

**PHYTOSANITARY REQUIREMENTS FOR IMPORTATION OF FRESH  
POMELO FRUITS (*Citrus maxima* Merr.) FROM VIET NAM INTO KOREA**

**1. Areas and Plant of Application**

Fresh pomelo fruits (*Citrus maxima* Merr.) commercially produced in Vietnam.

**2. Participating organization**

A. The Animal and Plant Quarantine Agency (hereinafter referred to as "APQA")

B. Plant Protection Department (hereinafter referred to as "PPD")

**3. Means of Conveyance**

Air cargo or ship cargo (except hand luggage, parcel post and express cargo).

**4. Registration of Export Orchards and Packinghouses**

A. Orchards producing fresh pomelo fruits for export to Korea(hereinafter referred to as "export orchards") shall register with PPD each year.

B. PPD shall manage and supervise export orchards to ensure low prevalence status of pests of concern to Korea as listed in Annex 1 through monitoring and pest control.

C. PPD inspector shall conduct monitoring in export orchards for *Prays endocarpa* and *Citripestis sagittiferella* every two weeks from the flowering period to the completion of harvest according to the standards below, and control measures is carried out when *Prays endocarpa* and *Citripestis sagittiferella* are detected in more than 4% of the inspected trees.

If *Prays endocarpa* and *Citripestis sagittiferella* are continuously detected higher than the control standards or if chemical control is not possible, the export orchard shall be excluded from exporting to Korea during the remainder of the season.

(1) Orchard area less than 2ha: 25 trees (5 trees in the 4 corners of the orchard + 5 trees in the center)

(2) Orchard area of 2ha or more: 50 trees (10 trees in the 4 corners of the orchard + 10 trees in the center)

D. Growers shall record the pest control activities according to the form provided by PPD. PPD shall provide the result of record upon request by APQA.

E. Packinghouses that sort and pack fresh pomelo fruits for export to Korea (hereinafter referred to as "export packinghouses") shall register with PPD each year and regularly undergo disinfection and inspection.

F. PPD must inform APQA the list of registered export orchards, export packinghouses and vapor heat treatment facilities before commencement of fresh pomelo fruits exportation every year.

## **5. Sorting**

- A. The fresh pomelo fruits for export to Korea shall be sorted and packed only in packinghouses registered with PPD.
- B. When the fresh pomelo fruits for export to Korea arrive at the packinghouse, the harvested carton of fruits shall be attached the label. The labels shall indicate that the fresh pomelo fruits were produced in the registered export orchards, including the name or the registration number of the orchards. The export packinghouse shall verify the label.
- C. When sorting fresh pomelo fruits for export to Korea, it must be ensured that pomelo produced from unregistered orchards or fresh fruits of other kinds are not sorted together.
- D. PPD shall oversee, when sorting fresh pomelo fruits, to ensure that pests of concern to Korea as listed in Annex 1 are not detected and that contaminants including infected fruits, pests, soil, and plant debris are removed.
- E. The sorting process of fresh pomelo fruits for export shall include washing with water or compressed air cleaning.

## **6. Vapor Heat Treatment**

- A. The vapor heat treatment (hereinafter referred to as "VHT") facility shall be registered with PPD and PPD shall oversee and carry out regular inspection.
- B. The VHT shall be conducted on each consignment at the registered facilities in attendance of plant quarantine inspectors of Korea and Vietnam.
- C. The VHT must be conducted by raising the fruit core temperature up to 47°C or higher and applying treatment for 20 minutes, or by raising the fruit core temperature up to 46.5°C or higher and applying treatment for 40 minutes (relative humidity over 90%).
- D. Other details of VHT shall be complied with guidelines (Annex 2) from APQA.

