

**Master Label**

**Surround<sup>®</sup> CF CROP PROTECTANT**

Surround CF Crop Protectant Forms a Barrier Film, Which Acts as a Broad Spectrum Agricultural Crop Protectant for Controlling Damage from Various Insect, Mite, and Disease Pests, Growth Enhancer, and Protectant Against Sunburn and Heat Stress

**ACTIVE INGREDIENT:**

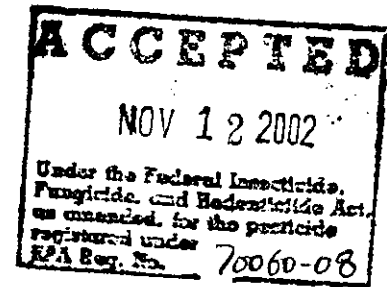
Kaolin:.....	95.0%
Other INGREDIENTS:.....	5.0%
Total: 100.0%	

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

Manufactured by:  
ENGELHARD CORPORATION  
101 Wood Avenue  
Iselin, NJ 08830

**Net Weight**  
EPA Reg. No. 70060-8  
EPA Est. No. 70060-GA-001 or 70060-AL-001



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**General Agricultural Label**

**Surround<sup>®</sup> CF CROP PROTECTANT**

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101 Wood Avenue  
Iselin, NJ 08830

**Net Weight 50 lbs (22.6 kg)**

EPA Reg. No. 70060-8  
EPA Est. No. 70060-GA-001 or 70060-AI-001

**OMRI  
Listed**

The use of Surround<sup>®</sup> CF in agricultural crop protection applications is covered by US Patents 6,027,740; 6,069,112; 6,110,869 and 6,156,327.

FIRST AID	
If in eyes	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
HOT LINE NUMBER	
You may contact 1-800-424-9300 for emergency medical treatment information.	

## PRECAUTIONARY STATEMENTS

### HAZARD TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Causes moderate eye irritation. Avoid contact with eyes or clothing. May cause irritation to the respiratory system. Avoid breathing dust or mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

### PERSONAL PROTECTIVE EQUIPMENT

Applicators, pickers, and other handlers must wear:  
Long sleeved shirt, long pants, socks and shoes, and a dust/mist-filtering respirator with (MSHA/NIOSH approval number prefix TC-21C), or a NIOSH approved respirator with any N. R. P. or HE filter.

### ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water.

## DIRECTIONS FOR USE

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

Surround CF should be used only in accordance with recommendations on this label or in separately published Engelhard supplemental labeling recommendations.

## AGRICULTURAL USE REQUIREMENTS

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, in forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. **The restricted-entry interval (REI) is 4 hours from the time of application. Do not allow worker entry into treated areas during the restricted-entry interval (REI).** Personal protection equipment required for early entry workers are long-sleeved shirts, long pants, and shoes plus socks.

## I. GENERAL INFORMATION

**Surround CF** protectant forms a mineral-based particle film intended for protection of agricultural crops. When **Surround CF** is applied to plants, a dry white film results. The **Surround CF** barrier will help reduce the damage to plants and crops caused by certain insects, mites, disease, and environmental stresses such as solar effects. This product may be used as the primary component in a pest management system that utilizes supplementary compatible pesticides.

### **Plant Response Precautions:**

Lack of adhesion or film formation on foliage or fruit may indicate spray incompatibility with the plant surface or previously applied materials.

Ensure that plant leaf and fruit surfaces are dry before applying or poor adhesion or film formation will occur.

Do not spray where a visible white film is undesirable or cannot be washed off.

### **a. Mix Instructions:**

#### **For Agitating Sprayer Tanks**

**For Concentrate Application** - Use 50 lbs. of **Surround CF** per 100 gallons of water.

**For Dilute Application** - Use 50 lbs. of **Surround CF** per 200 gallons of water.

The following mixing sequence must be followed:

1. Slowly add **Surround CF** powder into the water in a recirculating sprayer tank. Add directly into the mix basket. If there is no mix basket, add powder very slowly to the recirculating water. Mix thoroughly.
2. Add Engelhard M-03 or Engelhard D-22 Spreader/Sticker per the use instructions on their labels.

If Organic growing practices are used, use Engelhard O-23 Spreader/Sticker per use instructions on the label. (Check with your organic material regulating body to determine if Engelhard O-23 spreader/sticker is approved).

3. Add tank mix pesticides, if any.
4. Continue agitation until all of the material is sprayed from the tank.
5. At the end of the application, spray until empty and flush system and nozzles with fresh water. Properly dispose of rinse water.

#### **For Non-agitating Sprayer Tanks, Such as Backpack Sprayers**

The following mixing sequence must be followed:

1. Use **Surround CF** powder at a rate of ½ lb. of **Surround CF** powder per one gallon of water.
2. While stirring or swirling, slowly add **Surround CF** powder into ¼ to ½ of the water that will be used in the batch.
3. Add Engelhard M-03 or Engelhard D-22 Spreader/Sticker per the use instructions on their labels.

