

PM 23

62719-120

1124

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AUG 16 1991

T. Craig Blewett, Ph.D.
DowElanco
9002 Purdue Road
Indianapolis, IN 46268-1189

Dear Dr. Blewett:

Subject: Deletion of Chemigation from Directions for Use
Sonalan E.C.
EPA Registration No. 62719-120
Your Submission Dated July 24, 1991

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable with the following provisions:

- 1) Due to new EPA policy, part of the Environmental Hazards section has been changed. To comply, change the sentence "Do not apply directly to any body of water or wetlands" to read "Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark."
- 2) Under the Directions for Use, add the prohibition "Do not apply this product through any type of irrigation system."

A stamped copy is enclosed for your records. Please submit five (5) final printed copies for the referenced label, incorporating the above changes.

Sincerely yours,

Joanne I. Miller
Product Manager (23)
Fungicide-Herbicide Branch
Registration Division (H7505C)

Enclosure

CONCURRENCES							
SYMBOL	H7505C						
SURNAME	D. KENNY						
DATE	8/16/91						

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ACCEPTED
with COMMENTS
by EPA Letter 10/1/81

AUG 16 1981

62719-120



Sonalan* E.C.

A selective herbicide for pre-emergence control of certain annual grasses and broadleaf weeds.

Active ingredient:
ethalfurim: N-ethyl-N-(2-methyl-2-propenyl)-
2,6-dinitro-4-(trifluoromethyl)
benzenamine..... 36.1%
Inert ingredients..... 63.9%

Contains 3 pounds active ingredient per gallon.

See additional precautionary statements inside booklet.

Notice: Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" in the enclosed label booklet.

In case of an emergency endangering life or property involving this product, call collect 517-636-4400.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

Precautionary Statements

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

WARNING

Sonalan E.C. herbicide formulation is irritating to the eyes and skin. Avoid breathing vapors. Avoid contact with skin, eyes, or clothing. Do not contaminate foodstuffs or feed. Harmful if swallowed or absorbed through the skin. Use protective clothing such as coveralls, long sleeved shirt, and impermeable gloves when handling or using the product.

First Aid

In case of contact, immediately flush eyes or skin with plenty of water. For eyes, call a physician. Remove and wash contaminated clothing before reuse.

Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to any body of water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes. Runoff or erosion from treated areas may be hazardous to fish in neighboring areas.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

See literature for complete Directions for Use.

Read all Directions for Use carefully before applying.

STORAGE AND DISPOSAL

Storage: Avoid freezing. Store above 40°F (5°C). If frozen, poor weed control may result. Do not use or store near heat or open flame. Store in original container only. In case of leak or spill, use absorbent material to contain liquids and dispose as waste.

Pesticide Disposal: Do not contaminate water, food or feed by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or residue is a violation of Federal law. If these wastes cannot be disposed of according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

EPA Reg. No. 62719-120 EPA Est. 1471-IN-2
WU 3280 AMX 20101

*Trademark of DowElanco

DowElanco
Indianapolis, IN 46268, U.S.A.

Avoid Freezing - Store Above 40°F.

Herbicide

Net Contents 2.5 gal

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PULL HERE TO OPEN 

Sonalan^{*}

E.C.

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Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Est. 1471-IN-2
EPA Reg. No. 62719-120
WU 3290 AMX

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DowElanco
Indianapolis, IN 46268, U.S.A.

Avoid Freezing - Store Above 40°F.



Herbicide Net Contents **2.5 gal**

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Precautionary Statements

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First Aid

In case of contact, immediately flush eyes or skin with plenty of water. For eyes, call a physician. Remove and wash contaminated clothing before reuse.

Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to any body of water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes. Runoff or

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Mixing Directions

Sonalan E.C. - Alone

Start with a clean spray tank. Fill sprayer one-third (1/3) to one half (1/2) full with clean water or liquid fertilizer. Start agitation. Add correct quantity of Sonalan E.C., continue agitation and finish filling the tank.

Sonalan E.C. in Tank Mix

Vigorous continuous agitation is required for all tank mixes. Sparger pipe agitators generally provide the best agitation in spray tanks. To prevent foaming, avoid stirring or splashing air into the mixture during filling by placing the end of the fill pipe below the surface of the water in the spray tank. Do not allow the mixture to siphon back into the water source.

Mixing Order: Fill the tank one-fourth (1/4) to one-third (1/3) full with clean water or liquid fertilizer. (See next column for additional liquid fertilizer mixing instructions). Start the agitation. Add in the following order: dry flowables (DF), wettable powders (WP), aqueous suspensions (AS), flowables (F), or liquids (L) to the water and agitate until the product(s) are completely dispersed. Allow additional mixing and dispersion time when using dry flowable (DF) products. Continue agitation and fill tank to three-fourths (3/4) full, add the Sonalan E.C. or other emulsifiable concentrates (EC) and mix thoroughly. Then add any solution (S) formulations, agitate and finish filling. Maintain agitation during filling and through application. If spraying and agitation must be stopped before the tank is empty, the materials may settle to the bottom. In this case, it is important to resuspend all of the material in the bottom of the tank before continuing the spray application. A sparger agitator is particularly useful for this purpose. Sometimes it is more difficult to resuspend settled material than it is to suspend it originally.

Read and carefully follow all label instructions for each material added to the tank. Premixing dry and flowable formulations with water (slurrying) and pouring the slurry through a

20 or 35 mesh wetting screen in the top of the tank will help assure good initial dispersion in the tank. Line screens in the tank should be no finer than 50 mesh (100 mesh is finer than 50 mesh).

If a buildup of material on the walls of the spray tank is observed, wash the tank with soapy water between fillings. Rinse and continue the spraying operation. Clean the tank, lines and screens thoroughly after use. Check the sprayer daily to ensure proper calibration and uniform application. Do not apply Sonalan E.C. when the wind can cause drifting of spray particles which can result in non-uniform application.

Application Directions

Ground Application: Apply Sonalan E.C. in at least five (5) gallons of water or liquid fertilizer per acre (broadcast basis), using any properly calibrated, low pressure herbicide sprayer that will apply the spray uniformly.

Chemigation: Refer to supplemental labeling entitled "Sonalan E.C. Chemigation Instructions" for use directions for chemigation. Do not apply this product through any irrigation system unless the supplemental labeling on chemigation is followed.

Application with Liquid Fertilizer

Sonalan E.C. may be mixed with most liquid fertilizer materials. Combinations of Sonalan E.C. with solutions and suspension type fertilizers have provided weed and grass control equal to the same rates of Sonalan E.C. applied in water. Follow Sonalan E.C. label recommendations regarding rates per acre, crops, incorporation directions, special instructions, cautions and special precautions.

Individual state regulations relating to liquid fertilizer mixing, registration, labeling and applications are the responsibility of the individual and/or company setting the fertilizer and chemical mixture.

Liquid Fertilizer Mixing Instructions: Emulsifiable concentrates, such as Sonalan E.C., can be mixed with liquid fertilizers, in all cases.

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continuous agitation is required to prevent the Sonolan E.C. from rising to the surface as an oily layer. When necessary, (see "Testing for Tank Mix Compatibility in Liquid Fertilizers") a compatibility agent can be used to ensure that the Sonolan E.C. emulsifies properly (i.e. has a milky appearance rather than an oily layer). The use of compatibility agents is especially important when tank mixing emulsifiable concentrates (EC) with dry flowables (DF), wettable powders (WP), flowables (F), liquids (L), aqueous suspensions (AS), or solutions (S) in liquid fertilizer. If the emulsion is not properly formed and the EC rises to the surface of the fertilizer as an oil ("oils out"), the oil may combine with the wettable powder, flowable, or suspension to form oily curds (viscous phase) which are difficult to disperse.

