5

Treatment Manual

Treatment Schedules

T200 - Schedules for Propagative Plant Material

Contents

The following schedules of the T200 series are arranged by category such as a specifically named plant, type of plant, character of growth, or pest.

Important

Plant and plant parts treated under the T200 series schedules are not to be used for food or feed purposes.

T201—Plants

T202—Bulbs, Corms, Tubers, Rhizomes, and Roots

T203—seeds

NOTICE

Plant Tolerance. In general, nursery stock should be fumigated in a normal atmospheric pressure (NAP) chamber. Damage may occur when treatment is performed under a tarpaulin. When selecting a treatment for a particular pest, consider the tolerance of the plant material to the treatment. Refer to the "Handbook of Plant Tolerances to Quarantine Treatments" to determine if a genus or species is tolerant to treatment.

The condition of the plants at the time of treatment may have a bearing on reaction to treatment.

Any new or unusual observations relating to treatment tolerance of treated material should be recorded and reported to the Center for Plant Health Science & Technology (CPHST), giving details of the treatment and the conditions of application. In appraising the effects of a particular treatment, take care to distinguish between the actual or apparent effects attributable to the treatment and those not related to the treatment.

NOTICE

Seeds for Propagation. Precautionary treatment for small lots of seeds (1 lb or less) is **not** required if you can inspect 100% of the seeds and you do not find any pests.

NOTICE

Containers. Give boxes, crates, and other propagative containers the same treatment as the propagative material with which they are associated. Exceptions are necessary, however, when significant pests are found infesting containers or packing materials that would not be controlled by the treatment required for the contents.

NOTICE

Dipping. In lieu of fumigation, an approved chemical dip may be recommended for those plants known to be intolerant to fumigants. Plants, including the roots, should be entirely submerged in the chemical dip for 30 seconds. Agitating the plants while immersed in the solution will eliminate air pockets and aid in obtaining complete coverage of the plants with the pesticide. For approved fungicidal dips, see the appropriate section in the T500 Treatment Schedules.

Important

Use fresh chemicals in preparing the dip solution for same day use. Wear rubber gloves while dipping plants to prevent pesticides from coming in contact with skin. Wash the gloves in soap and water before removing. Also, thoroughly wash hands and arms in soap and water after removing the gloves. Do **not** eat or smoke while working with pesticides.

T201—Plants

T201-q Aquatic plants infested with freshwater snails

Pest: Snails of the following families: Amphulariidae, Bulinidae, Limnaeidae, Planorbidae, Viviparidae

Treatment: T201-q—Hot water treatment 112°F for 10 minutes. *Elodea Danes* and *Cabomba caroliniana* plants not tolerant to this treatment. Inspection stations should refer to their reference report guide for host tolerances to the hot water treatment.

T201-e-1 Bromeliads

Pest: External feeders

Treatment: T201-e-1 MB ("Q" label only) at NAP—tarpaulin or chamber

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	1.5 hrs
80-89°F	2 lbs	2 hrs
70-79°F	3 lbs	2 hrs
60-69°F	3 lbs	2.5 hrs
50-59°F	3 lbs	3 hrs

T201-e-2 Bromeliads

Pest: Internal feeders such as borers and miners

Treatment: T201-e-2 MB ("Q" label only) at 15" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96 °F	2 lbs	1.5 hrs
80-89 °F	2 lbs	2 hrs
70-79 °F	3 lbs	2 hrs
60-69 °F	3 lbs	2.5 hrs
50-59 °F	3 lbs	3 hrs

T201-f-1 Cacti and other succulents

Two schedules based on type of pest

Pest: External feeders (other than soft scales) infesting collected dormant and nondormant plant material

Treatment: T201-f-1 MB ("Q" label only) at NAP—tarpaulin or chamber)

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		Brachyrhinus larvae	All others
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

T201-f-2 Cacti and other succulents

Two schedules based on type of pest

Pest: Borers and soft scales

Treatment: T201-f-2 MB ("Q" label only) in 15" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		Brachyrhinus larvae	All others
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

Vacuum fumigation requires prior consent of the importer. If consent is denied, entry should be refused unless hand removal plus 100% inspection is feasible.

Obtain consent of the importer prior to treatment of the following plants since some damage may occur:

Bromeliads, see ***T201-e-3-1*** on **page 5-3-15**
Kalenchoe synsepala, see ***T201-p*** on **page 5-3-18**
Sedum adolphi, see ***T201-p*** on **page 5-3-18**

T201-g-1 *Chrysanthemum* spp., rooted and unrooted cuttings

Obtain consent of the importer prior to fumigation since some damage may occur.

Pest: Aphids

Treatment: T201-g-1 MB ("Q" label only) at NAP—tarpaulin or chamber

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
70°F or above	0.75 lb	2 hrs

T201-g-2 *Chrysanthemum* spp., rooted and unrooted cuttings

Pest: External feeders

Treatment: T201-g-2 Malathion-carbaryl chemical dip—Hand removal of pests of infested parts *plus* a malathion-carbaryl chemical dip. Solution prepared by adding 3 level tablespoons of 25% malathion wettable powder and 3 level tablespoons of 50% carbaryl wettable powder to each gallon of water. The addition of a sticker-spreader formulation may be required for hard to wet plants. Use fresh chemicals and prepare dip for the same day use. Plants, including the roots, should be entirely submerged in the chemical dip for 30 seconds.

T201-g-3 *Chrysanthemum* spp., rooted and unrooted cuttings

Pest: Leafminers, aphids, mites, etc.*

Treatment: T201-g-3—Hot water at 110-111°F for 20 minutes

*This treatment is marginal as to host tolerance.

Chrysanthemum spp. from the Dominican Republic and Colombia when infested with Agromyzid leafminers requires no treatment unless destined to Florida.

