

KASUGAMYCIN 4 SL

Bactericide/fungicide

Reg. No.:
TRB. No.:

Net content: 20L

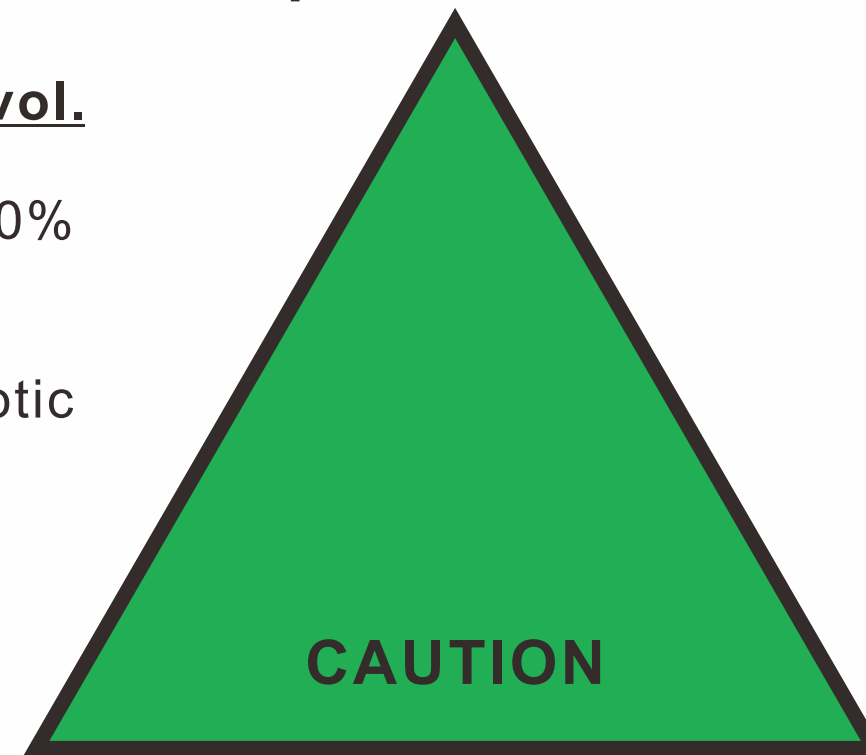
A soluble concentrate bactericide/fungicide for the control of a variety of bacterial diseases on crops as indicated.

<u>Composition</u>	<u>mass/vol.</u>
Kasugamycin..... (as hydrochloride hydrate)	4.0%

Chemical groups: aminoglycosidic antibiotic

Supplied by Maguires-

A member of
CropLife
ZIMBABWE 



HARMFUL IF SWALLOWED

KEEP OUT OF REACH OF CHILDREN

TO CAUSE A HAZARD IN THE USE, STORAGE OR DISPOSAL OF THIS SUBSTANCE IS AN OFFENCE.

Date of Manufacture: July 2020

Batch No.: 20200727

Manufactured by:
NOVAAGRO (HK) LTD
6TH FLOOR, WYNDHAM
PLACE,
44 WYNDHAM STREET,
CENTRAL HONG KONG

Registration held by:
MAGCHEM (PVT) LIMITED
2274 TILBURY ROAD,
WORKINGTON, HARARE,
ZIMBABWE

SAFETY PRECAUTIONS

- Keep out of reach of children
- May cause sensitization.
- Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.
- Wear a long-sleeved shirt and long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. It is important to wear gloves for the mixing/loading operation and when making sprayer and nozzle repairs and adjustments.
- Do not handle this product with bare hands. Follow the manufacturer's instructions for cleaning/maintaining personal protective equipment. If no such instructions for washables are available, use detergent and hot water. Keep and wash personal protective equipment separately from other laundry.
- Change contaminated clothing daily and wash before use. Remove clothing immediately if pesticide gets inside. Shower immediately and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves and leave on before removing any protective clothing. As soon as possible shower and change into clean clothing.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
- **RESTRICTED ENTRY INTERVAL:** DO NOT enter or allow worker entry into treated areas (including greenhouses where crops have been treated) during the restricted entry interval (REI) of 12 hours following application.
- **TRIPLE RINSE:** Empty containers in the following manner: Invert over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a third of that of the container. Add the rinsing to the contents of the spray tank before destroying the container in the prescribed manner.
- Destroy empty container by perforation and flattening.

FIRST AID

- **If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, continue rinsing. Call a poison control centre or doctor for treatment advice.
- **If on skin or clothing:** Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.
- **If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.
- **If swallowed:** Call a poison control centre or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.
- **ADVICE TO PHYSICIAN:** There is no specific antidote. Treat symptomatically. Probable mucosal damage may contraindicate gastric lavage. Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that **Kasugamycin 4SL Bactericide** contains a Group 24 bactericide. Any microbial population may contain individuals naturally resistant to **Kasugamycin 4SL Bactericide** and other Group 24 Bactericides. A gradual or total loss of pest control may occur over time if these bactericides are used repeatedly in the same fields.

