



# Importation of Palm Kernel Expeller from Malaysia

**Malaysia Visit**  
**20-26 May 2013**

MPI Audit Report

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# 1 Executive summary

The purpose of this audit was to assess the systems in place to manage the biosecurity risk associated with the export of Palm Kernel Expeller (PKE) from Malaysia to New Zealand and to identify any gaps or deficiencies. MPI officials accompanied by Malaysian Department of Agriculture (DOA) officials (and Malaysian Palm Oil Board (MPOB) officers for 1 day) audited 16 facilities (13 manufacturing plants, 2 port storage facilities at Jahor and Port Klang, and 1 commodity trader; Palmbase) that have exported PKE to New Zealand since the beginning of 2012. The following critical findings were identified.

## 1.1 Critical Findings

1. The majority of manufacturing and storage facilities visited either met, or with minor improvements would meet, New Zealand's import requirements for supply chain security.
2. The systems and processes used by the National Plant Protection Organisation (NPPO) of Malaysia (DOA) for phytosanitary certification and inspection are by and large appropriate and meet New Zealand's requirements. The certification and fumigation procedures fully meet New Zealand's requirements.
3. Additional verification by the DOA of the suitability of all facilities used in the supply chain to meet New Zealand's import requirements is required.
4. A gap was identified in the export procedures used by the DOA that means certified product could potentially be sourced from facilities (manufacturers or storage facilities) that have not been approved by DOA as meeting New Zealand's requirements. MPI is urgently amending the import health standard (IHS) and communicating with the DOA to address this.
5. A greater level of oversight by DOA on the supply chain is required.
6. Based on these audits, the risk assessment completed for FMDV associated with PKE, and the current requirements in the IHS with the proposed amendments, MPI considers that the biosecurity risk from the import of PKE remains very low. While concerns about contamination of PKE have been raised by stakeholders, there have been no detections of regulated pests or disease found in PKE imports following clearance in New Zealand.

## 1.2 Summary of recommendations

1. That the Department of Agriculture (Malaysia) operating as the National Plant Protection Organisation:
  - a. Increases the level of supervision of the export supply chain from manufacture to loading at the port.
  - b. Update and improve procedures for approving facilities (manufacturing and storage of PKE) to emphasise the biosecurity requirements for the export of PKE to New Zealand.
  - c. Update and improve procedures for issuing phytosanitary certificates to ensure that:
    - i. only PKE produced in DOA approved facilities meeting New Zealand's import requirements is certified for export to New Zealand.
    - ii. all facilities (manufacturing plants, storage, warehouse and port loading facilities) involved in the supply chain are audited and approved by DOA to ensure they meet New Zealand's import requirements before exports can occur.
  - d. Provide a maintained and updated list of approved facilities on its website.
2. That MPI urgently amends the IHS for Processed Animal Feeds of Plant Origin regarding PKE to more specifically require that product is sourced only from facilities approved by the NPPO of the exporting country as meeting New Zealand's import requirements.
3. That MPI provides additional specifications to DOA to assist with their updating of procedures, including guidelines for the requirements for storage of PKE.

## 2 Definition and abbreviations

NPPO	National Plant Protection Organisation
MPOB	Malaysian Palm Oil Board
PKE	Palm Kernel expeller
PKM	Palm Kernel meal
DOA	Department of Agriculture, Jabatan Pertanian Malaysia
ISPM	International Standard for Phytosanitary Measures
PKO	Palm Kernel oil
FMDV	Foot and Mouth Disease Virus
FMD	Foot and Mouth Disease
IHS	Import Health Standard
OIE	World Organisation for Animal Health

## 3 Background

### 3.1 Background

PKE is a by-product made from the extraction of oil from the palm kernel seeds and fruits of the oil palm, *Elaeis guineensis*. PKE is the mashed solid part of the seed kernels left remaining after oil extraction.

The palm kernel is the edible seed of the oil palm tree. The fruit yields two distinct oils - palm oil derived from the outer parts of the fruit, and palm kernel oil derived from the kernel.

Figure 1: Palm fruit



Figure 2: Palm kernels



The pulp left after oil is rendered from the kernel is formed into palm kernel expeller, which is the mashed solid part of the seed kernels left remaining after oil extraction. Palm kernel expeller or extract (PKE) is the same product as palm kernel meal (PKM).

Figure 3: Palm kernel expeller



As a final product, PKE is a pure homogenous processed material produced under extremely high temperatures. The name PKE is based on the fact that the seeds have undergone extraction by an expeller process for the oil and this is the residue, whereas the name PKM is more aligned with the physical state of the “meal” like product.

A summary of the oil palm production process, including PKE production is in appendix 1.

### 3.2 PKE Production in Malaysia and Imports into New Zealand

Imports of PKE have become a significant production input to New Zealand's dairy industry over the past decade as a high-protein supplementary feed for dairy cows. In the past few years, annual imported quantities of PKE have increased dramatically from approximately 100,000 tonnes in 2004 to 1.5 million tonnes in 2012. PKE is an important source of supplementary stockfeed, especially in drought-affected areas.

Latest figures show New Zealand agents imported over 1.5 million tonnes from January 2012 to March 2013. The greatest volumes of imports are from Malaysia and Indonesia which make up approximately 93% of the total volume imported into New Zealand. PKE is generally shipped from Malaysia to New Zealand in bulk vessels. Usually about 2 to 3 vessels with 40-60,000 MT are exported to New Zealand every month.

**Table 1: Imports of PKE into New Zealand between 1 January 2012 and 31 March 2013**

Exporting Country	Imported Volume (Tonnes):	Percentage
Indonesia	690,541	43.4%
Malaysia	781,034	49.1%
Solomon Islands	2,189	0.1%
Papua New Guinea	117,151	7.4%
<b>TOTAL</b>	<b>1,590,825</b>	<b>100%</b>

Local use for PKE is as a fuel, and also as a feed in poultry and egg production. It is not used in Malaysia's small beef industry, and Malaysia imports 90% of its beef for consumption. Approximately 40% of PKE produced is exported to New Zealand, the remaining 60% mostly to various European and Asian countries. The phytosanitary requirements for these countries can vary. For example, India and Taiwan do not require a phytosanitary certificate to accompany the PKE. The European Union (EU) requires a basic phytosanitary certificate without any additional declarations.

### 3.3 Import Health Standard requirements

The current phytosanitary requirements for the importation of plant-based animal feeds are specified in the IHS *Importation into New Zealand of Processed Animal Feeds of Plant Origin*: <http://www.biosecurity.govt.nz/imports/plants/standards/bnz-pafp-imprt>.

PKE is one of a number of single-ingredient processed animal feeds including seed meals and various pelletised products that are imported into New Zealand with entry requirements listed in section 7.3 of the above IHS.

The IHS for PKE requires that for each consignment, certification and assurances are provided to state that the PKE:

- has been heat processed to at least 85 degrees Celsius;
- has been stored in factories dedicated to the processing of the palm fruits and kernels, and kept clean and free of potential contamination following production;

- has been handled and stored in a manner to prevent contamination with any unprocessed plant material, vermin, birds, ruminant animals, faecal material and other animal products;
- has been inspected according to official procedures prior to export, and
- has been fumigated with phosphine or methyl bromide prior to or during shipment.

On arrival in New Zealand all consignments are inspected by MPI biosecurity inspectors. If insects or other contaminants are found, an approved method of treatment is undertaken to mitigate any biosecurity risk.