T201-l Commodities infested with quarantine significant slugs

Pest: Quarantine significant slugs of the families Agriolimacidae, Arionidae, Limacidae, Milacidae, Philomycidae, and Veronicellidae, including the following genera:

Agriolimax	***Leidyula***	***Pseudoveronicella***
Arion	***Limax***	***Sarasinula***
Colosius	***Meghimatium***	***Semperula***
Deroceras	***Milax***	***Vaginulus***
Diplosolenodes	***Pallifera***	***Veronicella***

Treatment: T201-l MB ("Q" label only) at NAP—tarpaulin or chamber

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:	
		0.5 hr	2 hrs
90-96°F	1 lb	12	9
80-89°F	1.25 lbs	15	12
70-79°F	1.5 lbs	18	15
60-69°F	1.75 lbs	22	19

T201-h-1 Cycads—excluding *Dioon edule* (chestnut dioon)

Pest: External feeders

Treatment: T201-h-1 MB ("Q" label only) in 15" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	2 hrs
80-89°F	2.5 lbs	2 hrs
60-79°F	3 lbs	2 hrs
40-59°F	3 lbs	2.5 hrs

T201-a-1 Deciduous woody plants (dormant)

Pest: External feeders

Treatment: T201-a-1 MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		Brachyrhinus larvae	All others
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

For gypsy moth egg masses, use ***T313-a*** on **page 5-4-27** or ***T313-b*** on **page 5-4-27**.

If treating for mealybugs, use ***T305-c*** on **page 5-4-16**.

Residue samples are not required on FIFRA Section 18 materials that are inedible.

This schedule is not entirely satisfactory for use against egg masses of *Yponomeuta malinellus* (apple ermine moth).

T201-a-2 Deciduous woody plants (dormant)

root cuttings, scion wood cuttings, and nonfoliated citrus whitefly host—such as *Acer, Berberis, Fraxinus, Philadelphus, Rosa, Spiraea,* and *Syringa*

Pest: Borers

Treatment: T201-a-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		***Brachyrhinus* larvae**	**All others**
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

Citrus whitefly hosts, **see** ***T201-k-1*** on **page 5-3-10** Evergreens* broadleaved genera

T201-h-2 Dioon edule (chestnut dioon)

For other cycads see cycads

Pest: External feeders

Treatment: T201-h-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	2 hrs
80-89°F	2.5 lbs	2 hrs
60-79°F	3 lbs	2 hrs
40-59°F	3 lbs	2.5 hrs

T201-i-1 *Dieffenbachia* spp., *Dracaena* spp., *Philodendron* spp. (plants and cuttings)

Pest: External feeders

Treatment: T201-i-1 MB ("Q" label only) at NAP—chamber

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	1.5 hrs
80-89°F	2 lbs	2 hrs
70-79°F	3 lbs	2 hrs
60-69°F	3 lbs	2.5 hrs
50-59°F	3 lbs	3 hrs

Important

This treatment may cause leaf tip burn in *Dieffenbachia* (dumbcane).

T201-i-2 *Dieffenbachia* spp., *Dracaena* spp., *Philodendron* spp. (plants and cuttings)

Pest: Internal feeders

Treatment: T201-i-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	1.5 hrs
80-89°F	2 lbs	2 hrs
70-79°F	3 lbs	2 hrs
60-69°F	3 lbs	2.5 hrs
50-59°F	3 lbs	3 hrs

Immature and tender plants and cuttings, and species and varieties known or considered to be affected by MB, should not be fumigated without consent of the importer. Without such consent, entry should be denied.

NOTICE

This schedule may cause leaf tip burn in *Dieffenbachia* (dumbcane).

T201-b-1 Evergreens*, (Broadleaved genera, such as *Azalea*, *Berberis*, *Camellia*, *Ilex*, and *Photinia*)

(Coniferous genera, such as *Cedrus, Cupressus, Juniperus, Podocarpus, Thuja,* and *Taxus)*

Pest: External feeder

Treatment: T201-b-1 MB ("Q" label only) at NAP—tarpaulin or chamber

Temperature	Dosage Rate (lb/1,000 ft^3):		Exposure Period:	
	Brachyrhinus larvae	All others	*Brachyrhinus* larvae	All others
90-96°F	2 lbs	1.5 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	2.5 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	2.5 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	2.5 lbs	4 hrs	3.5 hrs

Important

*If treating for mealybugs, fumigate at 60 °F or above.

Exceptions:

Araucaria spp., **see** ***T201-c-1*** on **page 5-3-10**
Azalea indica, **see** ***T201-c-2*** on **page 5-3-11**
Cycads, **see** ***T201-l*** on **page 5-3-6**
Citrus whitefly hosts, **see** ***T201-k-1*** on **page 5-3-10**
Daphne spp., **see** ***T201-c-1*** on **page 5-3-10**
Lavandula spp., **see** ***T201-p-1*** on **page 5-3-19**
Osmanthus americanus, **see** ***T201-p-2*** on **page 5-3-19**
Pinus from Canada to certain States, **see** ***T201-j*** on **page 5-3-16**
Peanuts with gypsy moth egg masses, **see** ***T313-a*** on **page 5-4-27**

NOTICE

Some species and varieties of evergreens, particularly in *Azalea* and *Juniperus* have low tolerances and should be fumigated as in schedule T201-c; those known or believed to be intolerant should be handled under T201-p. For tolerance data, see Handbook of Plant Tolerances to Quarantine Treatments.

T201-k-1 Foliated hosts plants of *Dialeurodes citri* (citrus whitefly), excluding *Osmanthus americanus*

For Osmathus americanus, see T201-p

Pest: *Dialeurodes citri* (citrus whitefly)

Treatment: T201-k-1 MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3):		Exposure Period:
	***Brachyrhinus* larvae**	**All others**	
85-96°F	1.5 lbs	1 lb	4 hrs
80-84°F	2.5 lbs	2 lbs	2.5 hrs
70-79°F	2 lbs	2 lbs	3.5 hrs

T201-c-1 Greenhouse-grown plants, herbaceous plants and cuttings, and greenwood cuttings of woody plants

For cut flowers and greenery, use T305-a, which is identical to this schedule).

