB-1248, 0.01 ug/L for PCB-1254, and non-detect for PCB-1260, the sum of those values (0.01 ug/L + 0.02 ug/L + 0.01 ug/L + 0.03 ug/L + 0.04 ug/L + 0.01 ug/L + 0 ug/L), 0.12 ug/L would be used to determine reasonable potential and compliance.

### **Conclusion**

The sum of the seven Aroclors with approved methods in 40 CFR 136 will be used for the characterization of PCBs in effluent and determination of compliance with limits for both Domestic and Industrial facilities.

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