



# US Environmental Protection Agency Office of Pesticide Programs

## BIOPESTICIDES REGISTRATION ACTION DOCUMENT

California Red Scale Pheromone

**((3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and  
(3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate)**

**(PC Codes 017703 and 017704)**

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**U.S. Environmental Protection Agency  
Office of Pesticide Programs  
Biopesticides and Pollution Prevention Division**

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**BIOPESTICIDES REGISTRATION ACTION DOCUMENT TEAM**

**Office of Pesticide Programs:**

**Biopesticides and Pollution Prevention Division**

Biochemical Pesticides Branch

Sheryl K. Reilly, Ph.D.

Linda Hollis

Roy Sjoblad, Ph.D.

Denise Greenway

Branch Chief

Team Leader

Senior Scientist

Regulatory Action Leader

## **I. EXECUTIVE SUMMARY**

### **A. IDENTITY**

The combined new active ingredients, stereoisomers (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate, are a technical grade synthetic arthropod pheromone manufacturing-use product to be used to formulate an end-use pheromone agricultural product. The Technical Grade Active Ingredient (TGAI) contains 36.0% of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and 22.0% of (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate. The product chemistry data submitted by the registrant satisfy the requirement for product identity

### **B. USE/USAGE**

The manufacturing-use product will be incorporated into an end-use pesticide product intended for agricultural application for the control (via mating disruption) of the California red scale (*Aonidiella aurantii*) in citrus. The pheromone will be used in retrievable, polymeric matrix dispensers.

### **C. RISK ASSESSMENT**

Pheromones are released from dispensers in very small quantities into the environment and act on a select group of targeted pests. The Agency recognizes that this use will limit human exposure and, in conjunction with the low toxicity of this compound, will limit the likelihood of adverse effects on non-target organisms. However, appropriate precautionary labeling of the end-use product will minimize exposure and mitigate risk to non-target, including aquatic, organisms.

The Agency is basing its risk management decision regarding the registration of California Red Scale Pheromone on the known low toxicity of arthropod pheromones, high target specificity, the low application rate for end-use products, and the precautionary labeling which minimizes exposure and mitigates risks to non-target organisms. The Agency believes that pheromone end-use products containing the proposed mixture of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate can be used without causing unreasonable adverse effects to humans or the environment. California Red Scale Pheromone is exempt from the requirement of tolerance due to its status as an arthropod pheromone when used as described at 40 CFR §180.1124.

Based on the negligible risk concerns and a history of safe use of arthropod pheromones in general, California Red Scale Pheromone meets the criteria as specified in §3(c)(5) of FIFRA, as amended, and is thus eligible for unconditional registration. No additional data are needed.

This document presents the Agency's decision regarding the registration of the mixture of new active ingredients (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate.

#### **D. DATA GAPS / LABELING RESTRICTIONS**

There are no data gaps.

## II. OVERVIEW

### A. ACTIVE INGREDIENTS OVERVIEW

<b>Common Name:</b>	California Red Scale Pheromone
<b>Chemical Names:</b>	(3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate
<b>Chemical Formula:</b>	C <sub>16</sub> H <sub>28</sub> O <sub>2</sub>
<b>Chemical Family:</b>	Arthropod Pheromones
<b>Trade and Other Names:</b>	California Red Scale Technical Pheromone
<b>CAS Registry Numbers:</b>	67601-06-3 and 67601-10-9
<b>OPP Chemical Codes:</b>	017703 and 017704
<b>Registrant :</b>	HBB Partnership 5151 N. Palm Ave. Ste. 820 Fresno, CA 93704-2221

### B. USE PROFILE

The following is information on the proposed uses with an overview of use sites and application methods.

