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| <b>Product Name:</b>                 | Azithromycin dihydrate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Product Number:</b>               | A024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>CAS Number:</b>                   | 117772-70-0 9 (dihydrate); 83905-01-5 (anhydrous); 121479-24-4 (monohydrate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Molecular Formula:</b>            | $C_{38}H_{72}N_2O_{12} \cdot 2H_2O$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Molecular Weight:</b>             | 785.01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Form:</b>                         | Powder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Appearance:</b>                   | White crystalline powder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Solubility:</b>                   | sparingly soluble in aqueous solution (0.54 mg/mL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Source:</b>                       | Semi-synthetic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Water Content (Karl Fischer):</b> | 4.0-5.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>pH:</b>                           | 9.0 - 11.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Optical Rotation:</b>             | -45° to -49°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Storage Conditions:</b>           | ≤30°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Description:</b>                  | <p>Azithromycin dihydrate is a broad-spectrum macrolide antibiotic (azalide subclass) derived from Erythromycin. It is effective against many Gram-negative and Gram-positive bacteria and certain <i>Mycoplasma</i> species. Azithromycin also has anti-immunomodulatory/anti-inflammatory properties. Azithromycin dihydrate is sparingly soluble in aqueous solution (0.54 mg/mL).</p> <p>We also offer the following derivatives:</p> <ul style="list-style-type: none"><li>• <a href="#"><u>Azithromycin Impurity E, EvoPure® (A074)</u></a></li><li>• <a href="#"><u>Azithromycin Impurity F, EvoPure® (A075)</u></a></li><li>• <a href="#"><u>Azithromycin Impurity G, EvoPure® (A083)</u></a></li><li>• <a href="#"><u>Azithromycin Impurity H, EvoPure® (A084)</u></a></li><li>• <a href="#"><u>Azithromycin Impurity I, EvoPure® (A081)</u></a></li><li>• <a href="#"><u>Azithromycin Impurity J, EvoPure® (A082)</u></a></li><li>• <a href="#"><u>Azithromycin Impurity L, EvoPure® (A078)</u></a></li></ul> |
| <b>Mechanism of Action:</b>          | Macrolide antibiotics inhibit bacterial growth by binding to the 70S ribosome (specifically the 50S subunit) preventing peptide bond formation and translocation during protein synthesis. Resistance is attributed to mutations in 50S rRNA preventing binding of Azithromycin and allowing the cell to synthesize error-free proteins.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Spectrum:</b>                     | Azithromycin is effective against several Gram-positive and Gram-negative bacteria, and certain Mycoplasmas.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**Microbiology Applications** Azithromycin dihydrate is commonly used in clinical *in vitro* microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against Gram-positive and Gram-negative microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options for infected patients. Representative MIC values include:

- *Chlamydia trachomatis* 0.016 µg/mL-0.125 µg/mL
- *Mycobacterium avium* 16 µg/mL- >256 µg/mL
- For a complete list of azithromycin MIC values, [click here](#).

**References:**

Gladue RP, Bright GM, Isaacson RE and Newborg MF (1989) *In vitro* and *in vivo* uptake of Azithromycin (CP-62,993) by phagocytic cells: Possible mechanism of delivery and release at sites of infection. Antimicrob. Agents Chemother. 33(3):277-282 PMID 2543276

Lovmar, M, and Tenson T (2003) The Mechanism of action of Macrolides, Lincosamides and Streptomycin B reveals the nascent peptide exit path in the ribosome. J. Mol. Microbiol. 330(5):1005-1014. PMID 10348778

Wolf K and Malinverni R (1999) Effect of Azithromycin plus Rifampin versus that of Zithromycin alone on the eradication of *Chlamydia pneumoniae* from lung tissue in experimental pneumonitis. Antimicrob. Agents Chemother. 43(6): 1491-3 PMID 10348778

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