Surround® WP
Crop Protectant

ACTIVE CONSTITUENT: 950 g/kg CALCINED KAOLIN

SURROUND® WP forms a barrier film, which acts as a repellent for citrus gall wasp and to minimise the impact of sunburn and heat stress

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Net Contents 12.5 kg

I. GENERAL INFORMATION

Read the product label thoroughly prior to using SURROUND® WP. Ensure that you understand Section I.d entitled Post-harvest Packing and Washing – Mandatory Directions.

GENERAL INSTRUCTIONS

SURROUND WP crop protectant forms a mineral-based particle film intended for protection of agricultural crops and plants in nurseries and greenhouses. When SURROUND WP is applied to plants, a dry white film results. Thorough, uniform and consistent coverage is essential. Use sufficient spray volume to obtain thorough near-drip coverage. Two or more applications may be required for complete coverage. Apply an additional spray if coverage is insufficient. Spreading on waxy plant surfaces is usually better when the plant is warm. Heavy rainfall, new growth, and wind erosion will affect the film quality. Reapply to re-establish coverage after heavy rain as soon as the foliage is dry. Avoid excessively thick coatings. Applications to dripping wet foliage can provide inadequate coverage. Under very hot and dry conditions, increasing volume of water and droplet size to improve deposition is recommended.

Mixing Instructions

For Agitating Sprayer Tanks

1. Slowly add SURROUND WP into the water in a recirculating sprayer tank, making sure to keep agitation brisk. Sprayer tanks with strong agitation are preferred. A pre-mix tank may speed up loading operations if sprayer does not have mechanical agitation. Add directly into the mix basket if pump recirculation empties into the mix basket. If there is no mix basket, add SURROUND WP very slowly to the recirculating water. Avoid dumping SURROUND WP directly into the pump intake area as this could plug the filter or intake. Mix thoroughly.
2. Add tank mix pesticides and adjuvants after the SURROUND WP.
3. Continue agitation until the tank is empty.
4. At the end of the application 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 at a rate of 25 to 50 g of SURROUND WP per one litre of water. For sprayers difficult to shake, pre-mix in a bucket per the directions below and pour suspension into sprayer.
2. Add SURROUND WP into 1/4 to 1/2 of the water that will be used in the batch to allow adequate space for vigorous shaking. Allow SURROUND WP to wet and sink into the water slowly. It is not recommended to fill with a hose or shake the container while SURROUND WP is floating on top of the water.
3. Mix thoroughly by shaking the closed container vigorously for 30 seconds.
4. Add tank mix pesticides and adjuvants after the SURROUND WP.
5. Add the remainder of the batch water and shake the closed container 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. If not empty, blow air pressure out of the line and nozzle (usually by upending) and store in a cool place. Apply any leftover mix within two to three weeks to avoid spoilage. Rinse the sprayer and allow to dry before the next batch.

a. Crop Safety

SURROUND WP may be applied up to the day of harvest. If white residues at harvest are a concern, refer to Section I.d, Post-harvest Packing and Washing – Mandatory Directions.

SURROUND WP keeps plant surfaces cooler and an advance or delay in maturity may result. Pome and stone fruit may have maturity delays of 3 to 7 days, especially in cool regions.

b. Compatibility

Most insecticides, miticides and fungicides do not generally affect SURROUND WP. However, the user should test mixes before use for physical and biological compatibility. When mixing with other products, pre-test a small batch for curdling, precipitation, spray beading and/or excessive run-off leading to lack of film formation, or changes in viscosity which are signs of incompatibility. Use of anti-foaming agents may interfere with proper coverage. Oil tank mixes may temporarily reduce the whiteness of the film. Tank mixes with oil may impair wash off if used after fruit set. Oversprays of products that require absorption into the plant should use adequate fluid amounts to wet the SURROUND WP film. Tank mixing with other white mineral particulate products such as diatomaceous earth, or other

sunburn materials, such as those containing wax, latex or polymer-based materials can lead to post-harvest wash off problems. Applications of SURROUND WP over such products or oversprays of such products over SURROUND WP can also impair post-harvest wash off. If tank mixing with sulphur, use only wettable sulphurs. Elemental sulphurs should not be tank-mixed with SURROUND WP.

Do not apply Retain® on SURROUND WP treated fruit trees.

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

Rates: Unless otherwise specified in crop instructions, use 2.5 to 5.0 kg of SURROUND WP per 100 L of water, using sufficient spray volume to obtain thorough near-drip coverage.

