

THE ORIGINAL

POTASSIUM THIOSULFATE FERTILIZER

0-0-25-17S

GUARANTEED ANALYSIS

Soluble Potash (K_2O)	25%
Total Sulfur (S)	17%
17% Combined Sulfur derived from potassium thiosulfate.	
Density: pounds per gallon @ 60°F	12.2
Volume: gallons per ton	164.0

GENERAL INFORMATION

KTS® is a neutral to basic, clear liquid solution, containing 25% potash and 17% sulfur. Each gallon of KTS contains 3 pounds of potash (K_2O) and 2.1 pounds of sulfur (S). KTS can be applied by drip, sprinkler or flood irrigation. It may be blended with other fertilizers or applied as a foliar treatment on selected crops. When used as a foliar fertilizer, KTS should first be diluted with water before applying. (See section: **Blending with KTS**) KTS may be applied to a wide variety of ornamental, turf, green-house and other agricultural crops. Potassium requirements for most crops increase dramatically during periods of rapid growth and fruit development.

The purpose of this guide is to provide information about this product and to make suggestions regarding its use. This guide does not make recommendations about the amount of potassium and sulfur needed for optimum crop production. The rate of each application of KTS should be made based on a soil test, soil release rate test and/or plant tissue analysis for potassium and sulfur, and on the recommendations of a Certified Crop Advisor, Pest Control Advisor or authorized KTS distributor.



Soil Application

STARTER FERTILIZER

Be sure to follow established recommendations for crop, soil type and moisture conditions in your area. Excessive amounts of fertilizer can damage seed germination. Do not apply KTS directly on the seed of legumes or other small seeded crops. Do not exceed established recommendations for N + P + K for local soil type and conditions.

Starter recommendations are for a 2"x 2" (2 inches to the side and 2 inches below the seed) or a 2"x 0" (2 inches to the side of the seed on the soil surface).

Corn: 1 to 4 gallons of KTS per acre by itself or with other starter fertilizers.

Wheat: 1 to 4 gallons per acre by itself or with other starter fertilizers.

POP-UP FERTILIZER (IN-FURROW)

Corn: 2 to 4 quarts of KTS per acre by itself or with other liquid pop-up fertilizers, based on 30" rows.

Wheat: 2 to 4 quarts of KTS per acre by itself or with other liquid fertilizers, based on 15" rows.

SIDEDRESS APPLICATION

KTS can be soil injected or deep banded by itself or with nitrogen and phosphorus to supply crops with N, P, K and S requirements for the season. Soil injection can improve nutrient use efficiency by reducing nutrient loss due to erosion and soil fixation. KTS can also be broadcast sprayed on soil surface or surface banded midway between rows to help meet potassium and sulfur requirements. Follow soil and tissue analysis recommendations to apply the proper amount of potassium and sulfur.

Corn, Cotton, Soybeans: 3 to 15 gallons per acre soil injection on medium to fine textured soils and 3 to 10 gallons per acre on sandy soils; *avoid pruning roots*. Apply as needed to meet crop requirements. For surface banding or dribble application, 3 to 10 gallons per acre on medium to fine textured soils and 3 to 5 gallons per acre on sandy soils. *Do not allow spray or spray drift to contact leaves, stalks or any part of the crop due to potential phytotoxicity.*

Vegetables: 3 to 12 gallons per acre soil injection on medium to fine textured soils and 3 to 8 gallons per acre on sandy soils; *avoid pruning roots*. Apply as needed

to meet crop requirements. For surface banding or dribble application, 3 to 12 gallons per acre on medium to fine textured soils and 3 to 8 gallons per acre on sandy soils. *Do not allow spray or spray drift to contact leaves, stalks or any part of the crop due to potential phytotoxicity.*

Rates will vary depending on crop requirement and soil analysis.