Any one of the following compatibility agents is helpful in causing emulsifiable concentrates to form non-oily mixtures with liquid fertilizers. These compatibility agents can be used at rates as low as one and one-half (1 1/2) to two (2) pints per ton of liquid fertilizer and should be mixed well with the fertilizer before adding the emulsifiable concentrate.

Read the label on the compatibility agent and follow the directions.

1. Sponto 168D (Mico Chemicals Co., Chicago, IL).
2. Compet (Farm Chemicals, Inc., Aberdeen, NC). Not for use in California.
3. Unite (Hopkins Ag Chemical, Madison, WI).
4. T-Muz 734-2 (Thompson-Hayward Chemical Co., Kansas City, MO). Not for use in California.
5. Rigo Compatibility Agent (Rigo Company, Buckner, KY).
6. Amoco Spray Mate™ - (Amoco Oil Co., Chicago, IL). Not for use in California.
7. Kim-Link (Universal Coop, Minneapolis, MN).
8. Blender™ (Helena Chemical Co., Cayce-West Columbia, SC).

9. Spray-Aide™ (Miller Chemical and Fertilizer Corp., Hanover, PA).

Each of the above is a phosphate ester type surfactant designed to be used with liquid fertilizers. They usually do not work well as compatibility agents in tank mixtures in water.

Testing for Tank Mix Compatibility in Liquid Fertilizers: Emulsifiable concentrates alone or in tank mixture with dry flowables (DF), wettable powders (WP), liquids (L), flowables (F), aqueous suspensions (AS), or solutions (S) may not combine properly with some fluid fertilizer materials. Small quantities should always be tested before full-scale mixing. This will determine whether a compatibility agent is needed and which agent does the best job. The nine (9) agents listed above have been thoroughly tested. There are many other surfactants on the market which were not designed for use with liquid fertilizers.

Use the following test to select the correct agent for your mixture.

1. Put one (1) pint of the liquid fertilizer in a quart jar.
2. Add one (1) to four (4) teaspoonful(s) of the DF, WP, L, F, or AS formulations (depending on the recommended rate per acre) to the liquid fertilizer. Close jar and agitate until dispersed evenly in the fertilizer. If the materials do not disperse well, it may be necessary to slurry the chemicals in water before adding to the fertilizer.
3. After dispersing the materials (Step 2), add three (3) to four (4) teaspoonfuls of the Sonolan E.C. to the jar and shake well. Add solution herbicides to the mixture last and agitate. Observe the jar for about 10 minutes. If the materials rise to the surface and form a thick layer (oily curds) which will not disperse when agitated, a compatibility agent is needed. If the mixture is easily dispersed to its original state with slight agitation, no agent is needed, but good agitation must be provided in the farmer's spray tank.

4. If the need for a compatibility agent is shown in Step 3, use a clean quart jar, and starting at Step 1 above, add one-half (1/2) teaspoonful of the compatibility agent to the liquid fertilizer. Mix well. Repeat Steps 2 and 3.

An effective compatibility agent will cause the mixture to remain uniformly mixed with little or no separating or oil rising to the surface for one-half (1/2) hour or longer. If slight separation does occur, two (2) to three (3) inversions of the jar should give a uniform remix. If oily curds form which will not disperse, more agent or another agent should be tried.

Use a clean jar for each test. The compatible mixture will have a uniform appearance and will be relatively easy to keep mixed with gentle agitation of the jar.

Application with Dry Bulk Fertilizer

Dry bulk fertilizer may be impregnated or coated with Sonalan E.C. Application of dry bulk fertilizer impregnated with Sonalan E.C. has provided weed and grass control equal to the same rates of Sonalan E.C. applied in liquid carriers.

Follow Sonalan E.C. label recommendations regarding rates per acre, crops, special instructions, cautions and special precautions. For best results, Sonalan E.C. should be incorporated two times when applied impregnated on dry bulk fertilizers. For best weed control results, the second incorporation should be delayed three (3) to five (5) days after the first. Follow other Sonalan E.C. label recommendations for soil incorporation.

Individual state regulations relating to dry bulk fertilizer blending, registration, labeling and application are the responsibility of the individual and/or company selling the fertilizer and chemical mixture.

Livestocks: Apply a minimum of 200 pounds per acre of dry fertilizer impregnated with Sonalan E.C. at the recommended rate. Most dry fertilizers can be used for impregnation with Sonalan E.C. When coated ammonium nitrate and/or limestone are used alone, do not

impregnate with Sonalan E.C. These materials will not absorb the herbicide. Blends containing a mixture of these materials can be impregnated.

Impregnation: Use any closed drum, belt, ribbon or other commonly used dry bulk fertilizer blender. Nozzles used to spray the Sonalan E.C. onto the fertilizer should be placed to provide uniform spray coverage. Add water to the Sonalan E.C. to give a total volume of at least six (6) pints per ton of fertilizer.

Grasses and Broadleaf Weeds Controlled by Sonalan E.C.

Sonalan E.C. applied preplant soil incorporated will control the following weeds:

Grasses:	
Common Name	Scientific Name
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Crabgrass	<i>Digitaria</i> spp.
(Large crabgrass)	
(Small crabgrass)	
Foxtail	<i>Setaria</i> spp.
(Giant foxtail)	
(Green foxtail)	
(Foxtail millet)	
(Pigeongrass)	
(Yellow foxtail)	
Goosegrass	<i>Elymus indica</i>
Johnsongrass (from seed)	<i>Sorghum halepense</i>
Junglegrass	<i>Echinochloa colonum</i>
Oat, wild?	<i>Avena fatua</i>
Panicum, fall	<i>Panicum</i>
	<i>dichotomiflorum</i>
Panicum, Texas	<i>Panicum texanum</i>
(Buffalograss)	
(Colorado grass)	
Ryegrass, Italian	<i>Lolium multiflorum</i>
(Annual ryegrass)	
Sandbar, Field	<i>Cenchrus incertus</i>
Shattercane	<i>Sorghum bicolor</i>
(Wild cane)	
Signalgrass, broadleaf	<i>Brachiaria platyphylla</i>
(Brahma)	
Witchgrass	<i>Panicum capillare</i>
Broadleaf Weeds:	
Common Name	Scientific Name
Buckwheat, wild	<i>Polygonum cynoposoides</i>
Carpetweed	<i>Mollugo verticillata</i>
Catchfly, common	<i>Stellaria media</i>
Crackweed, common	<i>Stellaria media</i>
Fiddleneck tarweed	<i>Amaranthus hybridus</i>

Groundcherry** (annual)	<i>Physalis lanceolata</i>
(Lanceleaf groundcherry)	
(Wright's groundcherry)	<i>Physalis wrightii</i>
Henbit	<i>Lamium amplexicaule</i>
Kochia	<i>Kochia scoparia</i>
Lambquarters, common	<i>Chenopodium album</i>
Nightshade** (annual)	<i>Solanum</i> spp.
(Black nightshade)	
(Eastern black nightshade)***	
(Hairy nightshade)	
Pigweed	<i>Amaranthus</i> spp.
(Prostrate pigweed)	
(Redroot pigweed)	
(Smooth pigweed)	
(Tumble pigweed)	
Purslane, common	<i>Portulaca oleraceae</i>
Pursley, Florida	<i>Richardia scabra</i>
Rockpurslane, redmaids	<i>Calandrinia cicuticensis</i>
Thistle, Russian	<i>Salsola</i> spp.