**Type of Pesticide:** Pheromone

**Use Sites:** The active ingredients will be formulated into a pheromone end-use product comprised of polymeric matrix dispensers to control insects (California red scale) in/on agricultural commodities (citrus)

**Target Pest:** California red scale (*Aonidiella aurantii*)

**Formulation Types:** The manufacturing-use product is a liquid

**Method and Rates of Application:** The manufacturing-use product will be used to produce an end-use product consisting of retrievable polymeric matrix dispensers, each containing 0.4 milligram (mg) total active ingredients, which are to be placed in citrus trees for the control, via mating disruption, of California red scale.

**Use Practice Limitations:** No more than 400 dispensers are to be applied per acre, per year (*i.e.*, no more than 160 mg of active ingredients per acre per year).



### **C. ESTIMATED USAGE**

Experimental Use Permits (EUPs) issued in 2003 and 2004 granted the use of a total of 4.988 pounds of the active ingredients during those two growing seasons. However, because the 2003 EUP final report documented that the full allotment was not used, the actual amount applied was less.

### **D. DATA REQUIREMENTS**

The Agency has granted the request for waivers from the requirements of studies/data for acute inhalation toxicity, dermal sensitization, and non-target organisms. These data were waived based on the following criteria: 1) low toxicity in animal testing, 2) expected low exposure to humans, 3) no risk to human health is expected, 4) no adverse reactions reported from handling/use, and 5) adverse effects to non-target organisms are not expected because these pheromones are released in very small quantities in the environment and act on a select group of insects.

Product analysis data requirements for the active ingredient(s) were adequately satisfied

The data requirements for granting this registration under Section 3(c)(5) of FIFRA have been reviewed by the Biopesticides and Pollution Prevention Division (BPPD). Based on the submitted information, the Agency foresees no unreasonable adverse effects to human health and the environment from the use of this pheromone, and recommends unconditional registration.

### **E. REGULATORY HISTORY**

On September 9, 2002, the Agency received an application from HBB Partnership to register an end-use product (Red Scale down™) containing, by weight, 0.041% of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and 0.025% of (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate as the active ingredients. On December 16, 2002, the Agency received an application from HBB Partnership to register a manufacturing-use product (California Red Scale Technical Pheromone), containing, by weight, 36.0% of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and 22.0% of (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate as the active ingredients. California Department of Pesticide Regulation reviews, generated in 2002 and 2004, of end-use product data submitted to support registration in that State, were received by BPPD in June of 2004 and utilized, in combination with BPPD-generated reviews, to develop a risk assessment. A notice of receipt of the applications for registration of the mixture of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate as new active ingredients was published in the *Federal Register* on August 11, 2004 (69 FR 48867) with a 30-day comment period. No comments were received as a result of this publication.

## **F. CLASSIFICATION**

The mixture of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate is a synthetic compound that is identical in structure and function to a naturally occurring substance of insect origin and functions by a non-toxic mode of action on its target pest. Therefore, this compound is classified as a biochemical pesticide.

## **G. FOOD CLEARANCES/TOLERANCES**

Arthropod pheromones are exempt from the requirement of a tolerance in or on all raw agricultural commodities when used in retrievable, polymeric matrix dispensers, and when the pheromone is applied to growing crops at a rate not to exceed 150 grams of active ingredient per acre per year in accordance with good agricultural practices (40 CFR §180.1124).

## **III. SCIENCE ASSESSMENT**

### **A. PHYSICAL/CHEMICAL PROPERTIES ASSESSMENT**

All product chemistry data requirements for the mixture of the stereoisomers (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate (California Red Scale Pheromone) are satisfied.

#### **1. Product Identity and Mode of Action**

##### **a. Product Identity:**

The new active ingredients, stereoisomers (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate, represent 36.0% and 22.0%, respectively, of the manufacturing-use product, California Red Scale Technical Pheromone, which is a colorless liquid with a sweetish odor.

##### **b. Mode of Action:**

Synthetically-produced California Red Scale Pheromone mimics the pheromone emitted by the female California red scale. Mating disruption results when adult males, having only about six hours to mate before dying, are attracted to the pesticide product in the tree tops. This distraction reduces the chance of their locating actual females (which are immobile) with which to mate.