Pest: External feeders, leaf miners, thrips*

Treatment: T201-c-1 MB ("Q" label only) at NAP—tarpaulin or chamber

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:	
		0.5 hr	2 hrs
80-90°F	1.5 lbs	19	12
70-79°F	2 lbs	24	16
60-69°F	2.5 lbs	30	20
50-59°F	3 lbs	36	24
40-49 F	3.5 lbs	41	27


Important

If treating for mealybugs, fumigate at 60°F or above.

T201-c-2 Greenhouse-grown plants, herbaceous plants and cuttings, and greenwood cuttings of woody plants

Pest: Borers, soft scales


Important

For cut flowers and greenery, use ***T305-b*** on **page 5-4-15**, which is identical to this schedule.

Treatment: T201-c-2 MB ("Q" label only) in 15" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
80-90°F	2.5 lbs	2 hrs
70-79°F	3 lbs	2 hrs
60-69°F	3 lbs	2.5 hrs
50-59°F	3 lbs	3 hrs
40-49°F	3 lbs	3.5 hrs

Vacuum fumigation requires prior consent of the importer. If consent is denied, refuse entry unless T201-c-1, plus hand removal of these pests is feasible. For shipments of a size to permit 100% inspection, plants with these pests may be handled separately. Vacuum fumigation is not required for soft scales known to be widely distributed in the United States.


Important

Exceptions to Schedules T201-c-1 and 2
- Bromeliads, see ***T201-e-3-1*** on **page 5-3-15**
- Cacti and other succulents, see ***T201-j*** on **page 5-3-16**
- *Chrysanthemum* spp., see***T201-g-1*** on **page 5-3-5**
- Cycads, see ***T201-l*** on **page 5-3-6**
- Cyclamen mites, ***T201-a-2*** on **page 5-3-7**
- *Dieffenbachia* spp., *Dracaena* spp., and *Philodendron* spp., see ***T201-i-1*** on **page 5-3-8**
- *Kalanchoe synsepala*, see ***T201-p-1*** on **page 5-3-19**
- *Lavandula* spp., see ***T201-p-2*** on **page 5-3-19**
- Orchids, see ***T201-k-2*** on **page 5-3-136**
- *Osmanthus americanus*, see ***T201-p*** on **page 5-3-18**
- *Pelargonium* spp., see ***T201-p*** on **page 5-3-18**
- *Sedum adolphi*, see ***T201-p*** on **page 5-3-18**
- Plants infested with *Succinea horticola*, see ***T201-o-1*** on **page 5-3-12**
- Plants infested with *Veronicella* or other slugs, see ***T201-l*** on **page 5-3-6**

T201-n Host plants of *Aleurocanthus woglumi* (citrus blackfly)

Pest: *Aleurocanthus woglumi* (citrus blackfly)

Treatment: T201-n MB ("Q" label only) at NAP—tarpaulin or chamber

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:	
		0.5 hr	2 hrs
85°F or above	1 lb	13	9
80-85°F	1.25 lbs	16	12
70-79°F	1.5 lbs	19	15
65-69°F	1.75 lbs	23	17

Precautions within citrus blackfly quarantine areas:

- Conduct tarpaulin fumigations in shaded areas, if possible, to prevent the development of high space temperatures within the tarpaulin enclosure.
- Fumigate 4 to 5 days after plants are dug, balled, and burlapped, if possible.
- Roots and soil should be moist prior to fumigation. Watering should be deferred for 12 hours after fumigation unless there is wilting, in which case, water as needed.
- Avoid excessive air circulation during fumigation or during the post-treatment aeration period.
- Avoid placing plants in direct sunlight after fumigation.

T201-o-1 Host plants of *Omalonyx unguis* and *Succinea spp.* (snails)

Important

These treatments are for use on plants that may not tolerate fumigation. Use either of the following treatments.

Pest: *Omalomyx unguis* and *Succinea spp.* (snails)

Treatment: T201-o-1 Water Spray—Use a high-pressure water spray on the foliage to flush snails from the plants. Care should be taken not to spray the root systems of conifers since they will be damaged. The run-off drain must be screened to catch snails before drainage into the sewer system. Reinspect plants after wash.

T201-o-2 Host plants of *Omalonyx unguis* and Succinea spp. (snails)

Treatment: **T201-o-2** Chemical Dip—Dip plants with a Malathion-carbaryl chemical dip. Solution prepared by adding 3 level tablespoons of 25 percent Malathion wettable powder and 6 level teaspoons of 50 percent carbaryl wettable powder per gallon of water with a sticker-spreader formulation.

T201-k-2 Nonfoliated hosts plants of *Dialeurodes citri* (citrus whitefly), excluding *Osmanthus americanus*

Pest: *Dialeurodes citri* (citrus whitefly)

Treatment: T201-k-2 MB ("Q" label at NAP)

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		***Brachyrhinus* larvae**	**All others**
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

T201-d-1 Orchids, plants, and cuttings

Pest: External feeders, other than soft scales

Collected: Dormant or nondormant

Treatment: T201-d-1 MB ("Q" label only) at NAP tarpaulin or chamber,

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		***Brachyrhinus* larvae**	**All others**
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

If treating for mealybugs, use ***T305-c*** on **page 5-4-16**.

T201-d-2 Orchids, plants, and cuttings

Pest: External feeders (other than soft scales) infesting greenhouse grown plant material

Treatment: T201-d-2 MB ("Q" label only) at NAP tarpaulin or chamber

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	1 lb	2 hrs
80-89°F	1.5 lbs	2 hrs
70-79°F	2 lbs	2 hrs
60-69°F	2.5 lbs	2 hrs
50-59°F	3 lbs	2 hrs
40-49°F	3.5 lbs	2 hrs

T201-d-3 Orchids, plants, and cuttings

Pest: Borers, cattleya fly, *Mordellistena* spp., soft scales, *Vinsonia* spp.