During the initial development of the IHS, the risk of regulated pests entering and establishing in New Zealand from processed animal feed imports was assessed. The risk that processed plant by-products for use as animal feed could introduce foot and mouth disease virus (FMDV), as well as other potentially significant diseases, was considered negligible because such material is not a natural “host” for foot and mouth disease, and the IHS requires that:

- the heat treatment used in the standard manufacturing process for animal feeds of plant origin exceeds 85°C (note: palm kernel is usually heated to over 95°C during processing) and is more than sufficient to inactivate diseases, such as FMDV, that might be present.
- imported product must have been processed in a facility that is dedicated to the production of plant based products only, and after processing, the product needs to be stored in indoor facilities that are used exclusively for this purpose to ensure that it cannot be contaminated.

### **3.4 Stakeholder concerns**

In the past, the grains section of Federated Farmers have approached MPI and highlighted potential concerns in relation to imports of stock feed, particularly with regard to imported PKE. Concerns associated with PKE production have also been raised by environmental groups due to the growing land use for the production of palm oil, in countries like Malaysia and Indonesia, which has caused increased deforestation of native forests.

A key part of the biosecurity system in New Zealand is reporting by stakeholders (and public) of suspected new organisms or other biosecurity risks. Several concerns have been raised by farmers after finding live pests associated with PKE on farms in New Zealand and all reports have been investigated by MPI. In addition, some farmers have reported finding contaminating material in the PKE, including metal objects.

Previous concerns raised by stakeholders resulted in MPI (then the Ministry of Agriculture and Forestry) conducting a survey to inspect all containers of bulk stockfeed, including PKE, over an approximate 4 week period in February and March 2009. Because no product arrived in containers during this period, inspections of the storage facilities associated with the major ports in Auckland, Tauranga, Christchurch and Invercargill were initiated. The

facility inspections resulted in 106 identifications, representing 52 pests, all of which are already present in New Zealand and they were all non-regulated organisms.

An MPI border survey was completed during 2010 and 2011 to inspect randomly selected consignments of processed animal feed imports, including PKE, tapioca, soybean meal and canola meal. A total of 98 consignments of PKE were surveyed, associated with both imports in bulk vessels and containers. No regulated organisms were found on palm kernel imports, and no slippage was identified by surveyors after the usual inspection by MPI inspectors.

There have been very few interceptions of regulated pests on PKE over the last 10 years. The most common interception is Diptera flies, of which some are regulated species, although the economic and environmental risk of these species is likely to be low to negligible. The most common species intercepted on PKE imports is the Diptera fly, *Megaselia scalaris*. New Zealand's regulatory status of this species was re-assessed in 2012, and was changed from regulated to non-regulated, as this species was unlikely to have a significant impact to New Zealand.

All information to date suggests that the interceptions of live insects found during mandatory inspection by MPI on arrival in New Zealand have been dealt with appropriately using methyl bromide fumigation. Pest contamination problems for imports of plant-based stockfeed are known to exist on occasion with bulk product in containers that have had a build-up of moisture within the vicinity of the container doors during transit. Importers are given the option of pest identification to see if the intercepted pests are regulated or not, or fumigation. The usual situation is for importers to request fumigation without pest identification, as this is usually made to speed up delivery and avoids the cost of identification.

In the past few months, MPI have received a number of notifications on possible contaminants in imports of PKE which have required investigation. For example, MPI received a report that the leg of an animal was found buried in a shipment of PKE on a farm. The report was investigated by MPI and the leg was found to be from a goat of New Zealand origin, based on the identification of fly larvae in the meat. It appears that the leg was buried in the PKE pile after delivery to the farm.

MPI has also been notified by a Carterton farmer of metal contamination within PKE, which was found to have led to the death of a cow. While metal contaminants are not a biosecurity risk, there may be concerns over feed safety. MPI are currently investigating the source of this metal contamination and if any further actions are required.

There has been no detection to date of regulated pests associated with PKE after biosecurity clearance at the New Zealand border. Further there have been no animal diseases detected in New Zealand as a result of the import and use of PKE.

### **3.5 Risk assessment for foot and mouth disease virus (FMDV)**

FMDV is a highly contagious viral disease that causes high fever, vesicular lesions and ulcerations, and is considered to be the most economically devastating animal disease. The outbreaks foot and mouth disease (FMD) in Britain in 2001 (Thompson et al 2002), and in Taiwan in 1997 (Yang et al 1999) cost those countries billions of dollars.

The disease is widespread, occurring endemically in areas of South America, Africa and Asia. Currently, there are many unresolved disease events, including outbreaks in Europe (Bulgaria), China, North and South Korea, and South Africa (WAHID 2011). The disease has been eradicated from or has not occurred in North America, Australia, and many European countries. The Host species include cattle, zebu, domestic buffaloes, yaks, sheep, goats, swine, all wild ruminants, wild *Suidae* and members of the *Camelidae* family.

FMDV is recognised to be present in Malaysia. The official World Organisation for Animal Health (OIE) FMD situation for Malaysia is listed on the WAHID website: [http://www.oie.int/wahis\\_2/public/wahid.php/Wahidhome/Home](http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home). FMDV is present in domestic animals but limited to one or more zones. Since 1992 there have been outbreaks of FMDV seen every year in some states of the Malaysian peninsula, particularly in the northern states (Senawi 2012). Despite efforts to control FMDV, the disease is currently endemic in all of the Malaysian Peninsula and is one of the biggest factors hindering livestock production (Senawi 2012). In 2004 the OIE recognised the Malaysian states of Sabah and Sarawak on the island of Borneo as FMD-free without vaccination: <http://www.oie.int/?id=246>.

Due to the concerns raised following the visit to Malaysia by Colin MacKinnon and David Clark (Grains Section of Federated Farmers of New Zealand, Inc.), MPI has produced an update of the risk assessment specifically for FMDV associated with PKE imports: <http://www.biosecurity.govt.nz/files/regs/imports/risk/pke-meal-rapid-risk-assessment.pdf>

This risk assessment has confirmed that:

- PKE is not a natural host for FMDV;
- the heat processing associated with PKE production would inactivate any FMDV;
- contamination of manufactured PKE prior to shipment could be a source of FMDV introduction into New Zealand, and
- reliable certification that PKE is stored and transported in a manner that avoids contact with FMDV-susceptible livestock can effectively manage the risk.

This risk assessment re-confirms the need for the import requirements that are currently stated in the IHS to mitigate the potential biosecurity risks of PKE.

### **3.6 Pathway audits**

MPI conducts ongoing reviews of pathways where necessary for providing quality assurance of products arriving at the New Zealand border, and the outcome of these audits can include an urgent amendment to an IHS where considered necessary.

As part of the normal audit process for IHSs, MPI has previously conducted audits of PKE processing and storage facilities in Malaysia in 2006 and 2009. During these visits the auditors inspected and reviewed PKE processing and storage facilities and met with government officials, exporters and facility managers. There was no evidence to suggest that

there is a significant risk of palm kernel being contaminated through contact with animal material, or any other biological contamination or soil.

Following concerns expressed by Federated Farmers the next audit program was brought forward. MPI officials (including a senior official) travelled to Malaysia to ensure that import requirements (security of PKE post production) are being maintained and to provide assurance that appropriate oversight of the export supply chain is occurring. While previous audits focused on facilities known to be exporting product to New Zealand, this audit focussed also on the official supervision of the export process, and was more extensive than usual, auditing the majority of facilities as well as the official systems and processes.

This audit will also input into the wider review of the IHS for all processed plant-based animal feeds, including PKE, to ensure the requirements appropriately manage the biosecurity risk associated with these products. The IHS review has been underway since 2012 and is programmed to be completed later in 2013.

