

## **Surround<sup>®</sup> WP crop protectant**

Surround WP crop protectant forms a barrier film, which acts as a broad spectrum protectant that may decrease damage from listed insect pests and as a protectant against sunburn and heat stress on pome fruit, crop group 11 (apple, crabapple, pear, and quince), grapes, and cucurbits, crop group 9 (balsam apple; balsam pear; cantaloupe; chayote, fruit; cucumber; cucumber, Chinese; gherkin, West Indian; gourd, edible; melon; melon, citron; muskmelon; pumpkin; squash; squash, summer; squash, winter; watermelon; waxgourd, Chinese) and tree nuts, crop group 14 (walnuts, hazelnuts, sweet chestnuts, butternuts, pecans and hickory nuts).

COMMERCIAL AGRICULTURE

READ THE LABEL BEFORE USING

GUARANTEE: Kaolin 95.0%

**KEEP OUT OF THE REACH OF CHILDREN**

REGISTRATION NUMBER 27469 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 12.5 kg

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

**OMRI**  
**Listed**  
(Icon)

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> <li>• Take container, label or product name and PCP Registration Number with you when seeking medical attention.</li> </ul>
HOT LINE NUMBER	
You may contact 1-800-424-9300 for emergency medical treatment information.	

**TOXICOLOGICAL INFORMATION:** Treat symptomatically.

## PRECAUTIONS

### HAZARD TO HUMANS

**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

Mixer/loader and applicator must wear coveralls or long-sleeved shirt and long pants, eye protection, 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. Nuisance dust mask is recommended for workers re-entering treated fields to conduct activities involving high foliar contact (e.g., harvesting, thinning, pruning).

### 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.

Kaolin is persistent and may accumulate with multiple applications. The toxicity to beneficial insects) predators and parasites) has not been assessed. Use with caution.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., contact 1-866-375-4648 or [www.cropro.org/](http://www.cropro.org/).

# DIRECTIONS FOR USE

Note to User: Read the Following Before Using this Product:

## GENERAL INFORMATION

**Surround WP** crop protectant forms a mineral-based particle film intended for protection of agricultural crops. When **Surround WP** crop protectant is applied to plants, a dry white film results. Application of **Surround WP** crop protectant may decrease damage from listed insect pests. Supplemental methods may be needed to enhance the level of performance achieved by applications of **Surround WP** crop protectant. **Thorough, uniform, and consistent coverage is essential throughout the infestation or stress period.**

**Pre-harvest intervals (PHI):** **Surround WP** crop protectant may be applied up to the day of harvest.

For fresh market crops that will not be washed or for field packed crops where a residual white film is not desired, applications should be made early-season only. White residue at harvest may be minimized if applications to smooth skin crops like apples stop when the fruit is approximately  $\frac{1}{4}$  of its expected size.

### a. Mix Instructions:

#### For Agitating Sprayer Tanks

1. Slowly add **Surround WP** crop protectant powder into the water in a recirculating sprayer tank, making sure to keep agitation brisk. It is not recommended to add **Surround WP** crop protectant 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 WP** crop protectant very slowly to the recirculating water. Avoid dumping **Surround WP** crop protectant directly into pump intake area as this could plug the filter or intake. Mix thoroughly.
2. Continue agitation until all of the material is sprayed from the tank.
3. 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

The following mixing sequence must be followed:

1. Use **Surround WP** crop protectant powder at a rate of 25 to 50 grams of **Surround WP** crop protectant powder per one litre of water. For sprayers that are difficult to shake, premix in a bucket, stir, and pour suspension into sprayer.
2. Slowly add **Surround WP** crop protectant powder into  $\frac{1}{4}$  to  $\frac{1}{2}$  of the water that will be used in the batch.
3. Mix thoroughly by shaking the closed container vigorously for 30 seconds.
4. Add the remainder of the batch water and shake for an additional 30 seconds.
5. Shake the sprayer occasionally during application.
6. 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. Rinse the sprayer before next batch.

