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## Product Information

### Aminophylline

Catalog Number **A1755**

Storage Temperature  $-20\text{ }^{\circ}\text{C}$

Replacement for Catalog Number **216895**

CAS RN 317-34-0

Synonyms: theophylline hemiethylenediamine complex; 3,7-dihydro-1,3-dimethyl-1H-purine-2,6-dione compound with 1,2-ethanediamine (2:1); (theophylline)<sub>2</sub> • ethylenediamine<sup>1,2</sup>

#### Product Description

Molecular Formula:  $\text{C}_7\text{H}_8\text{N}_4\text{O}_2 \cdot 1/2 (\text{C}_2\text{H}_8\text{N}_2)$

Molecular Weight: 210.3

Aminophylline is a xanthine derivative which is a combination of theophylline and ethylenediamine that is more water soluble than theophylline alone.

Aminophylline has been widely used as an inhibitor of cAMP phosphodiesterase.<sup>3</sup>

Aminophylline has been shown to limit phosphatidylcholine biosynthesis in cultured rat hepatocytes.<sup>4</sup> It has been used in studies of acute hypoxemia in newborn and older guinea pigs.<sup>5</sup> The effect of various xanthine derivatives, including aminophylline, on activation of the cystic fibrosis transmembrane conductance regulator (CFTR) chloride channel, as stably expressed in Chinese hamster ovary (CHO) cells, has been investigated.<sup>6</sup>

A kinetic spectrophotometric method for the determination of theophylline, based on an azo coupling reaction with the diazonium ion of sulfanilic acid after alkali treatment, has been reported.<sup>7</sup> Micellar electrokinetic chromatography has been applied to the characterization of a formulation of theophylline, dyphylline, and proxyphylline.<sup>8</sup>

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Preparation Instructions

This product is soluble in water (50 mg/ml), with heat as needed. It is insoluble in ethanol and ether.<sup>3</sup>

#### Storage/Stability

Aminophylline should be kept tightly closed to prevent CO<sub>2</sub> absorption from the atmosphere, which leads to formation of theophylline and decreased solubility in aqueous solutions.<sup>3</sup> Stock solutions should be protected from light and prevented from contact with metals.<sup>2</sup>

#### References

1. The Merck Index, 12th ed., Entry# 485.
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3. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), pp. 316-317.
4. Pelech, S. L., et al., cAMP analogues inhibit phosphatidylcholine biosynthesis in cultured rat hepatocytes. *J. Biol. Chem.*, **256(16)**, 8283-8286 (1981).
5. Crisanti, K. C., and Fewell, J. E., Aminophylline alters the core temperature response to acute hypoxemia in newborn and older guinea pigs. *Am. J. Physiol.*, **277(3, Pt. 2)**, R829-R835 (1999).
6. Chappe, V., et al., Structural basis for specificity and potency of xanthine derivatives as activators of the CFTR chloride channel. *Br. J. Pharmacol.*, **123(4)**, 683-693 (1998).
7. Iturriaga, H., et al., Kinetic-spectrophotometric determination of theophylline, dyphylline, and proxyphylline by use of partial least-squares regression. *Anal. Bioanal. Chem.*, **374(1)**, 33-38 (2002).
8. Blanco, M., and Valverde, I., Application of micellar electrokinetic chromatography to the quality control of a pharmaceutical preparation containing three bronchodilators. *Electrophoresis*, **23(4)**, 578-583 (2002).

AH,GCY,RXR,MAM 05/07-1

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