Treatment: T201-d-3 MB ("Q" label only) in 15" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	3 lbs	1 hr
80-89°F	3 lbs	1.5 hrs
70-79°F	3 lbs	2 hrs
60-69°F	3 lbs	2.5 hrs
50-59°F	3 lbs	3 hrs
40-49°F	3 lbs	3.5 hrs

For nondormant plants, collected or greenhouse grown, vacuum fumigation requires prior consent of the importer. If consent denied, entry should be refused unless T201-a-1 plus hand removal of these pests is feasible. Plant shipments of a size to permit 100% inspection and pest removal may be handled separately.

T201-d-4 Orchids, plants, and cuttings

Pest: Cecidomyid galls

Treatment: **T201-d-4** Excised in all cases

T201-d-5 Orchids, plants, and cuttings

Pest: Leaf miner, *Eurytoma* spp., infesting *Rhynchostylis*

Treatment: T201-d-5 Hot water—118°F for 0.5 hour followed by a cool water bath

NOTICE

Some varieties of Orchids may be sensitive to methyl bromide (MB) treatments. These varieties include *Cymbidium, Cypripedium,* and *Phalaenopsis*. As an alternative to MB treatments that may damage orchids, **see *T201-p*** on **page 5-3-18**

T201-e-3-1 Pineapple slips

Two alternative schedules

Pest: Various

Treatment: T201-e-3-1 MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	1.5 lbs	2 hrs
80-89°F	2 lbs	2 hrs
70-79°F	2.5 lbs	2 hrs
60-69°F	3 lbs	2 hrs

T201-e-3-2 Pineapple slips

Alternative schedule

Treatment: T201-e-3-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Ratel (lb/1,000 ft^3)	Exposure Period
90-96°F	1.5 lbs	1.5 hrs
80-89°F	2 lbs	1.5 hrs
70-79°F	2.5 lbs	1.5 hrs
60-69°F	3 lbs	1.5 hrs

NOTICE

Some varieties of bromeliads may be sensitive to methyl bromide (MB) treatments. These varieties include *Aechmea* spp., *Billbergia* spp., *Guzmania* spp., *Nidularium* spp., *Vriesia* spp., and other broad shiny-leafed types, and thin-leafed types. As an alternative to MB treatments that may damage bromeliads, **see *T201-p*** on **page 5-3-18.**

T201-j Pines (*Pinus* spp.) from Canada

Destined to California, Idaho, Oregon, and Utah

Pest: *Rhyacionia buoliana* (European pine shoot moth)

Treatment: T201-j MB ("Q" label only) at NAP

Dosage rate for all schedules is 4 lbs MB (51 oz. minimum concentration)

Temperature	Exposure Period	Temperature	Exposure Period
75°F	2 hrs	59°F	2 hrs 41 min
74°F	2 hrs 1 min	58°F	2 hrs 43 min
73°F	2 hrs 2 min	57°F	2 hrs 46 min
72°F	2 hrs 4 min	56°F	2 hrs 49 min
71°F	2 hrs 7 min	55°F	2 hrs 52 min
70°F	2 hrs 9 min	54°F	2 hrs 55 min
69°F	2 hrs 11 min	53°F	2 hrs 58 min
68°F	2 hrs 14 min	52°F	3 hrs 1 min
67°F	2 hrs 16 min	51°F	3 hrs 5 min
66°F	2 hrs 19 min	50°F	3 hrs 8 min
65°F	2 hrs 22 min	49°F	3 hrs 12 min
64°F	2 hrs 25 min	48°F	3 hrs 15 min
63°F	2 hrs 28 min	47°F	3 hrs 19 min
62°F	2 hrs 31 min	46°F	3 hrs 24 min
61°F	2 hrs 35 min	45°F	3 hrs 28 min
60°F	2 hrs 38 min		

This is a precautionary treatment for pine trees with or without roots and twigs and branches of all *Pinus* species except that Christmas trees and other pine decorative materials are exempt from the fumigation requirement during the period November 1 through December 31.

Prior consent of the importer is required for fumigation at temperatures above 65°F or below 50°F and also for all bare-rooted pines, since some damage may occur.

T201-m-1 Plant cuttings (Scion wood)*

Pest: External feeders

Treatment: T201-m-1 MB ("Q" label only) at NAP—tarpaulin or chamber

*See exceptions to plant cuttings commodity

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		Brachyrhinus larvae	All others
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

T201-m-2 Plant cuttings (greenwood cuttings of woody plants and herbaceous plant cuttings)*

Pest: External feeders

Treatment: T201-m-2 MB ("Q" label only) at NAP—tarpaulin or chamber

*See exceptions to plant cuttings commodity.

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:	
		0.5 hr	2 hrs
80-90°F	1.5 lbs	19	12
70-79°F	2 lbs	24	16
60-69°F	2.5 lbs	30	20
50-59°F	3 lbs	36	24
40-49°F	3.5 lbs	41	27

T201-m-3 Plant cuttings (root cuttings)*

Pest: External feeders

Treatment: T201-m-3 MB ("Q" label only) at NAP—chamber

*See exceptions to plant cuttings commodity.

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		Brachyrhinus larvae	All others
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

T201-m-4 Plant cuttings (root cuttings)*

Pest: External feeders

Treatment: T201-m-4 MB ("Q" label only) at NAP—tarpaulin

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:				
		0.5 hr	2.5 hrs	3 hrs	3.5 hrs	4 hrs
90-96°F	2 lbs	24	16	—	—	—
80-89°F	2.5 lbs	30	20	—	—	—
70-79°F	3 lbs	36	24	—	—	—
60-69°F	3 lbs	36	—	24	—	—
50-59°F	3 lbs	36	—	—	24	—
40-49°F	3 lbs	36	—	—	—	24

*See exceptions to plant cuttings commodity.