Other resistance mechanisms that are not linked to the site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed. To reduce the likelihood of bacteria developing resistance to kasugamycin, sound resistance management practices should be employed when using this product. Such practices include limiting the number of consecutive applications of **Kasugamycin 4SL Bactericide**, and alternating **Kasugamycin 4SL Bactericide** applications with other bactericides that have

a different mode of action. See crop specific use directions above.

To delay resistance:

- Where possible, rotate the use of Kasugamycin 4SL Bactericide with products from different groups that control the same pathogens.
- Do not make more than two consecutive applications of Kasugamycin 4SL Bactericide before alternating to a registered bactericide with a different mode of action.
- Use tank-mixtures with bactericides from a different group when such use is permitted.
- Kasugamycin 4SL Bactericide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices. Where possible, make use of predictive disease models to effectively time fungicide/bactericide applications.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another bactericide with a different target site of action, if available.

DIRECTIONS FOR USE: Use only as directed

- This product contains the bactericide kasugamycin. To reduce the development of resistant plant pathogenic bacteria, this product should be used only when required.
- DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- Thorough coverage is necessary to provide good disease control. Applications using sufficient water volume to provide thorough and uniform coverage generally provide the most effective disease control.
- Check the sprayer frequently to ensure proper calibration and continued uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

MIXING PROCEDURES

Prepare no more spray mixture than is needed for the immediate operation. Thoroughly clean spray equipment before using this product. Agitation is necessary for proper dispersal of the product. Maintain maximum agitation throughout the spraying operation. Do not let the spray mixture stand overnight in the spray tank. Flush the spray equipment thoroughly following each use and apply the rinsate to a previously treated area.

1. VEGETABLES (GREENHOUSE OR FIELD):

Eggplant, Groundcherry, Pepino, Pepper (includes bell pepper, chili pepper, cooking pepper, pimento, sweet pepper), Tomatillo, Tomato

Crop/disease	Application Rate	Recommendations
TOMATOES AND OTHER FRUITING VEGETABLES:		
Bacterial Spot (<i>Xanthomonas campestris</i> pv. <i>vesicatoria</i>)	100 to 150 ml/100L water. Add a wetter to mixture.	<u>Seedbeds:</u> Spray seedbeds weekly prior to any disease symptoms.
Bacterial Stem Canker (<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i>)	150 ml/100L water. Alternate with a Copper Hydroxide spray.	<u>Lands:</u> Start spraying shortly after transplanting and spray every 7 to 10 days. Use 500lts of mixture per hectare.
POTATOES:		
Bacterial Soft Rot (<i>Erwinia</i> spp.)	1.2 L/ha Add wetter to mixture	Apply first application before ridging up to 3 weeks after emergence. Apply a further 2 sprays 3 weeks apart. Apply as full cover spray with 500-1000 L water per hectare.

RESTRICTIONS AND OTHER INFORMATION

- Apply Kasugamycin 4SL Bactericide at a 100 ppm concentration.
- Do not apply more than 0.6L/ha or 240L/ha carrier volume per application.
- Spray volume must be sufficient to provide good coverage of treated foliage.
- Follow the mixing directions provided in the table under "Mixing Procedures" to create the desired volume of spray solution.
- Do not apply more than 1.8L Kasugamycin 4SL Bactericide per hectare per year.

- Do not make more than 3 applications of Kasugamycin 4SL Bactericide per season.
- A minimum interval of 7 days between applications is required.
- Do not make more than two consecutive applications of Kasugamycin 4SL Bactericide. If additional applications are needed, rotate with another product with a different mode of action that is registered for this use.
- For resistance management purposes, do not apply on greenhouse vegetable transplants.
- Do not apply Kasugamycin 4SL Bactericide within 1 day of harvest

2. POME FRUIT - (BEARING AND NONBEARING):

Apple, Azarole, Crabapple, Mayhaw Medlar, Pear, Asian Pear, Quince, Chinese

Quince, Japanese Quince, Tejocote, Cultivars, varieties and/or hybrids of these commodities

Disease Control	Application Rate	Application Timing and Resistance Management
Fire Blight (<i>Erwinia amylovora</i>)	100 ppm (e.g., 2.5L/ha in 1000L/ha of water)	<ul style="list-style-type: none"> • Spray volume must be sufficient to provide good coverage of treated foliage. • Reduced spray volumes may be utilized for small trees where complete coverage can be obtained with less water per hectare. • Begin applications at 20 - 30% bloom or when conditions favour disease development. • Repeat applications at 7-day intervals or when conditions favour disease development.