## **4 Purpose**

The purpose of this report is to review the system in place for exports of PKE to New Zealand. This involves:

- reviewing the security of the supply chain from production to shipping to reduce the likelihood of:
  - infestation by regulated pests,
  - contamination by vectors capable of transmitting animal diseases, and
  - contamination by other regulated articles that may be a risk to animal health and welfare.
- reviewing the phytosanitary certification and inspection processes used by DOA, and
- verifying that the assurances provided by Malaysia on certification are accurate for PKE consignments exported to New Zealand.

### **4.1 Audit Visit**

MPI visited Malaysia between 20 May and 26 May 2013. During this time, MPI met with the DOA in their capacity as the NPPO of Malaysia, and visited a number of PKE manufacturing plants, storage facilities and ports of loading to review the security of the supply chain for PKE to avoid contamination with sources of potential biosecurity risk. MPI visited all the facilities identified by MPI as facilities of interest prior to the visit. One additional facility (PalmBase) was visited on the request of DOA. The audit schedule is in appendix 2. A map of Malaysia showing the areas visited is in appendix 3.

The audit was exceptionally thorough. The usual approach is to audit the activities of the NPPO in providing oversight of export systems and phytosanitary certification and then a small sample of facilities to verify or 'ground-truth' what has been seen. Based on past experience, and informed by the number of interceptions picked up through inspection and

verification at the New Zealand border we would generally have high confidence in NPPO assurances and systems. We would only take the approach visiting the majority of the manufacturing plants as well as auditing the NPPO systems and processes for either the most severe risks, or where we have strong evidence of failure. MPI is not intending using this approach as a standard for future audits as it does not align with our focus for better and less regulation, given that it will increase the costs to businesses and would need to be supported by science-based risk assessment. This is consistent with the approach taken when New Zealand export systems are audited by our trading partners.

## **4.2 Audit Criteria**

This audit focused on two aspects: The oversight provided by the exporting NPPO, and the facilities used for export of PKE to New Zealand.

The following questions were used to assess the suitability of the systems and processes used by the NPPO for the export of PKE:

1. Are the procedures used by DOA sufficient to ensure PKE is sourced only from supply chains where all the facilities and transportation systems used are suitable for the secure storage of PKE?
2. Do the DOA procedures for the production of phytosanitary certificates and export phytosanitary inspection meet New Zealand's requirements and expectations?
3. Do the DOA procedures verify that all PKE shipments are fumigated correctly to meet New Zealand's import requirements?

The following criteria were used to assess the suitability of the manufacturing and storage facilities for PKE, and transport and loading of ships. The facilities must be:

1. dedicated to the production of plant based products only, and do not expose PKE to any source of contamination from animal products before processing;
2. have measures in place to keep PKE free from contamination by any unprocessed plant material, vermin, birds, faecal material and other animal products and visually detectable regulated pests;
3. fully fenced and stock-proof;
4. substantially bird-proof;
5. use transport and loading systems in a manner that prevents contamination with any unprocessed plant material, vermin, birds, ruminant animals, faecal material and other animal products, and
6. the buildings and surrounding area (within the boundary of the facility) are well maintained and clean and tidy to reduce the likelihood for contamination of the PKE.

## 5 Entry Meeting

### 5.1 Participants

The New Zealand officials met with the following officials from the DOA, Malaysia:

#### Malaysia

Mr Yusof Othman

Mr Ho Haw Leng

En. Misrudin

My Abdulla Fauzi

Tony Nyanau

Zaitiakmal Binti Dahlan

Khong Chee Leong

Datin Jatil Aliah Timin

Ahmad Jamjuri Bin Ahmad

Jisuwari

#### Department of Agriculture

Deputy Director

Deputy Director, Plant import and Export Control Section

Assistant Director, Plant import and Export Control Section

Chief Assistant Director

Assistant Director, Agriculture Officer

Principal Assistant Director

Inspecting Officer

#### New Zealand

Stephen Butcher

Shane Olsen

Shannon Austin

#### Ministry for Primary Industries

Manager, Plant Imports and Export

Senior Adviser, Plants and Plant Product Imports

First Secretary, New Zealand High Commission, KL

### 5.2 Agenda

- Introductions
- Purpose of the visit
- Agreement on schedule  
Two changes to facilities to be visited: BPC Edible Oils has been sold and is no longer exporting PKE to New Zealand. The PKE storage facility at Sime Darby Futures Trading recently burnt down and will not be visited on this trip.
- Clarification of DOA activities

Malaysia DOA operates two parallel systems for the issuing of phytosanitary certificates accompanying exports of PKE; end-point inspection by DOA officials, and DOA approved facilities with trained inspectors.

DOA operates three committees for the oversight of exports;

- I. NPPO main committee, the decision-making body
- II. NPPO technical committee, responsible for assurance and training
- III. NPPO audit committee, oversight of audit activities.

NPPO approves facilities for export of PKE following an audit and approval by the NPPO approval committee. The process provides approval for a period of two years following which another formal audit is required for ongoing approval. Unannounced audits are also conducted approximately every 6 months.

The audit for approval (export of phytosanitary goods) covers at least the following aspects:

- I. Whole process flow chart
- II. Records of in-feed
- III. Staff training
- IV. QC measures

All audits for phytosanitary purposes are conducted by the NPPO. Third party audits are not used.

The source of any product must be checked prior to a phytosanitary certificate being issued. End-point inspections are conducted during loading of vessels. Loading can take up to two weeks to complete.

The DOA officials demonstrated good knowledge of New Zealand's requirements for PKE and sought information about our concerns over contamination, including any testing. New Zealand indicated that testing is not routinely used on arrival, only visual inspection, but that the requirement is for no contamination of any sort. The officials understood this and indicated that their approval system covered the storage, transport and loading of the PKE.

## **6 Summary of Key Findings**

### **6.1 PKE Facilities**

#### **6.1.1 Manufacturing facilities**

MPI officials visited 13 PKE manufacturing facilities around the Malaysian peninsula. All 13 facilities have exported PKE to New Zealand since 2012, and the majority of facilities have exported PKE to New Zealand in the past few months. A total of 22 facilities have exported PKE to New Zealand since the beginning of 2012. As discussed below two other facilities manufacture and export non-risk palm products other than PKE.

Seven of these facilities were in the Port Klang area near Kuala Lumpur, three around Lumut Port in Perak, and three associated with Pasir Gudang Port in Johor. These 13 facilities make up the vast majority of PKE facilities on the Malaysian peninsula currently providing product to New Zealand, and approximately 60% of all facilities currently manufacturing product for export to New Zealand.

On the whole, the majority of the manufacturing plants meet the requirements for New Zealand's IHS in so far as that the facilities are:

- dedicated to the production of plant based products only, and that does not expose to any source of contamination from animal products before processing;
- have measures in place to keep PKE free from contamination by any unprocessed plant material, vermin, birds, faecal material and other animal products and visually detectable regulated pests;
- are fully fenced and stock-proof;
- substantially bird-proof storage warehouses, and
- transport PKE to the exit port prior to loading in a manner to prevent contamination with any unprocessed plant material, vermin, birds, ruminant animals, faecal material and other animal products.

DOA officials have visited the majority of the PKE manufacturing plants in the past several months since official correspondence was received from MPI in December 2012 on this issue, to ensure that these facilities met the New Zealand requirements for PKE storage.

A small number of facilities visited by MPI need minor improvements to ensure they effectively meet the IHS requirements. This specifically relates to ensuring that the PKE storage warehouses are substantially bird-proof, such as suitable bird netting in place for all doors and gaps in the storage warehouses, and ensuring that appropriate pest control activities are in place, such as regular monitoring and trapping programmes.