If Organic growing practices are used, use Engelhard O-23 Spreader/Sticker spreader per use instructions on the label. (Check with your organic material regulating body to determine if Engelhard O-23 Spreader/Sticker is approved).

4. Mix thoroughly by shaking the closed container vigorously for 30 seconds.
5. Add tank mix pesticides, if any.
6. Add the remainder of the batch water and shake for an additional 30 seconds.
7. Shake the sprayer occasionally during application
8. At the end of the application, spray until empty and flush system and nozzles with fresh water. Properly dispose of rinse water.

## b. Compatibility:

**Surround CF** is not generally effected by most other insecticides, miticides, and fungicides. However, the user should test tank mixes before use. When mixing with other products, make up a small batch and observe slurry and film characteristics. Curdling, precipitation, lack of film formation, or changes in viscosity are signs of incompatibility. Do not tank mix with sulfur, copper, or bourdeaux mixture fungicides. **Always add tank mix pesticides after the Surround CF powder and spreader/sticker have been added.** Use of anti-foaming agents is not recommended.

**Use of Engelhard-supplied spreader/stickers is essential.** Use of other spreader/stickers may cause poor film formation, inadequate adhesion, settling, clogging, equipment damage or may make Surround CF difficult to remove from fruit surfaces. Only Engelhard M-03, D-22, and 0-23 spreader/stickers are approved for use with Surround CF.

**Do not use additional spreader/stickers.** Products that specify other spreader/stickers cannot be tank mixed with Surround CF.

## c. General Application Guidelines (see, also, specific crop use instructions):

**Coverage:** Use sufficient spray volume to obtain thorough coverage. For optimal performance, applications must coat all portions of plant that are to be protected, including both sides of the leaves. Applications can be made with any commercial air blast or high-pressure sprayer that provides enough air turbulence to coat both sides of the leaves, bark, and fruit. Tractor speed must not exceed 3 mph.

**Plant Color Change:** All plant surfaces must turn a hazy white color after drying. Additional treatments will turn the plant surfaces a deeper white. This is normal, and is indicative of appropriate film formation. Generally, two or more coatings are required for complete coverage and for establishment of the foundation of the protective barrier.

**Foliage Dryness:** Apply only to dry foliage. Do not apply to wet foliage or poor coverage and adhesion will result.

**Droplet Size:** Nozzles that produce a fine spray are recommended when Surround CF is used under normal temperature and humidity conditions. Under very hot and dry conditions, nozzles that produce a coarser spray and larger volumes may be necessary. Otherwise, the product may dry before it contacts the foliage and will result in poor film formation.

**Spray Methods:** Air blast or high-pressure sprayers are required. Observe specific crop label instructions for directions regarding spray volume. Calibrate spray equipment per equipment manufacturer to deliver the required volume. The flow rate of this product is similar to water. Use strainers in the spray system and behind each nozzle per normal practice.

**Reapplication:** Reapplication is generally required every 7-14 days when using Surround CF with Engelhard M-03 or O-23 Spreader/Sticker and every 10 to 17 days when using Surround CF with Engelhard D-22 Spreader/Sticker. Intervals can be widened later in the season when new growth diminishes.

**When the dry foliage has lost its white appearance, reapplication is necessary.** Heavy rainfall, new growth, and wind erosion will affect film quality. Reapply to re-establish coverage after heavy rain as soon as the foliage is dry.

**Overhead Irrigation Considerations:** Overhead irrigation will wash off the film and reduced efficacy will result. Overhead irrigation is not preferred, but, if used, should be used just prior to the next application to prevent premature wash-off. Do not apply Surround CF through sprinkler irrigation systems or by air.

#### **d. General Insect and Mite Control:**

Surround CF is a protectant/repellent that forms a film barrier to insects and mites. **For optimum performance, begin application before a particular insect or mite outbreak occurs; thorough coverage must be in place before the pest outbreak. Thorough, uniform, and consistent coverage is essential for effective control.**

#### **e. Growth Enhancer, Sunburn and Heatstress Protectant:**

When applied at recommended rates and frequencies, benefits such as increased plant vigor and improved yields may occur on many fruit and nut trees. Under high ambient temperatures, M-98-A05 reduces canopy temperature and, therefore, can help to reduce heat and water stress. When M-98-A05 is used under certain weather conditions, many pome and stone fruit varieties have shown improved fruit color, smoothness, and size with less russet, sunburn, and cracking.

**For sunburn reduction, apply before conditions leading to sunburn occur. Apply concentrate spray at least every 7-14 days, to ensure complete coverage of fruit surfaces. Under windy conditions, particle film may be rubbed off by leaf movement making reapplication necessary.**

**If initiating sprays for sunburn reduction where there have been no prior sprays, through coverage of all fruit surfaces must be in place just prior to sunburn-causing conditions. To achieve optimal coverage, it is necessary to start the spray program with either two concentrate applications 5-7 days apart, or, one application with twice the concentrate use rate of per acre (for example, for nominal 12' trees, 100 lbs per acre in 200 gallons of water).**

#### **f. Packing and Processing:**

Washing is required unless films weather off before harvest. Most residues wash off with packing line brushing and forced water sprays. An approved washing detergent may be used in the packing

line and/or wash tank. A pre-harvest washing trial is recommended to determine if a washing detergent is necessary. Waxing further improves fruit appearance.