## **7. Packing and Labeling**

- A. The packing area for fresh pomelo fruits which have been treated shall be equipped with insect-proof facilities and disinfected regularly.
- B. Fresh pomelo fruits that have been approved by the export inspection shall be sealed in each packing cartons using the methods (including sticky tape, sticker or label) approved by PPD.
- C. On the outside the export packing cartons or pallets of palletized cargo shall be labeled "For Korea" and "the names (or registration numbers) of export orchards and packinghouses".
- D. In case there are any ventilation holes on packing carton, palette of palletized cargo or packing carton shall be covered with a net mesh of no more than 1.6mm in diameter.

## 8. Pre-clearance inspection

- A. The PPD shall send APQA a letter requesting for pre-clearance inspection by Korean plant inspectors, 30 days before commencement of vapor heat treatment.
- B. The invitation letter shall include the following information.
  - (1) The number of plant quarantine inspectors from Korea and required inspection period;
  - (2) Estimated volume of export; and
  - (3) Vapor heat treatment sites
- C. APQA's plant quarantine inspector shall check the process of vapor heat treatment and perform joint export inspection in collaboration with PPD's plant quarantine inspectors, and if necessary, check sanitary conditions of export orchards and export packinghouses.
- D. APQA shall conduct pre-clearance inspection for the first three years after market access, after which the results of the pre-clearance inspection shall be evaluated to determine whether the pre-clearance inspection should be continued.
- E. The APQA plant quarantine inspector shall write the date of export inspection on the back of the phytosanitary certificate and sign it.
- F. All costs pertaining to the on-site survey by APQA plant quarantine inspector shall be paid by the Vietnamese side in accordance with the schedule for overseas travel cost of Korea.

## 9. Export Inspection and Certification

- A. The export inspection shall be carried out jointly by the Korean and Vietnamese plant quarantine inspectors, on over 2% sample of the entire carton or 600 fruits per consignment.
- B. The APQA and PPD inspectors shall conduct fruit cut inspection on at least 50 fruits per export consignment, and inspect them for internal infection by *Prays endocarpa* and *Citripestis sagittiferella*.
- C. In case any of live pests of concern as listed in Annex 1 are detected as a result of export inspection, the following measures shall be taken.
  - (1) If a live fly is detected, the consignment shall be rejected and the export inspection shall be suspended until the cause is identified and remedial actions are taken
  - (2) If *Prays endocarpa* and *Citripestis sagittiferella* are detected, the consignment shall be rejected and the relevant export orchard shall be excluded from exporting to Korea during the remainder of the season.
  - (3) If any of live pests of concern as listed in Annex 1 or Korean's quarantine pests other than *Prays endocarpa* and *Citripestis sagittiferella* are detected, the consignment shall be rejected. However, if the pests are removed through appropriate treatment measures, the consignment can be exported to Korea.

D. For consignments that have passed the export inspection, PPD shall issue a phytosanitary certificate which includes additional declaration specified as in the below:

- (1) "This consignment complies with the import requirements agreed between APQA and PPD, and is believed to be free from *Prays endocarpa* and *Citripestis sagittiferella*".
- (2) The name (or the registration number) of the registered orchard and packinghouse; and the name of a vapor heat treatment facility, treatment date, temperature and duration, on the treatment section of the phytosanitary certificate.
- (3) Date of inspection and signature of a Korean plant quarantine inspector.
- (4) In case of a ship cargo, PPD shall seal the container and indicate the seal number.

E. Consignments that passed the export inspection shall be managed separately from the rejected or uninspected consignments to prevent cross contamination of pests.

F. Consignments that passed the export inspection shall be stored and managed in order to prevent recontamination by contaminants such as pests and soil, until their arrival in Korea.

## 10. Import Inspection

A. Upon arrival of consignments, APQA plant quarantine inspectors shall check the seal and label of the packing.

B. In case there are any problems with sealing and packing under Article 7. B and 7. D in the above or in case there are consignments in which the label or additional declaration under 7. C and 9. D is missing, the entire or parts of the consignment shall be destroyed or returned.

C. In case no problems are found as a result of checking under Section A and B of the above, APQA plant quarantine inspectors shall conduct import inspection in accordance with Korea's Plant Protection Act and relevant regulations.