Audit reports for each of the PKE manufacturing plants visited by MPI officials are outlined in appendix 4.

The list of PKE manufacturing facilities visited by MPI officials and are recommended for initial approval by DOA are:

1. Sang Kee Edible Oils (Klang)
2. Hup Lee Oilmill (Klang)
3. Felda Kernel Products (Klang)
4. Ace Edible Oil Industries (Klang)
5. Syarikat Perpaduan Kilang Minyak (Klang)
6. Pangkor Oil Mills (Lumut)
7. Sinn Hwat Heng Edible Oils (Lumut)
8. Felda Kernel Products (Jahor)
9. Sehcom Industries (Jahor)

Four facilities need to make minor improvements to ensure the PKE storage warehouses are substantially bird-proof and/or ensure that expanded pest control activities are in place:

1. United Fleet Palms (Lumut)
2. Kilang Isi Sawit Sin Huat Hin (Klang)
3. Jin Lee Oil Mills (Jahor)
4. Lee Oilmills (Klang)

### **6.1.2 Traders**

An MPI official also visited one other storage facility in the Port Klang area, which is run by the company Palmbase. This visit had not been requested by MPI, but DOA officials included this visit on the itinerary. Palmbase are a commodity trader and the storage facility visited does not manufacture PKE at all, and instead can receive PKE from up to 17 manufacturing facilities.

The Palmbase facility has appropriate measures in place to exclude potential sources of contamination including appropriate pest control activities and bird-proofing measures. An audit summary for the Palmbase facility is outlined in appendix 4.

During the facility visit, MPI reviewed an example of documentation for the latest consignment from this facility that was exported to New Zealand in April 2013. The export documentation met New Zealand's import requirements. However, it was noted that it could be possible for Palmbase to produce a manufacturer's declaration for their supplier as export documentation despite not being a manufacturer, and that Malaysia's Department of Agriculture would issue a phytosanitary certificate with the required additional declarations. When queried, Palmbase confirmed that it could produce a manufacturer's declaration for product sourced from any of their supply facilities as the facility had confidence that the product suppliers for this facility were suitably manufactured in GMP-approved facilities. Some of the 17 supplying manufacturers were visited by MPI on this audit. However there was no documentary evidence available to demonstrate that the source facilities had been audited by the DOA and met New Zealand's import requirements.

The visit to this facility has identified the potential for DOA to issue a phytosanitary certificate when DOA may not have full knowledge of the status of the manufacturing facilities supplying product to Palmbase and whether these facilities meet New Zealand's import requirements. MPI will urgently amend the IHS to address this issue.

Note: MPI reviewed all import records of PKE since 1 January 2011 from this company either as the exporter or the manufacturer. Five consignments were received by the Palmbase company during this period, or their associated supplier company Prosper Trading. No issues were identified for any of the five consignments, and in each instance the documentation met New Zealand's import requirements.

At the exit meeting, the MPI officials explained that phytosanitary certificates must not be issued for PKE unless all components in the supply chain (manufacturing plants, storage, warehouses) were approved by DOA as meeting New Zealand's requirements. DOA accepted this and made immediate interim instructions to this effect. It was clear that the issue was of concern to DOA which is why they asked the auditors to visit the Palmbase facility even though it was not on the MPI list. DOA welcomed the clarification of requirements and with additional information from MPI agreed to review all procedures.

### **6.1.3 PKE Port Terminal Warehouses**

MPI officials also visited port terminal warehouses in Port Klang and Jahor. These facilities store PKE immediately prior to loading of vessels. The PKE Terminal at Port Klang is operated by a Southern Edible Oils subsidiary company. The PKE Terminal at Jahor is operated by

Felda Kernel Products. Both facilities met New Zealand's standard sufficiently. The facilities have a system in place for transporting product on to vessels using a covered conveyor.

Both facilities used magnetic metal detectors/separators on the conveyor lines. The detectors are inspected once a month and a small amount of metal contaminants are often found.

Audit reports for each of the PKE port terminal facilities visited by the MPI officials are outlined in appendix 4.

Port Lumut does not have such a facility, as the three PKE manufacturers currently exporting to New Zealand load directly on to conveyors from trucks for this port.

#### **6.1.4 Transport**

Secure transport (from manufacturing facility to storage warehouse, to port of loading) is an important component in the supply chain and a potential source of contamination. No evidence was found indicating significant risk in this area. The production of palm oil, and the most valuable commodity palm kernel oil, is a very large industry in Malaysia. Without exception the MPI officials found dedicated transport for either PKE exclusively, or in some cases PKE and palm fruit. There was no evidence of trucks being used for other purposes. All facilities weighed trucks at origin and destination. Most facilities employed weighbridge staff to visually inspect trucks before loading to ensure freedom from contamination.

#### **6.1.5 Fumigation**

All fumigation is conducted by Australian Fumigation Accreditation Scheme (AFAS) accredited suppliers. The AFAS scheme is a joint Australia/New Zealand scheme for accreditation of fumigation suppliers in Asia and the Pacific who fumigate product for export. The facilities are regularly audited by DAFF or MPI personnel.

#### **6.1.6 Non-PKE facilities**

MPI officials also visited two manufacturing facilities exporting other oil palm-based products to New Zealand for use as an animal feed. Both products are imported in bagged product. The two products are:

- Energizer Gold product manufactured by Asian Oils & Derivatives
- Golden Flakes product manufactured by Southern Edible Oils

These products are not considered to be of any phytosanitary risk as they are products manufactured from palm oil derivatives. Currently the IHS requirements for these products are the same as PKE. MPI will clarify the import requirements for these products during the review of the IHS given these products do not pose any biosecurity risk.

As an example, the process map for one of these facilities, Asian Oils & Derivatives, is reproduced in appendix 5.

## 6.2 GMP+ B2

The GMP+ standards have been developed to harmonize requirements for feed in order to ensure quality and safety throughout the entire feed chain. It is based on widely recognized principles of quality assurance, Hazard Analysis Critical Control Point (HACCP). Choosing which standard (B1, B2, etc.) and certification scope (production of feed materials, trade, etc.) depends on the organization's role in the feed chain. GMP+B1 is mandatory for the production of compound feed, but can also be used for the production of feed materials and transport. B2 can be used for the production of feed materials and feed additives, while B3 is intended for trade and trans-shipment.

Each of these standards is intended for different means of feed transport (e.g. B4.1 is intended for truck transport). All steps in the supply chain are thus covered by the given requirements. New Zealand does not require certification to GMP B2+. However many of the PKE facilities are GMP+ B2 certified as required by the EU. This standard, when enforced appropriately, would also meet New Zealand's supply chain security requirements. The front page and link this standard is in appendix 6.

## 6.3 NPPO Procedures

The phytosanitary inspection procedures used by the DOA meets the New Zealand requirements for the issuance of phytosanitary certificates and as in New Zealand, is based on ISPM 8 and 12. The phytosanitary inspection is conducted by staff trained in the identification of pests and disease. However the MPI officials found that inadequate attention is paid to the possible presence of non-phytosanitary contamination that may be a risk to animal health and welfare (metal, plastic etc.) during the inspection process. The DOA has agreed to urgently amend their procedures to include further inspection for non-phytosanitary contaminants, and shipments with contaminants will be excluded from export to New Zealand.

