



# Kanamycin Acid Sulfate, EW, CulturePure® PRODUCT DATA SHEET

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| <b>Product Name:</b>        | Kanamycin Acid Sulfate, EW, CulturePure®   |
| <b>Product Number:</b>      | K029   |
| <b>CAS Number:</b>          | 64013-70-3   |
| <b>Molecular Formula:</b>   | $C_{18}H_{36}N_4O_{11} \cdot 2 H_2SO_4$  |
| <b>Molecular Weight:</b>    | 680.65   |
| <b>Solubility:</b>          | Soluble in water.  |
| <b>Source:</b>              | Semi-synthetic. Originally derived from <i>Streptomyces kanamyceticus</i>  |
| <b>Storage Conditions:</b>  | 2-8 °C   |
| <b>Description:</b>         | <p>Kanamycin Acid Sulfate, EW, CulturePure® is an aminoglycoside antibiotic often used to select for bacteria which have been successfully transformed with a plasmid conferring resistance to Kanamycin.</p> <p>Kanamycin Acid Sulfate, EW, CulturePure® is soluble in water.</p> <p>CulturePure® products highly purified to remove impurities which could be toxic to mammalian and plant cell cultures, for optimized performance during gene selection.</p> <p>We also offer:</p> <ul style="list-style-type: none"><li>• Kanamycin Acid sulfate, BP (<a href="#">K004</a>)</li><li>• Kanamycin Acid Sulfate, EP (<a href="#">K029</a>)</li></ul> |
| <b>Mechanism of Action:</b> | Aminoglycosides target the 30S ribosomal subunit, lodging between the 16S rRNA and S12 protein. This interferes with the translational initiation complex causing misreading of the mRNA, and production of a faulty or nonexistent protein.   |
| <b>Spectrum:</b>            | 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

### 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*

Kanamycin is commonly used in clinical *in vitro* microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against Gram-positive and Gram-negative microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options. Representative MIC values include:

- X µg/mL
- x µg/mL
- For a representative list of Kanamycin MIC values, click here.

Kanamycin is one of the most widely used antibiotics yet its biosynthetic pathway remains unclear. Authors reconstructed the entire biosynthetic pathway through the expression of putative biosynthetic genes from *S. kanamyceticus* in the non-aminoglycoside-producing *Streptomyces venezuelae*, demonstrating the potential of pathway engineering to direct *in vivo* production of more robust aminoglycosides (Park et al, 2011).

### Plant Biology Applications

Kanamycin is often used in the *Agrobacterium* mediated transformation while using the npt II gene as selection marker.

### References:

#### TOKU-E Product Reference:

**Pryjma, et al.** from the University of British Columbia used Kanamycin Sulfate from TOKU-E 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"

#### General References:

Aragão FJL and Brasileiro ACM (2009) Positive, negative and marker-free strategies for transgenic plant selection. Braz. J. Plant Physiol. 14(1):1-10

Davis, BD (1987) Mechanism of bactericidal action of aminoglycosides. Microbiol. Rev. 51(3):341-350

Park JW et al (2011) Discovery of parallel pathways of Kanamycin biosynthesis allows antibiotic manipulation. Nat. Chem. Biol. 7(11):843-852 PMID 21983602