Foliar Fertilizer Application

Suggested application rates for certain crops are listed. For crops not listed in this document, contact your local fluid fertilizer dealer or your Tessengerlo Kerley representative. KTS may be applied by ground or air. It is recommended that the addition of 2 to 4 quarts of TRISERT-NB® (26-0-0), TRISERT-CB® (26-0-0-0.5B) or N-SURE® (28-0-0) be applied with the KTS. TRISERT-CB, TRISERT-NB and N-SURE are Tessengerlo Kerley's triazone based slow-release liquid nitrogen fertilizers that improve the foliar absorption of KTS.

Do not apply KTS to the foliage of any crop when temperatures are, or will be, above 90° F. Apply early in the morning or late evening.

Cotton: 4 to 5 quarts per acre beginning from the 1st through to the 4th week of bloom along with 2 quarts/acre of N-Sure.

Potatoes: 2 to 4 quarts per acre beginning at tuber initiation; apply second treatment at golf ball size and third treatment at tuber bulking.

Small Grains: 2 to 8 quarts per acre at tillering to early boot stage.

Canola: 2 to 8 quarts per acre at bolting.

Alfalfa: 4 to 8 quarts per acre at crown green up or on regrowth just after cutting.

Rice: 4 to 6 quarts per acre at initiation.

Peas and Lentils: 2 to 4 quarts per acre during late bud to 10% bloom.

Tomatoes: Begin at fruit set; apply 2 to 4 quarts per acre every 7 to 14 days.

Soybeans: 4 to 6 quarts per acre at R1 to R2 stage.

Sugar Beets: 1 to 2 gallons per acre at bloom.

Wheat: 2 to 8 quarts per acre at tillering to early boot stage.

ENHANCE CROP QUALITY

WITH IMMEDIATELY AVAILABLE POTASSIUM AND SULFUR

Apples, Apricots, Almonds, Citrus, Pecans: KTS at 2 to 6 quarts per acre in a minimum of 100 gallons of water spray solution. Begin application at first full leaf and apply as needed during the growing season. For concentrated sprays of less than 100 gallons per acre, reduce the rate of KTS to stay within the recommended solution ratio (i.e., 50 gallons of water per acre equals 1 to 3 quarts of KTS per acre).

Viniferous Vines: Begin 2 weeks after bloom: 2 to 4 quarts per acre in a minimum of 50 gallons of water. Repeat treatment in 7 to 10 days. *Do not apply foliar to Concord grapes.*

Recommendations listed above are for KTS and TRISERT application only. The addition of other products to the spray mix is the responsibility of the applicator and not TKI, and should be tested on the crop in a small area before applying to large areas due to possible phytotoxicity. Avoid using silicon adjuvants when applying KTS in a foliar spray.

Fertigation

Fertigation is the practice of injecting soluble fertilizers through irrigation systems using water as a nutrient delivery system to the crop.

Before injecting KTS into an irrigation system, make sure that the irrigation system is in good condition and provides uniform distribution to the field. Application of nutrients like KTS should be made in the middle third or second half of an irrigation set. Several hours of irrigation should take place before and after the injection of KTS.

The injection of KTS should be done slowly, and should last at least as long as it takes irrigation water to travel from the point of injection to the last emitter or sprinkler in the field. The injection of KTS should be done with a fertilizer injection pump and should be done over a 1 to 4 hour time period. Rapid injection of KTS may lead to uneven distribution of the KTS and may cause crop damage. For additional information about injection of nutrients into an irrigation system, consult with your local agronomist and review University of California publication 21620 "Fertigation with Micro-irrigation," or University of Florida Bulletin #250 "Injection of Chemicals Into Irrigation Systems: Rates, Volumes, and Injection Periods."

All rates listed are for established crops on medium to fine textured soils (suggested rates are for trees and vines at least 4 years old or older). Avoid application to new plantings until crop is well established. For sandy soils, suggested rates should be reduced by 50%. Do not apply KTS when crops are experiencing heat or moisture stress.