Under Hot, Dry Conditions: Nozzles that produce a fine spray are recommended when SURROUND WP 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 sprayer, high pressure handgun, or boom sprayers provide the best results. At given concentrations, the flow rate of suspended SURROUND WP is similar to water. Strainers, preferably no finer than 40 mesh, in the spray system and behind each nozzle per normal practice helps to reduce nozzle clogging.

Overhead Irrigation and Overhead Cooling: Do not apply SURROUND WP through any type of irrigation system. Overhead irrigation should not be applied to SURROUND WP treated surfaces. Do not use with overhead cooling.

Non-Target Surfaces: Do not 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.

Dilute Spraying

- Use a sprayer designed to apply high volumes of water to obtain near-drip coverage. Do not apply to the point of run-off.
- Set up and operate the sprayer to achieve even coverage throughout the crop canopy.
- The required water volume should be calculated using Tree Row Volume or by referring to industry guidelines or expert advice.
- Add the amount of product specified in the Directions for Use table for each 100 L of water. Spray to near-drip.

Concentrate Spraying

- Use a sprayer designed and set up for concentrate spraying (that is a sprayer which applies water volumes less than those required to reach near-drip) and matched to the crop sprayed.
- Set up and operate the sprayer to achieve even coverage to the canopy exterior using your chosen water volume.
- Determine an appropriate dilute volume (See Dilute Spraying directions) for the crop canopy. This is needed to calculate the concentrate mixing rate.

Application of SURROUND WP is not recommended at concentrations of greater than 2X without small-scale trials beforehand to ensure that sufficient agitation can be maintained throughout the application process, and that sufficient water is available to cover the target crop.

Concentrate Spray Volumes

Concentrate sprays are applied at lower water volumes and higher concentrations than dilute sprays. The CONCENTRATION FACTOR of these sprays is the NUMBER OF TIMES they are MORE CONCENTRATED THAN THE DILUTE SPRAY. The mixing rate for concentrate spraying can be calculated in the following way.

EXAMPLE ONLY

(i) Calculate an appropriate dilute volume as above. For example 1500 L/ha.

(ii) Your chosen concentrate spray volume: For example 750 L/ha.

(iii) The concentration factor is: 2X (i.e. 1500 L / 750 L = 2).

(iv) If the dilute rate is 5 kg/100 L, then the concentrate rate becomes 2 x 5 kg; that is 10 kg/100 L of concentrate spray.

For further information on concentrate spraying, users are advised to consult relevant industry guidelines or seek expert advice.

d. Post-harvest Packing and Washing – Mandatory Directions

Crops that will be Processed

Thorough washing is not generally required for crops to be processed, as light residues of SURROUND WP do not affect the quality of processed products. Crops that have their skin or treated surface removed in processing, and crops that only have traces remaining at harvest, generally do not need to be washed. Check with processor before use to ensure SURROUND WP treated produce is acceptable for processing.

Crops for Fresh Market

Post-harvest washing is required unless only early-season applications are made. Most residues wash off with packing line brushing and forced water sprays. First time users must carry out a small-scale field application and post-harvest film removal trial before commercial use on fresh market crops to determine if residues can be sufficiently removed. Traces of SURROUND WP white film deposits may still be visible after washing, particularly in difficult to brush areas of the produce (e.g., calyx, stem end, creases, etc). Modifications to the packing line may be necessary to improve film removal. Modifications to consider could include; higher pressure nozzles and nozzle types, warm water, longer soak period in the dump tank, use of different brush types; including longer haired or sculptured brushes, adjustment of brush rotation speed, overhead and additional brushes in the brush bed. Produce movement through the washing and brushing process can also be slowed. Produce that shows traces of white film after a single pass through the washing process should be washed again. Waxing further improves fruit appearance.

The use of a fresh produce washing detergent that is labeled for use in the packing line and/or wash tank may assist in film removal. The detergent would need to be cleared for this purpose by the relevant authorities and potential buyers.

For fresh market crops that will not be waxed, such as fruit for organic markets or specific export markets that do not accept waxed fruit or for washed crops where traces of white residue are not acceptable, applications should cease sufficiently in advance of harvest to allow residue to weather off completely. For 'Red Delicious', 'Bravo', 'Braeburn' and other apple varieties with dark red skin and/or a high number of lenticels, do not apply any later than two months prior to harvest.

For fresh market crops that will not be washed or for field packed crops where a residual white film is not desired, do not use SURROUND WP.

Special Washing Considerations for Stone Fruit

Special washing is required for fresh market fruit, 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 appropriate to determine whether detergent is necessary. If fresh market peaches cannot be washed as noted above, discontinue sprays when fruit is approximately 3 cm in diameter. Residues of SURROUND WP do not affect processed fruit quality.

