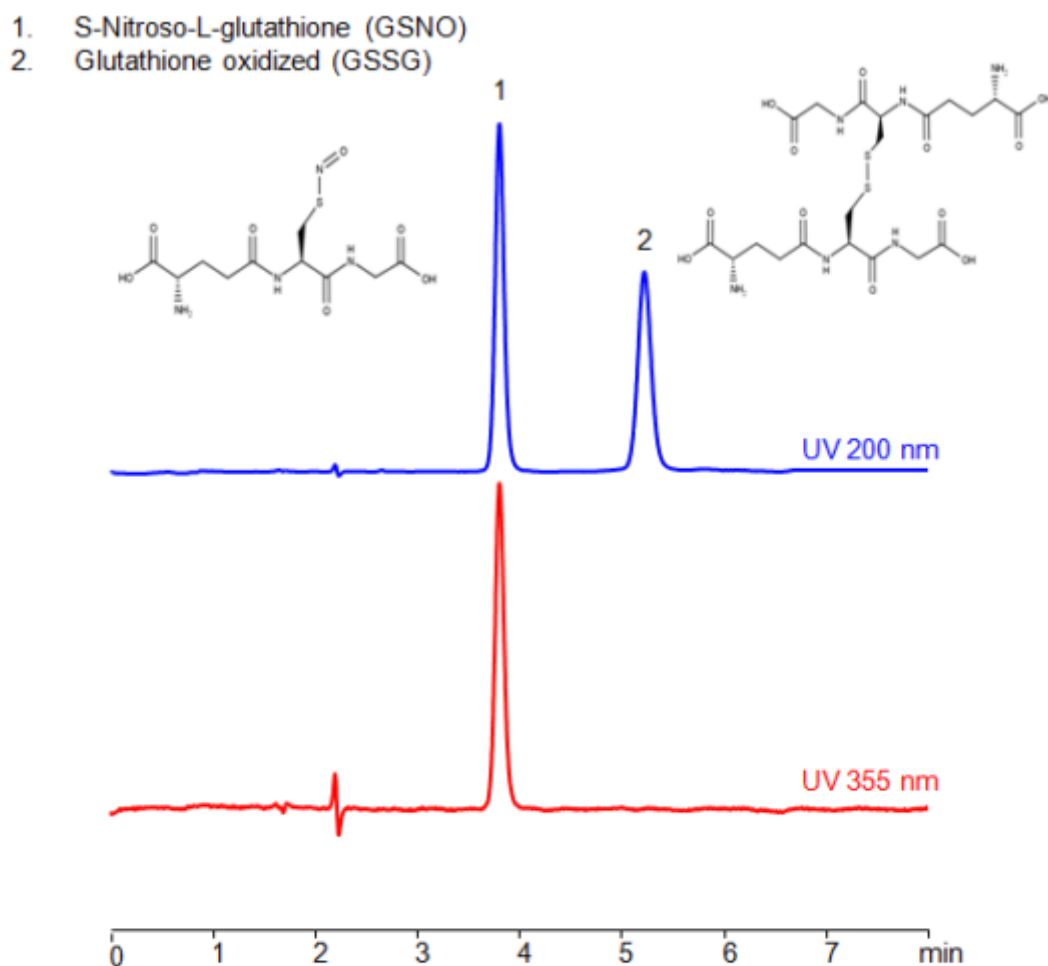


HPLC Method for Separation of S-Nitroso-L-glutathione and Glutathione oxidized on Primesep 100 Column

<https://sielc.com/hplc-separation-gsno-sssg>

Chromatogram



Column:	Primesep 100
Column size:	4.6 × 150 mm, 5 µm
Column part number:	100-46.150.0510
Mobile phase:	MeCN – 20 %
Buffer:	H ₂ SO ₄ – 0.2%
Flow rate:	1.0 mL/min
Detection:	UV 200, 355 nm

Description

HPLC Method for Separation of Glutathione oxidized (GSSG) , S-Nitroso-L-glutathione (GSNO) on Primesep 100 Column

Both S-Nitroso-L-glutathione (GSNO) and oxidized glutathione (GSSG) are forms of glutathione, a tripeptide consisting of the amino acids glutamic acid, cysteine, and glycine. Glutathione plays a significant role in maintaining the redox (reduction-oxidation) balance in cells, but GSNO and GSSG each have unique characteristics:

S-Nitroso-L-glutathione (GSNO) is a nitric oxide (NO) donor in cells, and it is part of the group of S-nitrosothiols with the chemical formula $C_{10}H_{16}N_4O_7S$. The nitric oxide group is attached to the sulfur atom of the cysteine residue in glutathione. GSNO plays a key role in nitric oxide-mediated cellular signaling and can regulate protein function through a process called S-nitrosylation. You can find detailed UV spectra of GSNO and information about its various lambda maxima by visiting the following link.

Oxidized glutathione, or glutathione disulfide (GSSG), is a form of the antioxidant molecule glutathione with the chemical formula $C_{20}H_{32}N_6O_{12}S_2$. Glutathione exists in two forms: the reduced form (GSH), which is the active antioxidant, and the oxidized form (GSSG). When glutathione neutralizes a free radical or a reactive oxygen species, it becomes oxidized and forms GSSG. The ratio of GSH to GSSG within cells is often used as a measure of cellular oxidative stress. The body can convert GSSG back into the active GSH form using an enzyme called glutathione reductase, provided there are adequate levels of NADPH, a compound integral to many cellular processes, including the antioxidant response. GSSG is formed when two molecules of glutathione (GSH, the reduced form of glutathione) are linked together by a disulfide bond (-S-S-). This typically occurs in cells under conditions of oxidative stress, when reactive oxygen species (ROS) levels are high. The enzyme glutathione reductase can convert GSSG back to GSH using NADPH as a cofactor, which is an important part of cellular defenses against oxidative stress.

Each form of glutathione plays a unique role in cell signaling and defense mechanisms. While they are related, the specific effects of GSNO and GSSG within cells can be quite different due to their distinct chemical structures and reactivities.

Glutathione oxidized (GSSG), S-Nitroso-L-glutathione (GSNO) can be retained, separated, 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.

Method Parameters

Mobile Phase	MeCN -10%
Buffer	H2SO4 0.2%
Flow Rate	1.0 ml/min
Detection	UV 200, 355 nm
Class of Compounds	Thiol, Amino acid
Analyzing Compounds	Glutathione oxidized (GSSG), S-Nitroso-L-glutathione (GSNO)

HPLC Column Used

Primesep 100, 4.6 x 150 mm, 5 µm, 100 Å, dual ended

[Order this column at **hplc-shop.de** →](#)