* Sonalan E.C. will provide wild oat control except those germinating below the zone treated with Sonalan E.C.

** See special instructions for control in dry bean.

*** See special instructions for partial control in soybean.

Soil Preparation

Factors that influence uniform application and incorporation of Sonalan E.C. are:

Crop Residues or Existing Weeds: Ground cover, such as crop residues or existing weeds can interfere with the incorporation of Sonalan E.C. into the soil. A manageable level of such ground cover will allow the Sonalan E.C. to be uniformly mixed into the top two (2) to three (3) inches of soil. If the level of the ground cover is such that this cannot be done, the soil must be tilled prior to the application of Sonalan E.C.

Soil Roughness: The soil surface should be smooth enough so that you can operate a sprayer and incorporation equipment efficiently and at speeds which ensure a uniform application and incorporation of Sonalan E.C.

General Soil Conditions: To assure uniform incorporation of Sonalan E.C., soil moisture conditions should be such that large clods can be broken up during the incorporation process.

Soil Incorporation Directions

Use incorporation equipment that thoroughly and uniformly mixes Sonalan E.C. into the top two (2) to three (3) inches of the seedbed, or erratic weed control and/or crop injury may result.

Incorporation Before Planting

Apply Sonalan E.C. up to three (3) weeks prior to planting. Sonalan E.C. should be thoroughly and uniformly mixed into the top two (2) to three (3) inches of the seedbed within two (2) days after application.

Incorporation in Bedded Culture

Application prior to bedding: Apply Sonalan E.C. and mix thoroughly into the top two (2) to three (3) inches of soil. The bedding operation provides additional mixing. Do not expose untreated soil during post-bedding operations. †

Application after bedding: Knock off beds to planting height before applying Sonalan E.C. Apply Sonalan E.C. and mix thoroughly with equipment that will conform to the bed shape. Do not leave untreated soil exposed. †

† Avoid removal of treated soil from the seedbed before or during the planting operation. This would expose untreated soil allowing weeds to germinate in the drill row.

Cultivation after Planting

Sod treated with Sonalan E.C. may be shallowly cultivated without reducing the weed control activity of Sonalan E.C. Do not cultivate deeper than the treated soil since this may bring untreated soil to the surface, and poor weed control may result.

Soil Texture Guide

The amount of Sonalan E.C. applied will vary with the soil texture and organic matter. A fine textured soil will require more Sonalan E.C. per acre than a coarse soil. Choose the proper rate based on the following soil texture group and specific crop recommendations. Do not exceed recommended rates.

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Soil Texture Group	Soil Classification
Coarse soils: (light)	Sand, loamy sand, sandy loam
Medium soils:	Loam, silty clay loam [†] , silt loam, silt, sandy clay loam [†]
Fine soils: (heavy)	Clay, clay loam, silty clay loam [†] , silty clay, sandy clay, sandy clay loam [†]

[†]Silty clay loam and sandy clay loam soils are transitional soils and may be classified as either medium or fine textured soils. If silty clay loam or sandy clay loam soils are predominantly sand or silt they are usually classified as medium textured soils. If they are predominantly clay, they are usually classified as fine textured soils.

These recommendations are based on the broadcast rates of Sonalan E.C. per acre. Where a rate range is shown use the lower rate for coarser textured soils or soils with lower organic matter. Use the higher rate, where a rate range is shown on soils containing more than five percent (5%) organic matter. Where soil texture is variable within the same field use the higher recommended Sonalan E.C. rate for the coarser textured soil. Sonalan E.C. is not recommended for use on soils containing more than 10% organic matter.

Approved Crops

Soybeans

**Soybean - Sonalan E.C. - Alone
General weed control - except
groundcherry and nightshade:**

Sonalan E.C. should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application, and incorporation procedures for Sonalan E.C.

For broader spectrum weed control, Sonalan E.C. may be used in combination with Amben, Basagran, Blazer, Canopy, Classic, Command, Dual, Eptam, Gemra, Lasso, Laxone, Lorox, Lorox Plus, Preview, Sencor, Tactile, or Veram. Read the combination

product label for directions, cautions, and limitations prior to use.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.
Coarse	(pints) 1 1/2 - 2
Medium	2 - 2 1/2
Fine	2 1/2 - 3

Eastern Black Nightshade - Partial Control: Sonalan E.C. should be applied as a preplant incorporated treatment for partial control of nightshade in medium and fine textured soils. Follow recommended soil preparation and application procedures for Sonalan E.C. Two incorporation passes are required for partial control of eastern black nightshade. For broader spectrum weed control, Sonalan E.C. may be used in combination with Amben, Basagran, Blazer, Dual, Lasso, Laxone, Lorox, Sencor and Veram. Read the combination product label for the directions, cautions and limitations prior to use.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.
Medium	(pints) 3
Fine	3 1/2

Precaution: Soybeans should be planted no more than two (2) inches deep after early season adverse weather conditions have passed, especially when using higher rate programs. Excessively deep planting or cool, wet weather early in the growth cycle causes additional stress to the soybean plant. These factors may result in reduced stands, delayed maturity and reduced yields.

**Soybean - Sonalan E.C./Amben[†]
Tank Mix**

Sonalan E.C./Amben should be applied as a preplant incorporated tank mix. This combination of Sonalan E.C./Amben[†] effectively controls the weeds listed for

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Sonalan E.C. alone for general weed control plus these additional weeds:
 Black nightshade Velvetleaf
 Common ragweed Wild mustard
 Pennsylvania smartweed

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Amben	
	General Weed Control	Partial Control of Eastern Black Night-Shade	Amben 2S	Amben DS
Coarse	(pints) 1 1/4 - 2	N/A	(quarts) 4 - 6††	(pounds) 2.4 - 3.6††
Medium	1 3/4 - 2 1/2	5†	4 - 6	2.4 - 3.6
Fine	2 1/4 - 3	3 1/2†	4 - 6	2.4 - 3.6

† Two incorporation passes are required for partial control of eastern black nightshade.
 †† Use the higher rate where heavy populations of smartweed, velvetleaf, ragweed, wild mustard or black nightshade are expected. Read the Amben label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean - Sonalan E.C. / Canopy Tank Mix (Do Not Use in California)

Sonalan E.C./Canopy should be applied as a preplant incorporated tank mix. The combination of Sonalan E.C./Canopy effectively control the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

Controlled

- | | |
|---------------------------|---------------------|
| Common cocklebur | Fricky side (Tansy) |
| Florida beggarweed | Ragweed (Common) |
| Hemp sesbania | (Giant) |
| Hophornbeam copperleaf | Sicklepod |
| Jimsonweed | Smartweed |
| Morningglory (Entireleaf) | Spotted spurge |
| (Ivyleaf) | Sunflower |
| (Pitted) | Velvetleaf |
| (Smallflower) | (Butterweed) |
| (Tail) | |

Additional weeds partially controlled by this combination include:
 Purple nutsedge
 Yellow nutsedge

Large seeded weeds, germinating deep in the soil, such as morningglory, sicklepod, cocklebur and giant ragweed or weeds with subsequent flushes may require a cultivation or an application of a postemergence herbicide for season-long control.

