

TCAC



**Australian  
Competition &  
Consumer  
Commission**

PO Box 1199  
Dickson ACT 2602  
470 Northbourne Ave  
Dickson ACT 2602  
ph (02) 6243 1111  
fax (02) 6243 1199  
[www.accc.gov.au](http://www.accc.gov.au)

Our Ref: C2002/546  
Contact officer: Jason Byrne  
Contact phone: (02) 62431279

7 April 2006

The Registrar of Trade Marks  
IP Australia  
PO Box 200  
WODEN ACT 2606

Dear Registrar

**Certification Trade Mark Application No. 891642 – Department of Foreign Trade,  
Ministry of Commerce, Thailand**

The Australian Competition and Consumer Commission (the ACCC), in accordance with the provisions of the *Trade Marks Act 1995*, has completed its final assessment of Certification Trade Mark (CTM) No. 891642.

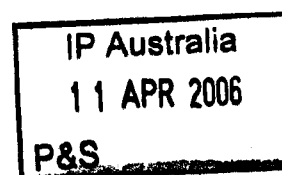
A certificate detailing the ACCC's assessment is attached, as well as a certified copy of the rules. The applicant has been notified.

If you have any queries on this matter, please contact Jason Byrne on (02) 6243 1279.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Isabelle Arnaud'.

Isabelle Arnaud  
Director  
Adjudication Branch





**Australian  
Competition &  
Consumer  
Commission**

**Final Assessment of Certification Trade Mark application 891642 lodged by the  
Department of Foreign Trade, Ministry of Commerce, Thailand**

The Australian Competition and Consumer Commission (the Commission), in accordance with the requirements of the *Trade Marks Act 1995*, has completed its Final Assessment of the above Certification Trade Mark (CTM) application.

The Commission's Final Assessment is that it is satisfied that:

- (a) the approved certifiers are competent to certify the goods in respect of which the CTM is to be registered;
- (b) the rules governing the use of the CTM would not be to the detriment of the public; and
- (c) the rules governing the use of the CTM are satisfactory having regard to the principles relating to restrictive trade practices set out in Part IV of the *Trade Practices Act 1974* (the Act); the principles relating to unconscionable conduct set out in Part IVA of the Act; and the principles relating to unfair practices, product safety and product information set out in Part V of the Act.

Signed.....  ..... (Commissioner)

Date..... 6 APRIL 2006 .....

(Unofficial)

**The Regulation of the Department of Foreign Trade  
on usage of the Certification Mark of Thai Hom Mali Rice  
Second Issue  
B.E. 2545 (2002)**

Pursuant to the Regulation of the Department of Foreign Trade on usage of the Certification Mark of Thai Hom Mali Rice B.E. 2545 (2002) as of 1 March 2002, which stipulated the criteria, methods and conditions in using the Certification Mark of Thai Hom Mali Rice in order to show that the Thai Hom Mali Rice exported is Thai Hom Mali Rice that has a standard complying with that issued by the Ministry of Commerce.

In order to be in accordance with the Notification of the Ministry of Commerce, which stipulated Thai Hom Mali Rice as a standard commodity and the Thai Hom Mali Rice Standard B.E. 2544 as of 31 October B.E. 2544 (2001) amended by the notification of the Ministry of Commerce on the Regulation of Thai Hom Mali Rice as a standardized commodity and Thai Hom Mali Rice Standard (Second Issue) B.E. 2545 as of 19 June B.E. 2545, the Department of Foreign Trade sets forth the following regulations:

No.1 This regulation shall be called "The Regulation of the Department of Foreign Trade on usage of the Certification Mark of Thai Hom Mali Rice (Second Issue) B.E. 2545."

No.2 The cancellation of the Regulation of the Department of Foreign Trade on usage of the Certification Mark of Thai Hom Mali Rice B.E. 2545 as of 1 March B.E. 2545 (2002).

No.3 This regulation shall be effective on the day after the pronouncement in the Royal Gazette.

