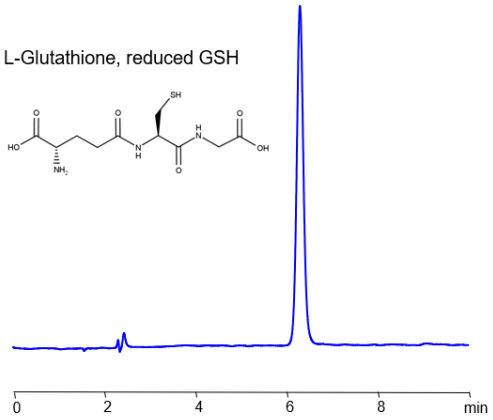
HPLC Method for Analysis of Glutathione reduced (GSH) on Primesep 100 Column



Column:	Primesep 100
Column size:	4.6 × 150 mm, 5 µm
Column part number:	100-46.150.0510
Mobile phase:	MeCN – 5 %
Buffer:	H_2SO_4 – 0.1%
Flow rate:	1.0 mL/min
Detection:	UV 200 nm

Separation type: Liquid Chromatography Mixed-mode

L-Glutathione, also known as reduced glutathione or simply GSH, is a tripeptide made up of three amino acids: L-glutamic acid, L-cysteine, and glycine.

Glutathione is found in nearly all cells, and in its reduced form (GSH), it is a powerful antioxidant. It plays a crucial role in protecting cells against oxidative stress by neutralizing reactive oxygen species such as free radicals and peroxides.

The unique aspect of glutathione is the cysteine thiol group (SH) which acts as a reducing agent and can be reversibly oxidized and reduced. In cells, glutathione is maintained in the reduced form by the enzyme glutathione reductase, which reduces the disulfide form of the molecule (GSSG, glutathione disulfide) back to GSH.

Apart from being an antioxidant, glutathione also plays other important roles including detoxification, immune system support, protein function regulation, and as a cofactor for various enzymes. Its deficiency can lead to cellular stress and dysfunction, underscoring its vital role in maintaining cellular health.

In supplement form, L-Glutathione is often used with the intent to support antioxidant activity in the body. However, it is important to consult with a healthcare provider before starting any new supplement regimen.

L-Glutathione 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 sulfuric acid, which serves as a buffer. This analytical method can be monitored using UV detection at 200 nm.

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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

Column	Primesep 100, 4.6 x 150 mm, 5 µm, 100 Å, dual ended
Mobile Phase	MeCN/H2O -5/95%
Buffer	H2SO4 – 0.1%
Flow Rate	1.0 mL/min
Detection	UV 200 nm
Limit of Detection	50 ppb
Injection Volume	1 µl

Quelle: https://sielc.com/hplc-separation-of-gsh