**g. Organic Growing Considerations:**

1. Washing is usually necessary to remove film. Consult your organic materials regulating body for approved fruit cleaning products. Plain water brushing and/or hand wiping can remove film from firm smooth-skinned fruit such as apples, pears, and nectarines.
2. Tank mixes with pyrethrins, potassium salts of fatty acids, and rotenone are generally compatible but curdling, precipitation, uneven film formation, or changes in viscosity are signs of incompatibility. Test mix compatibility before use. If these conditions occur, do not tank mix **Surround CF**.
3. Do not tank mix or over spray with sulfur, copper, or bourdeaux mixture fungicides.
4. Use Engelhard O-23 Spreader/Sticker only. Check with your organic material regulating body to determine if O-23 Spreader/Sticker is approved.

**II. TREE FRUIT AND NUT CROPS**

Apply sufficient spray volume to obtain thorough coverage.

**The plant surface must turn a hazy white color after drying.** Additional treatments will turn the plant surface a deeper white. This is normal, and is indicative of appropriate film formation. **Generally, two or more coatings are required for complete coverage and for establishment of the foundation of the protective barrier.**

Maintain film coverage to maximize potential PGR and solar protectant benefits. If rainy weather reduces coverage on leaves and fruit, reapply to reestablish coverage.

**Estimate\* rates based on the table below:**

**Concentrate Application**

<u>Approx. Tree Height</u>	<u>Gallons of Mix per Acre</u>	<u>Lbs. of M-98-A05 per Acre</u>
6	50	25
12	100	50
18	150	75
24	200	100

**Dilute Application\*\***

<u>Approx. Tree Height</u>	<u>Gallons of Mix per Acre</u>	<u>Lbs. of M-98-A05 per Acre</u>
6	100	25



12	200	50
18	300	75
24	400	100

\*Estimate rates are based on tree height only. Tree spacing, pruning practices, time of season, and cultivar type affect spray rates. High density or low-density foliage will require correspondingly higher or lower rates. **A visual inspection of film deposition and completeness of coverage is crucial for fine-tuning spray amounts.**

\*\* Apply to near-drip. Do not apply to excessive drip.

Continue applications up to 10 days prior to harvest to maximize **Surround CF** horticultural benefits.

Fungicides, insecticides, miticides, and bactericides may be tank mixed or over-sprayed according to their product label use instructions. If tank mixing pesticides, follow the pre-harvest interval of those pesticides but in no cases apply tank mixes within 10 days prior to harvest. If using **Surround CF** alone, reapply as needed up to harvest.

### **For heat stress relief for tree fruit and nut crops**

Apply at 7 to 14 day intervals starting when temperatures reach 90 degrees F or when heat stress is known to occur. Do not spray during bloom. Resume treatments within three days of first petal fall. Application intervals may be widened to 14 to 21 days as new growth slows or when dry periods occur, being sure to maintain good film coverage to maximize potential benefits of **Surround CF**.

**Washing is recommended; most residues wash off with brushing and forced water sprays. An approved fruit cleaning detergent may be used in the packing line and/or wash tank. A pre-harvest washing trial is recommended to determine if a detergent is necessary. Waxing further improves fruit appearance.**

## **Pears**

### **For pear psylla control:**

- Dilute applications are recommended. Adjust volume per tree height to insure thorough coverage without excessive drip.
- Apply every 7 –14 days from green cluster bud through popcorn. A spray at popcorn is recommended to cover the bloom period. Resume **Surround CF** application within three days

of first petal fall, following a 10 to 14 day spray schedule under normal non-rainy conditions. Reapplication following heavy rain may be necessary.

- Application intervals may be widened to 14 to 21 days as new growth slows or when dry periods occur.

**For suppression of twospotted spider mite, European red mite, pear rust mite, mealy bug, thrips, leafhoppers, green fruit worm, codling moth, California pear slug, Lygus bugs, obliquebanded leafroller, pandemus leafroller, tarnished plant bug, stink bugs, and fabraea leaf spot:**

Spray per recommendations for psylla control or spray before expected infestation and continue at 7 to 14 day intervals. Do not widen spray intervals beyond 14 days to achieve season-long suppression. Do not spray during bloom. Resume treatments within three days of first petal fall. Supplemental pest control methods may be needed for full control; especially for codling moth.

Continue applications to maximize Surround CF horticultural benefits.

Fungicides, insecticides, miticides, and bactericides may be tank mixed, if compatible, or over-sprayed according to their product label use instructions. If tank mixing pesticides, follow the pre-harvest interval of those pesticides but in no case apply tank mixes within 10 days prior to harvest. If using M-98-A05 alone, reapply as necessary up to harvest.

