

Product Data Sheet

Product Name: β -Propiolactone

Cat. No.: GC19847

Chemical Properties

Cas. No. 57-57-8

Formula C₃H₄O₂

M.Wt 72.06

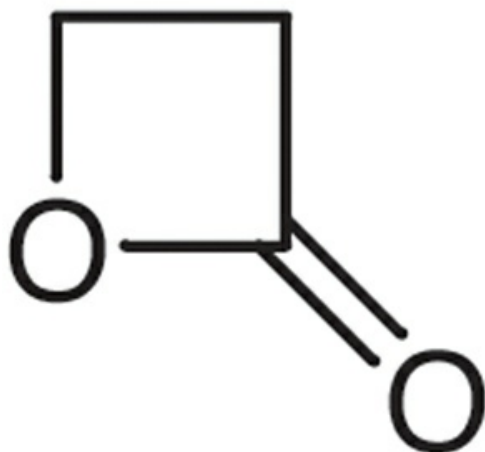
Solubility DMSO : 100 mg/mL (1387.73 mM; Need ultrasonic)

Storage Store at -20°C

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

β -Propiolactone is an inactivating agent often applied for the inactivation of viruses and preparation of viral vaccines [1]. β -Propiolactone can cause irreversible alkylation of nucleic acids as well as acetylation and cross-linking involving proteins, DNA, or RNA [2]. β -Propiolactone forms adducts with nucleobases (primarily guanine), and induces extensive modifications of nucleobases, nucleosides, and synthetic peptides [2]. Low concentrations of β -Propiolactone at 1:2000 (v/v) can effectively inactivate SARS-CoV-2, resulting in the loss of viral protein content and the integrity of structural

Caution: Product has not been fully validated for medical applications. For research use only.

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protein antigens; while the high concentration leads to the aggregation of large numbers of virus particles, which may result in insufficient inactivation and loss of antigenic activity^[3]. β -Propiolactone is widely used as an internal standard to optimize the analytical conditions of gas chromatography and high-performance liquid chromatography, thereby enabling the precise determination of trace-related compounds^[4].

References:

- [1] Uittenbogaard J P, Zomer B, Hoogerhout P, et al. Reactions of β -propiolactone with nucleobase analogues, nucleosides, and peptides: Implications for the inactivation of viruses[J]. Journal of Biological Chemistry, 2011, 286(42): 36198-36214.
- [2] Pilchová V, Prajeeth C K, Jendry P, et al. β -Propiolactone (BPL)-inactivation of SARS-co-V-2: in vitro validation with focus on saliva from COVID-19 patients for scent dog training[J]. Journal of virological methods, 2023, 317: 114733.
- [3] Gupta D, Parthasarathy H, Sah V, et al. Inactivation of SARS-CoV-2 by β -propiolactone causes aggregation of viral particles and loss of antigenic potential[J]. Virus research, 2021, 305: 198555.
- [4] Mirjalili S Z, Sabourian R, Chavoshi F, et al. β -Propiolactone, its application and assay methods[J]. Analytical Methods, 2025, 17(38): 7608-7617.

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