

## Product Information

### Bleomycin sulfate from *Streptomyces verticillus*

Catalog Number **B5507**  
Storage Temperature 2–8 °C

CAS RN 9041-93-4  
Synonyms: Bleo; Blenoxane; Blexane

#### Product Description

Bleomycin A<sub>2</sub>:  
Molecular formula: C<sub>55</sub>H<sub>84</sub>N<sub>17</sub>O<sub>21</sub>S<sub>3</sub>  
Formula weight: 1,397  
Bleomycin B<sub>2</sub>:  
Molecular formula: C<sub>55</sub>H<sub>81</sub>N<sub>19</sub>O<sub>21</sub>S<sub>2</sub>  
Formula weight: 1,407

E<sup>1%</sup>:<sup>1</sup>  
121–148 (244–248 nm, in water)  
102–121.5 (289–294 nm, in water)

Bleomycin sulfate is an antineoplastic antibiotic isolated from *Streptomyces verticillus*. It is a mixture of glycopeptide antibiotics containing primarily Bleomycin A<sub>2</sub> (~70%) and B<sub>2</sub> (~30%).<sup>2</sup> Bleomycins differ from one another in the terminal amine and show varying biological activity.<sup>1</sup>

Bleomycin sulfate binds to DNA, inhibits DNA synthesis, and causes single strand scission of DNA *in vivo* and *in vitro* at specific base sequences. Binding of oxygen and a metal ion, such as copper or iron, is required to cleave DNA.<sup>2,3</sup> The antibiotic also has the ability to cleave RNA to a lesser degree and in a more highly selective fashion.<sup>4</sup> It also acts as an inducer and regulator of apoptosis in a variety of cells and inhibits tumor angiogenesis.

Specific activity: 1.5–2.0 units/mg

Recommended concentration for use as a selection agent is 10–100 µg/mL.

#### 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

The product is soluble in water (20 mg/mL) yielding a clear, colorless solution.

A stock solution (2 units/mL) in 0.1 M potassium phosphate, pH 7.0, stored refrigerated should be used within 14 days.<sup>5</sup>

At a concentration of 3 units/mL in normal saline, a solution remains active for ~3 months when stored at 2–8 °C in a glass container and for 1 month when stored at 2–8 °C in a PVC container. If stored at –15 °C in either container, the solution remains active for 3 months. Solutions prepared in sterile water remain active for several days only.<sup>6</sup>

#### Storage/Stability

Store the product at 2–8 °C.

#### References

1. *Merck Index*, 11th ed., 201-202, #1324.
2. Kross, J., et al., *Biochemistry*, **21**, 4310-4318 (1982).
3. *Data for Biochemical Research*, 3rd ed., 262-263 (1987).
4. Carter, B.J., et al., *Proc. Natl. Acad. Sci. USA*, **87**, 9373-9377 (1990).
5. *US Pharmacopeia National Formulary*, **23**, 1692-1693 (1995).
6. Sigma data.
7. Steighner, R.J., and Povirk, L.F., *Proc. Natl. Acad. Sci. USA*, **87**, 8350-8354 (1990).
8. Haidle, C.W., and Lloyd, R.S., *Antibiotics*, **5(2)**, 124-154 (1979).

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