FLOOD AND FURROW IRRIGATION

Trees and Vines: 5 to 12 gallons per acre per application; apply once every 2 to 3 weeks starting at full leaf.

Vegetable and Row Crops: 5 to 10 gallons per acre per application; apply once every 2 to 3 weeks.

SPRINKLER/CENTER PIVOT IRRIGATION

Trees (Under): 5 to 8 gallons per acre per application every 10 to 14 days based on crop requirements.

Trees (Overhead): 3 to 5 gallons per acre every 10 to 14 days based on crop requirements.

Vines: 3 to 5 gallons per acre every 10 to 14 days based on crop requirements.

Vegetable and Row Crops: Beginning at the 3rd - 4th leaf stage, apply 1 to 6 gallons per acre every 7 to 10 days based on crop requirements.

After injection, allow enough irrigation time (at least 60 minutes) to rinse the plants of any residual fertilizer.

DRIP IRRIGATION

Young Trees: 3 to 5 gallons per acre during the season, starting at full leaf; apply once every 3 to 4 weeks.

Mature Trees: 5 to 10 gallons per acre, starting at full leaf; apply once every 3 to 4 weeks.

Grapes: Application of KTS can be made any time up to veraison and post-harvest.

Young vines: 3 to 5 gallons per acre, no more than once every 3 to 4 weeks.

Mature vines: 5 to 10 gallons per acre as required according to tissue analysis, no more than once every 2 weeks.

Vegetable and Row Crops: 3 to 5 gallons per acre, once every 10 days, no more than 3 times per month.

Strawberries: 3 to 5 gallons per acre once every 10 days after plants are well established, no more than 3 times per month.

Blueberries: 3 to 5 gallons per acre once every 10 days after plants are well established, no more than 3 times per month.

Cane berries: 3 to 5 gallons per acre once every 10 days after plants are well established, no more than 3 times per month.

MICRO-SPRINKLER (FAN JET)

Young Trees: 3 to 5 gallons per acre, once every 3 to 4 weeks.

Mature Trees: 6 to 12 gallons per acre, once every 3 to 4 weeks.

Young Vines: 3 to 5 gallons per acre, once every 3 to 4 weeks, starting at full leaf.

Mature Vines: 5 to 10 gallons per acre as required according to tissue analysis, once every 3 to 4 weeks starting at full leaf.

Blending with KTS

KTS is compatible with liquid urea and ammonium polyphosphate (APP) solutions in any ratio.

When blending KTS and UAN solution, as much water, by weight, should be added to the blend to equal the amount of KTS or UAN in the final mix. Blending order should be: KTS, then water, followed by UAN. Blends with UAN solution should be tested first before making large quantities. In cold weather, the potassium in KTS reacts with the nitrate in UAN to form potassium nitrate crystals. Adding water or heat will bring the crystals back into solution. *Avoid sparging air into KTS or a KTS blend. When mixing pesticides with KTS, and other fertilizers, the blend sequence should be as follows: water, then pesticide, followed by KTS and/or other fertilizer. Always make sure that combinations with pesticides are compatible.*

Micro-nutrient blends should be jar tested first before mixing with KTS. In most situations, micro-nutrients have to be chelated to a neutral pH. Strongly acidic and/or weak chelates do not blend well with KTS. Blends of KTS should not be acidified below a pH of 6.0.

SOME EXAMPLES OF STARTER FERTILIZERS BLENDS

BLEND	PRODUCTS	POUNDS PER TON
6-21-6-4S	10-34-0	1235
	KTS	480
	Water	285
7-25-6-4S	10-34-0	1470
	KTS	480
	Water	50
10-13-5-3S	UAN 32	388
	10-34-0	765
	KTS	400
	Water	447

Always do a jar test before making large quantities. When blending KTS and UAN 32, always have as much water, by weight, in the blend as either one of these products.

pH AND CROP PRODUCTIVITY

Soil pH has a direct effect on nutrient availability as well as soil microbial activity. A low soil pH can indicate the presence of high levels of toxic ions such as manganese, iron and/or aluminum while a high pH can indicate the presence of free lime in the soil. Most crops do best with a soil pH between 6.0 and 7.5 for optimum nutrient uptake.

