

## Product Information

### MONENSIN SODIUM Sigma Prod. No. M5273

CAS NUMBER: 22373-78-0

#### PHYSICAL DESCRIPTION:

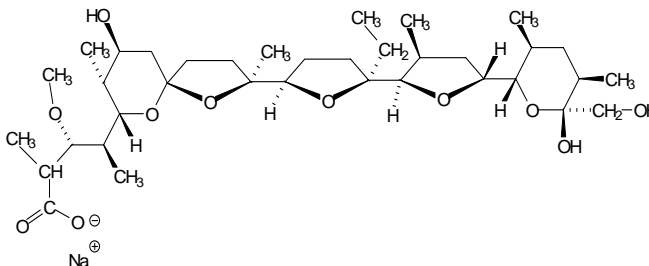
Appearance: white powder with faint yellow cast

Molecular formula: C<sub>36</sub>H<sub>61</sub>O<sub>11</sub>Na

Molecular weight: 692.9

Melting range: 267-269°C

Optical rotation: +57.3° for 1 g in 100 mL methanol at 25°C<sup>1</sup>



#### STORAGE / STABILITY AS SUPPLIED:

When stored sealed at 2-8°C, a retained sample showed no change in purity by TLC after five years.

#### SOLUBILITY / SOLUTION STABILITY:

Monensin sodium is soluble in methanol at 50 mg/mL, giving a clear colorless solution.<sup>2</sup> It is virtually insoluble in water, but very soluble in organic solvents.<sup>1</sup> It can be diluted into aqueous systems using a stock solution in ethanol<sup>2</sup> or DMSO.<sup>3</sup> The product is very stable under alkaline conditions<sup>1</sup>, in organic solvents and in aqueous organic solvent mixtures at elevated temperatures.<sup>2</sup> A 50 mM solution in absolute ethanol was reported to be stable if stored at -20°C.<sup>5</sup>

#### GENERAL REMARKS:

Monensin is generally used as an antiprotozoal, antibacterial, or antifungal agent.<sup>1</sup> Monensin is an ionophore which disrupts the structure of the Golgi apparatus and inhibits vesicular transport in eukaryotic cells. It was used at 5 nM to 5 μM in a study of its effects on the incorporation of newly synthesized glycerolipids into retinal rod membranes.<sup>3</sup>

Monensin has been shown to inhibit DNA synthesis in both Graves' and normal thyroid cells. The rate of DNA synthesis rate was measured by the uptake of tritiated thymidine. Also, monensin inhibited the transition of G1 to S phase, as determined by flow cytometric analysis. In each case, the half-maximal inhibitory effect (IC50) was observed at approximately 1 μM.<sup>4</sup>

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**GENERAL REMARKS:** (continued)

The effect of monensin on cell ultrastructure and glycoprotein migration has been studied.<sup>6</sup> Monensin also acts to reversibly stimulate the sodium/potassium pump in cultures of vascular smooth muscle.<sup>7</sup>

**REFERENCES:**

1. *Merck Index*, 12th ed., p. 983, #6329 (1996).
2. Sigma data and files.
3. Fliesler, S.J. and S.F. Basinger, *J. Biol. Chem.*, 262, 1716-17523 (1987).
4. Okugawa, T. and Itoh, M., *Endocrine J.*, 40(1), 53-62 (1993).
5. Harford, J. et al., *J. Cell Biol.*, 96, 1824, 1983.
6. Hugon, J.S. et al., *Cell Tissue Research*, 250, 355 (1987).
7. Brock, T.A. and Smith, J.B., *Life Sciences*, 31, 1043, (1982).

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