#### **b. Compatibility:**

Use of anti-foaming agents is not recommended. Do not tank mix with other white mineral particulate products. Applications of **Surround WP** crop protectant over such products or oversprays of such products over **Surround WP** crop protectant are not recommended as postharvest washoff may be impaired.

The use of spreader/stickers is not recommended. Do not tank mix with summer oils.

#### **c. General Application Guidelines:**

Do not apply by air. Do not apply **Surround WP** crop protectant through any type of irrigation system.

**Application Rates:** Application rate is dependent on the amount of foliage that needs to be covered. Refer to specific use instructions for directions on application rates.

**Concentration** (the amount of **Surround WP** crop protectant per 1000 litres of water): **SURROUND WP** crop protectant is to be used at concentrations of 25 to 50 kg **Surround WP** crop protectant per 1000 litres water.

**Coverage:** Use sufficient spray volume to obtain thorough **near drip** coverage. Two or more applications are desirable for complete coverage. For optimal performance applications must coat all portions of plant that are to be protected, including both sides of the leaves. 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 (4.8 km per hour) is recommended when using airblast sprayers.

**Plant Colour 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. When the dry foliage has lost its white appearance, reapplication is necessary. Heavy rainfall, new growth, and wind erosion will affect film quality. Under windy conditions, **Surround WP** crop protectant may be rubbed off by leaf movement making reapplication necessary. 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.

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

**Under Hot, Dry Conditions:** Nozzles that produce a fine spray are recommended when **Surround WP** crop protectant is used under normal temperature and humidity conditions. Under very hot and dry conditions, increase volume of water and droplet size to improve deposition.

**Spray Methods:** Air blast, high-pressure hand-held or boom sprayers are recommended for agricultural uses. Chemigation is not recommended. Refer to specific use 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 WP** crop protectant 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.

**Overhead Irrigation and Overhead Cooling:** Overhead irrigation may 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. Wait until there are no visible water droplets on foliage to apply **Surround WP** crop protectant after overhead irrigation. Use of overhead cooling with **Surround WP** crop protectant is not recommended.

**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.

#### **d. Sunburn and Heat Stress Protectant:**

When applied at recommended rates and frequencies, benefits such as increased plant vigor and improved yields may occur on many crops. Under high ambient temperatures, **Surround WP** crop protectant reduces canopy temperature and, therefore, can help to reduce heat and water stress.

**Sunburn Suppression:** Apply before conditions leading to sunburn occur. If initiating sprays for sunburn suppression where there have been no prior sprays, it is recommended that thorough

coverage of all fruit/nut surfaces should be in place prior to sunburn-causing conditions with one to two full rate applications 7 days apart. Depending upon the length of the high heat period, three to four applications in total may be needed, with subsequent applications every 14 – 21 days. Good coverage on typical semi-dwarf trees is best achieved with the initial one to two sprays at 50 kg in 1000 to 2000 litres per hectare to achieve near-drip coverage on the fruit. Subsequent applications may be made at half to full rates if even coverage is maintained throughout the high heat period. Under windy conditions, **Surround WP** crop protectant may be rubbed off by leaf movement making reapplication necessary.

#### **e. Packing and Processing:**

Washing is required unless only early season applications are made and the film weathers off before harvest. Most residues wash off with packing line brushing and forced water sprays. An approved washing detergent may be helpful if 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.

#### **NOTE TO BUYER/USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS:**

The **DIRECTIONS FOR USE** for this product for the use on pome fruits, described below, were developed by persons other than Engelhard Corporation and accepted for registration by Health Canada under the User Requested Minor Use Registration program. Engelhard Corporation itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used in accordance with this label.

Accordingly, the user assumes risk of damage or loss resulting from such uses, and agrees to hold Engelhard Corporation harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

#### **DIRECTIONS FOR USE ON POME FRUITS crop group 11 (apple, crabapple, pear, quince)**

**Spray Volume:** Apply to near-drip. Do not apply to run-off to avoid waste and poor coverage. For typical semi-dwarf trees in full foliage, a spray volume of 1000 to 2000 litres per hectare is recommended. Adjust volume per Tree Row Volume to achieve near drip for larger or smaller trees. For mature pear trees, a spray volume of 1000 – 2000 litres per hectare is recommended.