No.4 In this regulation:

"Certification Mark" means the Certification Mark of Thai Hom Mali Rice, which the Department of Foreign Trade registered as the owner with the Department of Intellectual Property to certify that the rice originates in Thailand, with standards conforming to that issued by the Ministry of Commerce. The Mark shall have "Thai Hom Mali Rice" in Thai text • **ข้าวหอมมะลิไทย** • with picture of rice grains and ears of rice inside a circle encircled by the English wordings • **THAI HOM MALI RICE • ORIGINATED IN THAILAND • DEPARTMENT OF FOREIGN TRADE**

No.5 Regarding qualifications of Certification Mark applicants and the conditions of the usage of the Certification Mark, the applicants must be registered as an exporter of standard Thai Hom Mali Rice with the Inspection And Commodity Standards Division. Furthermore, the standard Thai Hom Mali Rice that can use the Certification Mark must pass the standard inspection and receive the Standard Certification showing that standard Thai Hom Mali Rice has at least 92 percent of Thai Hom Mali Rice.

Certified copy  
pursuant to section 175(2)(b)  
of the *Trade Marks Act 1995*

 06-04-06  
Commissioner Date

No.6 Criteria and conditions in granting usage of the Certification Mark:

6.1 The registered exporter of standard Thai Hom Mali Rice who would like to apply for the Certification Mark shall submit written request to the Grain Division, Department of Foreign Trade and the Department of Foreign Trade shall inform the applicants of the granting.

6.2 Conditions for the grantee:

The usage of the Certification Mark stipulated above must be either stamped, sealed or tied to the bag or container of the Thai Hom Mali Rice. The size of the Certification Mark must be sufficiently visible and clear.

No.7 Revocation of the usage of the Certification Mark:

In the case that the grantee shall not implement according to this regulation, the Department of Foreign Trade shall revoke the usage of the Certification.

No.8 The Director General of the Department of Foreign Trade shall have charge and control of this regulation.

Announced on 13 August B.E. 2545 (2002)

(Mr. Dhumnoon Cheosakul)  
The Director General of  
the Department of Foreign Trade

### **The explanations of regulation**

(a) When there exists a dispute between a goods owner (rice exporters = approved users) and a foreign purchaser and/or between a goods owner and an inspector of the standard of exported goods, the Department of Foreign Trade will judge according to the ministerial regulations Book 1 (2504 B.E.) in Act of the standard of exported goods 2503 B.E. for inspection entrepreneurs of the standard of exported goods on February 24<sup>th</sup>, 2504 B.E. no. 6

If any party is not satisfied with the judgment, he/she can file an appeal to the board of the standard of exported goods, which is presided by the permanent secretary of Ministry of Commerce as a chairman according to Act of the standard of exported goods 2503 B.E. Section 43.

(b) The inspectors of the standard of exported goods must be authorized by the office of the standard of exported goods, Department of Foreign Trade according to Act of the standard of exported goods 2503 B.E. Section 29.

- The principles and approaches for receiving the certificate of authorized inspectors of the standard of exported goods and the qualifications of the authorized inspectors are provided in the following ministerial regulations:

1. The ministerial regulations Book 2 (2504 B.E.) in Act of the standard of exported goods 2503 B.E. for inspection entrepreneurs of the standard of exported goods on February 24<sup>th</sup>, 2504 B.E.
2. The ministerial regulations Book 3 (2504 B.E.) in Act of the standard of exported goods 2503 B.E. for the inspectors of the standard of exported goods on February 24<sup>th</sup>, 2504 B.E.
3. The ministerial regulations Book 8 (2518 B.E.) in Act of the standard of exported goods 2503 B.E. on July 17<sup>th</sup>, 2504 B.E.

(c) The users of the certified mark must register to be the exporter of Thai Hom Mali rice (Thai jasmine rice) at the office of the standard of exported goods, Department of Foreign Trade according to Act of the standard of exported goods 2503 B.E.