Follow recommended soil preparation, application and incorporation procedures for Sonalan E.C. Plant soybeans within two (2) weeks after application.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.	Canopy Dispersible Granules	
		0.5 - 3% O.M.	3 - 6% O.M.
Coarse	(pints) 1 1/4 - 2	(fl oz) 6 - 8	(fl oz) 8 - 10
Medium	1 3/4 - 2 1/2	8 - 10	10 - 12
Fine	2 1/4 - 3	10 - 12	12 - 14

Do not apply Canopy to soil with less than one-half percent (1/2%) organic matter (O.M.).

Use higher rates of Canopy on soils with higher organic matter or heavy pressure from large deep germinating weed seeds.

Where Canopy is applied, plant soybean seed 1 1/2" to 2" deep on a flat or raised seedbed only, or crop injury may occur.

Soybean injury may occur where Canopy is applied if excessive rainfall occurs after application but before soybeans germinate.

Precautions: Read the Canopy label carefully for cautions and precautions relating to environmental hazards, planting of rotation crops, sprayer contamination and cleanup, soil pH, organic matter and soil texture use restrictions, soybean variety planting restrictions, restrictions where atrazine or Scepter were used the previous year, restrictions concerning use with organic

phosphate pesticides, grazing restrictions and other directions, precautions and limitations before applying the Sonalan E.C./Canopy tank mix.

Read the Canopy label for additional weeds controlled, directions, cautions and limitations prior to use.

**Soybean - Sonalan E.C./
Command Tank Mix (Do Not
Use in California)**

Sonalan E.C./Command should be applied as a preplant incorporated tank mix treatment. The combination of Sonalan E.C./Command effectively controls the weeds listed for Sonalan E.C. alone or general weed control plus:

Velvetleaf (Buttonweed)

Additional weeds partially controlled by this combination include:

Annual morningglory	Pennsylvania smartweed
Common ragweed	Prickly sida (Teeweed)
Eastern black nightshade	Vernice mallow
Jimsonweed	

Control of these weeds may be erratic, ranging from poor to excellent depending upon soil temperature, time of weed germination, depth of weed seed in the soil and the amount and timing of soil moisture. Control may be improved with timely cultivation.

Application Directions: Tank mixed Sonalan E.C./Command should be applied as a preplant incorporated treatment. Apply Sonalan E.C./Command up to three (3) weeks prior to planting.

Do not apply aerially or through irrigation equipment.

Apply Sonalan E.C./Command using a finished spray volume of 10 to 40 gallons of water per acre. **NOTE:** The use of an agriculturally approved drift reducing additive is required at finished spray volumes of 10-15 gallons per acre. Use nozzles suitable for broadcast boom application of herbicides. Coarse sprays are

less likely to drift out of the target area than fine sprays.

Incorporation Directions: Sonalan E.C./Command must be incorporated immediately after application. Sonalan E.C./Command should be thoroughly and uniformly mixed into the top two (2) to three (3) inches of the final seed bed. Application to overly moist or wet soils will also increase the potential for off-site movement of Command vapors and may result in poor soil incorporation and unsatisfactory weed control. These directions must be followed to reduce the potential for off-site movement of Command vapors and potential injury to desirable vegetation including adjacent crops, trees and ornamentals.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.	Command 4 E.C.
Coarse	(pints) 1 1/2 - 2	(pints) 3/4
Medium	1 3/4 - 2 1/2	1 1/2
Fine	2 1/4 - 3	1 1/2

Special Precaution: Off-site movement of spray drift or vapors of Command can cause foliar whitening or yellowing of adjacent crops, trees and ornamental plants which is usually temporary in nature, but can result in permanent injury or death of the plants if exposure is excessive. Prior to making application of this product, read and strictly follow all precautions and application instructions on the Command label.

Read the Command label carefully for additional directions, cautions, and limitations prior to use.

**Soybean - Sonalan E.C./
Command/Lexone or
Sonalan E.C./Command/
Sencor Tank Mix (Do Not Use
in California)**

Sonalan E.C. plus Command and Lexone or Sencor should be applied as a preplant incorporated tank mix treatment. Sonalan E.C./

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Command/Lexone or Sencor controls those weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

- | | |
|---------------------------|----------------|
| Common ragweed | Spotted spurge |
| Hemp sesbania | Velvetleaf |
| Jimsonweed | Vernice mallow |
| Pennsylvania smartweed | Wild mustard |
| Prickly sida
(Teaweed) | |

Additional weeds partially controlled by this combination include:

- | | |
|---------------------|---------------|
| Annual morningglory | Giant ragweed |
| Common cocklebur | |

Control of these weeds may be erratic, ranging from poor to excellent depending upon soil temperature, time of weed germination, depth of weed seed in the soil and the amount and timing of soil moisture. Control may be improved with timely cultivation.

Application Directions: Tank mixed Sonalan E.C./Command/Lexone or Sencor should be applied as a preplant incorporated treatment. Apply Sonalan E.C./Command/Lexone or Sencor up to two (2) weeks prior to planting.

Do not apply aerially or through irrigation equipment.

Apply Sonalan E.C./Command/Lexone or Sencor using a finished spray volume of 10 to 40 gallons of water per acre. **NOTE:** The use of an agriculturally approved drift reducing additive is required at finished spray volumes of 10 to 15 gallons per acre. Use nozzles suitable for broadcast boom application of herbicides. Coarse sprays are less likely to drift out of the target area than fine sprays.

Incorporation Directions: Sonalan E.C./Command/Lexone or Sencor must be incorporated immediately after application. Sonalan E.C./Command/Lexone or Sencor should be thoroughly and uniformly mixed into the top two (2) to three (3) inches of the final seed bed. Application to overly moist or wet soils will also increase the potential for off-site movement of Command vapors and may result

in poor soil incorporation and unsatisfactory weed control. These directions must be followed to reduce the potential for off-site movement of Command vapors and potential injury to desirable vegetation including adjacent crops, trees, and ornamentals.

Follow other soil preparation application and incorporation procedures described on the Sonalan E.C. label.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.	Command E.C.	Lexone 4L or Sencor 4F	Lexone Dry Flowable or Sencor Dry Flowable
Coarse	(pints) 1 1/4 - 2	(pints) 1/2	(pints) 1/2 - 1/2†	(pounds) 1/4 - 1/2†
Medium	1 3/4 - 2 1/2	3/4	1/2 - 3/4	1/2 - 1/2
Fine	2 1/4 - 3	1 1/2	3/4 - 1	1/2 - 2/2

† Use the higher rate in the rate range in areas where weed populations are dense, for control of Vernice mallow and wild mustard and for best control of common cocklebur, annual morningglory and giant ragweed.

Special Precautions: Off-site movement of spray drift or vapors of Command can cause foliar whitening or yellowing of adjacent crops, trees and ornamental plants which is usually temporary in nature but can result in permanent injury or death of the plants if exposure is excessive. Prior to making application of this product, read and strictly follow all precautions and application instructions on the Command label.

Read the Command, Lexone or Sencor labels carefully for additional directions, cautions and limitations prior to use.

