

[sg_popup id="39" event="onload"]By Scott Krepich, Food and Environmental Application Scientist

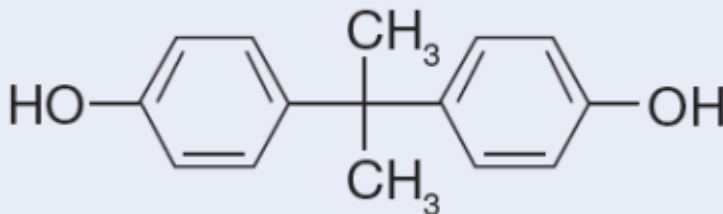
The chemical bisphenol A (BPA) is used in the production of some plastics, many of which are utilized in water bottles and food packaging. Because of this, there are some health concerns. According to the Mayo Clinic, research has revealed that BPA can seep into food or beverages from containers that are lined with it. This exposure can be a concern due to possible health effects BPA has on the brain, behavior, and prostate gland of infants and children. Other studies suggest a possible link between BPA and increased blood pressure.

However, the Food and Drug Administration (FDA) has said that BPA is safe at the very low levels that occur in some foods. This assessment is based on review of hundreds of studies.

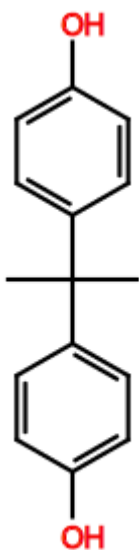
AOAC, a nonprofit organization that develops analytical methods for a broad spectrum of safety interests, issued a call for methods for the determination of BPA in water and carbonated beverage containers—and luckily for method developers—it's not a particularly difficult analytical challenge.

Structurally, it's a non-polar aromatic, with two hydroxy groups:

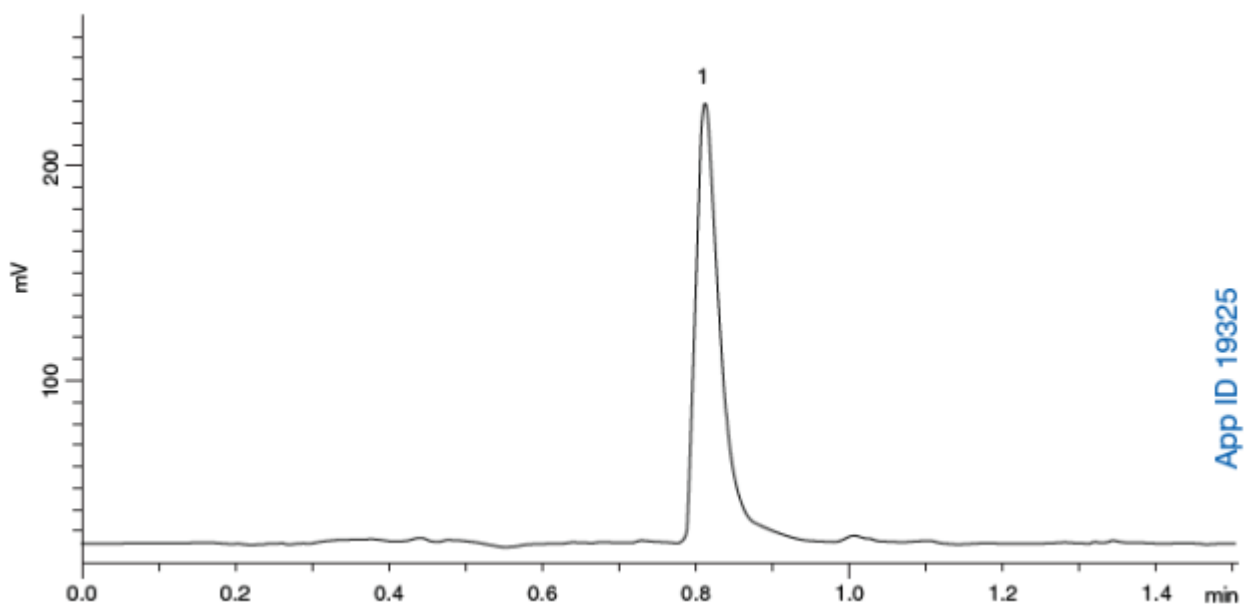
Bisphenol A



What is Bisphenol A (BPA) and How Does It Affect You?

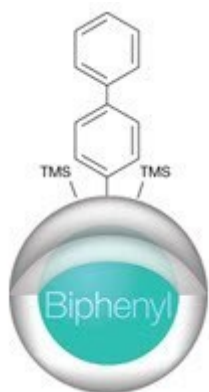


It's sparingly soluble in water, but very soluble in organics, including acetonitrile. As such, it chromatographs well under generic reversed phase conditions, such as Kinetex 2.6 μ C18 50 x 4.6mm screen at 65:35 acetonitrile: water, 1.5mL/min:



It can also be scaled geometrically, and moved around with changes in eluotropic strength. Other stationary phases, such as phenyl phases, can be used with similar conditions to

selectively resolve a range of potential non-polar matrix interferences.



Extracting at higher levels could present a challenge due to poor aqueous solubility. However, a QuEChERS like extraction with acetonitrile and salts can be leveraged for both improved extraction efficiency, as well as some mechanical feasibility from solid containing samples.

Perhaps the largest potential for a challenge could be sensitivity at low levels. For a practical or modern solution to this problem, try concentrating dilute samples via solid phase extraction, or using a more sensitive mass spec detector. Negative ion-mode efficiency may be a lingering concern that can also be overcome with Sciex TurboV™, Ion-drive ion-sources, and/or adding a small amount of ammonium fluoride in mobile phase A, which has become a usefully trendy negative ion-mode enhancing modifier these days.

Have more questions on BPA? Reach out to our global Technical Experts nearly 24/7 for all your lab and method development answers.

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Summary



Article Name

What is Bisphenol A (BPA) and How Does It Affect Your Life?

Description

Bisphenol A (BPA) is important to understand as it is used in the production of plastics, many of which are utilized in water bottles and food packaging.