While there is significant oversight of the export process by DOA from warehouse storage to vessel loading, there is no definitive link between approved manufacturing plants and the issuing of phytosanitary certificates. Under current procedures it is possible for consignments produced in manufacturing plants that have not had sufficient oversight or have not been approved by the DOA to be provided a phytosanitary certificate at the port of loading. While all the warehousing and port storage facilities are approved by DOA and are considered in the phytosanitary certification process, there is no system to ensure that PKE is sourced only from manufacturing plants approved by DOA. **This is the key finding of the audit.**

All PKE exported to New Zealand passes through DOA registered warehouse storages (usually port facilities). The DOA facility registration procedure is reproduced in appendix 7. DOA will urgently amend their procedures to ensure that only PKE produced in approved manufacturing plants meeting New Zealand's supply chain biosecurity requirements will be issued with a phytosanitary certificate. This instruction has already been promulgated to

inspection offices in Malaysia, and will be followed up with formal notification and amended procedures. MPI will provide written confirmation of the required actions as soon as possible.

**Comment:** The report by MacKinnon and Clark raised a concern that PKE from facilities that had not been approved by the exporting authorities may be exported to New Zealand. While MPI has confirmed that the facility visited by Mackinnon and Clark has never exported PKE to New Zealand, this audit has identified that there is insufficient export systems in place to provide the necessary assurance that this cannot happen.

MPI discussed the DOA audit process for approving facilities and found the procedures to be largely appropriate for New Zealand. While mostly appropriate, there is insufficient emphasis and focus on supply chain security criteria. MPI will provide detailed specifications to assist DOA in amending their facility approval procedure. DOA has agreed to urgently amend their procedures to reflect the clarified requirements. DOA have agreed to urgently update the list of approved facilities and provide this list (regularly updated) on their website. New Zealand will use this list to ensure that only product from registered facilities is given clearance on arrival in New Zealand.

### **6.3.1 Additional note: Clarification of requirements for dirt in PKE**

The MacKinnon and Clark report also raised concerns about the inclusion of a 15% upper limit for the inclusion of 'dirt and shell' in palm kernels for processing. The report expressed concern that the difference in the 'allowance' may not be addressed for exports to New Zealand. The IHS has no allowance for soil. MPI officials have now clarified the situation as follows:

- The reference to 'dirt' in the MPOB standards does not refer to soil.
- Palm kernels are produced following extensive processing of palm fruit for the extraction of palm oil (PO) and kernels.
- The process is reproduced in appendix 1.
- In traditional mills, kernels are separated from shell using a clay bath. Particles of clay can be transferred to the kernel section resulting in the standard 15% ('dirt plus shell'). [Reference: <http://www.fao.org/docrep/005/y4355e/y4355e06.htm#TopOfPage>]
- Modern processing plants using a vortex water separation system. Because no clay is involved, the standard is now maximum 6% (shell, fibre etc).

## 7 Exit Meeting

### 7.1 Participants

#### Malaysia

Mr Yusof Othman  
Mr Ho Haw Leng

En. Misrudin  
My Abdulla Fauzi  
Tony Nyanau

Zaitiakmal Binti Dahlan  
Khong Chee Leong  
Datin Jatih Aliah Timin  
Ahmad Jamhuri Bin Ahmad Jisuwari  
Norsiyenti Binti Othman

#### Department Of Agriculture

Deputy Director  
Deputy Director, Plant import and Export Control  
Section

Assistant Director, Plant import and Export Control  
Section

Chief Assistant Director  
Assistant Director, Agriculture Officer  
Principal Assistant Director  
Inspecting Officer

#### New Zealand

Stephen Butcher  
Shane Olsen  
Shannon Austin

#### Ministry for Primary Industries

Manager, Plant Imports and Export  
Senior Adviser, Plants and Plant Product Imports  
First Secretary, New Zealand High Commission, KL

### 7.2 Agenda

#### 7.2.1 Supply chain security

The MPI officials discussed and re-emphasised the need for supply chain security from manufacture, storage, transport and warehousing to loading.

#### 7.2.2 Critical findings

The MPI officials presented the following critical findings that require immediate action:

7. The majority of manufacturing and storage facilities visited either met, or with minor improvements would meet, New Zealand's import requirements for supply chain security.
8. The systems and processes used by the National Plant Protection Organisation (NPPO) of Malaysia (DOA) for phytosanitary certification and inspection are by and large appropriate and meet New Zealand's requirements. The certification and fumigation procedures fully meet New Zealand's requirements.
9. Additional verification of the suitability of all facilities used in the supply chain to meet New Zealand's import requirements is required.
10. A gap was identified in the export procedures used by the DOA that means certified product could potentially be sourced from facilities (manufacturers or storage facilities) that have not been approved by DOA as meeting New Zealand's

requirements. MPI is urgently amending the IHS and communicating with the DOA to address this.

11. A greater level of oversight by DOA on the supply chain is required.
12. Based on these audits, the risk assessment completed for FMDV associated with PKE, and the current requirements in the IHS with the proposed amendments, MPI considers that the biosecurity risk from the import of PKE remains very low. While concerns about contamination of PKE have been raised by stakeholders, there have been no detections of regulated pests or disease found in PKE imports following clearance in New Zealand.

### **7.2.3 Summary of Findings**

The MPI officials presented the following summary of findings:

- a. Palm oil is a major industry in Malaysia, and many systems and processes are in place to manage production, storage, transport, certification and export.
- b. DOA is the government agency responsible for providing oversight for all phytosanitary products, including PKE, and for ensuring the products meets import country requirements, including issuing phytosanitary certificates. As the NPPO is the responsibility of DOA to ensure exported plant-based products meet New Zealand's import requirements.
- c. DOA has good processes in place for facility approval, auditing and enforcement, phytosanitary inspection, and issuing phytosanitary certificates.
- d. DOA has agreed to improve their systems and processes following feedback from MPI.
- e. Most of the facilities visited meet New Zealand's requirements for maintenance of biosecurity (exclusion of animals of FMDV concern, be substantially bird-proof, and have effective rodent control).
- f. All of the remaining facilities could be upgraded to meet New Zealand's requirements with minor improvements (improved bird-proofing, extended rodent controls).
- g. With a few exceptions, facilities and transporting trucks are used exclusively for PKE. One facility also processed copra on a separate line. Some trucks are also used for transporting palm fruit.
- h. The MPOB is responsible for developing and enforcing standards for palm oil. The enforcement resource is available for improvement in oversight of PKE production and export under the supervision of the DOA.

### **7.2.4 Recommendations and Actions**

The MPI officials discussed the following recommendations and actions required.

That the DOA operating as the NPPO:

- a. Updates and improves procedures for approving facilities (manufacturing and storage) to emphasise the biosecurity requirements for New Zealand.
- b. Updates and improves procedures for issuing phytosanitary certificates to ensure
  - i. only PKE produced in DOA approved facilities meeting New Zealand's import requirements are certified for export to New Zealand
  - ii. all facilities (manufacturing plants, storage, warehouse and port loading facilities) involved in the supply chain are approved to ensure they meet New Zealand's import requirements and must be approved by DOA before exports can occur.
- c. Increases the level of supervision of the supply chain from manufacture to loading at the port.
- d. Provides a maintained and updated list of approved facilities on its website.

That MPI:

- a. urgently amends the IHS for Processed Animal Feeds of Plant Origin regarding PKE to ensure product is sourced only from facilities approved by the NPPO of the exporting country as meeting New Zealand's import requirements.
- b. Provides additional information and specifications to DOA to assist with their updating of procedures.
- c. Provides additional guidelines specifying requirements for storage of PKE.
- d. Conducts another audit within 18 months to follow up the approval process.
- e. Amends the IHS to exclude products manufactured from palm oil derivatives.
- f. Urgently follows up imports from Palmbase that may have product sourced from non-approved facilities.