## Apples

**For control of over-wintering obliquebanded leafroller**

- Apply two sprays 7 days apart from delayed dormant to pink.

**For control of leafhoppers**

- Apply every 7 to 14 days starting within three days of first petal fall.

**For suppression of European red mite, apple rust mite, two-spotted mite, codling moth, plum curculio, Leafminers, apple sucker, Lygus bugs, pandemus leafroller, tarnished plant bug, stink bugs, apple maggot, thrips, green fruitworms, and aphids:**

- Apply at 7 to 14 day intervals starting at delayed dormant. Do not spray during bloom. Resume treatments within three days of first petal fall applying at 7 to 14 day intervals. Application intervals may be widened to 14 to 21 days as new growth slows or when dry periods occur. Be sure to maintain a good film coverage to maximize potential benefits of Surround CF. Supplemental pest control methods may be needed for full control; especially for codling moth.

**Surround CF** may improve fruit quality if applications resume at initial petal fall and are continued up until 10 days prior to harvest. When applied at recommended rates and frequencies, benefits such as increased plant vigor and improved yields may occur in certain apple cultivars. Under high ambient temperatures, **Surround CF** reduces canopy temperature and, therefore, can help to reduce heat and water stress. Many apple cultivars have shown improved fruit color, smoothness, and size with less russet, sunburn, and cracking when **Surround CF** is used.

**For sunburn reduction, apply before conditions leading to sunburn occur. Apply concentrate spray at least every 7-14 days, to ensure complete coverage of fruit surfaces. Under windy conditions, particle film may be rubbed off by leaf movement making reapplication necessary.**

**If initiating sprays for sunburn reduction where there have been no prior sprays, through coverage of all fruit surfaces must be in place just prior to sunburn-causing conditions. To achieve optimal coverage, it is necessary to start the spray program with either two concentrate applications 5-7 days apart, or, one application with twice the concentrate use rate of per acre (for example, for nominal 12' trees, 100 lbs per acre in 200 gallons of water).**

Fungicides, insecticides, miticides, and bactericides may be tank mixed, if compatible, or over-sprayed according to their product label use instructions. If tank mixing pesticides, follow the pre-harvest interval of those pesticides but in no cases apply tank mixes within 10 days prior to harvest. If using **Surround CF** alone, reapply as needed up to harvest.

### **Stone Fruit – Apricots, cherries, nectarines, peaches, plums, and prunes**

#### **For control of Japanese beetle**

- Apply one week prior to the expected infestation period and follow with three to four additional applications at 5 to 7 day intervals.

#### **For suppression of European red mite, twospotted spider mite, peach silver mite, thrips, stink bugs, oriental fruit moth, tarnished plant bug, European earwig, June beetle, peach twig borer, naval orange worm, and plum curculio**

- Apply at 7 to 14 day intervals starting at bud swell and ending at pink. Do not spray during bloom. Resume treatments within three days of first petal fall. Application timing may be widened when new growth slows or when dry period occur. Be sure to maintain good film coverage to maximize potential benefits of **Surround CF**. Supplemental pest control methods may be needed for full control.

Continue applications to maximize **Surround CF** horticultural benefits.

Fungicides, insecticides, miticides, and bactericides may be tank mixed, if compatible, or over-sprayed according to their product label use instructions. If tank mixing pesticides, follow the pre-harvest interval of those pesticides but in no cases apply tank mixes within 10 days prior to harvest. If using **Surround CF** alone, reapply as necessary up to harvest.

**Special Washing Considerations for Stone Fruit: Washing is required; especially for fuzzy peaches. Most residues wash off with brushing and forced water sprays. An approved fruit cleaning detergent may be used in the packing line and/or wash tank. Prior to brushing, a pre-soak in approved fruit cleaning detergent is usually needed for fuzzy peaches. A pre-harvest washing trial is recommended to determine if a detergent is necessary. Waxing further improves fruit appearance.**

### **Citrus Fruits – Lemons, Limes, Grapefruit, and Oranges**

#### **For suppression of thrips and mites**

- Apply at 7 to 14 day intervals starting within three days of first petal fall. Application timing may be widened during dry periods to once every 14 to 21 days, being sure to maintain good film coverage to maximize potential benefits of **Surround CF**. Supplemental pest control methods may be needed for full control.

Continue applications to maximize **Surround CF** horticultural benefits.

Fungicides, insecticides, miticides, and bactericides may be tank mixed, if compatible, or over-sprayed according to their product label use instructions. If tank mixing pesticides, follow the pre-harvest interval of those pesticides but in no cases apply tank mixes within 10 days prior to harvest. If using **Surround CF** alone, reapply as necessary up to harvest.

### **Nut Trees – Walnuts, Pecans, and Almonds**

#### **For suppression of mites**

- Apply at 7 to 14 day intervals starting after nut set. Application timing may be widened during dry periods to once every 14 to 21 days, being sure to maintain good film coverage to maximize potential benefits of **Surround CF**. Supplemental pest control methods may be needed for full control.