### **Chapter 3, Section 12,13, and 14**

The principles and approaches for the registration of the exporters, which standard goods and the qualifications of the registrant are provided in the ministerial regulations Book 1 (2504 B.E.) in Act of the standard of exported goods 2503 B.E. for the exporters of standard goods on February 24<sup>th</sup>, 2504 B.E.

(d) The procedures of the inspection are provided in the declaration of Ministry of Commerce in the section of the principles and approaches for the inspection of the standard of exported goods and the inspection of the standard of Thai Hom Mali rice 2545 B.E. on February 15<sup>th</sup>, 2545 B.E. (also available in English)

(e) No fees are provided by the department of Foreign Trade for the users of the certified mark of Thai Hom Mali rice.

(f) The authorized user of the certified mark of Thai Hom Mali rice must always maintain the quality of Thai Hom Mali rice to the standard, at least 92% of Thai Hom Mali rice, provided by the Ministry of Commerce. The department of Foreign Trade will randomly inspect the quality of Thai Hom Mali rice. In the case of the violation, the Department of Foreign Trade will withdraw the usage of the certified mark of Thai Hom Mali rice and will be guilty according to Act of the standard of exported goods 2503 B.E. Chapter 3.

(g) The authorized user of the certified mark of Thai Hom Mali rice must always comply with Act of the standard of exported goods 2503 B.E. and give a permission to be inspected at any time according to the declaration of Ministry of Commerce in the section of the principles and approaches for the inspection of the standard of exported goods and the inspection of the standard of Thai Hom Mali rice 2545 B.E. on February 15<sup>th</sup>, 2545 B.E. (also available in English)

(h) The reason and cause of the standard of Thai Hom Mali rice provide the purity rate for Thai Hom Mali rice. The purity rate is at least 92% of Thai Hom Mali rice and at most 8% of other rice. Since the processes of the manufacture of Thai Hom Mali rice beginning from the preparation of the cultivated area, plough, cultivation, harvest, transportation, milling, and stocking in silo, may be unintentionally polluted by other rice, the Department of Foreign Trade incorporated with other institutes and associations practically provide a possible purity rate for justice of every party.



๕๒ ๒๐๐ ๒๐๐๒

(๒)

(Unofficial Translation)

**The Ministry of Commerce Notification  
Subject: Rules and Methodologies of Commodities  
and Thai Hom Mali Rice Standards Inspection**

**B.E. 2545 (2002)**

By the virtue of Section 4(5) and Section 17 of the *Export Commodity Standards Act B.E. 2503 (1960)* as amended by *Export Commodity Standards Act (No.2) B.E.2522 (1979)*, the Act contains certain provisions pertaining to the limitations of rights and individual liberty; in this case, the Constitution of the Kingdom of Thailand Sections 29, in conjunction with Sections 35, 48, and 50 allows for by the power of law, the Minister of Commerce, with the recommendation of the Committee of Commodity Standards, hereby announces as follows:

Article 1. Exporters of Thai Hom Mali Rice shall conduct the commodity standard inspection in accordance to the following rules and methodologies:

(1) The arrangement for inspections shall be carried out between 08:00 to 22:30 hours. Any arrangements for inspections outside these hours may be carried out in receipt of an authorization letter issued by the Office of Commodity Standards or its branch offices.

In case where there is an urgent need to deliver commodities promptly and the authorization letter cannot be obtained from the Office of Commodity Standards or its branch offices as said in the above paragraph, the inspection arranger may arrange for an inspection outside the specified hours given. However, the inspection arranger must send a letter explaining the reasons and rationale to the Office of Commodity Standards within 5 days after the inspection date.

(2) The place of inspection must be within the locales or areas that the Office of Commodity Standard has authorized to be the permitted locales or areas for commodity standard inspection.

(3) The place of inspection must have sufficient lighting to carry out the commodity standard inspection.