Soybean - Sonalan E.C./Dual Tank Mix

Sonalan E.C./Dual should be applied as a preplant incorporated tank mix. The combination of Sonalan E.C./Dual effectively

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control the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

Black nightshade Red rice
Galinsoga Southwestern cupgrass
Panicum capgrass Yellow nutsedge
Additional weeds partially controlled by this combination include:
Hairy nightshade Volunteer sorghum

Follow recommended soil preparation procedures for Sonalan E.C. Apply the tank mix in at least 10 gallons of water per acre up to 14 days prior to planting. Incorporate the tank mix within two (2) days after application in the top two (2) inches of soil.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Dual III	
	General Weed Control	Partial Control of Eastern Black Night-Shade	Lasso High 3% O.M.	3% O.M. or greater
Coarse Medium Fine	(gallon) 1 1/2 - 2 1/2 - 3	(gallon) N/A 3*	(gallon) 1 1/4 - 2 2 - 2 1/2	(gallon) 2 2 - 2 1/2 2 1/2 - 3

† Two incorporation passes are required for partial control of eastern black nightshade. Read the Dual label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean - Sonalan E.C./Lasso Tank Mix

Sonalan E.C./Lasso should be applied as a preplant incorporated tank mix. The combination of Sonalan E.C./Lasso effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

Black nightshade* Red rice*
Galinsoga Yellow nutsedge*
Hairy nightshade*
** Check beneath the rate tables for additional Lasso directions.

Additional weeds partially controlled by this combination include:

Common ragweed Smartweed
Florida beggarweed Spiny suds (beetweed)
Follow recommended soil preparation recommendations for Sonalan E.C. Apply Sonalan E.C./Lasso in a minimum of 15 gallons of water or liquid fertilizer per acre and incorporate thoroughly into the top two (2) inches of soil. Apply the tank mix up to seven (7) days prior to planting.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Lasso or Lasso Nitro-Tech
	General Weed Control	Partial Control of Eastern Black Night-Shade	quartals
Coarse Medium Fine	(gallon) 1 1/2 - 2 1/2 - 3	(gallon) N/A 3*	2 1/2 3 - 3 1/2 3 1/2 - 4

† Two incorporation passes are required for partial control of eastern black nightshade. Use a minimum of two and one-half (2 1/2) quarts of Lasso to control these weeds. Use three (3) to four (4) quarts of Lasso per acre applied alone or, on medium and fine textured soils, in tank mix combination preplant incorporated only for control of these weeds.

Read the Lasso label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean - Sonalan E.C./Lexone

or Sonalan E.C./Sencor Tank Mix
Sonalan E.C. plus Lexone or Sencor should be applied as a preplant incorporated tank mix. Do not allow Sonalan E.C. or Sonalan E.C./Sencor tank mix to remain in the tank overnight.

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The combination of Sonalan E.C./Laxone or Sonalan E.C./Sencor effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

- | | |
|------------------------|----------------|
| Common ragweed | Prickly sida |
| Hemp sesbania | Velvetleaf |
| Jimsonweed | Vernice mallow |
| Pennsylvania smartweed | Wild mustard |

Control of cocklebur, morningglory, and giant ragweed may be erratic, ranging from poor to excellent depending upon soil temperature, time of weed germination, depth of weed seed in the soil and the amount and timing of soil moisture. Control may be improved with timely cultivation.

Follow recommended soil preparation, application, and incorporation directions for Sonalan E.C.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Laxone or Sencor	
	General Weed Control	Partial Control of Eastern Black Nightshade	Laxone 4L or Sencor 4	Laxone Dry Flowable or Sencor Dry Flowable
Coarse	(pints) 1 1/4 - 2	(pints) N/A	(pints) 1/2 ††	(pounds) 1/5 ††
Medium	1 1/4 - 2 1/2	3 †	3/4	1/2
Fine	2 1/4 - 3	3 1/2 †	1	2/3

† Two incorporation passes are required for partial control of eastern black nightshade.

†† Do not use Laxone/Sencor on coarse soils with less than one percent (1%) organic matter.

Additional Precautions: For tank mixes of Laxone/Sencor, do not plant any crop other than soybeans within four (4) months after treatment. Over application, uneven application, or improper soil incorporation may result in crop injury, soil residue, or erratic weed control. Seedling disease, cold weather, deep planting, excessive moisture, soil pH over seven and one half (7.5), high salt concentration or drought may weaken crop seedlings and increase possibility of damage from the tank

mix of Sonalan E.C./Laxone or Sonalan E.C./Sencor. Under these conditions, delayed crop development or reduced yields may result. Read the Laxone and Sencor labels for directions, cautions and limitations prior to use. Do not use the foliage from soybeans treated with Laxone or Sencor for feed or forage.

Soybean - Sonalan E.C./ Preview Tank Mix (Do Not Use in California)

Sonalan E.C./Preview should be applied as a preplant incorporated tank mix. The combination of Sonalan E.C./Preview controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

- | | |
|---|-------------------------|
| Annual smartweeds | Prickly sida (Tea-weed) |
| Common cocklebur | Spotted spurge |
| Common ragweed | Sunflower |
| Hophornbeam | Velvetleaf |
| copperleaf | |
| Jimsonweed | |
| Mustards | |
| Pigweed (Palmer amaranth) (Smooth) (Tall waterhemp) | |

Additional weeds partially controlled by this combination include:

- | | |
|--------------------------|---------------------|
| Burcucumber | Morningglory (Tall) |
| Eastern black nightshade | (Ivyleaf) |
| Giant ragweed | (Pitted) |
| | (Entireleaf) |
| | Nutsedge species |

Large seeded weeds, germinating deep in the soil, such as morningglory, sicklepod, cocklebur and giant ragweed or weeds with subsequent flushes may require a cultivation or an application of a postemergence herbicide for season long control.

Follow recommended soil preparation, application and incorporation procedures for Sonalan E.C. Plant soybeans within two (2) weeks after application.

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Broadcast Rates per Acre

Do not apply Preview to soil with less than one-half percent (1/2%) organic matter (O.M.).

Soil Texture	Sonalan E.C.	Preview Dispersible Granules	
		0.5 - 3% O.M.	3 - 8% O.M.
Coarse	(pints) 1 1/2 - 2	(fl oz) 6	(fl oz) 7
Medium	1 3/4 - 2 1/4	7	8
Fine	2 1/2 - 3	8	9 - 10

Use higher rates of Preview on soils with higher organic matter or heavy pressure from large deep germinating weed seeds.

Where Preview is applied, plant soybean seed 1 1/2" to 2" deep on a flat or raised seedbed only or crop injury may occur.

Soybean injury may occur where Preview is applied if excessive rainfall occurs after application but before soybeans germinate.

Precautions: Read the Preview label carefully for cautions and precautions relating to environmental hazards, planting of rotation crops, sprayer contamination and cleanup, soil pH, organic matter and soil texture use restrictions, soybean variety planting restrictions, restrictions where atrazine or Scepter were used the previous year, restrictions concerning use with organophosphate pesticides, grazing restrictions and other directions, precautions and limitations before applying the Sonalan E.C./Preview tank mix.

Read the Preview label for additional weeds controlled, directions, cautions, and limitations prior to use.

Soybean - Sonalan E.C./Lasso/Lexone or Sonalan E.C./Lasso/Sencor Tank Mix

Sonalan E.C. plus Lasso and Lexone or Sencor should be applied as a preplant incorporated tank mix treatment. Do not allow the tank mix of Sonalan E.C./Lasso/Lexone or Sencor to remain in the tank overnight.

Sonalan E.C./Lasso/Lexone or Sencor controls those weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

- | | |
|-------------------------------|------------------------------|
| Black nightshade ^a | Shepherdspurse |
| Crowfootgrass | Spotted spurge |
| Galinsoga | Spurred anoda |
| Hairy nightshade ^a | Velvetleaf |
| Jimsonweed | Venice mustard |
| Pennsylvania smartweed | Wild mustard |
| Red rice ^b | Yellow nutsedge ^b |
| Seabens | |
| (Coffeebean) | |
| (Coffeeweed) | |

^a or ^b Check beneath the rate tables for additional Lasso directions.