Exceptions to Plant Cutting Commodities Treated with T201-m-1, T201-m-2, T201-m-3, and T201-m-4:

Avocado, see ***T201-p*** on **page 5-3-18**
Chrysanthemum, see ***T201-g-1*** on **page 5-3-5**
Dieffenbachia, see ***T201-i-1*** on **page 5-3-8**
Dracaena, see ***T201-i-2*** on **page 5-3-8**
Lavandula, see ***T201-p*** on **page 5-3-18**
Orchids, see ***T201-k-2*** on **page 5-3-13**
Philodendron, see ***T201-i-1*** on **page 5-3-8**

T201-p Plant material not tolerant to fumigation

Three treatments based on pest

Propagative material known to be sensitive to fumigation (see Handbook of Plant Tolerance to Quarantine Treatments) should be handled by the following methods for "quarantine action" pests. The selection of the method will depend upon the character of the plant material and the type of pests that may be found.

T201-p-1 Plant material not tolerant to fumigation

Pest: Actionable Pests Excluding Scale Insects

Treatment: **T201-p-1** Hand removal—With the exception of scale insects, hand removal of pests or infested parts and detailed inspection to ensure plants are pest free. If the characteristics of the plant growth, volume, or the type of pest are such that hand removal plus inspection may not provide a pest free shipment, then see *T201-p-2* on **page 5-3-19** or *T201-p-3* on **page 5-3-20**, which follows.

T201-p-2 Plant material not tolerant to fumigation

Pest: Actionable Pests

Treatment: **T201-p-2** Hand removal plus chemical dip—Hand removal of pests of infested parts *plus* a malathion-carbaryl chemical dip. Solution prepared by adding 3 level tablespoons of 25% malathion wettable powder and 3 level tablespoons of 50% carbaryl wettable powder to each gallon of water. The addition of a sticker-spreader formulation may be required for hard to wet plants. Use fresh chemicals and prepare dip for the same day use. Plants, including the roots, should be entirely submerged in the chemical dip for 30 seconds.

Important

When the actionable pests are scale insects or their immature crawlers, prepare the solution by adding 4 level tablespoons of 25% malathion wettable powder (if the label allows) and 3 level tablespoons of 50% carbaryl wettable power to each gallon of water. Labels registered for this concentration are currently available from the following companies:

Micro-Flo Company LLC
Memphis, TN
Product: Malathion 25-WP
EPA Registration No. 051036-00033
(Tel 901-432-5131)

Cheminova Inc.
Oak Hill Park
1700 Route 23, Suite 210
Wayne, NJ 07470
Product Fyfanon 25 WP
EPA Registration No. 067760-00016
(Tel 201-305-6600)

Methoxychlor (50% wettable powder) may be substituted for carbaryl. Do *not* use methoxychlor on chrysanthemums. Other formulations of malathion, carbaryl, and methoxychlor may be substituted for the ones mentioned in this treatment, provided that the final dilution of the acting ingredients in the dip are the same, by weight. For example, you would need to use twice as much carbaryl wettable powder if the active ingredient were 25% instead of 50%.

T201-p-3 Plant material not tolerant to fumigation

Pest: Actionable Pests

Treatment: **T201-p-3** Hot water treatment—Hot water at 112 °F for 20 minutes. Not effective against all insects. Some plants may not be tolerant.

This treatment is authorized in lieu of fumigation as a precautionary treatment following the hand removal of the visible "action" pests or infected plant parts. This alternative treatment is not recommended for mature scale insects. (Schedule ***T201-c-1*** on **page 5-3-10** is recommended for armored scales and schedule ***T201-c-2*** on **page 5-3-11** is recommended for soft scales.) If hand removal is not feasible or complete, or insecticidal coverage cannot be assured because of volume or nature of the plant material, the importer should be given the options of either fumigating at his own risk or returning shipment to origin.

T202—Bulbs, Corms, Tubers, Rhizomes, and Roots

T202-b Astilbe roots

Pest: *Brachyrhinus* larvae

Treatment: T202-b MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
70-96°F	4 lbs	2 hrs
60-69°F	4 lbs	2.5 hrs
50-59°F	4 lbs	3 hrs
40-49°F	4 lbs	4 hrs

For roots received in large cases packed in peat moss, temperatures apply to packing materials, if lower than root temperatures.

T202-c Banana roots

Pest: External feeders

Treatment: T202-c Hot water 110°F for 30 minutes as pretreatment followed by 120°F for 60 minutes. Requires consent of importer. Deny entry without consent unless 100% inspection plus pest removal is feasible.

T202-j Garlic

For shipments from Algeria, Armenia, Austria, Azerbaijan, Belarus, Bosnia and Hercegovina, Croatia, Czech Republic, Egypt, Estonia, France, Germany, Georgia, Greece, Hungary, Iran, Israel, Italy,

Kazakhstan, Kyrgyzstan, Latvia, Lebanon, Lithuania, Macedonia, Moldova, Morocco, Portugal, Slovakia, Slovenia, Republic of South Africa, Russia, Spain, Switzerland, Syria, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan, and Yugoslavia.

Pest: ***Brachycerus*** spp. (garlic beetles) and *Dyspessa ululа* (Bkh.) (onion/garlic carpenterworm)

Treatment: T202-j MB ("Q" label only) at 15" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	1.5 hrs
80-89°F	2 lbs	2 hrs
70-79°F	2.5 lbs	2 hrs
60-69°F	3 lbs	2 hrs
50-59°F	3 lbs	3 hrs
40-49°F	3 lbs	4 hrs


Important

Load limit not to exceed 80% of chamber.


Important

This treatment is a precautionary requirement for *Brachycerus* spp. (garlic beetles) and *Dyspessa ululа* (Bkh.) (onion/garlic carpenterworm).

T202-e-1 *Gladiolus* spp.