#### **2. Food Clearances/Tolerances**

Currently, a tolerance exemption exists for arthropod pheromones, such as the mixture of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate, when used in retrievably sized matrix dispensers and applied to growing crops only at a rate not to exceed 150 grams active ingredient per acre per year in accordance with good

agricultural practices (40 CFR § 180.1124). Thus, end-use products containing the proposed mixture of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate must be used in retrievably sized polymeric matrix dispensers and applied to growing crops only at a rate not to exceed 150 grams of active ingredient per acre per year to qualify for the cited exemption from the requirement of a tolerance.

### 3. Physical and Chemical Properties Assessment

The physical and chemical characteristics of the new active ingredients, stereoisomers (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate, were submitted to support the registration. These are summarized in Table 1.

**TABLE 1. Product chemistry data requirements**

GUIDELINE NO.	STUDY	RESULTS	MRID NO.
151-10 (OPPTS 880.1100)	Product identity	Submitted data satisfy the data requirements for product identity, manufacturing process, and discussion of formation of impurities.	457319-01, 457319-02, 457319-05, and 458760-01
151-11 (OPPTS 880.1200)	Manufacturing-process		
151-12 (OPPTS 880.1400)	Discussion of formation of unintentional ingredients		
151-13 (OPPTS 830.1700)	Analysis of samples	Submitted data satisfy the data requirements for analysis of samples.	457319-01, 457319-02, 461925-03
151-15 (OPPTS 830.1750)	Certification of limits	Submitted data satisfy the data requirements for guideline certified limits.	Confidential Statement of Formula
151-16 (OPPTS 830.1800)	Analytical method	Acceptable	457319-05
<b>PHYSICAL / CHEMICAL PROPERTIES FOR the TGAI</b>			
63-2 (OPPTS 830.6302)	Color	Colorless	457319-01
63-3 (OPPTS 830.6303)	Physical State	Liquid	457319-01
63-4 (OPPTS 830.6304)	Odor	Sweetish	457319-01
63-5 (OPPTS 830.7200)	Melting point	Not required – product is a liquid	

<b>GUIDELINE NO.</b>	<b>STUDY</b>	<b>RESULTS</b>	<b>MRID NO.</b>
63-6 (OPPTS 830.7220)	Boiling point	210°C	461925-05
63-7 (OPPTS 830.7300)	Density	0.893 g/ml at 25°C	461925-05
63-8 (OPPTS 830.7840)	Solubility	Insoluble in water	457319-01
63-9 (OPPTS 830.7950)	Vapor Pressure	2.03E-04 torr at 10 ml/min flow rate 1.96E-04 torr at 8 ml/min flow rate	461925-08
63-10 (OPPTS 830.7370)	Dissociation Constant	Active ingredients do not contain dissociable moiety	45731901
63-11 (OPPTS 830.7550)	Octanol/water partition coefficient	log K <sub>ow</sub> of 6.08 at 25°C	461925-04
63-12 (OPPTS 830.7000)	pH	4.23 in a 1% w/w solution of deionized water	461925-05
63-13 (OPPTS 830.6313)	Stability	Stable at 54°C for 14 days	461925-05
63-14 (OPPTS 830.6314)	Oxidation/reduction	Compatible with oxidizing and reducing agents	461925-05
63-15 (OPPTS 830.6315)	Flammability	Greater than 104°C (i.e., not flammable)	461925-05
63-16 (OPPTS 830.6316)	Explodability	Not potentially explosive.	
63-17 (OPPTS 830.6317)	Storage stability	Stable at 40°F or less for at least 6 months in sealed glass containers	
63-18 (OPPTS 830.7100)	Viscosity	6.785 centistokes at 20°C 3.884 centistokes at 40°C	461925-05
63-19 (OPPTS 830.6319)	Miscibility	Not an emulsifiable liquid for dilution with petroleum solvents	
63-20 (OPPTS 830.6320)	Corrosion characteristics	No sign of corrosiveness when stored in glass (TGAI to be stored in glass exclusively)	
63-21 (OPPTS 830.6321)	Dielectric breakdown voltage	Not required	