Additional weeds partially controlled by this combination include:

- | | |
|--------------------|------------|
| Common ragweed | Spiny sida |
| Florida beggarweed | (teaweed) |

Follow recommended soil preparation recommendations for Sonalan E.C. Apply the tank mixes in a minimum of 15 gallons of water or liquid fertilizer per acre. Set equipment to mix the soil no deeper than four inches. Apply the tank mix up to seven (7) days prior to planting.

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Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Lasso or Lasso Micro-Tech	Lexone or Sencor	
	General Weed Control	Partial Control of Eastern Black Nightshade		Lexone 4L or Sencor 4	Lexone Dry Flowable or Sencor Dry Flowable
Coarse	(pints) 1 1/4 - 2	(pint) N/A	(quarts) 2 1/2	(pint) 1/2**	(pounds) 1/2**
Medium	1 3/4 - 2 1/2	3*	3 - 3 1/2	3/4	1/2
Fine	2 1/4 - 3	3 1/2*	3 1/2 - 4	1	1/2

*Two incorporation passes are required for partial control of eastern black nightshade.

**Do not use Lexone or Sencor on coarse soils with less than one percent (1%) organic matter.

*Use a minimum of two and one-half (2 1/2) quarts of Lasso per acre to control these weeds.

*Use three (3) to four (4) quarts of Lasso per acre on medium and fine textured soils to control these weeds.

Read the Lasso, Lexone or Sencor label for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean - Sonalan E.C. / Dual / Lexone or Sonalan E.C. / Dual / Sencor Tank Mix

Sonalan E.C. plus Dual and Lexone or Sencor should be applied as a preplant incorporated tank mix treatment. Do not allow the Sonalan E.C. / Dual / Lexone or Sencor tank mix to remain in the tank overnight.

Sonalan E.C. / Dual / Lexone or Sencor controls those weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds.

- | | |
|------------------------|-----------------------|
| Black nightshade | Shepherdspurse |
| Crowfootgrass | Southwestern cupgrass |
| Galinoga | Spotted spurge |
| Jirnorweed | Spurred anoda |
| Pennsylvania smartweed | Velvetleaf |
| Prairie cupgrass | Venice mallow |
| Red rice | Wild mustard |
| Sesbania (Coffeebean) | Yellow nutsedge |
| (Coffeeweed) | |

Additional weeds partially controlled by this combination include:

- | | |
|------------------|-------------------|
| Hairy nightshade | Volunteer sorghum |
|------------------|-------------------|

Follow recommended soil preparation recommendations for Sonalan E.C. Apply the tank mixes in a minimum of 10 gallons of water or liquid fertilizer per acre. Mix the tank mix into the top two (2) inches of soil. Apply the tank mixes up to 14 days prior to planting.

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Broadcast Rates per Acre

Use the recommended rates listed for Sonalan E.C. and Dual for the two-way combination; add the recommended rate of Lexone or Sencor for the Sonalan E.C./Dual/Lexone or Sencor tank mix.

Soil Texture	Sonalan E.C.		Dual		Lexone or Sencor	
	General Weed Control	Partial Control of Eastern Black Nightshade	Less than 3% O.M.	3% O.M. or Greater	Lexone 4L or Sencor 4	Lexone Dry Flowable or Sencor Dry Flowable
Coarse	(pints) 1 1/4 - 2	(pints) NA	(pints) 1 1/2 - 2	(pints) 2	(pints) 1/2**	(pounds) 1/3**
Medium	1 1/2 - 2 1/2	3*	2 - 2 1/2	2 - 2 1/2	3/4	1/2
Fine	2 1/4 - 3	3 1/2	2 - 2 1/2	2 1/2 - 3	1	2/3

*Two incorporation passes are required for partial control of eastern black nightshade.

**Do not use Sencor or Lexone on coarse soils with less than one percent (1%) organic matter (O.M.).

Read the Dual, Lexone and Sencor labels for additional weeds controlled, directions, cautions and limitations prior to use.

Soybean - Sonalan E.C./Vernam Tank Mix

Sonalan E.C. plus Vernam should be applied as a preplant incorporated tank mix treatment.

Sonalan E.C./Vernam effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

- Annual morningglory Velvetleaf
- Purple nutsedge Yellow nutsedge
- Sicklepod

Apply Sonalan E.C./Vernam in at least 10 gallons per acre of water or liquid fertilizer. Follow recommended soil preparation procedures. Incorporate the tank mix immediately following application. Read the Vernam label for additional directions, cautions, and limitations prior to use.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Vernam 7E
	General Weed Control	Partial Control of Eastern Black Night-Shade	
Coarse	(pints) 1 1/4 - 2	(pints) N/A	(pints) 2 1/2
Medium	1 1/2 - 2 1/2	3*	3
Fine	2 1/4 - 3	3 1/2*	3

*Two incorporation passes are required for partial control of eastern black nightshade.

Read the Vernam label for additional weeds controlled, directions, cautions and limitations prior to use. Note: Do not use Sonalan E.C. plus Scepter as a two-way preplant incorporated tank mix.

Soybean - Sonalan E.C. Preplant Incorporated Followed by Overlay Treatments (Do Not Use in California)

Sonalan E.C. should be applied as a preplant incorporated treatment. Additional weeds

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tolerant to Sonalan E.C. may be controlled by using overlay preemergence applications of Amben, Canopy, Dual, Gemini, Lasso, Lexion, Lorox, Lorox Plus, Preview, or Sencor. Consult these product labels for additional weeds controlled, application directions and precautions before use. Do not use Scepter as an overlay preemergence treatment following a preplant incorporated treatment with Sonalan E.C.

Soybean - Sonalan E.C. Preplant Incorporated Followed by Postemergence Treatments (Do Not Use in California)

Sonalan E.C. should be applied as a preplant incorporated treatment. Additional weeds tolerant to Sonalan E.C. may be controlled by using postemergence applications of Basagran, Blazer, Classic, or Tackle. Consult these product labels for additional weeds controlled, application directions and precautions before use. Do not use Scepter as a postemergence treatment following a preplant incorporated treatment with Sonalan E.C.

Dry Bean

Dry Bean - Sonalan E.C. - Alone (Does not include soybean)

Sonalan E.C. should be applied as a preplant incorporated treatment. Follow recommended soil preparation application and incorporation procedures for Sonalan E.C.

General weed control - except groundcherry and nightshade:

Broadcast Rates per Acre

Soil Texture	Sonalan E.C. (pints)
Coarse	1 1/2 - 2
Medium	2 - 2 1/2
Fine	2 1/2 - 3

For broader spectrum control, Sonalan E.C. may be used in combination with Amben, Dual,

Eptam or Lasso. Read the combination product label for directions, cautions, and limitations prior to use.

Groundcherry and Nightshade control (annual) - Dry Bean: Two incorporation passes are required for groundcherry and nightshade control.

Do not use these Sonalan E.C. rates for garden bean, green bean, snap bean, or string bean.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C. (pints)
Coarse	3 - 3 1/2
Medium	3 1/2 - 4
Fine	4 - 4 1/2

For broader spectrum control, Sonalan E.C. may be used in combination with Amben, Dual, Eptam or Lasso. Read the combination product label for directions, cautions, and limitations prior to use.