## References

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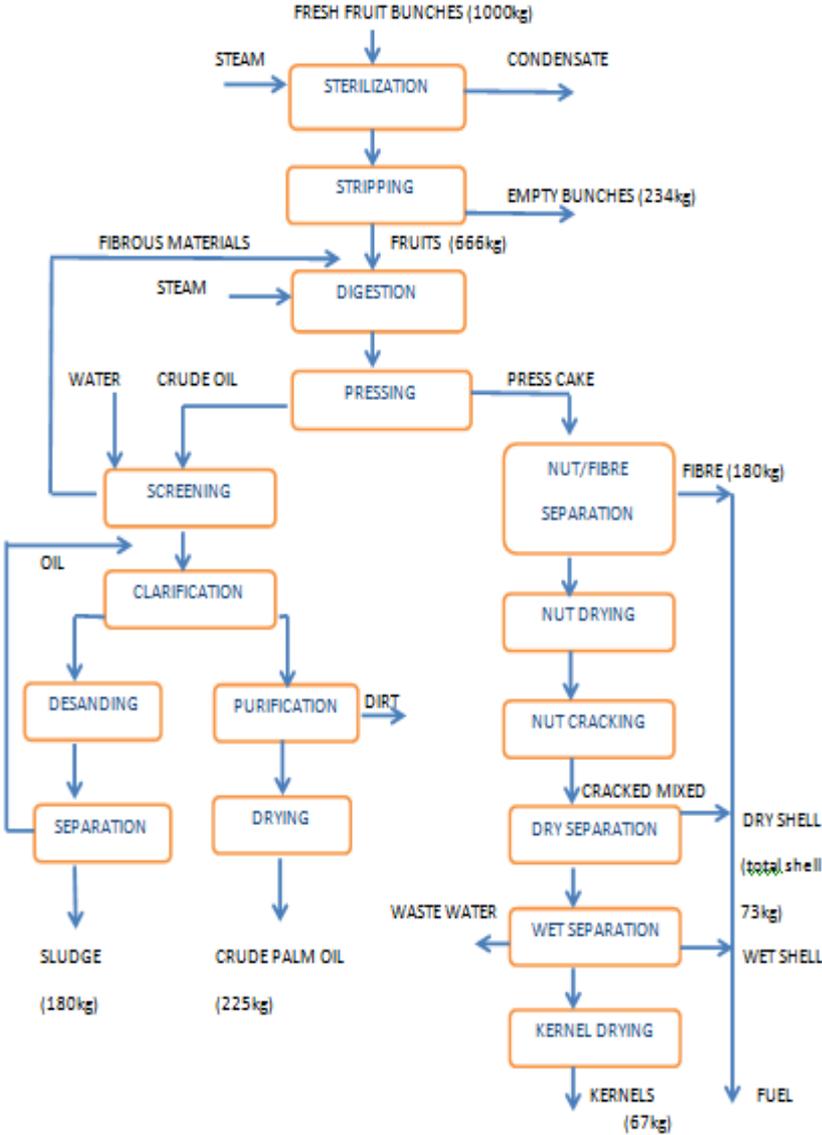
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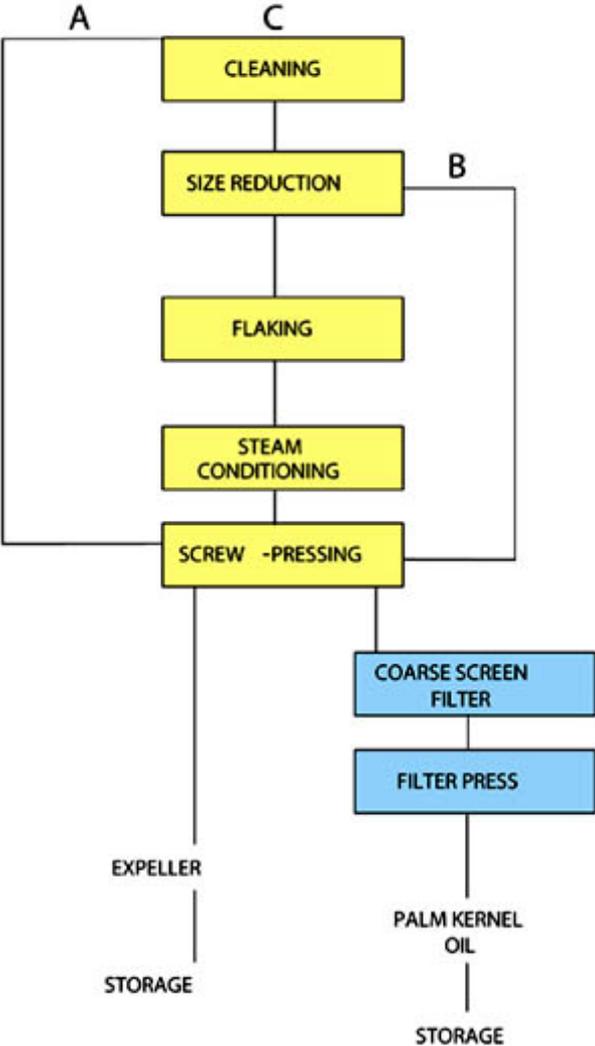
# Appendices

## Appendix 1: Palm Oil and Palm Kernel Production



**Extraction of PKO and production of PKE**

Palm kernels from the process above feed into the following process:



The mechanical pressing process produces high temperatures (above 85 C).

## Appendix 2: Audit Schedule

Date	Time	Activities	Venue
20/05/13	8.55 pm	Arrive KL	
21/5/13	9.30 am	Meet with Shannon Austin	New Zealand High Commission
	10.30 am	Entry meeting	Crop Protection and Plant Quarantine Division, Department of Agriculture.
	12.00 pm	Travel to Port Klang (SO)	1. Sang Kee Edible Oils Sdn. Bhd. 2. Hup Lee Oil mill Sdn. Bhd. 3. Palmbase (M) Sdn. Bhd. 4. Felda Oil Product Sdn. Bhd. / Felda Kernel Products Sdn. Bhd.
	4.00 pm	Travel to Lumut (SO)	
22/5/13	8.30 am	Lumut – 3 facilities – 1 port (SO)	1. Pangkor Oil Mills Sdn. Bhd. 2. Sinn Hwat Heng Edible Oils Sdn. Bhd. 3. United Fleet Palms Sdn. Bhd.
	4.00 pm	Return to KL (sO)	
	12.00 pm	Travel to Johor Bahrut (SB)	
	8.30 am	PasirGudang, Johor (SB)	1. Asian Oils and Derivatives 2. Felda Kernel Products 3. Jin Lee (Oil Mills) 4. Sehcom Industries 5. Felda Port Facility
	4.00 pm	Return to KL (SB)	
23/5/13	8.30 am	Port Klang - 5 facilities - 1 port (PKE Terminal Port Klang)	1. Kilang Isi Sawit Sin Huat Hin Sdn. Bhd. 2. Ace Edible Oil Industries Sdn. Bhd. 3. Syarikat Perpaduan Kilang Minyak Sdn. Bhd. 4. Lee Oil mills Sdn. Bhd. 5. Southern Edible Oil Industries
24/5/13	8.30 am	Exit Meeting	Crop Protection and Plant Quarantine Division, Department of Agriculture.
		Write report	

**Appendix 3: Map of Malaysia**

Map showing key PKE export ports of Lumut, Klang, and Johor Bahru



## Appendix 4: Detailed Facility Audit Summaries

Facility: Felda Kernel Products, Port Klang			Date Audited: 21/5/2013
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm fruit, kernels, and many oil palm based products. No other products are processed or kept on-site. GMP certified. PKE production using own Felda plantations.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Large facility. Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets used at all doors and gaps in storage facility.