Two alternative schedules

Pest: *Taeniothrips simplex* (gladiolus thrips)

Treatment: T202-e-1 MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	3 hrs
80-89°F	2.5 lbs	3 hrs
70-79°F	3 lbs	3 hrs
60-69°F	3 lbs	3.5 hrs
50-59°F	3 lbs	4 hrs
40-49°F	3 lbs	4.5 hrs

T202-e-2 *Gladiolus* spp.

Pest: *Taeniothrips simplex* (gladiolus thrips)

Treatment: T202-e-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	2 hrs
80-89°F	2.5 lbs	2 hrs
70-79°F	3 lbs	2 hrs
60-69°F	3 lbs	2.5 hrs
50-59°F	3 lbs	3 hrs
40-49°F	3 lbs	3.5 hrs

T202-f Horseradish roots

Mandatory from the following countries:
Armenia, Azerbaijan, Belarus, Bosnia and Hercegovina, Croatia, Czech Republic, Estonia, Georgia, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and Yugoslavia

Pest: External feeders

Treatment: T202-f MB in 15" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		Brachyrhinus larvae	All others
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

T202-g Lily bulbs packed in subsoil

Pest: Internal feeders

Treatment: T202-g MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	3 hrs
80-89°F	2.5 lbs	3 hrs
70-79°F	3 lbs	3 hrs
60-69°F	3 lbs	3.5 hrs
50-59°F	3 lbs	4 hrs
40-49°F	3 lbs	4.5 hrs

Load limit 50% of chamber volume. Remove all wooden case covers. Overnight or longer aeration advisable.

T202-h Lycoris

Pest: *Taeniothrips eucharii*

Treatment: T202-h MB in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		***Brachyrhinus* larvae**	**All others**
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

T202-i-1 Narcissus

Pest: *Steneotarsonemus laticeps* (bulb scale mite)

Treatment: T202-i-1 MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	3 lbs	2 hrs
80-89°F	3.5 lbs	2 hrs
70-79°F	4 lbs	2 hrs
60-69°F	4 lbs	2.5 hrs
50-59°F	4 lbs	3 hrs
40-49°F	4 lbs	3.5 hrs

T202-i-2 *Narcissus*

Pest: *Steneotarsonemus laticeps* (bulb scale mite)

Treatment: T202-i-2 MB ("Q" label only) in 26" vacuum chamber

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	2 hrs
80-89°F	2.5 lbs	2 hrs
70-79°F	3 lbs	2 hrs
60-69°F	3 lbs	2.5 hrs
50-59°F	3 lbs	3 hrs
40-49°F	3 lbs	3.5 hrs

T202-i-3 *Narcissus*

Pest: *Steneotarsonemus laticeps* (bulb scale mite)

Treatment: T202-i-3 Hot water, 110-111°F for 1 hour

Important

Exposure measured from time bulbs reach 110°F pulp temperature. Hot water should be applied *within 1 month after normal harvest,* or flower bud injury may develop.

T202-a-1 *Selaginella* spp. (Resurrection plants)

Pest: External feeders

Treatment: T202-a-1 MB ("Q" label only) at NAP—Chamber

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		Brachyrhinus larvae	All others
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

T202-a-2 *Selaginella* spp. (Resurrection plants)

Pest: External feeders

Treatment: T202-a-2 MB ("Q" label only) at NAP—Tarpaulin

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:				
		0.5 hr	2.5 hrs	3 hrs	3.5 hrs	4 hrs
90-96°F	2 lbs	24	16	—	—	—
80-89°F	2.5 lbs	30	20	—	—	—
70-79°F	3 lbs	36	24	—	—	—
60-69°F	3 lbs	36	—	24	—	—
50-59°F	3 lbs	36	—	—	24	—
40-49°F	3 lbs	36	—	—	—	24

T202-a-3 *Selaginella* spp. (Resurrection plants)

Pest: Internal feeders

Treatment: T202-a-3 MB ("Q" label only) in 26" vacuum—chamber

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period:	
		Brachyrhinus larvae	All others
90-96°F	2 lbs	2.5 hrs	2 hrs
80-89°F	2.5 lbs	2.5 hrs	2 hrs
70-79°F	3 lbs	2.5 hrs	2 hrs
60-69°F	3 lbs	3 hrs	2.5 hrs
50-59°F	3 lbs	3.5 hrs	3 hrs
40-49°F	3 lbs	4 hrs	3.5 hrs

T202-d Yams (*Dioscorea* spp.) and Sweet Potatoes (*Ipomoea* spp.)

Pest:

Treatment: T202-d MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2.5 lbs	4 hrs
80-89°F	3 lbs	4 hrs
70-79°F	3.5 lbs	4 hrs
60-69°F	4 lbs	4 hrs

NOTICE

Temperatures below 70°F may cause injury to yams. Fumigations below 70°F should only be made with consent of importer. The tuberous roots should be cured, free from surface moisture, and held at fumigation temperatures for 24 hours following treatment. Mandatory for yams for all foreign countries except Japan, Dominican Republic into Puerto Rico, and all of the West Indies into the U.S. Virgin Islands. Also, for interstate movement of sweet potatoes from Hawaii.

T203—seeds

T203-m Avocado (seeds only, without pulp)

Pest: Avocado seed weevils (*Conotrachelus* spp., *Heilipus lauri*, and *Caulophilus latinasus*); avocado stem weevil (*Copturus aguacatae*), and avocado seed moth (*Stenoma catenifer*)

Treatment: T203-m MB ("Q" label only) at 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
90-96°F	2 lbs	2 hrs
80-89°F	3 lbs	2 hrs
70-79°F	4 lbs	2 hrs
60-69°F	4 lbs	3 hrs
50-59°F	4 lbs	4 hrs
40-49°F	4 lbs	5 hrs

T203-e Chestnuts (does not include water chestnuts) and Acorns

From all countries except Canada and Mexico

Pest: Internal feeders

Treatment: T203-e (mandatory treatment) MB ("Q" label only) at 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
80-96°F	3 lbs	2 hrs
70-79°F	4 lbs	2 hrs
60-69°F	4 lbs	3 hrs
50-59°F	4 lbs	4 hrs
40-49°F	4 lbs	5 hrs

T203-i-1 Conifer seeds (species with small seeds, such as *Picea* spp., *Pinus sylvestris*, and *Pinus mugo*)

Two schedules based on type of pest

For species with small seeds, such as *Picea* spp., *Pinus sylvestris*, and *Pinus mugo*, in bags containing 75 lbs. draw an initial vacuum of at least 24 inches. Once the MB is introduced, then reduce the vacuum to NAP. This procedure is necessary for efficient penetration and distribution of the fumigant. Conifer seeds in bags of more than 75 lbs. each should be aerated in a well ventilated area for 24 hours, small seeds should be aerated for 48 hours.