- (1) In case a live fruit fly is found during the import inspection, the consignment shall be destroyed or returned, and the import of fresh pomelo fruits from Vietnam shall be suspended until the cause is identified and remedial actions are taken.
- (2) In case a live *Prays endocarpa* and *Citripestis sagittiferella* are intercepted, the consignment shall be destroyed or returned and the import of fresh pomelo fruits from the relevant export orchard will not be permitted for that remainder of season.
- (3) In case other live quarantine pests is detected during the import inspection, the consignment shall be treated and if there are no treatments available, it will be destroyed or returned.

## 11. Others

In case any pest which has not been assessed is intercepted or a quarantine pest of Korea is continuously intercepted, or there is a problem with pest management, APQA may conduct the pest risk assessment and decide on necessary measures based on the results of the assessment.

[ANNEX 1]

**List of Pests of Concern Associated with Pomelo fruits from Vietnam**

○ **Pests (20 species)**

*Phyllocoptruta oleivora*

*Ceroplastes rusci*

*Pulvinaria psidii*

*Aonidiella aurantii*,

*Lepidosaphes beckii*,

*Parlatoria ziziphi*,

*Unaspis citri*

*Ferrisia virgata*,

*Maconellicoccus hirsutus*,

*Nipaecoccus viridis*,

*Planococcus lilacinus*,

*Pseudococcus longispinus*,

*Rastrococcus invadens*

***Bactrocera carambolae*\***

***Bactrocera correcta*\***

***Bactrocera cucurbitae*\***

***Bactrocera dorsalis*\***

*Prays citri*

***Prays endocarpa*\***

***Citripestis sagittiferella*\***

\* Among those 20 pest species, particularly **6 species** (*Bactrocera carambolae*, *Bactrocera correcta*, *Bactrocera cucurbitae*, *Bactrocera dorsalis*, *Prays endocarpa*, *Citripestis sagittiferella*) were designated as pests that require **specific risk mitigation measures**.

## Guidelines for Vapor Heat Treatment

### I. Vapor Heat Treatment Conditions

- The fruit shall be treated for the duration of at least 20 minutes after the fruit core temperature reaches 47°C or for the duration of at least 40 minutes after the fruit core temperature reaches 46.5°C. During the treatment, the relative humidity level of VHT chamber shall be kept at 90% or higher.
- Pest subject to vapor heat treatment : *Bactrocera carambolae*, *B. correcta*, *B. cucurbitae*, *B. dorsalis*

### II. Facility Requirements and Inspection Standards

#### 1. Inspection of VHT Facility and Equipment

- All the entrance doors and windows of packinghouses with VHT facilities shall be equipped with appropriate insect-screening facility.
- The area where treated fruits are packed shall be sealed to prevent pest re-contamination
- VHT facility and equipment shall be inspected in accordance with manufacturer's manual on a regular basis. Other parts that may affect the VHT effect shall be inspected as well.
- More than 3 core temperature sensors, more than 2 space temperature sensors and more than 1 humidity sensor shall be installed per VHT chamber.
- The number of temperature sensors installed in VHT chamber can be added in accordance with facility size.
- The temperature and humidity level of VHT chamber and fruit core temperature shall be possible to be checked from outside, and the record of treatment shall be saved and be possible to be printed out if necessary.
- VHT chamber shall be test run before commencement of each export season to check whether equipment operates accurately.

#### 2. Sensor Calibration

- All sensors shall be calibrated before the commencement of every export season and every month by using a standard thermometer to check on the measurement error of a standard water tank set at 47°C or 46.5°C.

- The gradation of the standard thermometer shall be 0.1°C and shall be approved by National Testing Agency.
- After water temperature of standard water tank is stabilized at 47°C or 46.5°C, the value resulted from three measurements at intervals of 5 minutes shall be used for calibration.
- The error range of measured value of all sensors shall be within ±0.3°C, and the one that is out of the range shall be calibrated (zero adjustment) or replaced.
- The result of the calibrating the sensors shall be recorded.

