



3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

Product Information

8-Anilino-1-naphthalenesulfonic acid ammonium salt

Product Number **A 3125**
Store at Room Temperature

Product Description

Molecular formula: $C_{16}H_{16}N_2O_3S$
Molecular weight: 316.4
CAS Number: 28836-03-5
 λ_{max} : 350 nm¹
Extinction Coefficient: $E^{mM} = 4.95$ (0.1 M phosphate, pH 6.8)¹
Synonyms: ANS¹ Ammonium salt, ANSA, 1,8-ANS NH₄

This product is a fluorescent probe for protein studies.^{1,2} Excitation of the unbound dye at 380 nm results in a low fluorescent emission with a maximum at 545 nm. The fluorescence intensity of ANS increases when the dye binds to the hydrophobic regions of a protein.^{3,4} The protein-ANS complex has an emission spectrum which is shifted to a broad maximum at 470 nm. At pH 8, protein causes a 40-fold increase in the relative quantum yield compared to free ANS in solution.¹

ANS has been used to monitor protein conformational changes by binding to the hydrophobic regions of a protein,⁵ to investigate the visual excitation process and structural aspects of photoreceptor cell membranes,⁶ and to probe (and disrupt) the structure of both high- and low-density lipoproteins.⁷ It has also been used as a substrate in a chemiluminescent enzyme immunoassay system⁸ and as a dye for yeast viability determination.⁹ The conformational states for apo- and holo- yeast alcohol dehydrogenase were reported under conditions of low pH using ANS fluorescence.¹⁰

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (50 mg/ml).

References

1. Azzi, A., The use of fluorescent probes for the study of membranes. *Methods Enzymol.*, **32**, 234-246 (1974).
2. Saucier, A.C., et al., Ciliary dyenin conformational changes as evidenced by the extrinsic fluorescent probe 8-anilino-1-naphthalenesulfonate. *Biochemistry*, **24**, 7581-7585 (1985).
3. Stryer, L., The interaction of a naphthalene dye with apomyoglobin and apohemoglobin. A fluorescent probe of non-polar binding sites. *J. Mol. Biol.*, **13**, 482-495 (1965).
4. Turner, D.C., and Brand, L., Quantitative estimation of protein binding site polarity. Fluorescence of N-arylamino-naphthalenesulfonates., *Biochemistry*, **7**, 3381-3390 (1968).
5. Yoshimura, T., Monitoring protein conformational changes during membrane fusion. *Methods Enzymol.*, **221**, 72-82 (1993).
6. Andley, U.P., and Chakrabarti, B., Interaction of 8-amino-1-naphthalenesulfonate with rod outer segment membrane. *Biochemistry*, **20**, 1687-1693 (1981).
7. Muesing, R. A., and Nishida, T., Disruption of low- and high-density human plasma lipoproteins and phospholipid dispersions by 1-anilino-naphthalene-8-sulfonate. *Biochemistry*, **10**, 2952-2962 (1971).

8. Arakawa, H., et al., Chemiluminescence enzyme immunoassay of 17α -hydroxyprogesterone using glucose oxidase and bis(2,4,6-trichlorophenyl) oxalate-fluorescent dye system. Chem. Pharm. Bull., **30**, 3036-3039 (1982).
9. McCaig, R., Evaluation of the fluorescent dye 1-anilino-8-naphthalene sulfonic acid for yeast viability determination. Am. Soc. Brewing Chemists Journal, 22-25 (1990).
10. Le, W.P., et al., Acid-induced folding of yeast alcohol dehydrogenase under low pH conditions. J. Biochem., **119**, 674-679 (1996).

MES/AJH 9/03

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.