(4) The inspection arranger must specify or mark clearly the commodities or silos containing commodities for inspection. In addition, the inspection arranger must ensure that the commodities intended for exports that are to be inspected are labeled as such. This is to be carried out in accordance with rules and methodologies set by the Minister.

Article 2. The commodity standard inspector shall conduct the Hom Mali Rice standard inspection procedures in two stages, that is, the pre-shipment (pre-loading) inspection, and the loading inspection to be carried out in accordance with the following rules and methodologies:

**2.1 Pre-shipment inspection**

2.1.1 The commodity standard inspector shall conduct a pre-shipment inspection by one of the following methods:

(1) Where the commodity is packed in sacks and stacked, the inspector shall take samples of no less than 5 per cent of total sacks.

(2) Where it is not possible to take samples as in (1) due to the fact that the material used for packing is made of synthetic fibers or plastic or other material which the buyer has agreed with the exporter, the inspector shall take samples of no less than 0.5 per cent of total sacks or packages by opening the sacks or the packages.

(3) Where the commodities are stored in silos, the inspector shall take samples of no less than 2 per cent of total commodities stored in silos by bringing it out and taking samples for each metric ton.

(4) Where the commodities are being transported for storage in warehouses, storage facility, or silos, the inspector shall take samples from every truck or every unit of quantity that is approximately equal to 1 truckload.

(5) Where the commodities are being transported for packing into Jumbo Bags, the inspector shall periodically take samples of no less than 5 per cent of the total packages.

2.1.2 Where the inspection arranger requests for a pre-shipment inspection in the same manner as shipment inspection during supervised packing, the commodity standard inspector shall follow the following rules and methodologies:

(1) Before conducting the shipment inspection during supervised packing, the inspector shall follow the procedures stated in 2.2.2

(2) Take adequate amount of samples for issuing the commodity standard certificate and at the same time examining the packages of the commodity.

(3) While carrying out the shipment inspection during supervised packing, at every 200 metric ton the inspector shall check the humidity, purity degree of Thai Hom Mali Rice, kernel size, composition of rice and possible contamination. In addition, a preliminary examination in accordance with the instruction recommended in Appendix D shall be carried out.

(4) Check the total weight of the commodity as requested for a commodity standard certificate. However, where the packing is carried out by automatic scales, the inspector shall weigh samples of no less than 1 per cent of sacks or packages that are to be issued a commodity standard certificate.

2.1.3 Mix the samples taken from 2.1.1 or 2.1.2 to make one sample. Divide it into 6 portions with each portion weighing no less than 0.5 kg. Pack each portion of sample in a bag or a container that preserves the samples. Label the stacks or silos, which have been taken samples from, with date, month, year and the quantity. The commodity standard inspector and representatives of the arranger shall sign on the seal of the sacks or packages. After a stamp is placed on the seal, the two parties concerned will sign again on the seal of the sacks or packages. The samples shall then be delivered to the authority concerned as stated in the ministerial rules. The outcome of the inspection will be used as reference when issuing the commodity standard certificate required by the customs officials.



Where the Office of Commodity Standards is the inspector, only portions of samples are required. One portion is to be given to the exporter and the remaining is to be kept at the Office of Commodity Standard.

2.1.4 Stamp, seal or attach labels, stickers or tags showing the day, month, year and the quantity of the sampled piles of commodities or silos. For verification purposes, mark the sampled piles of commodities or silos in the way that they cannot be added, exchanged or changed.

## 2.2 Loading Inspection

2.2.1 To qualify for a shipment inspection, the commodities must have a positive result from the pre-shipment inspection to ensure that they meet the standards set by the Ministry. However, where the purchase was made on the basis of samples or conditions of sales the standard of inspected commodities must not be poorer than that of the specimen or the condition which the buyer has agreed upon.

2.2.2 Before carrying out the shipment inspection, the inspector shall take adequate amount of commodity samples from sacks or packages or silos to check the humidity, purity degree of Thai Hom Mali Rice, kernel size, composition of rice and contamination, milling degree as well as live insects. In addition, he/she must carry out a preliminary examination in accordance with the instruction recommended in Appendix D.

