Polymyxin B sulfate and trimethoprim ophthalmic solution, USP is a sterile antimicrobial solution for topical ophthalmic use.

**Chemical Name:** Polymyxin B sulfate, 2,4-Diamino-5-(1,5,5-trimethyl-2-sulfonyloxy)pyridazine sulfate (2:1), in a white, sterile, crystalline powder with a molecular weight of 717.74 and the following structural formula:

\[
\text{Polymyxin B} = \text{Polymyxin B1 + Polymyxin B2}
\]

**Actives:**
- Polymyxin B sulfate 10,000 units/mL
- Trimethoprim sulfate equivalent to 1 mg/mL

**Preservatives:**
- Sodium hydroxide for 
- pH adjustment

**Concentration:**
- pH of 4.0 to 6.2

**Dosage:**
- Polymyxin B sulfate is the sulfate salt of polymyxin B1 and B2 which are produced by the growth of Bacillus polymyxa (Pharmacia & Upjohn, Piscataway, N.J.). It has a potency of not less than 6,000 units per mL, calculated as an arbitrary basis. The structural formula are:

\[
\text{Polymyxin B} = \text{Polymyxin B1 + Polymyxin B2}
\]

**Pharmacology:**

Polymyxin B is a cyclic lipopeptide antibiotic, bactericidal for a variety of gram-negative species, especially Pseudomonas aeruginosa. It increases the permeability of the bacterial cell membrane by interacting with the phospholipid components of the membranes.

Bacterial samples were obtained from 17 healthy volunteers of 25 males, 1 male and 1 female following instillation in the eye of 2 drops of ophthalmic solution containing 1 mg trimethoprim and 10,000 units polymyxin B per mL. Peak serum concentrations were approximately 0.03 mcg/mL trimethoprim and 0.12 mcg/mL polymyxin B.

**Indications and Usage:**

Polymyxin B sulfate and trimethoprim ophthalmic solution, USP are active against the following bacterial pathogens that are capable of causing external infections of the eye:
- **Staphylococcus aureus**, **Staphylococcus epidermidis**, **Streptococcus pyogenes**, **Escherichia coli**, **Klebsiella pneumoniae**, **Proteus vulgaris**, **Proteus mirabilis**, **Pseudomonas aeruginosa**, **Klebsiella pneumoniae**, **Citrobacter freundii**, **Enterobacter aerogenes**, and **Salmonella enterica serovars**.

**Contraindications:**

Polymyxin B sulfate and trimethoprim ophthalmic solution, USP are contraindicated in patients with known hypersensitivity to any of the components.

**Warnings:**

**NOT FOR INJECTION INTO THE EYE:** A sensitivity reaction to polymyxin B sulfate and trimethoprim ophthalmic solution, USP occurs discontinuous use. Polymyxin B sulfate and trimethoprim ophthalmic solution, USP is not indicated for the prophylaxis or treatment of opthalmic infections.

**Precautions:**

As with other antimicrobial preparations, prolonged use may result in overgrowth of non-susceptible organisms, including fungi. If superinfection occurs, appropriate therapy should be initiated.

**Information for Patients:**

Avoid contaminating the applicator tip with material from the eye, fingers, or other source. This precaution is necessary if the identity of the drops is to be maintained.

If redness, irritation, intolerance or pain persists or increases, discontinuation of use is recommended and contact your physician.

Patients should be advised not to wear contact lenses if they have signs and symptoms of ocular bacterial infections.

**Carcinogenesis, Mutagenesis, Impairment of Fertility:**

Carcinogenicity: Long-term studies in animals to evaluate carcinogenic potential have not been conducted with polymyxin B sulfate or trimethoprim.

Mutagenesis: Trimethoprim has been demonstrated to be non-mutagenic in the Ames assay to induce frameshift mutations in bacteria selected for resistance to trimethoprim.

Impairment of Fertility: Polymyxin B sulfate has been reported to impair the motility of sperm, but its effects on fertility and female fertility are unknown.

No adverse effects on fertility or general reproductive performance were observed in rats given trimethoprim and estradiol by gavage at a dose of 75 mg/kg and 75 mg/kg/day, respectively, for 30 days.

**Storage:**

Store at 15°-25°C (59°-77°F) and protect from light.