## B. HUMAN HEALTH ASSESSMENT

### 1. Toxicology Assessment

The major active ingredient, (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate, is a naturally occurring arthropod pheromone with a non-toxic mode of action. The lesser active isomeric component, (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate, is diastereomerically related and differs only in the carbon 6 isopropenyl group orientation. Arthropod pheromones are generally effective at very low rates and are used in point source applications such as retrievable polymeric dispensers. The Agency recognizes the low toxicity, negligible expected exposure, and lack of expected adverse effects on humans and non-target organisms of arthropod pheromones when used in polymeric dispensers. Moreover, published subchronic studies on compounds similar in structure to arthropod pheromones have been submitted indicating these compounds have no significant human health effects. As a result, only acute mammalian toxicology data were required for this registration. The mammalian toxicity data for (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate are summarized in Table 2.

**TABLE 2. Mammalian toxicity data requirements**

Guideline No.	STUDY	RESULTS	MRID NO.
152-10 (OPPTS 870.1100)	Acute oral toxicity	Rat LD <sub>50</sub> >5g/kg Toxicity Category IV	457319-03
152-11 (OPPTS 870.1200)	Acute dermal toxicity	Rat LD <sub>50</sub> >2 g/kg Toxicity Category III	462506-01
152-12 (OPPTS 870.1300)	Acute inhalation toxicity	Waiver granted	
152-13 (OPPTS 870.2400)	Primary eye irritation	Rabbits dosed with 0.1 ml had minimal conjunctival redness that did not clear by 24 hours. Toxicity Category III.	461925-01
152-14 (OPPTS 870.2500)	Primary dermal irritation	Rabbits dosed with 0.5 ml had moderate irritation with erythema that resolved by 10 days, and edema clearing by day 7. Toxicity Category III.	461925-02
152-15 (OPPTS 870.2600)	Dermal sensitization	Waiver granted	
152-16 (no OPPTS guideline number)	Hypersensitivity incidents	No reported incidents to date	Incident data must be reported

## **2. Dose Response Assessment**

Based on available information and data from the open scientific literature and the Agency's *Federal Register* Notice (59 FR 3681; January 26, 1994) regarding experimental use permits, no toxicity endpoints were identified.

## **3. Dietary Exposure and Risk Characterization**

Data waivers were requested by the registrant for the acute inhalation toxicity and hypersensitivity data requirements for this active ingredient. The requests were based on California Red Scale Pheromone's demonstrated low acute toxicity (Table 2), minimal pulmonary exposure potential, relatively low vapor pressure, lack of reported adverse effects to researchers, and expected low exposure to humans and non-target organisms. Low exposure is due to the pheromone's use in point source dispensers, from which the pheromone is released in very small quantities. Restricting the use of California Red Scale Pheromone to retrievably sized dispensers will significantly limit the possibility of dietary exposure to the pheromone.

## **4. Occupational and Residential Exposure**

### **a. Occupational Exposure and Risk Characterization**

The end-use product will be applied via polymeric matrix dispensers placed in citrus trees. The potential for dermal, eye, and inhalation exposures to the pesticide exists for both the pesticide handler and applicator. Because of low acute mammalian toxicity, worker exposure data on (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate are not required. However, due to the potential for dermal toxicity (Toxicity Category III) and dermal irritation (Toxicity Category III), the Agency will require the appropriate signal word and precautionary statements to mitigate any risk of dermal toxicity or irritation from occupational exposure via these routes.

### **b. Residential, School and Daycare Exposure and Risk Characterization**

No indoor residential, school or daycare uses currently appear on the end-use product label. Because the pheromone is in dispensers placed only in the upper canopy of citrus tree orchards, accidental non-dietary exposure to sites where children are present is unlikely. Should exposure occur, however, the health risk is expected to be minimal based on low mammalian toxicity and a history of safe use for similar arthropod pheromones.