Where some or all parts of the quality do not meet the standards or that of the specimen or condition which the buyer has agreed upon, the commodity standard inspector shall notify the inspection arranger to improve the commodity quality. The inspector shall proceed the shipment inspection only when the standard has been met.

2.2.3 The inspector shall take commodity samples for physical quality examination by one of the following ways:

(1) Where the commodities are packed in sacks, the inspector shall draw samples from every sack.

(2) Where it is not possible to take samples as in (1) due to the fact that the material used for packing is made of synthetic fibers or plastic or other material of which the buyer has agreed with the exporter, the inspector shall periodically take samples from entire sacks or packages at no less than 0.5 per cent of total number of sacks or packages, for each request form. The commodity standard inspection shall be conducted by opening the sacks or the packages.

(3) Where the commodities, stored in silos or Jumbo bags, are being transported for packing into sacks or packages, the inspector shall periodically take samples while being transported, at no less than 5 per cent of total number of sacks or packages. However, where the commodities has not yet been packed, the inspector shall take samples of no less than 0.5 kg from every truck or interval while being transported in the quantity approximated to 1 truck.

2.2.4 While carrying out the shipment inspection, at every 200 metric ton the inspector shall check the humidity, purity degree of Thai Hom Mali Rice, kernel size, composition of rice and contamination. In addition, he/she must carried out a preliminary examination in accordance with the instruction recommended in Appendix D.

shall be the basis of issuance of certificate that must be provided to the customs officer.

Article 4. Amylose measurement test, determination of humidity, testing methodology to establish the amount of other non-glutinous rice other than Mixed Thai Hom Mali Rice, and the basic method of inspection are to be the rules and methodologies as stated in Appendices A, B, C, and D as attached to this Notification.

Article 5. This Notification shall take effect fifteen days after the date of its publication in the Government Gazette.

Notified on 15 February B.E. 2545 (2002)

(sign)

(Mr. Adisai Bodharamik)  
Minister of Commerce

Certified Copy

(sign)

(Mr. Supawat Roongsakorn)  
Commodity Standard Officer 6

(Published in the Government Gazette, "General Notification" Volume 119, Special Section 21 D, dated 7 March B.E.2545 (2002))

Notes: This notification takes effect from 22 March B.E. 2545 (2002) onwards.

certified correct translation

- 7 NOV 2002

Unofficial translation by the Office of Commodity Standards in closely Co-operation with the English Working Group of DFT.



2.2.5 Where the inspected commodities are to be exported in sacks or packages, the commodity standard inspector shall examine the sacks or packages to ensure that they are as inquired in the commodity standard certificate request form.

2.2.6 For supervised packing as provided for in Article 2.1.2, there is no need to inspect and draw specimen again. However, if the commodity in that lot had been left for more than 15 days from the day of the initial stamp being applied, the inspection steps provided in 2.2 shall be performed.

2.2.7 The inspector shall preserve the specimen as drawn during the 2.2.3 stage in the manner that can prevent addition, substitution, or transformation of that specimen.

#### 2.2.8 Weight Inspection

In the case where the commodity is packed in sacks or other packages, if each is weighted, then at least one per cent of the total number of sacks or packages applying for a certificate shall be weighted. If weighted together on the bed of the delivery truck, then the entire amount of commodity applying for a certificate shall be weighted.

In the case where the commodity is not packed in sacks, the entire amount of commodity applying for a certificate shall be weighted.

2.2.9 Once the inspection is carried out for each of the request, a sample is made from the specimen as per 2.2.3 and in accordance with the rules and methodologies before deliveries to the person as per 2.1.3.

In case the exporter of the commodity requests for certification of the inspection result or analysis separated into each steps of the inspection for those commodity as requested without having to wait for the entire inspection process to be completed, then one sample per each commodity whose inspection had been carried out shall be provided. The issuance of certificates testifying to the standard inspection or sample analysis shall be based on the average result of all analyses made in reference to that request.

