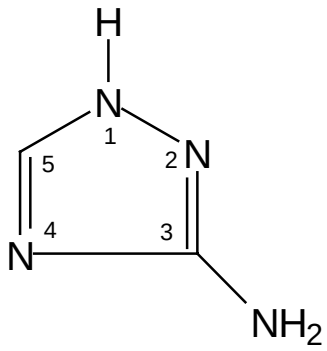
ProductInformation

3-AMINO-1,2,4-TRIAZOLE
Sigma Prod. No. A8056

CAS NUMBER: 61-82-5
SYNONYMS: 3-Amino-1*H*-1,2,4-triazole; 1*H*-1,2,4-Triazol-3-amine; Aminotriazole; ATA; ENT 25445; Amizol; Cytrol; Weedazol; 3 A-T



PHYSICAL PROPERTIES:

Appearance: White to light yellow powder
Melting Point: 150-153°C[1]
Molecular Formula: $C_2H_4N_4$
Molecular Weight: 84.08

STABILITY / STORAGE AS SUPPLIED:

Store desiccated at -20°C.

SOLUBILITY / SOLUTION STABILITY:

According to the Merck Index, 12th ed., p. 80, No. 506, the product is soluble in water, methanol, ethanol and chloroform, and sparingly soluble in ethyl acetate. It is insoluble in ether and acetone. Aqueous solutions are neutral. Sigma tests the solubility in hot water at 50 mg/mL, obtaining clear and faint yellow-tan solutions. A paper reports that an aqueous solution of radiolabeled product was stored refrigerated; the solution's shelf life is not given.[2]

USAGE / APPLICATIONS:

3-Amino-1,2,4-triazole is an inhibitor of mitochondrial and chloroplast function. Commercial grade 3-amino-1,2,4-triazole (which generally contains catalase anti-inhibitory impurities) is used as a herbicide and cotton defoliant.[3]

Enzyme or Reaction Affected:	**Comments:**
Inhibits cyclizations leading to β-carotene	α-Carotene accumulates.[3]
Causes chlorosis	Concentration = $1x10^{-4}$ M[3]
Disorganizes chloroplast membranes	Concentration = $1x10^{-4}$ M[3]
Blocks formation of 18S Fraction I protein	[3]
Blocks formation of chloroplast DNA	[3]
Blocks formation of 70S ribosomes	[3]
Inhibits riboflavin biogenesis	[3]
Catalase	Inhibits at $2x10^{-2}$ M in the presence of H_2O_2.[3]
Peroxidase	No action.[3]
δ-Aminolevulinate synthetase	[3]
Methane monooxygenase	Inhibits 75% at 10 μM.[4]
Imidazolglycerol-phosphate dehydratase	Ki = 30 μM.[4]

REFERENCES:

1. *Aldrich Chemical Co. Catalog*, p. 97 (1996-1997).
2. M. C. DeTraglia, et al., *Anal. Biochem.*, 99, 464 (1979).
3. R. M. C. Dawson, et al., *Data for Biochemical Research*, 3rd ed., 302-303 (1993).
4. H. Zollner, *Handbook of Enzyme Inhibitors*, Part B, 563 (1993).