

PHENOLS



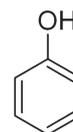
The Australian Water Quality Centre (AWQC) is dedicated to ensuring and responding to the public health requirements relating to the provision of water and wastewater services for communities in Australia and across the world.

Specialist water services

Ensuring public health

Phenols in the environment and drinking water

Phenols are a class of aromatic organic compounds, with a hydroxyl group (-OH) bonded directly to an aromatic ring. The simplest of these compounds is phenol C_6H_5OH .



Occurrence

Phenols are found widely in nature, from animals and plants to microbes. They are present in foods, wines, and possibly in natural water, potable water, and domestic and industrial waste waters.

Phenols are also an important raw material in laboratory processes, chemical industry, plastic and wood processing.

Health concerns

Phenols are readily absorbed by inhalation, ingestion or skin contact. They are often associated with taste and odour problems, when phenol-containing water is treated. 2-chlorophenol, 2,4-dichlorophenol and 2,4,6-trichlorophenols are listed in the Australian Drinking Water Guideline as by-products of the chlorination of water, with their respective guideline values being 0.3 mg/L, 0.2 mg/L and 0.02 mg/L.

Method selection

AWQC offers two analytical methods for phenols:

1. Colorimetric method

This method determines total phenols and is best used for waste water and some environmental waters.

2. Chromatographic method

AWQC currently offers a phenol method for testing for 14 chlorinated phenols. Our new method simultaneously determines two groups of a total of 25 phenols. The first group contains 17 chlorphenols, most of which are produced during water treatment. This group of phenols can cause taste and odour problems. The second group of eight general phenols are classified as industrial pollutants.

The chromatographic method has very broad applications for drinking water and all environmental waters, such as raw water, bore water, and seawater. It is the best method for determining the compliance of drinking water, as

it is capable of speciating as many as 25 phenols and quantitatively determines each of them. It is also a useful analytical tool for troubleshooting water quality incidents, especially for those associated with taste and odour problems.

This newly released method has an extensive coverage of phenol compounds, lower reporting limits, faster turn-around, and reduced cost, as we will no longer need to send samples to interstate laboratories.

Our customers now have a choice to nominate either or both groups of phenols to be analysed in accordance with their business needs. Please see the table below for details. If you are unclear which method to use, please contact AWQC, and we will put you through to our laboratory chemists who can advise you on the method selection.

Limits of Reporting for Speciated and Halogenated Phenol		
Compound	New Speciated Phenols method LOR (mg/L)	New Halogenated Phenols method LOR (mg/L)
2-chlorophenol	0.05	0.05
4-chlorophenol	0.05	0.05
2,4-dichlorophenol	0.05	0.05
2,6-dichlorophenol	0.05	0.05
3,5-dichlorophenol	0.05	0.05
2,4,5-trichlorophenol	0.05	0.05
2,4,6-trichlorophenol	0.05	0.05
2-bromophenol	0.05	0.05
3-bromophenol	0.05	0.05
4-bromophenol	0.05	0.05
2,4-dibromophenol	0.05	0.05
2,6-dibromophenol	0.05	0.05
2,4,6-tribromophenol	0.05	0.05
Pentachlorophenol	0.05	0.05
2,3,5,6-tetrachlorophenol	0.05	0.05
2,3,4,5-tetrachlorophenol	0.05	0.05
2,3,4,6-tetrachlorophenol	0.05	0.05
Phenol	0.1	-
2-nitrophenol	0.05	-
4-nitrophenol	0.4	-
2,4-dimethylphenol	0.05	-
4-chloro-3-methylphenol	0.05	-
m-cresol	0.05	-
o-cresol	0.05	-
p-cresol	0.05	-

Phenol Sample Requirements:

- 600ml PET or glass bottle
- Preserve with 0.1g/L ammonium chloride for chlorinated samples. No preservation is required for non-chlorinated samples such as river, bore and sea water.
- No air gap essential
- Transport & store at 4°C

Call us on 1300 653 366
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