Continue applications to maximize **Surround CF** horticultural benefits.

Fungicides, insecticides, miticides, and bactericides may be tank mixed or over-sprayed according to their product label use instructions. If tank mixing pesticides, follow the pre-harvest interval of those pesticides but in no cases apply tank mixes within 10 days prior to harvest. If using **Surround CF** alone, reapply as necessary up to harvest.

### III. SMALL FRUIT CROPS

Apply sufficient spray volume to obtain thorough coverage.

**Apply only to fruits to be used for processing.**

**Application of plain water via normal sprayer prior to harvest may help to reduce Surround CF residues. This may be particularly helpful for wine grapes.**

Continue applications to maximize Surround CF horticultural benefits.

Fungicides, insecticides, miticides, and bactericides may be tank mixed, if compatible, or over-sprayed according to their product label use instructions. If tank mixing pesticides, follow the pre-harvest interval of those pesticides but in no cases apply tank mixes within 10 days prior to harvest. If using Surround CF alone, reapply as necessary up to harvest.

#### **Blackberries, Raspberries, Dewberries, Boysenberries, Loganberries, and Blueberries**

**For suppression of blackberry psyllid, European raspberry aphid, Japanese beetle, leafhoppers, thrips, twospotted spider mite, and European red mite**

- Apply 12.5 to 50 lbs. per acre at 7 to 14 day intervals starting after fruit set. Application timing may be widened during dry periods to once every 14 to 21 days, being sure to maintain good film coverage to maximize potential benefits of Surround CF. Supplemental pest control methods may be needed for full control.

#### **Wine Grapes**

**For suppression of European red mite, two-spotted spider mite, omnivorous leafroller, grape leafroller, grape leaf skeletonizer, leafhoppers, Japanese beetle, June beetle, and thrips**

- Apply at 12.5 to 50 lbs per acre at 7 to 14 day intervals starting after fruit set. Application timing may be widened during dry periods to once every 14 to 21 days, being sure to maintain good film coverage to maximize potential benefits of Surround CF. Supplemental pest control methods may be needed for full control.

## IV. FIELD AND VEGETABLE CROPS

Apply sufficient spray volume to obtain thorough coverage.

Fungicides, insecticides, miticides, and bactericides may be tank mixed, if compatible, or over-sprayed according to their product label use instructions. If tank mixing pesticides, follow the pre-harvest interval of those pesticides but in no cases apply tank mixes within 10 days prior to harvest. If using **Surround CF** alone, reapply as necessary up to harvest.

For difficult to wash or unwashed crops, especially in low rainfall areas, it is recommended to stop spraying 30 days prior to harvest or when fruit are small. For crops where the produce is not directly sprayed by **Surround CF** (e.g. potato, shelled beans, and radishes), **Surround CF** may be applied up to the day of harvest. Cotton may be sprayed until 10 days before harvest.

**Washing is recommended; most residues wash off with brushing and forced water sprays; an approved detergent may be used in the packing line and/or wash tank. A pre-harvest washing trial is recommended to determine if a detergent is necessary.**

**For heat stress relief and sunburn protection of field and vegetable crops**

- Apply at 7 to 14 day intervals starting when heat stress or sunburn is known to occur. Application timing may be widened to 14 to 21 days as new growth slows or when dry periods occur, being sure to maintain good film coverage to maximize potential benefits of **Surround CF**.

### **Beans**

**For suppression of alfalfa looper, aphids, Fall armyworm, flea beetle, Mexican bean beetle, European red mites, Japanese beetle, leafhoppers, Lygus bug, stink bugs, tarnished plant bug, three cornered alfalfa hopper, thrips, twospotted spider mite, velvetbean caterpillar**

- Apply 6.25 to 12.5 lbs per acre at 7 to 14 day intervals starting after fruit set. Application timing may be widened during dry periods to once every 14 to 21 days, being sure to maintain good film coverage to maximize potential benefits of **Surround CF**. Supplemental pest control methods may be needed for full control.

### **Collards, Garden Beet, Sugar beet, Horseradish, Radishes Rutabagas, and Turnips**

**For suppression of European red mites, flea beetle, harlequin bug, leafhoppers, tarnished plant bug, twospotted spider mite, imported cabbage worm**

- Apply 6.25 to 12.5 lbs per acre at 7 to 14 day intervals starting after fruit set. Application timing may be widened during dry periods to once every 14 to 21 days, being sure to maintain good film coverage to maximize potential benefits of **Surround CF**. Supplemental pest control methods may be needed for full control.

## **Cotton**

**For suppression of cotton fleahopper, European red mites, flea beetles, tarnished plant bug, thrips, twospotted spider mite, whiteflies**

- Apply 6.25 to 12.5 lbs per acre at 7 to 14 day intervals starting after fruit set. Application timing may be widened during dry periods to once every 14 to 21 days, being sure to maintain good film coverage to maximize potential benefits of **Surround CF**. Supplemental pest control methods may be needed for full control.

