**PRODUCT INFORMATION**

**Doxycycline (hyclate)**

*Item No. 14422*

**CAS Registry No.:** 24390-14-5  
**Formal Name:** (4S,4aR,5S,5aR,6R,12aS)-4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,5,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamide, hydrochloride, compd. with ethanol, hydrate (2:2:1:1)

**MF:** $2\{C_{22}H_{24}N_{2}O_{8}\} \cdot 2\text{HCl} \cdot \text{H}_2\text{O} \cdot C_2\text{H}_6\text{O}$  
**FW:** 1,025.9  
**Purity:** ≥98%  
**UV/Vis.:** $\lambda_{\text{max}}$: 215, 272, 348 nm  
**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**

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

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 doxycycline (hyclate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of doxycycline (hyclate) in PBS (pH 7.2) is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

**Description**

Doxycycline is a broad-spectrum tetracycline antibiotic.\(^1,2\) It inhibits bacterial protein synthesis by binding to ribosomes.\(^2,3\) Doxycycline also selectively inhibits human matrix metalloproteinase-8 (MMP-8) and MMP-13 over MMP-1 with 50, 60, and 5% inhibition, respectively, when used at a concentration of 30 μM.\(^4\) It can be used as a regulator for inducible gene expression systems where expression depends on either the presence (Tet-On) or absence (Tet-Off) of doxycycline.\(^5,6\) Formulations containing doxycycline have been used in the treatment of bacterial infections and the prevention of malaria.

**References**


---

**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.

**WARRANTY AND LIMITATION OF REMEDY**  
Buyer agrees to purchase the material subject to Cayman’s Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 09/29/2022