II. USE FOR SUNBURN AND HEAT STRESS REDUCTION

Sunburn and Heat Stress Management: Apply SURROUND WP to sunburn or heat stress prone fruit, leaf, or limb and bark surfaces before factors conducive to such conditions occur. Apply initial application at full rate and a second at half rate at no more than a 7 to 10 day interval. Subsequent applications must be made immediately if coverage is degraded by rain or other events; such applications may be at half rates provided that water volume is not reduced. Depending upon the length of the heat period, repeat applications may be required at intervals of 7 to 21 days.

A visual inspection of film deposition after spray has dried is crucial to ensure completeness of coverage. Even, complete coverage will ensure optimum protection against sunburn and heat stress, and provide favourable conditions for uniform ripening and colour development in certain crops.

Uniformity of coverage may be improved via the addition of an approved spreader adjuvant and/or via multiple low rate applications. Multiple low rate applications may be made at shorter re-treatment intervals provided that the total quantity of SURROUND WP applied per season meets that specified in the Directions for Use table.

DIRECTIONS FOR USE
USE FOR SUNBURN AND HEAT STRESS REDUCTION

CROPS	RATE	COMMENTS
Pome and Stone Fruits, Olives and Grapes (wine and table) Citrus Fruits Tropical Crops such as Avocado, Banana and Mango Tree Nuts such as Almonds, Walnuts, Hazelnuts, Pistachios and Macadamias Cherries	Initial application 5.0 kg/100 L Subsequent applications 2.5 kg/100 L	Apply the first two applications 7 to 10 days apart. Apply in a water volume according to General Application Guidelines. In Pome Fruit, good thorough coverage should be established by the time fruit are half sized. Uniformity of coverage is essential, and may be improved especially on hard to wet foliage and fruit by the addition of an approved non-ionic adjuvant, such as Agral®, or silicone based adjuvant, such as Du-Wett®. Read the adjuvant label thoroughly in order to determine the appropriate adjuvant use rate and volume of water. For non-ionic adjuvants, if a range of rates is allowed, use the minimum recommended use rate. For Du-Wett, if a range of rates is allowed, use the maximum recommended use rate for the target crop. Grapes - Consult your winemaker before using SURROUND WP. **Do not apply SURROUND WP to fresh market grapes after fruit set.** Citrus – Use of SURROUND WP in Citrus may result in decreased activity of Aphytis parasitic wasps used in IPM scale control. Monitor scale closely and if necessary, use alternative scale control methods. Mangoes – Use of SURROUND WP in Mangoes may result in an increase in Mango scale numbers. Monitor scale closely and if necessary use registered scale insecticides according to their label instructions. If scale is of concern and the use of insecticides is not desirable, do not use SURROUND WP. Tree Nuts – Do not apply after hull split or husk split on nuts that are to be marketed in their shell, as trace white residues on the shell can be difficult to remove after harvest. Cherries – Only apply prior to fruit set or post-harvest. Post-harvest: Applications made between 2 and 10 weeks post-harvest to sun-exposed buds will assist in reducing fruit doubling in the following season. A minimum of two applications 7 to 10 days apart should be made prior to hot weather events, with further applications required if coverage is degraded.
Tomatoes and Cucurbit Crops such as Cucumber, Squash, Pumpkin, Rockmelon, and Watermelon	Initial application 5.0 kg/100 L Subsequent applications 2.5 kg/100 L	Apply the first two applications 7 to 10 days apart. Increase the volume of water used throughout the season based on plant size. Reapply at 10 to 14 day intervals as required to maintain an even coverage on the fruit and foliage. Continue treatment as required and maintain cover up to 7 days prior to harvest. Cucurbits – apply to smooth-skinned cucurbits only. Refer to Section I.d Post-harvest Packing and Washing before use.
Onions		Bulb development – During bulb formation, apply prior to heat stress/sunburn conditions to protect the onion "shoulders" above the soil surface from sunburn and heat stress. Apply the first two applications 5 to 7 days apart to improve coverage. Reapply at 10 to 14 day intervals as required to maintain an even coverage on the bulbs and plant. Continue treatment as required and maintain cover up to 7 days prior to harvest. In overhead irrigated fields this use may require weekly sprays. Post-bulb lifting – Apply the first application immediately after bulb lifting prior to conditions conducive to sunburn. A second application 5 to 7 days later can be beneficial to improve coverage. Reapply to maintain coverage if rainfall results in SURROUND WP being washed from the onion surface or if onions remain in the field for longer than usual (greater than 2 weeks). Warning – Residues of SURROUND WP can remain on some varieties of onions after harvest. A small-scale test of residue removal should be conducted prior to treating large areas. Adjuvant use – Coverage may be improved by the addition of an approved non-ionic adjuvant, such as Agral, or silicone-based adjuvant, such as Du-Wett. Read the adjuvant label thoroughly in order to determine the appropriate adjuvant use rate and volume of water. For non-ionic adjuvants, if a range of rates is allowed, use the minimum recommended use rate. For Du-Wett, if a range of rates is allowed, use the maximum recommended use rate for the target crop. Application – Apply with a boom sprayer fitted with flat fan nozzles in a spray volume sufficient to provide thorough coverage of the bulbs and plant (~500 L/ha). Change direction of application with alternate applications to improve coverage.

