**PRODUCT INFORMATION**

**Allopurinol**

*Item No. 10012597*

**CAS Registry No.:** 315-30-0  
**Formal Name:** 1,5-dihydro-4H-pyrazolo[3,4-d]pyrimidin-4-one  
**MF:** C5H4N4O  
**FW:** 136.1  
**Purity:** ≥98%  
**Stability:** ≥2 years at room temperature  
**Supplied as:** A crystalline solid  
**UV/Vis.:** \( \lambda_{\text{max}} \approx 251 \text{ nm} \)

**Laboratory Procedures**

For long term storage, we suggest that allopurinol be stored as supplied at room temperature. It should be stable for at least two years.

Allopurinol is supplied as a crystalline solid. A stock solution may be made by dissolving the allopurinol in the solvent of choice. Allopurinol is soluble in organic solvents such as DMSO, which should be purged with an inert gas. The solubility of allopurinol in DMSO is approximately 3 mg/ml.

Allopurinol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, allopurinol should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Allopurinol has a solubility of approximately 0.1 mg/ml in a 1:10 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

**Description**

Xanthine oxidoreductase mediates the successive oxidation of hypoxanthine and xanthine to produce uric acid. The enzyme can interconvert between xanthine dehydrogenase and xanthine oxidase activities through reversible sulfhydryl oxidation on specific cysteine residues. Both forms oxidize hypoxanthine and xanthine to uric acid. However the dehydrogenase simultaneously reduces nicotinamide adenine dinucleotide while the oxidase reduces oxygen to superoxide. Allopurinol is an isomer of hypoxanthine that inhibits xanthine oxidoreductase (IC_{50} = 0.2-50 \mu M, depending on assay and cell type).\(^1,2\) In vivo, allopurinol has been reported to effectively and safely lower serum and urinary uric acid levels and is also reported to be effective in the treatment of gout and hyperuricemia. Allopurinol is rapidly metabolized in vivo to the xanthine analog oxypurinol, which is a metabolite that clearly augments the therapeutic effect of allopurinol.\(^3\)

**References**