## **5. Drinking Water Exposure and Risk Characterization**

No significant exposure is expected from an accumulation of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate in the aquatic environment when used according to the precautionary label language.

## **6. Acute and Dietary Risks for Sensitive Subpopulations, Particularly Infants and Children**

The Agency has concluded that the potential risk from exposure to pheromone residues is not a dietary hazard to the general population, including infants and children. This decision was based on the following criteria: 1) low acute and subchronic mammalian toxicity, 2) the known metabolism; and 3) the history of safe use of similar arthropod pheromones. Also, for food uses of pheromones, the toxicity and residue data have allowed for the conclusion that an exemption from the requirement of a tolerance is appropriate and adequate to protect human health, including that of infants and children (40 CFR §180.1124).

## **7. Aggregate Exposure from Multiple Routes Including Dermal, Oral and Inhalation**

The synthetic mixture of the stereoisomers (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate is structurally identical to a natural pheromone which acts via a non-toxic mode of action on specific target pests. Low oral and dermal toxicity have been demonstrated by the data summarized above. Waiver from the requirement to submit inhalation toxicity data was granted. Residues on foods are expected to be low due to the small amount of compound used and its containment in a polymeric matrix. Weathering and other environmental degradation of this volatile compound is expected to further reduce exposure to humans and non-target organisms. Based on this information, EPA has concluded that aggregate exposure to such arthropod pheromones over a lifetime will not pose appreciable risks to human health. Moreover, the toxicity and exposure data are sufficiently complete to adequately address the potential for additional sensitivity of infants and children to residues of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate. The Agency concludes that there is reasonable certainty of no harm to infants and children from aggregate exposure to residues of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate.

## **C. ENVIRONMENTAL ASSESSMENT**

### **1. Ecological Effects Hazard Assessment**

The Agency has reviewed and evaluated ecotoxicity data for a number of chemically similar pheromones; therefore, no ecological data are required for (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate. The Agency published the following ecotoxicity findings for tests on pheromones in the *Federal Register* (59 FR 3681; January 26, 1994): high toxicity to aquatic invertebrates and moderate toxicity to fish, but practically no toxicity to birds tested. These results demonstrated the potential toxicity of arthropod pheromones to aquatic organisms.

The BPPD granted the request for data waivers from the requirements of studies/data for non-target organisms. Non-target organism data were waived for (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate because 1) of low toxicity in mammal testing; 2) the pheromone is specifically targeted to the California red scale; 3) the pheromone is to be manufactured for use in retrievable dispensers; and 4) adverse

effects to non-target organisms are not expected because pheromones are released from dispensers in very small quantities in the environment and act on a select group of insects.

## 2. Environmental Fate and Ground Water Data

Environmental exposure assessments on biochemical pesticides are not performed unless significant human health or ecological effects issues arise in the Tier I studies for either of these disciplines (40 CFR §158.690 (c) and (d)). Since Tier II studies were not triggered, there is no requirement for environmental fate data.

## 3. Ecological Exposure and Risk Characterization

California Red Scale Pheromone is a synthetic arthropod pheromone that is structurally identical to and mimics a naturally occurring pheromone produced by the female California red scale that acts on a select group of insects and has a non-toxic mode of action. It will be used in retrievably sized polymeric dispensers, which significantly limits the possibility of adverse effects on non-target avian, aquatic, or insect species. As a result, no toxicology or environmental fate and effects data were deemed necessary for registration.

