

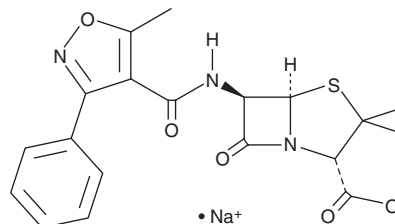
# PRODUCT INFORMATION



## Oxacillin (sodium salt)

Item No. 23954

**CAS Registry No.:** 1173-88-2  
**Formal Name:** (2S,5R,6R)-3,3-dimethyl-6-[[[(5-methyl-3-phenyl-4-isoxazolyl)carbonyl]amino]-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid, monosodium salt  
**Synonyms:** Micropenin, NSC 527712, SQ-16423  
**MF:** C<sub>19</sub>H<sub>18</sub>N<sub>3</sub>O<sub>5</sub>S • Na  
**FW:** 423.4  
**Purity:** ≥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

Oxacillin (sodium salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the oxacillin (sodium salt) in the solvent of choice, which should be purged with an inert gas. Oxacillin (sodium salt) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of oxacillin (sodium salt) in these solvents is approximately 2, 16, and 20 mg/ml, respectively.

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 oxacillin (sodium salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of oxacillin (sodium salt) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Oxacillin is a semisynthetic  $\beta$ -lactam antibiotic.<sup>1,2</sup> It is active against clinical isolates of methicillin-susceptible *S. aureus* and penicillin-susceptible *S. pneumoniae*, as well as group A, group B, and viridans group streptococci with MIC<sub>90</sub> values ranging from 0.06 to 2  $\mu$ g/ml *in vitro*.<sup>3</sup> Oxacillin is less effective toward other bacteria with MIC<sub>90</sub> values of greater than 16  $\mu$ g/ml for *S. epidermidis*, *S. haemolyticus*, *E. faecalis*, *E. faecium*, methicillin-resistant *S. aureus* (MRSA), and penicillin-intermediate and -resistant *S. pneumoniae*. It targets the bacterial cell wall, inhibiting *S. pneumoniae* penicillin-binding proteins 1a, 1b, 2a, 2b, and 3 *in vitro* with IC<sub>50</sub> values ranging from 0.17 to 1.75  $\mu$ M.<sup>2,4</sup> Oxacillin inhibits growth of *S. aureus* in a thigh model of infection in mice (ED<sub>50</sub> = 45.19 mg/kg, s.c.).<sup>5</sup> Formulations containing oxacillin have been used in the treatment of susceptible bacterial infections.

### References

1. Hawks, G.H. *Can. Med. Assoc. J.* **93**(16), 848-853 (1965).
2. Williamson, R., Hakenbeck, R., and Tomasz, A. *Antimicrob. Agents Chemother.* **18**(4), 629-637 (1980).
3. Milatovic, D., Schmitz, F.J., Verhoef, J., et al. *Antimicrob. Agents Chemother.* **47**(1), 400-404 (2003).
4. Balibar, C.J., Shen, X., McGuire, D., et al. *Microbiology* **156**(Pt5), 1372-1383 (2010).
5. Rodriguez, C.A., Agudelo, M., Zuluaga, A.F., et al. *BMC Infect. Dis.* **10**(153), (2010).

#### 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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