**Concentration** (the amount of **Surround WP** crop protectant per 1000 litres of water): Use 25 to 50 kg **Surround WP** crop protectant per 1000 litres of water. Early applications typically use 37.5 to 50 kg **Surround WP** crop protectant per 1000 litres of water per hectare while follow-up applications may only require 25 kg **Surround WP** crop protectant per 1000 litres of water per hectare.

**Surround WP** crop protectant may decrease damage to pome fruits (apple, crabapple, quince and pear) caused by the pests listed in the following table. Supplemental methods may be needed to enhance the level of performance achieved by application of **Surround WP** crop protectant. Applications at petal fall may disrupt leaf miner parasitism, requiring supplemental control measures.

**Plant Response Precautions:** **Surround WP** crop protectant keeps plant surfaces cooler and an advance or delay in maturity may result. Pome fruit may have maturity delays of 3 to 7 days, especially in cool regions.

PEST	Application Rate  kg product/ha	RECOMMENDATIONS
Pear psylla	50	Monitor populations to ensure that applications are needed, and apply prior to oviposition in the spring. <b>Prebloom:</b> Apply up to 3 prebloom applications every 7-10 days. Make first application as early as the delayed dormant stage or pear development, but no later than green cluster bud. <b>Petal Fall:</b> Apply 3 applications every 7-14 days starting at first petal fall.
Tarnished plant bug	25-50	Start application before infestation begins and continue at 7-14 day intervals. Lengthening respray interval past 14 days is not recommended.
Over-wintering leafrollers, especially obliquebanded leafroller (OBLR)		Apply first 2 sprays 7 days apart starting just prior to green tip stage of host development or at initial emergence of leafroller larvae, as determined by monitoring. Make initial application before larvae roll up into leaves. For subsequent generations apply at 7 – 14 day intervals as larvae emerge.
Leafhoppers		Apply first spray within 3 days of first petal fall or at initial infestation as determined by monitoring. Continue every 7-14 days during infestation period.
Apple maggot		Apply 2 sprays 7 days apart before expected oviposition or at first detection of infestation. Continue applications every 7-14 days to keep fruit completely covered during egg laying period.
Plum curculio, codling moth (first generation only), oriental fruit moth,		Apply at first detection. Continue applications every 7 days to keep fruit completely covered during egg laying period.
Sunburn and heat stress		See “d”

**NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:**

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Engelhard Corporation and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Engelhard Corporation itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below. Accordingly, the

Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Engelhard Corporation harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

**DIRECTIONS FOR USE ON CUCURBITS crop group 9 (balsam apple; balsam pear; cantaloupe; chayote, fruit; cucumber; cucumber, Chinese; gherkin, West Indian; gourd, edible; melon; melon, citron; muskmelon; pumpkin; squash; squash, summer; squash, winter; watermelon; waxgourd, Chinese)**

**Mix Instructions:** For order of addition and exact mix instructions for agitating and non-agitating sprayer tanks see 'a. Mix Instructions'.

**Spray Volume:** Apply to near-drip. Do not apply to run-off to avoid waste and poor coverage. The volume of water/ha required will increase throughout the growing season in relationship to the increasing size of the crop and its foliage. A maximum spray volume of 500 L water/ha is recommended.

Application of plain water via normal sprayer prior to harvest may help to reduce **Surround WP** crop protectant residues.

**For suppression of cucumber beetles:** Use 12.5 to 25 kg **Surround WP** crop protectant per 500 litres of water. Do not exceed 25 kg of Surround WP/ha per application. Apply at 5-7 day intervals with the first two applications 3 days apart starting prior to infestation of adult beetles. Use the higher concentration for the first application and the lower rate for all subsequent applications. During periods of wet weather reapply **Surround WP** crop protectant as soon as foliage is dry to re-establish coverage.