b. Confirm no other products are stored in the same storage facility as the final product.	✓		No other products are stored in the same storage area.
<b>5. Pest Control</b>			
a. All storage facilities operate an adequate and effective pest control program.	✓		Pest control programme in place.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Trucks are dedicated for transporting PKE only. Trucks are rejected if have stored other products in more recent previous cargoes.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

**Figure 4: PKE Storage Facility of Felda Kernel Products, Port Klang**



**Figure 5: Photo of Bird-proofing sheets at doors of storage facility**



Facility: Sang Kee Edible Oils, Port Klang		Date Audited: 21/5/2013	
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm fruit, kernels, and oil palm based products. No other products are processed or kept on-site. Produce on average 3000 tonnes per month of PKE.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets used at all doors and gaps in facility.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.	✓		Pest control programme in place, including vermin traps.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Several trucking companies are used. Trucks are dedicated for transporting PKE only.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 6: PKE Storage facility at Sang Kee Edible Oils



Figure 7: Photo of Bird Netting at Sang Kee Storage Facility



Facility: Hup Lee Oilmills, Port Klang			Date Audited: 21/5/2013
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm fruit, kernels, and oil palm based products. No other products are processed or kept on-site. Produce between 7000 and 15,000 tonnes per month.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc .	√		Bird-proofing nets used at all doors and gaps in facility.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area. Export storage facility dedicated especially for New Zealand product. Two other facilities for product intended for Europe.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.	✓		Pest control programme in place.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Trucks are dedicated for transporting plant-based products only.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

**Figure 8: Photo of PKE specific storage facility for New Zealand Exports at Hup Lee Oilmill**



**Figure 9: Photo of PKE storage facility at Hup Lee Oilmill**



Facility: Palmbase, Port Klang		Date Audited: 21/5/2013	
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for receiving PKE from up to 17 manufacturers, so are commodity trader only and not a PKE manufacturer. No other products are processed or kept on-site.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for PKE storage only. GMP certified for collection, storage and transshipment only.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.		√	No PKE manufacturing is undertaken at this site.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets used at all doors and gaps in facility.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.	✓		Pest control programme in place.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Trucks are dedicated for transporting PKE, and rejected if recent previous cargoes are different products.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

**Figure 10: Photo within Palmbase PKE storage facility**



**Figure 11: Photo of Bird screens at Palmbase storage facility**



Facility: Pangkor Oil Mills, Lumut Port		Date Audited: 22/5/2013	
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm fruit, kernels, and oil palm based products. No other products are processed or kept on-site. 7000-8000 tonnes per month produced on average. Also produce palm oil accredited to Roundtable for Sustainable Palm Oil.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas. Clean storage facility approximately once per week.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets used at all doors and gaps in facility. No netting on doors until last month, other areas of netting have been in place for many years.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.	✓		Pest control programme in place; operated by external provider.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at processing facility.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Trucks are dedicated for transporting PKE only. Trucks are rejected if have stored other products in three previous cargoes.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 12: Photo of PKE Storage facility and netting at Pangkor Oil Mills



**Figure 13: Palm Kernel Production Facility at Pangkor Oil Mills**



**Figure 14: PKE Storage within Pangkor Oil Mills facility**



Facility: Sinn Hwat Heng Edible Oils, Lumut Port		Date Audited: 22/5/2013	
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm kernels. No other products are processed or kept on-site. 15000 tonnes per month produced on average.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas. Hygiene programme in place; clean at end of each day.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets used at all doors and gaps in facility.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.

<b>5. Pest Control</b>		
a. All storage facilities operate an adequate and effective pest control program.	✓	Pest control activities in place. No issues with pests have been identified previously.
<b>6. Post Production Transportation</b>		
a. Are the trucks weighed at the processing facility and at the point of loading?	✓	Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓	Trucks are dedicated for transporting PKE. Trucks are rejected if have stored other products in previous cargoes.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓	Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓	Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓	Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 15: Weighing of Trucks storing Palm kernels at Sinn Hwat Heng Edible Oils, Lumut



Figure 16: PKE Storage facility at Sin Hwat Heng Edible Oils



Facility: United Fleet Palms, Lumut Port		Date Audited: 22/5/2013	
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm kernels. No other products are processed or kept on-site. 6000 tonnes per month produced on average.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas. Hygiene programme in place; clean PKE storage area fully twice per year.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.		√	Some bird-proofing nets used previously. Appropriate netting for all doors and gaps is currently being inserted for PKE storage area.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.

<b>5. Pest Control</b>			
a. All storage facilities operate an adequate and effective pest control program.	✓		Pest control activities undertaken by specialist external provider.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Trucks are dedicated for transporting PKE. Trucks are rejected if have stored other products in previous cargoes.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked prior to loading to ensure that they are clean.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

**Figure 17: PKE within the storage facility at United Fleet Palms**



**Figure 18: Bird Proofing Measures at main door to United Fleet Palms storage facility**



Facility: Felda Kernel Products, Jahor		Date Audited: 22/5/2013	
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e. PKE cake, PKE meal, Palm kernel oil, etc).	√		Facility only for palm kernels and other oil palm products. PKE production capacity of up to 3100 tonnes per day. No other products are processed or kept on-site.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets used at all doors and gaps in facility.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.	✓		Excellent pest control programme in place, including vermin traps.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at processing facility.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Trucks are dedicated for transporting PKE only. Transported daily to port warehouse.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 19: Felda Kernel Products Processing Factory



Figure 20: Felda Kernel Products PKE storage facility



Facility: Jin Lee (Oil Mills), Jahor		Date Audited: 22/5/2013	
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm kernels. No other products are processed or kept on-site.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.		√	Inadequate bird netting applied. Recommendations provided for improved bird netting and extended rodent control measures. Completely fenced. No cattle in vicinity.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.		√	Some pest control activities in place, but improvements needed including adding vermin traps.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	√		Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	√		Trucks are dedicated for transporting PKE only.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	√		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	√		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	√		Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 21: Sign at Jin Lee Oil Mills Facility



Figure 22: Jin Lee storage facility showing trucks loading with PKE for delivery to the port



Figure 23: Jin Lee PKE storage facility



Figure 24: Doors at Jin Lee storage facility with bird protection netting absent



Figure 25: Pest control systems in place at Jin Lee manufacturing facility



Facility: Sehcom Industries, Jahor			Date Audited: 22/5/2013
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).		√	Facility has two separate lines for PKE and copra meal with separate facilities for each. No other products are processed or kept on-site.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. Certified by Australia's Quarantine and Inspection Service (AQIS) in 2008.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets used at all doors and gaps in facility.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.	✓		Pest control programme in place, including vermin traps.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at processing facility.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Trucks are dedicated for transporting PKE only. Transported daily to port warehouse.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked for cleanliness prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 26: Pest control activities at Sehcom Industries manufacturing facility



Figure 27: Bird control measures at Sehcom Industries manufacturing facility



Figure 28: Bird control measures at Sehcom Industries manufacturing facility



Figure 29: PKE storage facility at Sehcom Industries



Figure 30: Palm kernel processing facility at Sehcom Industries



Facility: Ace Edible Oil, Port Klang			Date Audited: 23/5/2013
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm kernels. No other products are processed or kept on-site.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets used at all doors and gaps in facility.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.	√		Pest control programme in place. Completed by external company.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	√		Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	√		Trucks are dedicated for transporting PKE only.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	√		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc.).	√		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	√		Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 31: Sign at Ace Edible Oils Facility



