

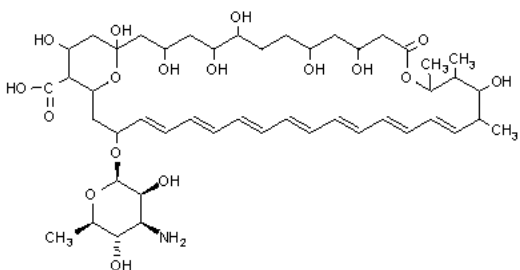
## Product Information

### Amphotericin B from *Streptomyces* sp.

Catalog Numbers **A9528**, **A2411**, and **A4888**  
Storage Temperature 2–8 °C

CAS RN 1397-89-3

#### Product Description



Molecular formula: C<sub>47</sub>H<sub>73</sub>NO<sub>17</sub>  
Molecular weight: 924.08

Melting Point:<sup>1</sup> >170 °C with decomposition  
 $\lambda_{\text{max}}$ :<sup>1</sup> 345, 363, 382, 406 nm (methanol)  
pK<sub>a</sub>:<sup>2</sup> 5.5, 10.0

Amphotericin B is a polyene antifungal antibiotic from *Streptomyces* sp. It has a high affinity for sterols, primarily ergosterols, of fungal<sup>3</sup> and bacterial cell membranes.<sup>4</sup> After binding to sterols, it forms channels in the membranes, causing small molecules to leak out. Amphotericin B is effective against fungi and yeast. The name of the drug is derived from the amphoteric behavior of the drug, due to the carboxyl group on the main ring and a primary amino group on the mycosamine ring.<sup>5</sup>

Amphotericin B induces K<sup>+</sup> leakage, which is separate from its lethal action, as was demonstrated in human erythrocytes and is due to the inhibitory effect on the Na<sup>+</sup>/K<sup>+</sup> pump.<sup>6</sup> At sub-lethal concentrations, this drug stimulates either the activity of some membrane enzymes or cellular metabolism,<sup>3</sup> in particular stimulation of some cells of the immune system.<sup>7</sup>

Minimum inhibitory concentrations range from 0.03–1 µg/ml for a variety of organisms including strains of *Candida*, *Rhizopus*, *Aspergillus*, and *Coccidioides*. It is inactive against bacteria, rickettsia, and viruses.

Normal usage for maintenance of cell cultures is 2.5 mg/L with penicillin and streptomycin in the medium.<sup>8</sup> For cultures already contaminated with yeast and fungus, use of this product at 2–4 times the normal level (5–10 mg/L), without penicillin and streptomycin for 2–3 subcultures is recommended. Once the contamination is under control, normal maintenance levels of amphotericin B should be used. SigmaClean<sup>®</sup> water bath treatment (Catalog Number S5525) is recommended for cleaning the incubator and for adding to the water reservoir to eliminate yeast and fungal contamination.

#### Precautions and Disclaimer

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

#### Preparation Instructions

Amphotericin B is insoluble in water at pH 6 to 7, but soluble in water at pH 2 or 11. It is soluble in DMSO (30–40 mg/ml) and in dimethylformamide (2–4 mg/ml). Aqueous solutions cannot be sterile filtered due to poor solubility.

#### Storage/Stability

Amphotericin B remains active for 3 days in culture at 37 °C. For long term, storage at 2–8 °C, protected from air and light, is recommended.<sup>1</sup> Under these conditions the products remain active for 5 years.

#### A9528 Amphotericin B solubilized cell culture tested, $\gamma$ -irradiated

This formulation is a colloidal suspension of Amphotericin B, using deoxycholate as the solubilizing agent. The product is ~45% Amphotericin B, 35% sodium deoxycholate; the balance being sodium phosphate and sodium chloride.

#### Preparation instructions

If reconstituted at 25 mg/10 ml of sterile water, there is no need to filter sterilize. This will yield a slightly hazy yellow solution.

**A2411 Amphotericin B, cell culture tested**  
**A4888 Amphotericin B**

Both products contain at least 80% amphotericin B and up to 5% amphotericin A by HPLC.

**Preparation instructions**

Soluble in DMSO (30–40 mg/ml), yielding a hazy solution. For cell culture use, stock solutions in DMSO are prepared at 2.5 mg/ml and filter-sterilized. Then 1 ml of this solution is added to 1 liter of cell culture medium.

**References**

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