SECOND EDITION

Chemical Stability of Pharmaceuticals

A HANDBOOK FOR PHARMACISTS

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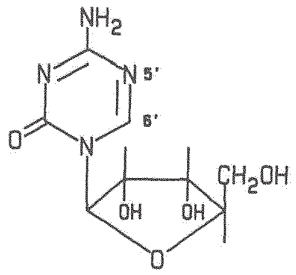
5-Azacytidine

GENERAL

Names

5-AC; 5-azacytidine; 4-amino-1-b-D-ribofuranosyl-1,3,5-triazin-2-one.

Structure



$C_8H_{12}N_4O_5$

mol. wt. 244.21

Stability Summary

5-Azacytidine (5-AC) undergoes hydrolysis of the triazine ring in aqueous buffers. The hydrolysis takes place at the 5-6 double bond and the pH-rate profile exhibits both acid and base catalysis. The pH range of optimum stability is 6.5-7.0. Even at this pH range, however, drug degradation is rapid. Decomposition rate constants of 5-AC are also influenced by temperature and buffer concentration. It is possible that metal ions, for example, iron, act as catalysts in the hydrolysis so that the addition of EDTA to solutions of 5-AC in distilled water increases the stability.