Periodic testing of soils is the only way to determine soil pH and the appropriate course of action to maintain soils at their full productive potential. Minimize or avoid applications of KTS if the pH of the soil is below 6.0.

Precautionary Statements

For information on safety and handling, consult a Safety Data Sheet (SDS) or visit our website at: www.croptvitality.com.

CAUTION: Plant and leaf injury may occur on some crops when certain weather and growing conditions are present. The user assumes all risks of use and handling.

- Do not apply KTS to foliage of crops sensitive (foliar burn) to sulfur
- Do not apply KTS to foliage of any crop when temperatures are, or will be, above 90° F. Apply KTS in the early morning or late evening.
- Use caution when applying fertilizer to crops experiencing heat or moisture stress. Fertilizers are salts which compete with the crop for water. Crops should be hydrated before applying any fertilizer.
- The total rate of fertilizer applied should be split among several irrigations at lower rates per application as temperatures increase.
- Do not apply KTS with knife injectors or other types of fertilizer injecting equipment that may cause root pruning.
- Do not apply KTS foliar with crop oil sprays. Allow at least 14 days before or after an application of crop oil before applying KTS as a foliar.

- Do not apply KTS while chlorinating irrigation system. Thiosulfates will neutralize chlorine.
- Do not mix KTS with acid or acidic fertilizers below a pH of 6.0. KTS will decompose.
- Do not use high-pressure sprays (greater than 60 psi) when applying KTS over the top of a crop.
- Recommendations are for KTS only; the addition of other fertilizers at or near the same time could increase the chance of phytotoxicity to the crop. Please allow several days between injections.
- When mixing KTS or any liquid fertilizer with pesticides always keep agitators running during filling and spraying operations. Failure to maintain agitation may cause separation of products resulting in uneven spray application.
- Many crops are sensitive to salts during germination. When soil moisture is low, delayed crop emergence and/or phytotoxicity may occur when fertilizer is placed too close to the seed. Do not use KTS in pop-up fertilizer when soil moisture is limited, soil salinity is above an electrical conductivity of 1.0 or when irrigation is delayed such that germination may be affected.
- Fertiligation application of KTS and other liquid fertilizers to an established crop may cause injury to a crop if:
 - injection period is less than 60 minutes, which may cause an uneven distribution of KTS to the crop
 - KTS rates are higher than suggested
 - ample irrigation water is not applied immediately before and after the injection of KTS
- Crop injury may result from unusual weather conditions (heat wave, drought, or hot drying wind), or improper application practices such as injecting fertilizer too quickly all of which are out of control of the manufacturer or seller. For further information contact a Certified Crop Advisor (CCA), Pest Control Advisor (PCA), fertilizer dealer or Crop Vitality Specialist.



Keep out of reach of children. Use caution when handling.

See SDS for additional information on

TECHNICAL DATA

KTS 0-0-25-17S

PLANT NUTRIENT CONTENT WT. %

Soluble Potash (K_2O)	25
Total Sulfur (S)	17

TYPICAL PROPERTIES

Specific Gravity	1.46
pH	7 to 8.2
Appearance	Clear, Colorless
Salt-Out Temperature	°F <15

FORMULATION AND APPLICATION FACTORS 60°F

Density pounds per gallon	12.2
Volume gallons per ton	164



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CONTACT INFORMATION

TESSENDERLO KERLEY, INC.

2910 N. 44TH STREET, SUITE 100 | PHOENIX, AZ 85018

TELEPHONE: 602-889-8300 | TOLL-FREE: 800-525-2803

EMAIL: INFO@CROPVITALITY.COM | CROPVITALITY.COM