Pest: External feeders

Treatment: T203-i-1 MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
80-96°F	2.5 lbs	2.5 hrs
70-79°F	3 lbs	2.5 hrs
60-69°F	3 lbs	3 hrs
50-59°F	3 lbs	3.5 hrs
40-49°F	3 lbs	4 hrs


Important

Load limit is 30% of chamber space. Moisture should not be added in fumigation of dry seeds.

T203-i-2 Conifer seeds (species with small seeds, such as *Picea* spp., *Pinus sylvestris*, and *Pinus mugo*)

Pest: Internal feeders, nutlike seeds, or when seeds are tightly packed so as to make fumigant penetration questionable.

Treatment: T203-i-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
80-96°F	2.5 lbs	2.5 hrs
70-79°F	3 lbs	2.5 hrs
60-69°F	3 lbs	3 hrs
50-59°F	3 lbs	3.5 hrs
40-49°F	3 lbs	4 hrs


Important

Load limit is 50% of chamber space. Plastic or impermeable liners should be removed or well perforated. This schedule is not entirely effective against some species of Chalcid wasps.

T203-f-1 Cottonseed—bagged, packaged, or in bulk

Four alternative schedules

Pest: External feeders

Treatment: T203-f-1 MB ("Q" label only) at NAP—chamber

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
60°F or above	6 lbs	12 hrs
OR	3 lbs	24 hrs
40-59°F	7 lbs	12 hrs
OR	4 lbs	24 hrs

Load limit is 50% of chamber volume.

T203-f-2 Cottonseed—bagged, packaged, or in bulk

Pest: External feeders

Treatment: T203-f-2 MB ("Q" label only) at NAP—tarpaulin

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:			
		0.5 hr	2 hrs	12 hrs	24 hrs
60°F or above	7 lbs	54	56	27	—
OR	5 lbs	40	40	—	20
40-59°F	8 lbs	64	64	32	—
OR	6 lbs	48	48	—	24

T203-f-3 Cottonseed—bagged, packaged, or in bulk

Pest: External feeders

Treatment: T203-f-3 MB ("Q" label only) at 26" vacuum—chamber

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
40°F or above	4 lbs	2 hrs

Load limit is 50% of chamber volume.

T203-f-4 Cottonseed—bagged, packaged, or in bulk

Pest: External feeders

Treatment: T203-f-4 Phosphine at NAP

Temperature	Dosage Rate (gms/cu meter)	Minimum Concentration Readings (ppm) At:	
		72 hrs	120 hrs
50°F or above	2.1 g	225[1]	50 or above

1 An average reading with no reading less than 50 ppm.

Relative humidity must be 40% or higher when commodity enclosed.

Aerate minimum of 24 hours.

T203-g-1 Pods and seed of Kenaf, Hibiscus, and Okra

Three alternative schedules

Pest: Internal feeders

Treatment: T203-g-1 MB ("Q" label only) at NAP—tarpaulin or chamber

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:		
		0.5 hr	12 hrs	24 hrs
60-96°F	2 lbs	24	12	—
OR	1 lb	12	—	5
40-59°F	3 lbs	36	17	—
OR	2 lbs	24	—	10

T203-g-2 Pods and seed of Kenaf, Hibiscus,and Okra

Pest: Internal feeders

Treatment: T203-g-2 MB ("Q" label only) in 26" vacuum—chamber (kenaf and okra seed only)

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
40°F or above	4 lbs	2 hrs

Important

Load limit is 50% of chamber volume.

T203-g-3 Pods and seed of Kenaf, Hibiscus, and Okra

Pest: Internal feeders

Treatment: T203-g-3 Phosphine at NAP

Temperature	Dosage Rate (gms/cu meter)	Minimum Concentration Readings (ppm) At:	
		72 hrs	120 hrs
50°F or above	2.1 g	225*	50

*An average reading with no reading less than 50 ppm.

Relative humidity must be 40% or higher when commodity enclosed.

Aerate minimum of 24 hours.

T203-k Macadamia nuks (as seeds)

Pest: *Cryptophlebia illepida* (koa seedworm)

Treatment: T203-k MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
70°F or above	2 lbs	2 hrs
60-69°F	2.5 lbs	2 hrs
50-59°F	3 lbs	2 hrs
40-49°F	3.5 lbs	2 hrs

T203-h *Rosmarinus* seeds

Pest: Juvenile *Helicella* spp. (snails) or Internal Feeders

Treatment: T203-h MB ("Q" label only) at 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
70°F or above	4 lbs	4 hrs

T203-l seeds

Pest: *Trogoderma granarium* (khapra beetle)

Treatment: T203-l MB ("Q" label only) at NAP—tarpaulin or chamber

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:			
		0.5 hr	2 hrs	4 hrs	12 hrs
90°F or above	2.5 lbs	30	20	20	15
80-89°F	3.5 lbs	42	30	30	20

NOTICE

If seed is intended for propagation, this dosage rate may damage seed by sterilization.

T203-b seeds excluding seeds of *Vicia* spp.

Pest: Bruchidae (seed beetles) excluding the beetles of *Caryedon* spp.