RESTRICTIONS AND OTHER INFORMATION

- Apply Kasugamycin 4SSL Bactericide at a 100 ppm concentration.
- Do not apply more than 5L/ha or 1000 L/ha carrier volume per application.
- Spray volume must be sufficient to provide good coverage of treated foliage.
- Follow the mixing directions provided in the table under "Mixing Procedures" to create the desired volume of spray solution.
- Do not apply more than 10.0 L of Kasugamycin 4SL Bactericide per hectare per year.
- Do not make more than 4 applications of Kasugamycin 4SL Bactericide per season.
- Do not make more than two consecutive applications of Kasugamycin 4SL Bactericide. If additional applications are needed, rotate with another product with a different mode of action that is registered for this use.
- Do not use alternate tree-row application method.
- Do not apply after petal fall.
- Do not apply Kasugamycin 4SL Bactericide within 90 days of harvest.

3. WALNUT

Disease Suppression	Application Rate	Application Timing and Resistance Management
Walnut Blight (<i>Xanthomonas campestris</i> pv. <i>juglandis</i>)	100 ppm (e.g., 2.5L/ha in 1000L/ha of water)	<ul style="list-style-type: none"> • Spray volume must be sufficient to provide good coverage of treated foliage. • Reduced spray volumes may be utilized for small trees where complete coverage can be obtained with less water per hectare. • Begin applications when conditions favour disease development.

RESTRICTIONS AND OTHER INFORMATION:

- Apply Kasugamycin 4SL Bactericide at a 100 ppm concentration.
- Do not apply more than 2.5L/ha or 1000L/ha carrier volume per application.
- Spray volume must be sufficient to provide good coverage of treated foliage.
- Follow the mixing directions provided in the table under "Mixing Procedures" to create the desired volume of spray solution.
- Do not apply more than 10.0 Litres of Kasugamycin 4SL Bactericide per hectare per year.
- Do not make more than 4 applications of Kasugamycin 4SL Bactericide per season.
- A minimum interval of 14 days between applications is required.
- Do not make more than two consecutive applications of Kasugamycin 4SL Bactericide. If additional applications are needed, rotate with another product with a different mode of action that is registered for this use.
- Do not use alternate tree-row application method
- Do not apply Kasugamycin 4SL Bactericide within 100 days of harvest.



1. Triple rinse clean container after use.
2. Puncture holes in bottom.
3. Return to Maguires recycling facility/or Return to your nearest recycling facility.

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1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY

Product name KASUGAMYCIN 4SL
Common name Kasugamycin
Chemical name 2-amino-2-[(2R,3S,5S,6R)-5-amino-2-methyl-6-[(2S,3S,5S,6R)-2,3,4,5,6-pentahydroxycyclohexyl]oxyoxan-3-yl]iminoacetic acid

Supplier **NOVA AGRO (HK) LIMITED**
(Reg. No. 1023146)
6th Floor Wyndham Place
44 Wyndham Street
CENTRAL HONG KONG.

Emergency Tel/Fax +27(0) 83 676 1998

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common name: Kasugamycin
Chemical name: 2-amino-2-[(2R,3S,5S,6R)-5-amino-2-methyl-6-[(2S,3S,5S,6R)-2,3,4,5,6-pentahydroxycyclohexyl]oxyoxan-3-yl]iminoacetic acid (IUPAC)
CAS number: 6980-18-3
Chemical class: aminoglycosidic antibiotic
Chemical formula: C₁₄H₂₅N₃O₉
Use: A soluble concentrate bactericide for the control of a variety of bacterial diseases on crops as indicated.
Formulation: Soluble concentrate (SL) 40g/l.
Hazardous ingredients of toxicological concern:
Ingredient: Concern: present: Kasugamycin 40g/l
Harmful if inhaled.

3. HAZARDS IDENTIFICATION**Acute Health Hazards**

Eye: May cause slight irritation. The degree of injury will depend on the amount and duration of the contact and the speed and thoroughness of the first aid treatment. Adverse effects resulting from an exposure may include temporary redness or swelling.

Skin: A single, prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

Ingestion: Incidental ingestion of small amounts is not likely to cause harm.

Inhalation: Product is a non-volatile liquid unlikely to cause harm by inhalation.

Chronic Health Hazards (Including Cancer): Kasugamycin Technical is not carcinogenic.

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Teratology (Birth Defects) Information: Kasugamycin Technical is not teratogenic.

Reproduction Information: No evidence of reproductive toxicity.

Mutagenicity: Kasugamycin Technical is not mutagenic.

4. FIRST AID MEASURES

- **If in eyes:**

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, continue rinsing. Call a poison control centre or doctor for treatment advice.