## **Potato, Tomato, Eggplant, Pepper**

**For suppression of European red mites, Colorado potato beetle, flea beetles, lace bugs, leafhoppers, stink bugs, tarnished plant bug, tomato fruit worm, tomato pinworm, twospotted spider mite**

- Apply 6.25 to 25 lbs per acre at 7 to 14 day intervals starting one week before infestation is expected. Supplemental pest control methods may be needed for full control.

## **Onions**

**For suppression of onion thrips**

- Apply 6.25 to 12.5 lbs per acre at 7 to 14 day intervals starting one week before infestation is expected. Supplemental pest control methods may be needed for full control.

## **Cucurbits**

**For suppression of cucumber beetles**

- Apply 6.25 to 25 lbs per acre at 7 to 14 day intervals starting one week before infestation is expected. Supplemental pest control methods may be needed for full control.

### **STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage and disposal.

**PESTICIDE STORAGE:** Store in a dry, sheltered location. Product is slippery when wet. In case of spill or leak, avoid breathing dust, clean up and dispose of wastes in compliance with applicable Federal, State, and local regulations.

**PESTICIDE DISPOSAL:** Pesticide, spray mixture or rinsate that cannot be used according to label instructions must be disposed of according to applicable Federal, State, and local procedures.

**CONTAINER DISPOSAL:** Completely empty bag into application equipment. Dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of the smoke.

**CONDITIONS OF SALE, WARRANTY STATEMENT, DISCLAIMER**

THE MANUFACTURER WARRANTS THAT THIS PRODUCT CONFORMS TO THE CHEMICAL DESCRIPTION ON THE LABEL AND THAT, SUBJECT TO THE INHERENT RISKS DISCUSSED BELOW, THIS PRODUCT IS REASONABLY FIT FOR THE PURPOSES SET FORTH IN THIS LABEL WHEN USED UNDER NORMAL CONDITIONS AND STRICTLY IN ACCORDANCE WITH THE DIRECTION, WARNINGS, AND OTHER STATEMENTS ON THIS LABEL. IT IS IMPOSSIBLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT. CROP INJURY, INEFFECTIVENESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT BECAUSE OF SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF MANUFACTURER. ALL SUCH RISKS ARE ASSUMED BY BUYER/USER. THE DIRECTIONS, WARNINGS AND OTHER STATEMENTS ON THIS LABEL ARE BASED UPON REASONABLE EXPERTS' EVALUATIONS OF REASONABLE TESTS OF EFFECTIVENESS, AND UPON REPORTS OF FIELD EXPERIENCE. TESTS HAVE NOT BEEN MADE UNDER ALL CONDITIONS.

**THE MANUFACTURER NEITHER INTENDS, NOR DOES IT AUTHORIZE ANY AGENT OR REPRESENTATIVE TO MAKE ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, AND IT EXPRESSLY EXCLUDES AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

THIS WARRANTY DOES NOT EXTEND TO, AND THE BUYER SHALL BE SOLELY RESPONSIBLE FOR, ANY AND ALL LOSSES OR DAMAGE WHICH MAY RESULT FROM THE USE OF THIS PRODUCT IN ANY MANNER WHICH IS INCONSISTENT WITH THE LABEL, DIRECTIONS, WARNINGS OR CAUTIONS.

BUYER'S EXCLUSIVE REMEDY AND MANUFACTURER'S OR SELLER'S EXCLUSIVE LIABILITY FOR ANY AND ALL CLAIMS, LOSSES, DAMAGES OR INJURIES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. WHETHER BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, TORT OR OTHERWISE, SHALL BE LIMITED, AT THE MANUFACTURER'S OPTION, TO REPLACEMENT OF, OR REFUND OF THE PURCHASE PRICE FOR THE QUANTITY OF PRODUCT WITH RESPECT TO WHICH DAMAGES ARE CLAIMED. IN NO EVENT SHALL MANUFACTURER OR SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

ENGELHARD OFFERS THIS PRODUCT FOR SALE AT ALL TIMES SUBJECT TO THE FOREGOING.

**Surround CF Crop Protectant**  
*An HPF™ Particle Film Technology Product*



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**Early Season Use SubLabel**

**Surround<sup>®</sup> CF Crop Protectant**

Surround CF Crop Protectant Forms a Barrier Film, Which Acts as a Broad Spectrum Agricultural Crop Protectant for Controlling Damage from Various Insect Pests. Surround CF is Specially Designed for Rapid Mixing in Cold Water.

