

PRODUCT INFORMATION



Piperacillin (sodium salt)

Item No. 20766

CAS Registry No.: 59703-84-3

Formal Name: (2S,5R,6R)-6-[[[(2R)-2-[[[4-ethyl-2,3-dioxo-1-piperazinyl]carbonyl]amino]-2-phenylacetyl]amino]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid, monosodium salt

Synonyms: CL 227,193, T-1220

MF: $C_{23}H_{26}N_5O_7S \cdot Na$

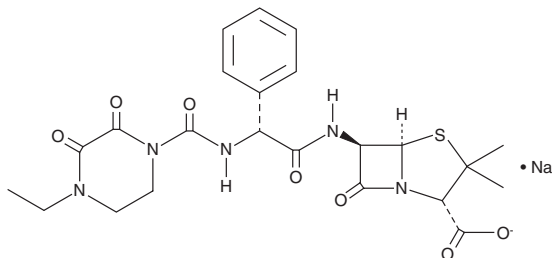
FW: 539.5

Purity: $\geq 98\%$

Supplied as: A crystalline solid

Storage: -20°C

Stability: ≥ 4 years



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

Laboratory Procedures

Piperacillin (sodium salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the piperacillin (sodium salt) in the solvent of choice, which should be purged with an inert gas. Piperacillin (sodium salt) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of piperacillin (sodium salt) in ethanol is approximately 1 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of piperacillin (sodium salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of piperacillin (sodium salt) in PBS, pH 7.2, is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Piperacillin is a broad-spectrum β -lactam antibiotic of the penicillin class.^{1,2} It is active against Gram-negative and Gram-positive bacteria, including *Enterococcus* species, *E. coli*, and *P. mirabilis* ($MIC_{50s} = 0.5$ - $2 \mu\text{g/ml}$) as well as gentamicin-susceptible and -resistant strains of *P. aeruginosa* ($MIC_{50s} = 8$ and $125 \mu\text{g/ml}$, respectively).² In a mouse model of systemic infection, piperacillin is active against *P. aeruginosa* 46220 when used alone or in combination with tazobactam (Item No. 25679; $ED_{50s} = 1.58$ and 1.34 mg/animal , respectively).³ In the same model, it is less active against *P. aeruginosa* 46220 DR-2, which contains constitutively active β -lactamase, when used alone than when used in combination with tazobactam ($ED_{50s} = >20$ and 4.39 mg/animal , respectively). Formulations containing piperacillin in combination with tazobactam have been used in the treatment of moderate-to-severe bacterial infections.

References

1. Drawz, S.M. and Bonomo, R.A. *Clin. Microbiol. Rev.* **23**(1), 160-201 (2010).
2. White, G.W., Malow, J.B., Zimelis, V.M., et al. *Antimicrob. Agents Chemother.* **15**(4), 540-543 (1979).
3. Nishida, K., Higashitani, F., and Hyodo, A. *Chemotherapy* **43**(3), 171-178 (1997).

WARNING

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

SAFETY 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.

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