### 3. Cold Spot Test

- The test shall be conducted at the beginning of every export season and the additional test may be carried out whenever deemed necessary.
- Load the fruits to the maximum capacity inside the chamber, based on commercial export volume.
- The fruits for cold spot test shall be hard and their weight must be within the same range. The temperature sensor shall be inserted into the largest and heaviest fruit.
- To identify the coldest spot, the fruit core temperature sensor shall be installed in the cartons located opposite from the heat outlet(vent).
  - ex) In case hot air moves from below to above, the sensor shall be installed in the carton located in the top.
  - \* The location of temperature sensor can be adjusted depending on the location of heat outlet.
- The VH treatment for the cold spot test shall be carried out in the same condition for the actual commercial export of pomelo.
  - \* The fruits that were test treated could be exported after the test.
- Set the lowest temperature point as the point that reaches 47°C or 46.5°C last among all the temperature sensors in the test, and determine the location of the temperature sensor to measure the center of the fruit.
- If the gap of each temperature sensor to reach the target temperature(47°C or 46.5°C) is more than 2 hours, the chamber shall be calibrated.
  - After the chamber calibration, the cold spot test of the chamber shall be conducted again.
- The result of the cold spot test shall be recorded.

### **III. Detail Procedures of VHT**

#### **1. Installation of thermometer and hygrometer**

- Core temperature sensor shall be inserted in more than 3 fruits per VHT chamber.
- At least more than 1 temperature sensor shall be installed at the cold spot identified through the cold spot test.

#### **2. Vapor Heat Treatment**

- The fruit shall be treated for the duration of at least 20 minutes after the fruit core temperature reaches 47°C or for the duration of at least 40 minutes after the fruit core temperature reaches 46.5°C. During the treatment, the relative humidity level of VHT chamber shall be kept at 90% or higher.
- After VHT, water or air cooling could be carried out.(optional)

#### **3. Re-infection Preventive Measure after VHT**

- The treated fruits shall be separated from other fresh fruits that were not treated.
- In the packing process, only the VHT treated fruits shall be packed together and shall be stored in a way to prevent re-infection by pests.
- The packed fruits shall be loaded and transported in a clean container and vehicle confirmed to be free from pest contamination.

### **IV. Standards for Treatment Rejection**

- In case that the fruit core temperature fails to be kept at 47°C or higher for the duration of 20 minutes, or at 46.5°C or higher for the duration of 40 minutes and the relative humidity level of VHT chamber fails to be kept at 90% or higher.
- In case any live pest which was subject to treatment is detected after VHT;
- In case temperature sensor was installed not meeting the conditions under III.1
- In case the factor is founded that degraded the result of the VH treatment.

### **V. VHT Report Writing and Confirmation.**

- Packing houses equipped with VHT facility shall record and keep the VHT report per case (see Attachment).
- The items and template of the VHT report may be modified in part in accordance with the characteristics of the system.



[Attachment]

## VAPOR HEAT TREATMENT REPORT

Issue No. :

### General Information of Treatment

Factory Name	:
Chamber No.	:
Date of Treatment	:
Commodity Name	:
Destination	:
No. of pallets	:
No. of crates	:
Total Volume(kg)	:

### Operating Information

VHT Start Time	:
Holding Time Start	:
Holding Time End	:
Treatment Duration	:
Relative humidity maintenance	: Yes / No
Remarks	:

Name of Confirmed by :

Date :

(Signature) :

## Agreement

The APQA and PPD agree to the conditions set out in this phytosanitary requirements for importation of fresh pomelo (*Citrus maxima* Merr.) from Viet Nam to Korea.

This agreement is executed by duly authorised representatives of the APQA and PPD.

**ANIMAL AND PLANT  
QUARANTINE AGENCY  
THE REPUBLIC OF KOREA**

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**PLANT PROTECTION  
DEPARTMENT  
THE SOCIALIST REPUBLIC  
OF VIET NAM**

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Signature *Kyung Bong Koh.*



Date **25 April 2024**

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**25 April 2024**

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