2.2.10 In the case where the commodity has to be moved for loading at a port locating far from the assigned place of inspection, a seal shall be applied on the commodity transported in the vehicle in a manner that can prevent addition, substitution, or transformation of the commodity until the time of loading.

2.2.11 Where the inspection hours has ended for the day and the inspection arrangements have not been completed, or where the inspection has been completed but there are some remaining commodity specimen from the pre-shipment inspection stage and the inspection arranger has requested for another shipment inspection hereafter, the inspector shall stamp the remaining piles of commodity or remaining silos as to prevent addition, substitution, or transformation of the commodity.

Article 3. In the case where the arranger cannot provide for the pre-shipment inspection, the arranger may arrange for the shipment inspection only and the provisions in 2.2.1 can be exempted. In this case, the analysis result produced as per

## Appendix A

### Amylose Measurement Test

#### 1. Apparatus

- 1.1 Spectrophotometer
- 1.2 Scales, calibrated to 0.0001 gram
- 1.3 Magnetic stirrer
- 1.4 Rice Pulverizer, calibrated to 80-100 mesh
- 1.5 Volumetric flask, with the capacity of 100 ml
- 1.6 Volumetric pipette, with the capacity of 1, 2, 3, 4 and 5 ml
- 1.7 Measuring pipette, with the capacity of 1-10 ml

#### 2. Reagents

- 2.1 Ethyl alcohol:  $C_2H_5OH$  95%
- 2.2 Sodium hydroxide:  $NaOH$
- 2.3 Glacial acetic acid:  $CH_3COOH$
- 2.4 Iodine:  $I_2$
- 2.5 Potassium iodide:  $KI$
- 2.6 Potato amylose with 95% purity

#### 3. Preparation method of the solutions

- 3.1 Sodium hydroxide concentration 2 N solution: dissolve 80.0 g of sodium hydroxide (as in 2.2) in approximately 800 ml of distilled water in a 1000 ml volumetric flask. Leave to cool then add more distilled water to 1000 ml.
- 3.2 Glacial acetic acid concentration 1 N solution: dissolve 60 ml of glacial acetic acid (as in 2.3) in approximately 800 ml of distilled water in a 1000 ml volumetric flask, then add more distilled water to 1000 ml.
- 3.3 Iodine solution: Add 0.2000 g of iodine to 2.000 of potassium iodide then dissolve in approximately 80 ml of distilled water using a 100 ml tinted volumetric flask. Leave the solution overnight or wait until the iodine is completely dissolved. Add more distilled water to 100 ml.

#### 4. Analytical method

- 4.1 Prepare 0.1000 g of rice powder from the sample of rice kernels, using the pulverizer (as in 1.4). Place the powder in a 100ml volumetric flask (as in 1.5) that is completely dry.
- 4.2 Add 1 ml of the 95% ethyl alcohol. Shake gently.
- 4.3 Add 9 ml of the sodium hydroxide solution.
- 4.4 Stir the solution for 10 minutes using the magnetic stirrer until the solution become starchy liquid. Add more distilled water to 100 ml.
- 4.5 Using a new 100 ml volumetric flask, add approximately 70 ml of distilled water, 2 ml of glacial acetic acid solution, and 2 ml of the iodine solution together.
- 4.6 Put 5 ml of the starchy liquid (as in 4.4) into the prepared flask (as in 4.5). Add more distilled water to 100 ml and leave for 10 minutes

- 4.7 Measure the color intensity of the solution in 4.6 using the spectrophotometer by setting it to blank first to make it reads the absorbance rate of zero, then set the absorbance at the wavelength of 620 nanometer.
- 4.8 Make it blank by adding 2 ml of glacial acetic acid and 2 ml of iodine. Add more distilled water to 100 ml.
- 4.9 Find the amylose percentage by comparing the obtained absorbance figure with the standardized graph in 5.
- 4.10 Adjust the amylose percentage of the tested rice starch to the humidity rate of 14 per cent by using the following equation:

$$\text{Amylose percentage of the rice starch at 14\% humidity} = \frac{A \times 86}{100 - M}$$

given that A = amylose percentage of the rice starch  
M = humidity percentage of the rice starch