Dry Bean - Sonalan E.C./Amben Tank Mix or Overlay

Sonalan E.C./Amben should be applied as a preplant incorporated tank mix or Sonalan E.C. preplant incorporated followed by an Amben overlay.

The combination of Sonalan E.C./Amben effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

- Black nightshade
- Pennsylvania smartweed
- Common ragweed
- Velvetleaf
- Wild mustard

Follow recommended soil preparation, application and incorporation procedures for Sonalan E.C.

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Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Amben ^{††}	
	General Weed Control	Night-shade and Ground-cherry Control [†]	2S	DS
Coarse	(pints) 1 1/2 - 2	(pints) 3 - 3 1/2	(quarts) 4 - 6	(pounds) 2.4 - 3.6
Medium	1 1/2 - 2 1/2	3 1/2 - 4	4 - 6	2.4 - 3.6
Fine	2 1/4 - 3	4 - 4 1/2	4 - 6	2.4 - 3.6

[†]Two incorporation passes are required for groundcherry or nightshade control.

^{††}Use the higher rate where a heavy population of smartweed, velvetleaf, ragweed, wild mustard, or black nightshade are expected.

Read the Amben label for additional weeds controlled, directions, cautions and limitations prior to use.

Dry Bean - Sonalan E.C./Dual Tank Mix or Overlay

Sonalan E.C./Dual should be applied as a preplant incorporated tank mix or Sonalan E.C. preplant incorporated followed by a Dual overlay. The combination of Sonalan E.C./Dual effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

- Black nightshade
- Red rice
- Gainesgrass
- Southwestern cupgrass
- Prarie cupgrass
- Yellow nutsedge

Additional weeds partially controlled by the combination include:

- Hairy nightshade
- Volunteer sorghum

Follow recommended soil preparation procedures for Sonalan E.C. Apply the tank mix in at least 10 gallons of water per acre up to 14 days prior to planting. Incorporate the tank mix within two (2) days after application in the top two (2) inches of soil. When Dual is applied as an overlay to Sonalan E.C., apply Dual after planting (behind the planter) prior to crop and weed emergence.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Dual SE	
	General Weed Control	Night-shade and Ground-cherry Control [†]	Less than 3% O.M.	3% O.M. or greater
Coarse	(pints) 1 1/2 - 2	(pints) 3 - 3 1/2	(pints) 1 1/2 - 2	(pints) 2
Medium	1 1/2 - 2 1/2	3 1/2 - 4	2 - 2 1/2	2 - 2 1/2
Fine	2 1/4 - 3	4 - 4 1/2	2 - 2 1/2	2 1/2 - 3

[†]Two incorporation passes are required for groundcherry or nightshade control.

Read the Dual label for additional weeds controlled, directions, cautions and limitations prior to use.

Dry Bean - Sonalan E.C./Eptam, Sonalan E.C./EPTC Tank Mixes

Sonalan E.C. plus Eptam or Sonalan E.C. plus EPTC should be applied as a preplant incorporated tank mix treatment.

The tank mixes of Sonalan E.C./Eptam or other Sonalan E.C./EPTC effectively control the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

- Nightshade (black and hairy)
- Nutsedge (purple and yellow)

Follow recommended soil preparation and application directions for Sonalan E.C. Incorporate the tank mix immediately after application.

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Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Epam [†] or other EPTC [†] formulations
	General Weed Control	Night-sheds and Ground-cheny Control [†]	(gallon) 3 1/2 3 1/2
Coarse	(gallon) 1 1/4 - 2	(gallon) 3 - 3 1/2	(gallon) 3 1/2
Medium	1 1/4 - 2 1/2	3 1/2 - 4	3 1/2
Fine	2 1/4 - 3	4 - 4 1/2	3 1/2

[†] Two incorporation passes are required for groundchery or nightshade control.

Read the Epam or other EPTC labels for additional weeds controlled, directions, cautions and limitations prior to use.

Dry Bean - Sonalan E.C./Lasso

Tank Mix

(For use only west of the Mississippi River, except in Kern County, California)

Sonalan E.C./Lasso should be applied as a preplant incorporated tank mix. The combination of Sonalan E.C./Lasso effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

Black nightshade [*]	Red top [*]
Florida pusley	Witchgrass
Galinsoga	Yellow nutsedge [*]
Hairy nightshade [*]	

^{*}Use a minimum of two and one-half (2 1/2) quarts of Lasso on coarse soils and three (3) quarts on medium and fine soils to control these weeds.

Additional weeds partially controlled by this combination include:

Common ragweed	Smartweed
Florida beggarweed	Spray aids (see weed)

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Lasso or Lasso Herbicide [†]
	General Weed Control	Night-sheds and Ground-cheny Control [†]	(gallon) 2 1/2 - 3 2 1/2 - 3 2 1/2 - 3
Coarse	(gallon) 1 1/4 - 2	(gallon) 3 - 3 1/2	(gallon) 2 1/2 - 3
Medium	1 1/4 - 2 1/2	3 1/2 - 4	2 1/2 - 3
Fine	2 1/4 - 3	4 - 4 1/2	2 1/2 - 3

[†] Two incorporation passes are required for groundchery or nightshade control.

Read the Lasso label for additional weeds controlled, directions, cautions and limitations prior to use.

Dry Bean - Sonalan E.C.

replant Incorporated Followed by Basagran Postemergence

Application

Sonalan E.C. should be applied preplant incorporated followed by a postemergence application of Basagran.

The Sonalan E.C./Basagran combination effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

Cockspur	Ragweed
Jimsonweed	Tropic crown
Prickly sida	Velvetleaf

Consult the Basagran label for specific weed growth stage directions to achieve best results.

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21-8-11

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.		Nightshade and Ground-cover Control*	Basagran** (grms)
	General Weed Control	(grms)		
Coarse	1 1/2 - 2	3 - 3 1/2	4 - 4 1/2	2
Medium	2 - 2 1/2	3 1/2 - 4		2
Fine	2 1/2 - 3	4 - 4 1/2		2

* Two incorporation passes are required for groundcherry or nightshade control.

** Apply Basagran as follows for optimum results:

Do not treat earlier than weed stage indicated on Basagran label. Add oil concentrate according to label use directions.

Read the Basagran label for additional weeds controlled, directions, cautions and limitations prior to use.

Peanut

Peanut - Sonalan E.C. - Alone
 Sonalan E.C. should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application and incorporation procedures for Sonalan E.C.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.
Coarse	1 1/2 - 2
Medium	2 - 2 1/2
Fine	2 1/2 - 3

Do not graze or forage crop grown in treated soil or cut for hay or silage.

Peanut - Sonalan E.C./Dual

Tank Mix

Sonalan E.C./Dual should be applied as a preplant incorporated tank mix treatment.

The Sonalan E.C./Dual combination effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:
 Galinsoga
 Prairie cugrass
 Red rice
 Southwestern cugrass
 Yellow nutsedge

Follow recommended soil preparation procedures for Sonalan E.C. Apply the tank mix in at least 10 gallons of water or liquid fertilizer per acre up to 14 days prior to planting. Incorporate the tank mix within two (2) days after application in the top two (2) to three (3) inches of soil.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.	Dual		Ox. TK Nil
		Sourgrass		
Coarse	1 1/2 - 2	1 1/2 - 2		1 1/2 - 2
Medium	1 1/2 - 2 1/2	1 1/2 - 2		1 1/2 - 2
Fine	2 1/2 - 3	1 1/2 - 2		1 1/2 - 2

Read the Dual label for additional directions, cautions and limitations prior to use.

