



# Kanamycin Acid Sulfate, for BioProcessing

## PRODUCT DATA SHEET

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**Product Name:** Kanamycin Acid Sulfate, for BioProcessing

**Product Number:** K012

**CAS Number:** 64013-70-3

**Molecular Formula:**  $C_{18}H_{36}N_4O_{11} \cdot 2 H_2SO_4$

**Molecular Weight:** 680.65

**Storage Conditions:** 2-8 °C

**Description:** Kanamycin Acid Sulfate, for BioProcessing is an aminoglycoside antibiotic often used to select for bacteria which have been successfully transformed with a plasmid conferring kanamycin resistance. Kanamycin Acid Sulfate, for BioProcessing is very soluble in aqueous solution at 92.3 mg/mL.

Standard grade kanamycin is composed of a mixture of three different fractions: Kanamycin A, B, and C. TOKU-E offers five forms of kanamycin:

- Kanamycin Sulfate, for BioProcessing
- Kanamycin sulfate, USP
- Kanamycin Acid Sulfate, EW,
- Kanamycin A sulfate, EvoPure®
- Kanamycin B sulfate, EvoPure®

EvoPure® products are purified single antibiotic fractions, most >99% pure.

High purity EvoPure® kanamycin products can be used to analyze the specific effects of individual kanamycin fractions.

**Mechanism of Action:** Aminoglycosides target the 30S ribosomal subunit resulting in an inability to read mRNA ultimately producing a faulty or nonexistent protein.

**Spectrum:** Kanamycin is a broad spectrum antibiotic; however, it is mostly used against aerobic gram negative bacteria.

**Microbiology Applications** Kanamycin acid sulfate is commonly used as a selective agent to select for resistant mammalian, fungal, or bacterial cells that contain the kanMX marker or other kanamycin resistance genes. Kanamycin acid sulfate is typically used at a concentration of 50 µg/mL.

**Pryjma, et al.** from the University of British Columbia used TOKU-E kanamycin sulfate to select for transformed kanamycin resistant *Campylobacter jejuni* cells: "FdhTU-Modulated Formate Dehydrogenase Expression and Electron Donor Availability Enhance Recovery of *Campylobacter jejuni* following Host Cell Infection"

## Media Supplements

Kanamycin can be used as a selective agent in several types of isolation media:

Kanamycin Aesculin Azide Agar - *Enterococci* isolation in food

Perfringens Agar - SFP and TSC selective supplements for the isolation of *Clostridium perfringens*

## Plant Biology Applications

Kanamycin is often used in the *Agrobacterium* mediated transformation while using the npt II gene as selection marker. Kaur and Bansal (2010) used kanamycin in combination with cefotaxime to control bacterial growth while transforming tomatoes.

## References:

Davis, Bernard D. "Mechanism of Bactericidal Action of Aminoglycosides." *Microbiological Reviews* 51.3 (1987): 341-50.

United States. National Institutes of Health. *Kanamycin Compound Summary*. *PubChem*. Web. 21 Aug. 2012.