**ACTIVE INGREDIENT:**

Kaolin:.....	95.0%
Other INGREDIENTS:.....	5.0%
Total: 100.0%	

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

Manufactured by:  
**ENGELHARD CORPORATION**  
101 Wood Avenue  
Iselin, NJ 08830

**Net Weight 50 lbs (22.6 kg)**  
EPA Reg. No. 70060-08

EPA Est. No. 72797-AL-001 or 70060-GA-001

**OMRI  
Listed**

**The use of Surround<sup>®</sup> CF in agricultural crop protection applications is covered by US Patents 6,027,740; 6,069,112; 6,110,869 and 6,156,327.**

FIRST AID	
If in eyes	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
HOT LINE NUMBER	
You may contact 1-800-424-9300 for emergency medical treatment information.	

## PRECAUTIONARY STATEMENTS

### HAZARD TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Causes moderate eye irritation. Avoid contact with eyes or clothing. May cause irritation to the respiratory system. Avoid breathing dust or mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

### PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

Long sleeved shirt, long pants, socks and shoes, and a dust/mist-filtering respirator (MSHA/NIOSH approval number prefix TC-21C), or a NIOSH approved respirator with any N. R. P. or HE filter.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

Nuisance dust masks and goggles are recommended for harvesters especially when plants are shaken during harvest.

### ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water.

## DIRECTIONS FOR USE

### AGRICULTURAL USE REQUIREMENTS

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, in forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. **The restricted-entry interval (REI) is 4 hours from the time of application. Do not allow worker entry into treated areas during the restricted-entry interval (REI).** Personal protection equipment required for early entry workers are long-sleeved shirts, long pants, and shoes plus socks.

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

Do not apply Surround CF through any type of irrigation system.

Surround CF should be used only in accordance with recommendations on this label or in separately published Engelhard supplemental labeling recommendations.

## I. GENERAL INFORMATION

Surround CF protectant forms a mineral-based particle film intended for protection of agricultural crops. When Surround CF is applied to plants, a dry white film results. Surround CF is specially designed for rapid mixing into cold water (less than 40° F). Pests May be listed as suppressed, which means that full control may not be achieved, and supplemental methods may be needed to enhance the level of control. **Thorough, uniform, and consistent coverage is essential throughout the infestation or stress period.**

- **Pre-harvest intervals (PHI):** Surround CF applications on pears are only allowed until fruit set. Do not use the Surround CF formulation after fruit set. Other Surround formulation(s) are designed for uses after fruit set.

### a. Mix Instructions:

#### For Agitating Sprayer Tanks

1. Slowly add Surround CF powder into the water in a recirculating sprayer tank, making sure to keep agitation brisk. It is not recommended to add Surround CF to a sprayer tank that does not have adequate agitation. Add directly into the mix basket if pump recirculation empties into the mix basket. If there is no mix basket, add Surround CF very slowly to the recirculating water. Avoid dumping Surround CF directly into pump intake area as this could plug the filter or intake. Mix thoroughly.
2. Add tank mix pesticides, such as oils, if any.

3. Continue agitation until all of the material is sprayed from the tank.
4. At the end of the application, spray until empty and flush system and nozzles with fresh water. Periodically check in-line strainer and clean if necessary. Properly dispose of rinse water.

**For Non-agitating Sprayer Tanks, Such as Handheld and Backpack Sprayers**

1. Use Surround CF powder at a rate of ¼ to ½ lb of Surround CF powder per one gallon of water. One-half pound is approximately 3 cups. For sprayers difficult to shake, premix in a 5 gallon bucket, stir, and pour suspension into sprayer.
2. While stirring or swirling, slowly add Surround CF powder into ¼ to ½ of the water that will be used in the batch.
3. Mix thoroughly by shaking the closed container vigorously for 30 seconds.
4. Add tank mix pesticides, such as oils, if any.
5. Add the remainder of the batch water and shake for an additional 30 seconds.
6. Shake the sprayer occasionally during application.
7. At the end of the application, spray until empty and flush system and nozzles or, blow air pressure out of the line and nozzle then store in a cool place. Apply the leftover mix within two weeks to avoid spoilage. Rinse the sprayer before next batch.

**b. Compatibility:**

Surround CF is not generally affected by most other insecticides, miticides (including agricultural oils), and fungicides. However, the user should test tank mixes before use. When mixing with other products, make up a small batch and observe slurry and film characteristics. Curdling, precipitation, lack of film formation, or changes in viscosity are signs of incompatibility. **Add tank mix pesticides after the Surround CF powder has been added.** Use of anti-foaming agents is not recommended.

Combinations should be kept agitated and should be applied immediately. Do not allow combinations to sit for prolonged periods in the chemical supply tank.

Read and follow the applicable restrictions and limitations and Directions For Use on all products involved in the tank mix. The most restrictive labeling applies to the tank mix.

It is not recommended to tank mix with other white mineral particulate products like diatomaceous earth or other sunburn materials. Applications of Surround CF over such products

or oversprays of such products over Surround CF are not recommended as efficacy may be impaired.

The use of additional spreader/stickers not approved by Engelhard are not recommended. Products that specify other spreader/stickers may not be tank-mixable with Surround CF if jar tests prior to application show curdling or resulting spray coverage shows excessive beading or poor film formation.