Treatment: T203-b MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3):		Exposure Period:	
	Caryedon spp.	All others	*Caryedon* spp.	All others
70-96°F	5 lbs	3 lbs	2 hrs	2.5 hrs
60-69°F	—	3 lbs	—	3 hrs
50-59°F	—	3 lbs	—	3.5 hrs
40-49°F	—	3 lbs	—	4 hrs

T203-o (deleted)

T203-a-1 Seeds not specifically listed in the T203 Schedules

Pest: External feeders

Treatment: T203-a-1 MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
80-96°F	2.5 lbs	2.5 hrs
70-79°F	3 lbs	2.5 hrs
60-69°F	3 lbs	3 hrs
50-59°F	3 lbs	3.5 hrs
40-49°F	3 lbs	4 hrs

NOTICE

Load limit is 30% of chamber space. Moisture should *not* be added in fumigation of dry seeds. Normally, dry seed shipments arriving in wet or damp condition may be injured. This schedule may scald coconut husks. (Some tropical or nutlike seeds are usually shipped damp.)

T203-a-2 Seeds not specifically listed in the T203 Schedules

Pest: Internal feeders

Treatment: T203-a-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
80-96°F	2.5 lbs	2.5 hrs
70-79°F	3 lbs	2.5 hrs
60-69°F	3 lbs	3 hrs
50-59°F	3 lbs	3.5 hrs
40-49°F	3 lbs	4 hrs

Load limit is 50% of chamber space. Plastic or impermeable liners should be removed or well perforated.

T203-o-1 Seeds of *Casuarina*

Pest: *Bootanomyia* spp. (in *Casuarina*)

Treatment: T203-o-1 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
70°F or above	3.5 lbs	6 hrs

T203-j Seeds of *Hevea brasiliensis* (rubber tree)

Pest: seed-boring insects

Treatment: T203-j MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
80-96°F	2.5 lbs	2 hrs
70-79°F	3 lbs	2 hrs
60-69°F	3 lbs	2.5 hrs

T203-o-3 Seeds of *Leguminosae = Fabaceae*

Pest: *Bruchophagus* spp., *Eurytoma* spp.

Treatment: T203-o-3 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
70°F or above	4 lbs	4 hrs

Two alternative schedules

T203-c Seeds of Leguminosae = Fabaceae, etc.

Pest: *Caryedon* spp.

Treatment: T203-c MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
50°F or above	2 lbs	24 hrs

Alternative treatment: T203-a-2 (under 26" vacuum)

T203-o-4-1 Seeds of Leguminosae = Fabaceae

Pest: *Caryedon* spp. (in or with, etc.)

Treatment: T203-o-4-1 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
50°F or above	2 lbs	24 hrs

T203-o-4-2 Seeds of Leguminosae = Fabaceae

Pest: *Caryedon* spp. (in or with, etc.)

Treatment: T203-o-4-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
70°F or above	3.5 lbs*	3 hrs

T203-o-5 Seeds of *Lonicera* and Other seeds

Pest: *Rhagoletis cerasi* (European cherry fruit fly) pupae (Diptera: Tephritidae)

Treatment: T203-o-5 MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
70°F or above	4 lbs*	8 hrs

NOTICE

*If seed is intended for propagation, the dosage rate may damage seed by sterilization.

T203-p Seeds of Citrus (Rutaceae family)

Pest: Citrus Canker (*Xanthomonas citri*)

Treatment: T203-p Hot water plus Chemical Dip

1. Wash the seed if any mucilaginous material, such as pulp, is adhering to the seed.
2. Immerse the seed in water heated to 125°F (51.6°C) or higher for 10 minutes.
3. Then, immerse the seed in a solution containing 200 parts per million sodium hypochlorite at a pH of 6.0 to 7.5 for at least 2 minutes.

T203-o-2 Seeds of *Umbelliferae*

Pest: *Systole* spp. (in Umbelliferae)

Treatment: T203-o-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/1,000 ft^3)	Exposure Period
80-86°F	2.5 lbs	3.5 hrs
70-79°F	3 lbs	3.5 hrs
60-69°F	3 lbs	4 hrs
50-59°F	3 lbs	4.5 hrs
40-49°F	3 lbs	5 hrs

T203-d-1 Seeds of *Vicia* spp. (vetch seeds) excluding seeds of *Vicia faba*

Pest: Bruchidae (seed beetles)

Treatment: T203-d-1 MB ("Q" label only) at NAP

Temperature	Dosage Rate (lb/1000 ft^3)	Minimum Concentration Readings (ounces) At:					
		0.5 hr	2 hrs	11 hrs	12 hrs	13 hrs	14 hrs
70°F or above	3.5 lbs	46	28	27	—	—	—
60-69°F	3.5 lbs	46	28	—	27	—	—
50-59°F	3.5 lbs	46	28	—	—	27	—
40-49°F	3.5 lbs	46	28	—	—	—	27

T203-d-2 Seeds of *Vicia* spp. (vetch seeds) including seeds of *Vicia faba*

Pest: Bruchidae (seed beetles)

Treatment: T203-d-2 MB ("Q" label only) in 26" vacuum

Temperature	Dosage Rate (lb/ 1,000 ft^3)	Exposure Period:	
		Vicia faba	All others
70-96°F	3 lbs	3.5 hrs	2.5 hrs
60-69°F	3 lbs	4 hrs	3 hrs
50-59°F	3 lbs	4.5 hrs	3.5 hrs
40-49°F	3 lbs	5 hrs	4 hrs

NOTICE

Seed shipments arriving wet or damp may be injured.

T203-n Seeds with infested pulp

Pest: Fruit flies and other pulp infesting insects

Treatment: T203-n Depulping

1. Place seed in wire basket.
2. Immerse in water at 118-125°F for 25 minutes.
3. Remove pulp from seed under running tap water.

Important

This treatment is effective only for fruit flies, as well as some other pulp infesting insects. Fumigation may also be required for seed weevils and other internal and external feeding insects.