# **PRODUCT** INFORMATION



## Benfotiamine

Item No. 22192

CAS Registry No.:	22457-89-2	
Formal Name:	benzenecarbothioic acid, S-[2-[[(4-amino-2-	H <sub>2</sub> N N
	methyl-5-pyrimidinyl)methyl]formylamino]-1-[2-	
	(phosphonooxy)ethyl]-1-propen-1-yl] ester	N
Synonym:	Benzoylthiamine monophosphate	ĺ
MF:	C <sub>19</sub> H <sub>23</sub> N <sub>4</sub> O <sub>6</sub> PS	
FW:	466.5	O OH
Purity:	≥98%	
UV/Vis.:	λ <sub>max</sub> : 243 nm	HO FO S
Supplied as:	A crystalline solid	
Storage:	-20°C	
Stability:	≥4 years	
before atting we want attack and do at the second start and the second		

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

#### Laboratory Procedures

Benfotiamine is supplied as a crystalline solid. A stock solution may be made by dissolving the benfotiamine in the solvent of choice, which should be purged with an inert gas. Benfotiamine is soluble in the organic solvent DMSO. It is also soluble in ammonium hydroxide. Benfotiamine is slightly soluble in DMSO and has a solubility of approximately 1 mg/ml in a 0.1 M solution of ammonium hydroxide using this method.

#### Description

Benfotiamine is a lipid-soluble form of vitamin B<sub>1</sub> (thiamine).<sup>1</sup> In vitro, it corrects defective replication of, and prevents formation of advanced glycosylation end products (AGEs) in, human umbilical vein endothelial cells (HUVECs) grown under high glucose conditions.<sup>2</sup> In vivo, administration of benfotiamine increases nerve conduction velocity (NCV) and prevents microalbuminuria, proteinuria, and formation of AGEs in mice with streptozotocin-induced diabetes.<sup>1,3</sup> Benfotiamine reduces liver levels of aspartate and alanine aminotransferases, markers of hepatic damage, and lipid peroxidation in a rat model of acute ethanol intoxication.<sup>4</sup> Administration of benfotiamine reduces the number of amyloid plagues and amount of phosphorylated tau in a transgenic mouse model of Alzheimer's disease.<sup>5</sup> It also improves spatial memory performance in the Morris water maze.

#### References

- 1. Stracke, H., Hammes, H.P., Werkmann, D., et al. Efficacy of benfotiamine versus thiamine on function and glycation products of peripheral nerves in diabetic rats. Exp. Clin. Endocrinol. Diabetes 109(6), 330-336 (2001).
- 2. Pomero, F., Molinar Min, A., La Selva, M., et al. Benfotiamine is similar to thiamine in correcting endothelial cell defects induced by high glucose. Acta. Diabetol. 38(3), 135-138 (2001).
- Babaei-Jadidi, R., Karachalias, N., Ahmed, N., et al. Prevention of incipient diabetic nephropathy by high-dose thiamine and benfotiamine. Diabetes 52(8), 2110-2120 (2003).
- 4. Portari, G.V., Ovidio, P.P., Deminice, R., et al. Protective effect of treatment with thiamine or benfotiamine on liver oxidative damage in rat model of acute ethanol intoxication. Life Sci. 162, 21-24 (2016).
- 5. Pan, X., Gong, N., Zhao, J., et al. Powerful beneficial effects of benfotiamine on cognitive impairment and beta-amyloid deposition in amyloid precursor protein/presenilin-1 transgenic mice. Brain 133(Pt 5), 1342-1351 (2010).

WARNING THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFFTY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 12/22/2022

### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD ANN ARBOR, MI 48108 · USA PHONE: [800] 364-9897 [734] 971-3335 FAX: [734] 971-3640 CUSTSERV@CAYMANCHEM.COM WWW.CAYMANCHEM.COM