In addition to the pheromone only being used in dispensers, mitigating label language will further reduce the risk to aquatic organisms. The precautionary labeling of California Red Scale Technical Pheromone manufacturing-use product stipulates, "Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA”

**TABLE 3. Non-Target Toxicity Studies - Tier I Guideline Requirements for (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate**

			MRID
154-6 (OPPTS 850.2100)	Avian acute oral	Waived	NA
154-7 (OPPTS 850.2200)	Avian dietary	Waived	NA
154-8 (OPPTS 850.1075)	Freshwater fish LC <sub>50</sub>	Waived	NA
154-9 (OPPTS 850.1010)	Freshwater invertebrate LC <sub>50</sub>	Waived	NA



## **D. EFFICACY DATA**

No efficacy data were required to be submitted to the Agency, since no public health uses are involved. However, an efficacy study submitted to the California Department of Pesticide Regulation was reviewed and the results showed the likelihood of the pheromone to achieve its intended pesticidal effect.

## **IV. RISK MANAGEMENT DECISION**

### **A. DETERMINATION OF ELIGIBILITY**

Section 3(c)(5) of FIFRA provides for the unconditional registration of new active ingredients if it is determined that (A) its composition is such as to warrant the proposed claims for it; (B) its labeling and other materials required to be submitted comply with the requirements of FIFRA; (C) it will perform its intended function without unreasonable adverse effects on the environment; and (D) when used in accordance with widespread and commonly recognized practice, it will not generally cause unreasonable adverse effects on the environment.

To satisfy criteria “A” above, the mixture of the stereoisomers (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate is similar in composition to other registered arthropod pheromone products. Pheromones are suitable alternatives to other more toxic arthropod pest control products. Criteria “B” is satisfied by the current label and by the data presented in this document. It is believed that the mixture of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate will not cause any unreasonable adverse effects, is an effective biochemical insecticide for arthropod pests, and is likely to provide protection as claimed, satisfying criteria “C.” Criteria “D” is satisfied in that the pesticide is not expected to cause unreasonable adverse effects when used in dispensers as described in the label. Therefore, (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate (California Red Scale Pheromone) is eligible for registration. The manufacturing-use product will be formulated into pheromone end-use products, for use to control pests in/on agricultural commodities.

Therefore, the proposed mixture of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate (California Red Scale Pheromone) is eligible for registration. The uses are listed in Table 4, Appendix A.

### **B. REGULATORY POSITION**

#### **1. Unconditional Registration**

Based on the data submitted, the proposed mixture of the stereoisomers (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate is eligible for registration under Section 3(c)(5) of FIFRA. EPA foresees no adverse effects to

human health or the environment from the use of the arthropod pheromones applied via polymeric dispensers to growing crops only at rates not to exceed 150 grams a.i./acre/year.

## **2. Tolerance Reassessment**

The existing tolerance exemption for arthropod pheromones (40 CFR §180.1124) is applicable to California Red Scale Pheromone when used in retrievably sized polymeric matrix dispensers, and applied to growing crops only at a rate not to exceed 150 grams active ingredient per acre per year in accordance with good agricultural practices. Note that the proposed application rate for

California Red Scale Pheromone is an even lower 160 mg of active ingredient per acre per year.

## **3. Codex Harmonization**

There are no Codex harmonization considerations since there is currently no Codex tolerance for (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate (California Red Scale Pheromone) residues.

## **4. Non-food Re/Registrations**

There are no non-food issues at this time.

## **5. Risk Mitigation**

There is a minimal to negligible potential for risks to non-target organisms (plants and wildlife), or contamination of ground and surface water through the proposed use of this active ingredient as the California Red Scale Pheromone will be used only in dispensers. However, appropriate precautionary labeling of the manufacturing-use and end-use products will minimize and mitigate risk to non-target, including aquatic, organisms. Occupational risk will be mitigated by appropriate label precautions concerning dermal exposure.

## **6. Endangered Species Statement**

The Agency has no evidence that any endangered or threatened species will be adversely affected if products containing the California Red Scale Pheromone are used as labeled. In this regard, label language specific for endangered or threatened species is not imposed at this time for such products.

## **C. LABELING RATIONALE**

It is the Agency's position that the labeling for California Red Scale Technical Pheromone containing 36% of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and 22% of (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate complies with the current pesticide labeling requirements.