#### 5. Standardized graph

- 5.1 Weigh 0.0400 g of amylose and put into a 100 ml volumetric flask (as in 1.5) that is completely dry, then follow step 4.2-4.4 to make the standardized solution.
- 5.2 Prepare five 100 ml volumetric flasks by filling each one with 70 ml of distilled water. Add 0.4 ml of glacial acetic acid solution into the first flask, 0.8 ml into the second, 1.2 ml into the third, 1.6 ml into the fourth and 2.0 ml into the fifth. Add 2 ml of iodine solution into each flask.
- 5.3 Put 1, 2, 3, 4 and 5 ml of the standardized solution (as in 5.1), which are the equivalents of 8, 16, 24, 32 and 40 per cent of amylose respectively, into the prepared flasks (as in 5.2). Add more distilled water to 100 ml and measure the absorbance rate at 620 nanometer after adjusting the spectrophotometer to blank first (as in 4.7) in order to make it reads the absorbance rate of zero
- 5.4 Draw the standardized graph using the data obtained from the absorbance rates and the amylose percentages of the standardized solution.
- 5.5 Use the standardized graph from 5.4 to convert the absorbance rate into amylose percentage.

**Appendix B**  
**Determination of Humidity**

1. Apparatus
  - 1.1 oven
  - 1.2 analytic balance, accurate to 0.0001 gr.
  - 1.3 desiccator
  - 1.4 80-100 mesh grinder
  - 1.5 aluminum cup with lid
  
2. Procedure
  - 2.1 Pulverize White rice grain using grinder (1.4)
  - 2.2 Place the lid under the aluminum cup and place in the oven (1.1) preheated to 130 degree Celcius. Heat for 1 hour and transfer it into desiccator. Cool to room temperature. Record as A sample, the initial sample weight. Each sample must be run in duplicate, at minimum.
  - 2.3 Weight out approximately 1.000 gr. Of pulverized sample and transfer to aluminum cup. Record as B sample, the initial sample weight. Each sample must be run in duplicate, at minimum.
  - 2.4 Place aluminum cup with pulverized sample (2.3), leaving the lid open, in the oven (1.1) preheated to 130 degree Celsius. Heating for 1 hour then transfer it into desiccator. Cool to room temperature. Record as C sample the initial sample weight. Each sample must be run in duplicate, at minimum.
  - 2.5 Calculate the amount of humidity
$$\% \text{ humidity} = (B-C/B-A) 100$$

A= weight of aluminum cup with lid  
B= weight of aluminum cup with lid and pulverized sample before placing in the oven  
C=weight of aluminum cup with lid and pulverized sample after placing in the oven

## Appendix C

### Testing methodology to establish the amount of other non-glutinous rice other than mixed Thai Hom Mali Rice

To find the disintegration level of rice kernels in alkaline solution:

#### 1. Apparatus

- 1.1 Scales, calibrated to 0.0001 g
- 1.2 oven
- 1.3 Volumetric flask with the capacity of 1000 ml
- 1.4 Petri dish with the diameter of 14.5 cm
- 1.5 Glass beaker with the size of 1-2 liter
- 1.6 Desiccator

#### 2. Reagents

- 2.1 Potassium Hydroxide: KOH 87%
- 2.2 Potassium hydrogen phthalate:  $C_8H_5KO_4$
- 2.3 Phenolphthalein:  $C_{20}H_{14}O_4$

#### 3. Preparation method of potassium hydroxide solution at $1.7\% \pm 0.05\%$ concentration

##### 3.1 Potassium hydroxide solution can be prepared in two ways:

- 3.1.1 To prepare working solution directly: weigh 19.54 g of potassium hydroxide and dissolve in distilled water that has been boiled and left to cool in lid container. Add distilled water to measure 1000 ml.
- 3.1.2 To prepare working solution from stock solution:
  - a) Weigh 588.2 g of potassium hydroxide and dissolve in distilled water that has been boiled and left to cool in lid container. Add distilled water to measure 1000 ml. Reserve the stock solution for dilution.
  - b) Dilute 33 ml of the stock solution in a) with 1000 ml of distilled water to make the working solution.

