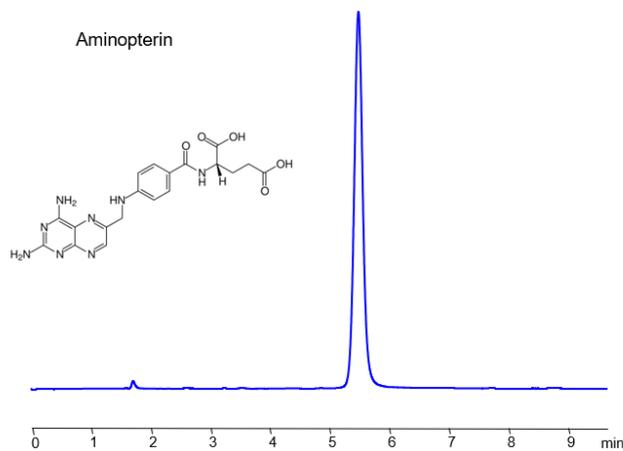


## HPLC Method for Analysis of Aminopterin on Primesep 100 Column



<b>Column:</b>	Primesep 100
<b>Column size:</b>	4.6 × 150 mm, 5 µm
<b>Column part number:</b>	100-46.150.0510
<b>Mobile phase:</b>	MeCN/H <sub>2</sub> O – 50/50%
<b>Buffer:</b>	Ammonium formate pH 3.0 – 20 mM
<b>Flow rate:</b>	1.0 mL/min
<b>Detection:</b>	UV 290 nm

Separation type: Liquid Chromatography Mixed-mode

Aminopterin is a chemical compound that belongs to the class of drugs known as antifolates. It's a derivative of folic acid (vitamin B9) and works by inhibiting an enzyme called dihydrofolate reductase (DHFR). This enzyme plays a crucial role in the synthesis of nucleotides, the building blocks of DNA and RNA. By inhibiting this enzyme, aminopterin interferes with cell growth and division.

Aminopterin was one of the first antifolates to be used in cancer chemotherapy, particularly in the treatment of childhood leukemia. However, it has largely been replaced by methotrexate, a similar but less toxic compound. Methotrexate is still widely used in the treatment of various cancers and autoimmune diseases.

Despite its historical use in cancer treatment, aminopterin is extremely toxic and can cause severe side effects, including damage to the bone marrow, gastrointestinal tract, and skin. As a result, it is not typically used in human medicine today.

In addition to its role in chemotherapy, aminopterin has also been used in research to create what are known as "conditionally immortal" cell lines. It's important to note that the use of aminopterin should always be overseen by professionals due to its high toxicity.

Aminopterin retained and analyzed using a reverse-phase Primesep 100, 4.6 x 150 mm, 5 µm, 100 Å, dual ended column. The mobile phase for this method consists of water, acetonitrile (MeCN), and ammonium formate, which serves as a buffer. This analytical method can be monitored using UV detection at 290 nm, an Evaporative Light Scattering Detector (ELSD), or any other evaporative detection method such as Charged Aerosol Detection (CAD) or Electrospray Ionization Mass Spectrometry (ESI-MS)

LOD was determined for this combination of instrument, method, and analyte, and it can vary from one laboratory to another even when the same general type of analysis is being performed.

### Method Parameters

<b>Column</b>	Primesep 100, 4.6 x 150 mm, 5 µm, 100 Å, dual ended
<b>Mobile Phase</b>	MeCN/H <sub>2</sub> O -50/50%
<b>Buffer</b>	Ammonium formate pH 3.0 – 20 mM
<b>Flow Rate</b>	1.0 mL/min
<b>Detection</b>	UV 290 nm
<b>Limit of Detection</b>	0.04 ppm
<b>Injection Volume</b>	5 µl

Quelle: <https://sielc.com/hplc-separation-of-aminopterin>