- **If on skin or clothing:**

Take off contaminated clothing. Rinse skin with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

- **If inhaled:**

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

- **If swallowed:**

Call a poison control centre or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flammability: Not available.

Flash Point: Not available.

Combustion Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Hydrogen chloride gas.

Extinguishing Media: Carbon dioxide, dry chemical powder, polymer foam, water spray.

Special Fire fighting Procedures: Use self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual Fire/Explosion Hazards: None known.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions: Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities in accordance with local regulations.

Occupational spill: Remove all sources of ignition. For small liquid spills, soak up with sand or other suitable non-combustible absorbent material, and place into containers for subsequent disposal. For large spills, contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away.

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7. HANDLING AND STORAGE

Handling: Harmful by inhalation or if swallowed. Avoid contact with eyes, prolonged contact with skin, and inhalation of fumes. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the herbicide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage: Store in its original labelled container in shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Not to be stored next to foodstuffs and water supplies. Keep out of reach of children and animals. Local regulations should be complied with.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection: Wear safety glasses

Respiratory/Ventilation Requirements: Handle in a totally enclosed system or use with local exhaust ventilation. Wear respirator in confined areas or where potential for inhalation of material.

Skin Protection: Wear rubber gloves, wear impervious clothing and boots.

Emergency eyewash: Where there is any possibility that an employee's eyes may be exposed to this substance; the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Dark blue-green

Odour: NDA

Physical State: Liquid

pH: 2.5~3.0

Specific Gravity: 1.02~1.04 @ 20°C

10. STABILITY AND REACTIVITY

Stability: This material is stable under room temperature and normal conditions.

Conditions to Avoid: Excessive exposure to heat or sunlight.

Incompatibles: Strong oxidizers, Strong alkalis.

Flammable Point: Not flammable

Auto Ignition: NA

Incompatibility With Other Materials: Strong alkaline pesticides

11. TOXICOLOGICAL INFORMATION

Acute:

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Eye Irritation: (Rabbit) Slightly irritating

Skin Irritation: (Rabbit) Non-irritating

Dermal Toxicity: (Rat) LD₅₀ > 2,000 mg/kg

Oral Toxicity: LD₅₀ > 5,000 mg/kg (rat)
LD₅₀ > 5,000 mg/kg (mouse)

Subchronic Toxicity: For Kasugamycin Technical:

90 day oral NOEL in mouse = 1,000 ppm

90 day oral NOEL in rat = 300 ppm

90 day oral NOEL in dog = 300 ppm

Chronic/Carcinogenicity: For Kasugamycin Technical:

Not a carcinogen

Mouse NOEL = 300 ppm

Rat NOEL = 300 ppm

Mutagenicity: Structured chromosome aberration: Negative (active ingredient)

Ames Test: Negative (active ingredient)

Unscheduled DNA synthesis: Negative (active ingredient)

V/79HGPRT Forward mutation assay: Negative (active ingredient)

Micronucleus test: Negative (active ingredient)

Teratology/Developmental Toxicity: Not teratogenic in rabbits or rats.

Reproductive Toxicity: No evidence of reproductive toxicity.

12. ECOLOGICAL INFORMATION

Bird Toxicity:

Bobwhite quail oral LD₅₀ >4000 mg/kg

Fish Toxicity:

Quail LD₅₀ > 4,000 ppm

Rainbow Trout 96-hr LC₅₀ > 1,000 ppm

Bluegill 96-hr LC₅₀ > 1,000 ppm

Guppy 96-hr LC₅₀ > 1,000 ppm

Other Toxicity:

Daphnia magna 3-hr LC₅₀ > 40 ppm

Alga EC₅₀ = 11 mg/L

Alga NOEC = 72 mg/L

Honeybee contact LD₅₀ > 40/mg/bee

13. DISPOSAL CONSIDERATIONS

Preferred method of disposal is by incineration. End users must dispose of any unused product as per the label recommendations and in accordance with all applicable laws and regulations. Check governmental regulations and local authorities for approved disposal of this material

14. TRANSPORT INFORMATION

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D.O.T. Shipping Name: (Not regulated)

Technical Shipping Name: Kasugamycin hydrochloride hydrate (liquid)

Packing Group: NA

D.O.T. Hazard Class: NA

U.N/N.A. Number: NA

Product RQ (lbs): NA

D.O.T. Label: NA

D.O.T. Placard: NA

Marine Pollutant: NA

15. REGULATORY INFORMATION

International Regulations:

EEC Classification: NA

Risk Phrases: NA

Safety Phrases: NA

16. OTHER INFORMATION

PACKING AND LABELLING

Packed in fluorinated 1, 5, 10, 20 litre plastic containers and labelled according to South African regulations and guidelines.

Disclaimer: The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed.

All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.
