

Product Data Sheet

Product Name: Sodium Orthovanadate

Cat. No.: GC14368

Chemical Properties

Cas. No. 13721-39-6

Chemical Name trisodium;trioxido(oxo)vanadium

SMILES [O-][V](=O)([O-])[O-].[Na+].[Na+].[Na+]

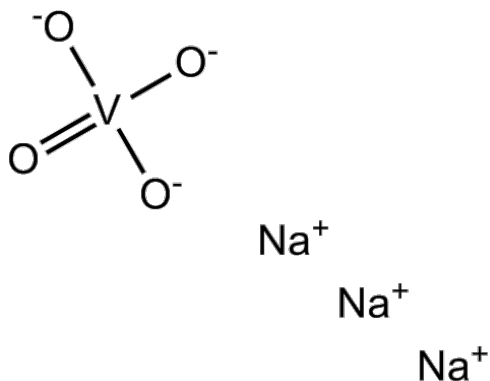
Formula $\text{Na}_3\text{O}_4\text{V}$ M.Wt 183.91

Solubility $\geq 6.7\text{mg/mL}$ in Water Storage Store at RT

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Sodium orthovanadate is an inhibitor of protein tyrosine phosphatases, alkaline phosphatases and a number of ATPases, most likely acting as a phosphate analogue.

In the presence of oxidizing agents vanadium ions exist as the hydrated monomer of Sodium orthovanadate (vanadate: HVO_4^{2-} or H_2VO_4^-) at micromolar concentrations near neutral pH. Sodium orthovanadate (vanadate) also begins to polymerize at concentrations greater than 0.1 mM at neutral pH. The yellow-orange solutions of decavanadate can be converted to the colorless solutions of

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monomeric Sodium orthovanadate (vanadate) by dilution after a period of many hours. The process is hastened by boiling at pH 10, which encourages the kinetically sluggish depolymerization process[1]. Sodium orthovanadate could alter the phosphorylation status of ASK1 at serine 83 and threonine 845 induced by ischemia. Sodium orthovanadate could increase the tyrosine phosphorylation of PTEN and further inhibit the activation of ASK1 via activating Akt during cerebral ischemia[2].

References:

- [1]. Gordon JA, et al. Use of vanadate as protein-phosphotyrosine phosphatase inhibitor. *Methods Enzymol.* 1991;201:477-82.
- [2]. Wu DN, et al. Down-regulation of PTEN by sodium orthovanadate inhibits ASK1 activation via PI3-K/Akt during cerebral ischemia in rat hippocampus. *Neurosci Lett.* 2006 Aug 14;404(1-2):98-102.

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