There may be up to 5 applications per crop per year. Ground application only.

**Surround WP** crop protectant may alter harvest parameters and may delay maturity. Closely monitor harvest parameters to determine optimal time to harvest.

## **DIRECTIONS FOR USE ON GRAPES**

**Spray Volume:** Apply to near-drip. Do not apply to run-off to avoid waste and poor coverage.

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

**For reduction of damage by leafhoppers (including eastern grape leafhopper, potato leafhopper, three banded leafhopper, Virginia creeper leafhopper and western grape leafhopper):** Use 25 to 50 kg Surround WP crop protectant per 1000 litres of water. Do not exceed 50 kg of Surround WP/ha per application. Apply at 7 to 14 day intervals once initial infestation is detected by monitoring. For early applications, use 50 kg **Surround WP** crop protectant per 1000 litres of water per hectare while follow-up applications may only require 25



kg Surround WP crop protectant per 1000 litres of water per hectare. Maintain good film coverage to maximize potential benefits of **Surround WP** crop protectant.

**Surround WP** crop protectant may alter harvest parameters and may delay maturity especially in white varieties. Closely monitor harvest parameters to determine optimal time to harvest. Changes in harvest parameters can affect final taste.

Wine grapes sprayed up to veraison will have minimal adherence to berries. Applications after veraison will adhere better to grape berries. Applications may be made up to the day of harvest.

For table grapes where a residual white film is not desired, do not apply **Surround WP** crop protectant post-bloom.

**DIRECTIONS FOR USE ON TREE NUTS, crop group 14 (walnuts, hazelnuts, sweet chestnuts, butternuts, pecans and hickory nuts).**

**Application Concentration:** Apply 25 to 50 kg **Surround WP** Crop Protectant per 1000 litres of water. For initial application, use 50 kg/1000 L. Subsequent applications may require only 25 kg/1000 L. A spray volume of up to 2000 L/ha containing 50-100 kg of Surround WP Crop Protectant is recommended for larger trees (4.5 to 7 metres in height). Apply to near-drip. Do not apply to run-off to avoid waste and poor coverage. Ensure good film coverage to maximize potential benefits of **Surround WP** Crop Protectant.

Application of plain water via normal sprayer prior to harvest may help to reduce **Surround WP** Crop Protectant residues.

<b>Pest</b>	<b>Crop</b>	<b>Application Timing</b>
Leafrollers	Walnuts and Hazelnuts	Begin applications just prior to green tip stage or at initial emergence of leafroller larvae, as determined by monitoring. Make initial application before larvae roll up into leaves. Make second application 7 days later. For subsequent generations, apply at 7-14 day intervals as larvae emerge.
Leafhoppers	Sweet Chestnuts	Begin applications within 3 days of first petal fall or at initial infestation, as determined by monitoring, and make subsequent applications every 7-14 days during infestation period.
Walnut husk fly (husk maggot)	Walnuts	Begin applications before expected oviposition or at first detection of infestation. Make second application 7 days later and subsequent applications at 7-14 day intervals as needed to maintain good film coverage.

Butternut curculio	Walnuts, Butternuts, Pecans and Hickory Nuts	Begin applications at first detection and make subsequent applications every 7 days as needed to keep nuts completely covered throughout egg-laying period.
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## 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. Contact manufacturer or the provincial regulatory agency in case of a spill and for cleanup of spills.

**PESTICIDE DISPOSAL:** For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency.

**CONTAINER DISPOSAL:** Make container unsuitable for further use. Dispose of the container in accordance with the provincial requirements.

## NOTICES

**NOTICE TO USER:** this control product is to be used only in accordance with the directions on this label. It is an offence under the Pest Control Products Act to use a control product under unsafe conditions.

**NOTICE TO BUYER:** Seller's guarantee shall be limited to the terms set out on the label and, subject thereto, the buyer assumes the risk to persons or property arising from the use or handling of this product and accepts the product on that condition.

## Surround WP crop protectant

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