Polymyxin B Sulfate
PRODUCT DATA SHEET

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Product Name:	Polymyxin B Sulfate
Product Number:	P007
CAS Number:	1405-20-5
Molecular Formula:	Mixture
Molecular Weight:	1385.61
Form:	Powder
Appearance:	White powder
Solubility:	Water: Soluble
Source:	*Bacillus Polymyxa*
Melting Point:	217-220°C
Storage Conditions:	2-8°C
Description:	Polymyxin B sulfate is a polypeptide antibiotic and is composed of polymyxins B1, B2, and B3 with fractions B1 and B2 comprising the majority of the mixture. Polymyxin B sulfate is freely soluble in aqueous solution (25 mg/mL). Polymyxin B components are structurally identical with the exception of a variable fatty acid group on each fraction. Results from *in vitro* studies have shown marginal differences in MIC data when comparing the fractions. TOKU-E offers six forms of polymyxin B sulfate: polymyxin B sulfate (P007), polymyxin B1 sulfate, EvoPure® (P037), polymyxin B1-I sulfate, EvoPure® (P038), polymyxin B2 sulfate, EvoPure® (P039), polymyxin B3 sulfate, EvoPure® (P040), and polymyxin B6 sulfate, EvoPure®. EvoPure® products are purified single antibiotic fractions, most >99% pure. High purity EvoPure® polymyxin products can be used to analyze the specifc effects of individual polymyxin B fractions.
Mechanism of Action:	Polymyxin B targets and alters the permeability of lipopolysaccharide (LPS) found in Gram negative bacteria leading to lysing of the cell. Polymyxin B only needs to interact with LPS, it is not required to enter the cell.
Spectrum:	Polymyxin B sulfate targets the outer membrane of gram negative bacteria especially *Pseudomonas aeruginosa.*

Microbiology Applications

Polymyxin B sulfate is commonly used in clinical *in vitro*microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against gram negative microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options for infected patients. Representative MIC values include:

- *Pseudomonas aeruginosa* 0.25 µg/mL – 1 µg/mL
- For a complete list of polymyxin B sulfate MIC values, click here.

Media Supplements

Polymyxin B is routinely used as a selection agent in several types of isolation media:

Perfringens agar - Supplement A and Supplement B

Perfringens Agar - SFP and TSC selective supplements

Columbia Blood Agar - *Campylobacter* selective supplement (Skirrow)

Columbia Blood Agar - *Campylobacter* selective supplement (Blaser-Wang)

Brucella medium - *Brucella* selective supplement

MYP Agar - Polymyxin B *Bacillus* selection supplement

Legionella CYE Agar - *Legionella* BMPA-α Selective Supplement

Legionella CYE Agar - *Legionella* MWY Selective Supplement

Campylobacter Agar - *Campylobacter* Selective Supplement (Preston)

PALCAM Agar - PALCAM Selective Supplement

Legionella CYE Agar - *Legionella* GVPC Selective Supplement

m-CP Medium - Membrane *C. perfringens* Selective Supplement

Burkholderia cepacia Agar Base - *Burkholderia cepacia* Selective Supplement

ORSAB - ORSAB Selective Supplement

Campylobacter Agar Base - Modified Preston *Campylobacter* Selective Supplement

Brucella Medium Base - Modified *Brucella* Selective Supplement

Legionella CYE Agar - *Legionella* GVPN Selective Supplement

Chromogenic*Listeria* Agar - Chromogenic *Listeria* Selective Supplement

Chromogenic*Bacillus cereus* Agar - Chromogenic *Bacillus cereus* Selective Supplement

Chromogenic*Listeria* Agar - Chromogenic *Listeria* Differential Supplement

Plant Biology Applications

Polymyxin B sulfate was successfully tested to counteract phytopathogenic gram-negative bacterial growth including different strains of *Pseudomonas viridiflava* and *Erwinia carotovora*. Polymixin B sulfate was shown to reduce bacterial growth of different strains of *Pseudomonas viridiflava* at low concentrations, (0.08 µg/ml) and *Erwinia carotovora* growth at slightly higher concentrations (0.25 µg/ml) (Selim et al. 2005). Polymyxin B has been shown to elict alkaloid accumulation in *E. californica*. Treatment at 0.04 mg/ml for 4 hours showed a 5.5 times increase in Jasmonate levels over the control (water).

References:

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