USE FOR SUNBURN AND HEAT STRESS REDUCTION (continued)

CROPS	RATE	COMMENTS
Pineapples	Initial application 5.0 kg/100 L Subsequent applications 2.5 kg/100 L	Apply in a water volume of approximately 1000 to 1250 L/ha using a calibrated boom fitted with fan nozzles. Apply 90 and 60 days before harvest. For fresh market pineapples, it is not recommended to apply 30 or fewer days before harvest unless sufficient rainfall will be expected to result in no visible residues at harvest. Heavy rainfall, new growth and wind erosion will affect film quality. Except within 30 days before harvest, reapply to re-establish coverage after heavy rain as soon as the foliage is dry. If the entire cover is lost due to rain, recommence applications at the initial high rate, followed by subsequent applications at the lower rate.
Blueberries (non-fruit bearing)	Initial application 5.0 kg/100 L Subsequent applications 2.5 kg/100 L	Do not apply after the commencement of flowering or when fruit is present on the bush. Apply preventatively before the onset of heat stress or sunburn conditions. Thorough coverage is essential; ensure water volumes meet the requirements of the crop canopy. Coverage may be improved by the addition of an approved non-ionic adjuvant, such as Agral, or silicone-based adjuvant, such as Du-Wett. Read the adjuvant label thoroughly in order to determine the appropriate adjuvant use rate and volume of water. For non-ionic adjuvants, if a range of rates is allowed, use the minimum recommended use rate. For Du-Wett, if a range of rates is allowed, use the maximum recommended use rate for the target crop. Re-applications should be made 10–14 days apart to maintain coverage. For establishing young plants, apply as needed in a spray volume to achieve near drip with spray intervals of 10–14 days and prior to the onset of heat stress or sunburn conditions.

DIRECTIONS FOR USE

III. USE FOR REPELLENCE OF CITRUS GALL WASP

CROP	PEST	RATE	COMMENTS
Citrus	Citrus Gall Wasp	Initial application 5.0 kg/100 L Subsequent applications: 2.5 kg/100 L	Apply to new growth prior to emergence of adult citrus gall wasps. Apply initial application at full rate and subsequent applications at half rate at no more than a 7 to 10 day interval, before adult wasp emergence. Further applications should be made immediately if coverage is degraded by rain or other events; such applications may be at half rates provided that water volume is not reduced. A visual inspection of film deposition after spray has dried is crucial to ensure completeness of coverage. Uniformity of coverage is essential, and may be improved especially on hard-to-wet foliage and new growth by the addition of an approved non-ionic adjuvant, such as Agral, or silicone-based adjuvant, such as Du-Wett. Read the adjuvant label thoroughly in order to determine the appropriate adjuvant use rate and volume of water. For non-ionic adjuvants, if a range of rates is allowed, use the minimum recommended use rate. For Du-Wett, if a range of rates is allowed, use the maximum recommended use rate for the target crop. Use of SURROUND WP in citrus may result in decreased activity of Aphytis parasitic wasps used in IPM scale control. Monitor scale closely and if necessary, use alternative scale control methods.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

WITHHOLDING PERIOD: NIL

PRECAUTION

DO NOT allow bystanders to come into contact with the spray cloud.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

DO NOT contaminate streams, rivers or watercourses with this product or used containers.

STORAGE AND DISPOSAL

Keep out of reach of children.

Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight.

Product is slippery when wet.

Shake and empty contents into spray tank. Do not dispose of undiluted chemicals on site. Break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.

SAFETY DIRECTIONS

May irritate the eyes. Avoid contact with eyes. DO NOT inhale spray mist. Wash hands after use.

FIRST AID

First aid is not generally required. If in doubt, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766 or a doctor).

SAFETY DATA SHEET

For further information refer to the Safety Data Sheet.

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In a transport emergency dial 000, Police or Fire Brigade.
For specialist advice in an emergency only, call 1800 033 111 (24 hours).

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