β-Propiolactone

Cat: P9620
Specification:5ml /25ml
Storage: Store at -20℃, avoid light, and it is valid for 2 years.

Product Information
CAS： 57-57-8
English name： β-Propiolactone
Appearance (Character)： Colorless and Transparent Solution
Molecular Formula： $C_3H_4O_2$
Molecular Weight： 72.06
Grade: Reagent grade
Purity: 98%
Solubility: 1 mg/mL in water

Introduction

β-propiolactone BPL is easily hydrolyzed, with no residue and no harm after hydrolysis; It can directly act on the nucleic acid of viruses or pathogens, achieving ideal inactivation effects; The short inactivation time can shorten the vaccine production cycle. Therefore, since 1984, when β-propiolactone was used as an inactivator of rabies vaccine, it has been successfully and widely applied in the production of various human and animal vaccines.

β-propiolactone BPL has been widely used for the inactivation of various vaccines abroad. It is a heterocyclic compound C3H4O2 with a boiling point of 155℃. It is a colorless viscous liquid at room temperature and has a strong inactivation effect on viruses.

β-propiolactone is also an intermediate for drugs, resins, and fiber modifiers. Its derivative, β-mercaptopropionic acid, is a PVC stabilizer and a raw material for pharmaceuticals.

Mechanism of action: It acts on the DNA or RNA of pathogens, altering the structure of viral nucleic acids to achieve inactivation without directly acting on proteins.

Features:

1. Direct action on viral nucleic acids, preserving immunogenicity with strong inactivation effects. β-propiolactone (BPL) directly interacts with viral nucleic acids without affecting the capsid proteins, thereby preserving the immunogenicity of the pathogens.

2. Extremely easy hydrolysis with no residues, and non-toxic hydrolysis products. Although high doses of β-propiolactone (BPL) are carcinogenic, it hydrolyzes extremely easily and disappears after 2 hours of hydrolysis in a 37℃ water bath. Its hydrolysis product is β-hydroxypropionic acid, a non-toxic human fat metabolite. Additionally, since it can be completely hydrolyzed in vaccine solutions, there is no need to consider residues in the final vaccine product.

3. Short inactivation time, reducing the production cycle of vaccines. β-propiolactone requires only 2 hours for complete hydrolysis, resulting in a short inactivation time that significantly shortens the vaccine production cycle and improves economic efficiency.

In summary, as a vaccine inactivator, β-propiolactone (BPL) acts directly on nucleic acids, demonstrating strong inactivation capability against viruses. It does not destroy the hemagglutinin antigens of viruses, preserving their good immunogenicity. Its hydrolysis products are harmless to the body, resulting in mild vaccination reactions.

Note

1. Unless otherwise specified, the biochemical reagents produced by our company are generally non-sterile packaged. If they are to be used for cell experiments, please conduct pretreatment in advance.
2. Once dissolved, please store the solution in separate containers to avoid product degradation caused by repeated freezing and thawing.
3. The product information is for reference only. If you have any questions, please call 400-968-6088 for consultation.
4. The products are all for scientific research use only. Do not use it for medical, clinical diagnosis or treatment, food and cosmetics, etc. Do not store them in ordinary residential areas.
5. For your safety and health, please wear laboratory clothes, disposable gloves and masks to operate.