β-Propiolactone

Cell Culture Tested

Product Code: TC223

Product Description :

Molecular Weight: 72.06
Molecular Formula: $C_3H_4O_2$
CAS No.: 57-57-8
Synonym: 3-Hydroxypropionic acid lactone; Hydracrylic acid β-lactone; 2-Oxetanone

β-Propiolactone is an organic compound of the lactone family. It is made up of four carbon ring. It will slowly react with water and hydrolyze to produce hydracryclic acid.

Uses:
It is most commonly used as a to sterilize vaccines, enzymes, tissue grafts, nutrient broths, blood plasma, water, milk, surgical instruments. It is a very effective vapor-phase disinfectant for the decontamination of enclosed chambers and in organic synthesis. Its sporicidal action is used against vegetative bacteria,pathologic fungi and viruses.It has been used as an intermediate in the production of acrylic acid and esters. It has also been used to inactivate viruses for use in vaccines for animals and human.

Mode of action:
It is an alkylating agent and acts through alkylation of carboxyl- and hydroxyl- groups. The lactone ring splits either at first or third carbon atom.It reatcs with bacteriophage DNA causing inactivation,repair and recombination.

Comparison with other vapor-phase disinfectants:
When employed under conditions of maximum effectiveness β-propiolactone is approximately 25 times more active as a vapor phase disinfectant than formaldehyde, approximately 4000 times more active than ethylene oxide and 50000 times more active than methyl bromide.

β-propiolactone may be used as a replacement for formaldehyde in gaseous decontamination.It does not condense as a non-volatile residue and thus the time required to aerate an enclosure after application of the disinfectant is considerably less than that for formaldehyde.

One more advantage of β-propiolactone over other disinfectants is active even at relatively low temperatures.

Directions :

β-propiolactone is soluble in water upto 37% and miscible in acetone, ether and alcohol. Filtration of β-propiolactone requires anhydrous atmosphere as it hydrolyzes and polymerizes when exposed to moist atmosphere.

Quality Control:

Appearance
Clear colourless liquid .

Assay
NLT 97%

Cell Culture Test
Passes

Storage and Shelf Life:

Store at -20ºC.
Shelf life is 36 months.
Use before expiry given on product label.

Disclaimer :

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