Peanut - Sonalan E.C./Lasso

Tank Mix

Sonalan E.C./Lasso should be applied as a preplant incorporated tank mix treatment. The combination of Sonalan E.C./Lasso effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:
 Galinsoga
 Red rice
 Yellow nutsedge

Follow recommended soil preparation procedures for Sonalan E.C. Apply the tank mix in at least 10 gallons of water or liquid fertilizer per acre up to seven (7) days prior to planting. Incorporate the tank mix within two (2) days after application in the top two (2) to three (3) inches of soil.

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Broadcast Rates per Acre

Soil Texture	Sonolan E.C. (pints)	Lasso 4EC (quarts)
Coarse	1 1/4 - 2	3
Medium	1 3/4 - 2 1/2	3
Fine	2 1/4 - 3	3

Read the Lasso label for additional directions, cautions and limitations prior to use.

Peanut - Sonolan E.C./Vernam Tank Mix

Sonolan E.C./Vernam should be applied as a preplant incorporated tank mix treatment. The combination of Sonolan E.C./Vernam effectively controls the weeds listed for Sonolan E.C. alone for general weed control plus these additional weeds:

- Annual morningglory Sicklespod
- Purple nutsedge Yellow nutsedge

Apply Sonolan E.C./Vernam in at least 10 gallons per acre of water or liquid fertilizer. Follow recommended soil preparation procedures for Sonolan E.C. Sonolan E.C./Vernam can be applied up to 10 days prior to planting. Incorporate the tank mix immediately following application uniformly in the top two (2) to three (3) inches of soil.

Broadcast Rates per Acre

Soil Texture	Sonolan E.C. (pints)	Vernam TE (pints)
Coarse	1 1/4 - 2	2 1/2
Medium	1 3/4 - 2 1/2	3
Fine	2 1/4 - 3	3

Read the Vernam label for additional directions, cautions and limitations prior to use.

Sunflower

Sunflower - Sonolan E.C. - Alone
Sonolan E.C. should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application and incorporation procedures for Sonolan E.C.

For broader spectrum weed control, Sonolan E.C. may be used in combination with Amben and Eptam. Read the combination product label for directions, cautions and limitations prior to use.

General weed control - except groundcherry and nightshade:

Broadcast Rates per Acre

Soil Texture	Sonolan E.C. (pints)
Coarse	1 1/2 - 2
Medium	2 - 2 1/2
Fine	2 1/2 - 3

Precaution: Do not graze or forage crop grown in treated soil or cut for hay or silage.

Sunflower - Sonolan E.C./Amben Tank Mix or Overlay

Sonolan E.C./Amben should be applied as a preplant incorporated tank mix treatment or Sonolan E.C. preplant incorporated followed by an Amben overlay treatment. The Sonolan E.C./Amben combination effectively controls the weeds listed for Sonolan E.C. alone for general weed control plus these additional weeds:

- Black nightshade Velvetleaf
- Common ragweed Wild mustard
- Pennsylvania smartweed

Broadcast Rates per Acre

Soil Texture	Sonolan E.C.	Amben	
	General Weed Control	Amben 2S	Amben DS
Coarse	(pints) 1 1/4 - 2	(quarts) 4 - 6†	(pounds) 24 - 36†
Medium	1 3/4 - 2 1/2	4 - 6	24 - 36
Fine	2 1/4 - 3	4 - 6	24 - 36

† Use the higher rate where heavy populations of black nightshade, ragweed, smartweed, velvetleaf or wild mustard are expected.

Precaution: Do not graze or forage crop grown in treated soil or cut for hay or silage.

Read the Amben label for additional weeds controlled, directions, cautions and limitations prior to use.

Sunflower - Sonalan E.C./Eptam or Sonalan E.C./EPTC Tank Mix for Use Only in North Dakota, South Dakota and Minnesota

Sonalan E.C./Eptam or Sonalan E.C./EPTC should be applied as a preplant incorporated tank mix treatment.

The Sonalan E.C./Eptam tank mix effectively controls the weeds listed for Sonalan E.C. alone for general weed control plus these additional weeds:

- | | |
|---------------------------------------|------------------------|
| Annual Weeds | Perennial Weeds |
| Annual morningglory | Bermudagrass |
| Bermudagrass (seedling) | Purple nutsedge |
| Black nightshade | Yellow nutsedge |
| Corn spurry | |
| Fiddleneck | |
| Goosefoot nettleleaf | |
| Hairy nightshade | |
| Rescuegrass | |
| Ryegrass (Italian) | |
| Shepherdspurse | |
| Tumble pigweed | |
| Volunteer grains (barley, oat, wheat) | |

Follow recommended soil preparation directions for Sonalan E.C. Apply the tank mix in at least 10 gallons of water or liquid fertilizer per acre. Apply and immediately incorporate the tank mix prior to planting in the spring.

Broadcast Rates per Acre

Soil Texture	Sonalan E.C. General Weed Control	Eptam 7E or other EPTC 7E formulations
Coarse	(grains) 1 1/4 - 2	(grains) 2 1/2 - 3 1/2
Medium	1 3/4 - 2 1/2	2 1/2 - 3 1/2
Fine	2 1/4 - 3	2 1/2 - 3 1/2

Precaution: Do not graze or forage crop grown in treated soil or cut for hay or silage.

Read the Eptam or other EPTC labels for additional weeds controlled, directions, cautions and limitations prior to use.

Dry Peas

Dry Peas - Sonalan E.C. - Alone (Do Not Use in California)

Sonalan E.C. should be applied as a preplant incorporated treatment. Follow recommended soil preparation, application and incorporation procedures for Sonalan E.C.

General weed control - except groundcherry and nightshade:

Broadcast Rates per Acre

Soil Texture	Sonalan E.C.
Coarse	(grains) 1 1/2 - 2
Medium	2

Precaution: Do not exceed these Sonalan E.C. rates for weed control in dry peas or crop injury may occur. Not all varieties of peas have been tested for tolerance to Sonalan E.C. Consult your seed contractor before applying Sonalan E.C. to determine the tolerance of a particular pea variety. Application of Sonalan E.C. to non-tolerant pea varieties may result in crop injury and reduced yields. Do not graze or forage crop grown in treated soil or cut for hay or silage.

Sonalan E.C. Performance Guarantee

A Limited Warranty of Sonalan E.C. Weed and Grass Control

DowElanco warrants that Sonalan E.C. will provide commercially acceptable control of the weeds and grasses as indicated on its current label when used according to label directions and subject to the following limitations:

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1. Purchaser must notify DowElanco promptly if a lack of commercially acceptable control occurs. Notice must be given within forty five (45) days after the first planting or after application of Sonalan E.C. to the treated crop, whichever occurs later.
2. A DowElanco representative must be satisfied that Purchaser used Sonalan E.C. according to the label directions.
3. The Purchaser must provide a DowElanco representative with an invoice or other satisfactory record which shows the price and quantity of Sonalan E.C. purchased.
4. DowElanco's liability will be limited to a refund of the purchase price of the Sonalan E.C. applied to the acreage on which commercially acceptable control was not obtained.
5. Void outside the USA.

Warranty Disclaimer

DowElanco warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. DOWELANCO MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by Buyer.

Limitation of Remedies

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at DowElanco's election, one of the following:

- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used.

DowElanco shall not be liable for losses or damages resulting from handling or use of this product unless DowElanco is promptly notified of such loss or damage in writing. In no case shall DowElanco be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer above and the Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of DowElanco or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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