##### 3.2 To determine concentration of working solution

- 3.2.1 Place potassium hydrogen phthalate in the oven preheated at  $130\text{ }^\circ\text{C}$ . Heat for 1 hour and then keep it in the desiccator. Leave the solution to cool to room temperature.
- 3.2.2 Weigh approximately 0.5000 g. of potassium hydrogen phthalate (3.2.1). Record the real weight.
- 3.2.3 Dissolve potassium hydrogen phthalate (3.2.2) in 50 ml of distilled water. Add a few drops of 1% phenolphthalein indicator. Titrate with working

**4.4 Finding**

**The rice grains that disintegrate in alkaline solutions stages 1 through 5 are not Thai Hom Mali Rice.**

0

0



**Appendix D**  
**Basic method of inspection**

The method of inspecting rice cooked in boiling water is the fundamental way of identifying Thai Hom Mali Rice.

1. Apparatus
  - 1.1 Electric boiler
  - 1.2 Sieve (made of stainless steel)
  - 1.3 Spoon or spatula
  - 1.4 Two sheets of glass
  
2. Procedure
  - 2.1 Sampling 100 whole grain of white rice and placing it in the sieve.
  - 2.2 Boil distilled water using the electric boiler until it reaches the boiling point.
  - 2.3 Place the sieve filled with rice into the boiling water (2.2) and boil for 17 minutes.  
Be careful not to let the rice grain clinging together.
  - 2.4 After 17 minutes, take the sieve out of the boiling water and place it in cold water immediately. Then take it out and leave to drain.
  - 2.5 Place the grains on a glass sheet, scatter then place another glass sheet on top and press down until they are completely flat. Check to see if any grains are still hard (to be identified by white spots of raw starch inside the grains). If so, they are not completely cooked.
  
3. Determination  
Rice grains which are not completely cooked are not regarded as Thai Hom Mali Rice.

solution until the color of the solution change from clear to pink. Record the volume of the spent working solution in ml.

3.2.4 Prepare blank: Blank is prepared in the same manner as 3.2.3 without using potassium hydrogen phthalate.

3.2.5 Calculate the concentration of working solution:

$$\% \text{ potassium hydroxide} = \frac{P}{204.23} \times \frac{56.109}{V-B} \times 100$$

given that V = Volume (ml) of working solution used to titrate with potassium hydrogen phthalate

B = Volume (ml) of working solution used to titrate with blank

P = weight (g) of potassium hydrogen phthalate

#### 4. Procedure

- 4.1 Sampling 100 whole grains of rice. Place on four transparent plastic plates (25 grains on each plate) and place on black smooth surface.
- 4.2 Add 100 ml potassium hydroxide on each plate and ensure that every grain sits in the solution. Keep each grain apart and leave the lid open at room temperature ( $30^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ). Leave it untouched for 23 hours.
- 4.3 Check the disintegration level of rice kernels (as in 4.2) in alkaline solution with Table 1.

Table 1 : Disintegration level of each rice kernel in alkaline solution

Level of rice kernel disintegration	Appearance of rice kernels disintegrated in alkaline
1	No changes in rice kernel appearance
2	Rice kernels swelled.
3	Rice kernels swelled and released starches from some parts of the kernels.
4	Rice kernels swelled and released starches into the areas surrounding the kernels.
5	The outer layer of the grain splits, whether horizontally or vertically, releasing starches into the area surrounding the kernels.
6	The entire grain disintegrates, forming a white sticky substance.
7	The entire grain disintegrates, forming a clear sticky substance.