## **1. Human Health Hazard**

### **a. Worker Protection Standard**

This product does not come under the provisions of the Worker Protection Standards (WPS).

### **b. Non-Worker Protection Standard**

There are no non-WPS human health hazard issues.

### **c. Precautionary Labeling**

The Agency has examined the toxicological data base supporting both California Red Scale Technical Pheromone manufacturing-use product and Red Scale Down™ end-use product, and concluded that the proposed precautionary labeling (i.e., Signal Word, First Aid Statement and other label statements) adequately mitigates the risks associated with the proposed uses.

**Manufacturing-Use Product Precautionary Labeling:** For California Red Scale Technical Pheromone, “CAUTION.” Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wear waterproof gloves. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse.

**End-Use Product Precautionary Labeling:** For Red Scale Down™, “CAUTION.” Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wear gloves. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse. Also: Provide adequate ventilation when handling dispensers. Do not handle dispensers in enclosed areas.

### **d. Spray Drift Advisory**

No spray drift advisory statement is necessary for this use.

## **2. Environmental Hazards Labeling**

**Manufacturing-Use Product Environmental Hazards Labeling:** Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

**End-Use Product Environmental Hazards Labeling:** 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 washwater or rinsate.

### 3. Application Rate

The manufacturing-use product will be used only to formulate end-use pheromone products having retrievably-sized polymeric matrix dispensers, as described in 40 CFR §180.1124. The end-use product pheromone dispensers each will each contain 0.4 mg total active ingredients. Not more than 400 dispensers per acre per year (160 mg active ingredients per acre per year) are to be applied.

### D. LABELING

(1a) Product name: **California Red Scale Technical Pheromone**

Active Ingredients:  
(3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate.....36%  
(3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate.....22%  
Other Ingredients:.....42%

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Total	100%
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The product label shall contain the following information:

- Product Name
- Ingredient Statement
- Registration Number
- "Keep Out of Reach of Children"
- Signal Word (CAUTION)

(1b) Product name: **Red Scale Down™**

Active Ingredients:  
(3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate.....0.041%  
(3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate.....0.025%  
Other Ingredients:.....99.934%

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Total	100.000%
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The product label shall contain the following information:

- Product Name
- Ingredient Statement
- Registration Number
- "Keep Out of Reach of Children"
- Signal Word (CAUTION)

## V. ACTIONS REQUIRED BY REGISTRANTS

Reporting of incidences of adverse effects to humans or domestic animals under FIFRA, Section 6(a)2 and incidents of hypersensitivity under 40 CFR Part 158.690 (c), guideline reference number 152-16 is required. There are no data requirements, label changes and other responses necessary for the reregistration of the manufacturing-use and end-use products since the products and active ingredients are being registered after November 1984 and are, therefore, not subject to reregistration. There are also no existing stocks provisions at this time.

## VI. Appendix A

Table 4 lists the use sites for the products. The labels for the products are also attached.

**TABLE 4. Manufacturing-Use Product Registration.**

<p><b>California Red Scale Technical Pheromone (36% of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and 22% of (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate)</b></p> <p><u>Use Sites</u> Manufacturing use only. For agricultural application (citrus orchards) only. The MUP is intended for incorporation into end-use polymeric matrix dispensers used to attract California red scale adult males.</p>	<p>Official date registered: 9/15/04</p>
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**TABLE 4. End-Use Product Registration.**

<p><b>Red Scale Down™ (0.041% of (3S, 6R)-3-methyl-6-isopropenyl-9-decen-1-yl acetate and 0.025% of (3S, 6S)-3-methyl-6-isopropenyl-9-decen-1-yl acetate)</b></p> <p><u>Use Sites</u> End use only. For agricultural application (citrus orchards) only. The end-use product is a polymeric matrix dispenser used as a mating disruptor for California red scale.</p>	<p>Official date registered: 9/15/04</p>
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