### c. General Application Guidelines

**Rates:** Rate is dependent on the amount of foliage or branches that need to be covered.

**Concentration** (the amount of Surround CF per 100 gallons of water): Surround CF is recommended to be used at concentrations of 25 to 50 lbs Surround CF per 100 gallons, but concentrations of up to 100 lbs per 100 gallons are allowed for specific uses.

**Coverage:** Use sufficient spray volume to obtain thorough **near drip** coverage. Two or more applications are desirable for complete coverage. For optimal performance as an insecticide, applications must coat all portions of plant that are to be protected, including both sides of the leaves. Another spray is recommended if coverage is insufficient. Dwarf, semi-dwarf, and otherwise well-pruned trees will be easier to cover than large trees. Optimum efficacy may be more difficult to achieve in large trees due to increased difficulty achieving thorough coverage.

Applications to tree crops can be made with commercial air blast or high-pressure sprayers that provide enough air turbulence to coat both sides of the leaves, bark, and fruit. Tractor speed of less than 3 mph is recommended when using airblast sprayers.

**Plant Color Change:** Plant surfaces will typically turn a hazy white color after drying. Additional treatments will turn the plant surfaces a deeper white. This is normal, and indicates appropriate film formation.

**Foliage Dryness:** It is not recommended to apply to dripping wet foliage.

**Spray Methods:** Air blast, high-pressure hand gun, or boom sprayers are recommended for agricultural uses. Do not apply Surround CF through sprinkler irrigation systems. Observe specific crop label instructions for directions regarding spray volume. Calibrate spray equipment per equipment manufacturer to deliver the required volume. At recommended concentrations, the flow rate of suspended Surround CF is similar to water. It is recommended to use strainers, preferably no finer than 40 mesh, in the spray system and behind each nozzle per normal practice.

**When the dry foliage has lost its white appearance, reapplication is necessary.** Heavy rainfall, new growth, and wind erosion will affect film quality. Reapply to re-establish coverage after heavy rain as soon as the foliage is dry. However, reapplication may not be necessary if all target surfaces remain thoroughly coated. Excessively thick coatings are not recommended.

**Aerial Application:** Aerial applications may not be effective for controlling insects. It is recommended when using aerial applications to take all precautions needed to minimize or eliminate drift, e.g., do not spray under windy or gusty conditions. It is recommended to make applications not more than ten feet above the top of the largest plant unless a greater height is required for aircraft safety. It is best when making applications at low relative humidity to increase droplet size to compensate for evaporation. It is not recommended to use spray drift agents not approved by Engelhard.

**Non-Target Surfaces:** It is not recommended to spray where the resulting visible white film will be undesirable or cannot be washed off, such as porous wood, masonry, asphalt, and other valuable goods.

## Pears

- Surround CF is specially designed for rapid mixing into cold mix water (less than 40° F) that is common in early spring conditions.
- **Do not use the Surround CF formulation after fruit set. Other Surround formulation(s) are designed for post fruit set uses.**
- Surround CF is designed to be used with nonphytotoxic superior-type agricultural spray oils for best film formation.
- For pre-bloom sprays it is recommended to add at least 0.5 to 1.5 gallons of dormant or summer spray oils per 50 lbs of Surround CF. The preferred addition amount for optimum film formation-only is 0.75 gallons of oil per 50 lbs of Surround CF.
- Oils, especially above 2 gallons per 50 lbs, will reduce the visual whiteness of the particle film. Whiteness may re-appear over time as the oils evaporate or absorb into bark.
- See mix instructions for order of addition.
- Follow all oil label recommendations.

PEST	LBS/ ACRE	RECOMMENDATIONS
Pear psylla	50 <sup>1</sup>	<ul style="list-style-type: none"> <li>• On mature pear trees 100-200 gal/acre is recommended.</li> <li>• <b>Prebloom:</b> Apply 3 applications, applying every 7-10 days starting at delayed dormant, but no later than green cluster bud.</li> <li>• Spring populations can be reduced with a fall or winter application of other Surround products..</li> </ul>

Over-wintering leafrollers*, especially obliquebanded leafroller (OBLR)	Apply 2 sprays 7 days apart starting just prior to green tip or at initial emergence of leafroller larvae.
<sup>1</sup> Rates of 100 lbs in 100 to 200 gallons allowed during pre-bloom for high infestation. * Suppression only. Supplemental controls may be needed for complete control.	

## STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

**PESTICIDE STORAGE:** Store in a dry, sheltered location {away from food or feed}. Product is slippery when wet. In case of spill or leak, avoid breathing dust, clean up and dispose of wastes in compliance with applicable Federal, State, and local regulations.

**PESTICIDE DISPOSAL:** Pesticide, spray mixture or rinsate that cannot be used according to label instructions must be disposed of according to applicable Federal, State, and local procedures.

**CONTAINER DISPOSAL:** Completely empty bag into application equipment. Dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of the smoke.

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**Surround CF Crop Protectant**  
*An HPF® Particle Film Technology Product*

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