Figure 32: PKE Processing Facility at Ace Edible Oils



Figure 33: PKE storage facility at Ace Edible Oils



Figure 34: Bird proofing measures at Ace Edible Oils PKE storage facility



Facility: Kilang Isi Sawit Sin Huat Hin, Port Klang			Date Audited: 23/5/2013
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e. PKE cake, PKE meal, Palm kernel oil, etc.).	√		Dedicated facility only for palm kernels. No other products are processed or kept on-site. 600 tonnes per day produced on average.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.		√	Some build-up of residues, and need better cleanliness of facilities. Surrounding grounds are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc .	√		Sufficient bird-proofing nets used, but one or two repairs to net needed.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.		√	Pest control programme needed; minutes of company meeting from end of 2012 sighted which showed pest control activities being developed.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	√		Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	√		Trucks are dedicated for transporting PKE only.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	√		Trucks are checked prior to loading to ensure that they are clean.
d. Verify raw material is covered/protected during transport (clean tarps, etc.).	√		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	√		Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 35: Fresh Palm fruits at Kilang Isi Sawit Sin Huat Hin facility



Figure 36: Palm kernel processing at Kilang Isi Sawit Sin Huat Hin facility



Figure 37: Exterior of PKE storage facility at Kilang Isi Sawit Sin Huat Hin facility



Figure 38: PKE storage at Kilang Isi Sawit Sin Huat Hin facility



Figure 39: Holes in bird netting and evidence of residues



Facility: Syarikat Perpaduan Kilang Minyak, Port Klang		Date Audited: 23/5/2013	
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e.. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm kernels. No other products are processed or kept on-site. 6000 tonnes per month produced on average.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas. Clean PKE storage area every day and when empty.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc .	√		Bird-proofing nets used at doors and gaps in facility. Unidentified flying animal seen in storage facility, which is either a bird or bat that has entered through a single small gap in facility wall or netting.

b. Confirm no other products are stored in the same storage facility as the final product.	✓		No other products are stored in the same storage area.
<b>5. Pest Control</b>			
a. All storage facilities operate an adequate and effective pest control program.	✓		Pest control activities undertaken, including insertion of vermin traps.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Trucks are owned by the company and are dedicated for transporting PKE.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 40: PKE storage facility at Syarikat Perpaduan Kilang Minyak facility



Figure 41: Palm kernel storage at Syarikat Perpaduan Kilang Minyak facility



Facility: Lee Oil Mills, Port Klang			Date Audited: 23/5/2013
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only Palm fruit/Palm kernels are received at the processing facility and confirm that no other products are processed or kept on-site (excluding products derived from Palm kernels, i.e. PKE cake, PKE meal, Palm kernel oil, etc).	√		Dedicated facility only for palm kernels. No other products are processed or kept on-site. Produce on average 200 tonnes per day of PKE.
b. Confirm that the facility is dedicated to the production of plant based products only.	√		Dedicated facility for production of plant based products only. GMP certified.
<b>2. Production</b>			
a. Confirm that the facility processes palm kernels using the high temperature screw press process.	√		High temperature screw press process used.
<b>3. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas.
<b>4. Post Production Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.		√	Bird-proofing nets used at all doors and gaps in facility, although one significant gap identified in ceiling between PKE storage warehouse and processing warehouse.
b. Confirm no other products are stored in the same storage facility as the final product.	√		No other products are stored in the same storage area.
<b>5. Pest Control</b>			

a. All storage facilities operate an adequate and effective pest control program.	✓		Pest control programme in place, including vermin traps. Completed by external company.
<b>6. Post Production Transportation</b>			
a. Are the trucks weighed at the processing facility and at the point of loading?	✓		Yes, trucks are weighed at processing facility and port of loading.
b. Are the trucks dedicated for transporting Palm Kernel Meal (PKE)? Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material.	✓		Trucks are dedicated for transporting PKE.
c. Are the trucks cleaned prior to loading and are they inspected for cleanliness prior to loading?	✓		Trucks are checked and cleaned prior to loading.
d. Verify raw material is covered/protected during transport (clean tarps, etc).	✓		Material is covered with clean canvas tarps.
e. Verify the final product cannot be contaminated during loading of the trucks, transport and receipt at the port of export.	✓		Product cannot be contaminated during loading, transport and receipt at port of export.

Figure 42: Manufacturing facility at Lee Oil Mills



Figure 43: Lee Oil Mills PKE storage facility



Figure 44: Lee Oil Mills PKE storage facility



Figure 45: PKE storage facility at Lee Oil Mills



## Port Warehouse Facilities

Facility: PKE Jahor Port Warehouse (Felda Kernel Products)			Date Audited: 22/5/2013
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only PKE is received at the processing facility and confirm that no other products are kept on-site.	√		Dedicated PKE warehouse for local producers prior to export (Jin Lee, Sehcom and Felda). GMP certified for storage of PKE.
b. Are the trucks weighed at the point of arrival?	√		Yes, trucks weighed on arrival.
c. Verify that the final product cannot be contaminated during receipt at the port facility.	√		Good practices in place to ensure product cannot be contaminated on receipt at the facility.
<b>2. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas, as within port grounds.
<b>3. Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets using at all doors and gaps in facility. Additional bird netting in place within the facility.
<b>5. Pest Control</b>			
a. All storage facilities operate an adequate and effective pest control program.	√		Excellent pest control programme in place.
<b>6. Transportation of Product to Vessel</b>			
a. Verify the final product cannot be contaminated during conveyance on to ships vessel	√		Conveyor is covered to prevent external contamination during vessel loading. Screens and magnets are also part of the conveyor.

Figure 46: PKE Port Warehouse at Jahor Port



Figure 47: PKE Jahor Port Warehouse covered ship loading conveyors



Figure 48: PKE Jahor Port Warehouse entry to conveyor loading system



Figure 49: PKE Jahor Port interior of storage facility



Facility: PKE Port Terminal (Port Klang)			Date Audited: 23/5/2013
	Yes	No	Notes
<b>1. Sourcing of product</b>			
a. Confirm that only PKE is received at the storage facility and confirm that no other products are kept on-site.	√		Dedicated facility only for PKE for export. GMP certified for storage of PKE. Product is usually stored on average 1-2 months before loading on vessels.
b. Are the trucks weighed at the point of arrival?	√		Yes, trucks weighed on arrival.
c. Verify that the final product cannot be contaminated during receipt at the port facility.	√		Good practices in place to ensure product cannot be contaminated on receipt at the facility.
<b>2. Maintenance and Sanitation</b>			
a. Verify the general cleanliness of all facilities and surrounding grounds are well maintained. No build-up of residues, etc.	√		Good general cleanliness of facility, including surrounding grounds which are well fenced. No livestock in nearby areas, as within port grounds.
<b>3. Storage</b>			
a. Storage of final product is fully enclosed with no potential for contamination - restricted access from cattle/animals, insect controls, rodent controls, bird proofing etc.	√		Bird-proofing nets used at all doors and gaps in facility. Additional bird netting in place within the facility.
<b>5. Pest Control</b>			
a. All storage facilities operate an adequate and effective pest control program.	√		Pest control programme in place.
<b>6. Transportation of Product to Vessel</b>			
a. Verify the final product cannot be contaminated during conveyance on to ships vessel	√		Intakes within facility are used to load product on to conveyor. Conveyor is covered to prevent external contamination during vessel loading. Screens and magnets are also part of the conveyor.

Figure 50: PKE Port Terminal at Port Klang



Figure 51: PKE Port Terminal showing repaired bird netting



Figure 52: PKE Port Terminal showing bird nets inside the storage facility



Figure 53: PKE Port Terminal showing entry to covered conveyor ship loading system



## Appendix 5: Process Map for Energizer Gold Palm Oil Product (Animal Feed)



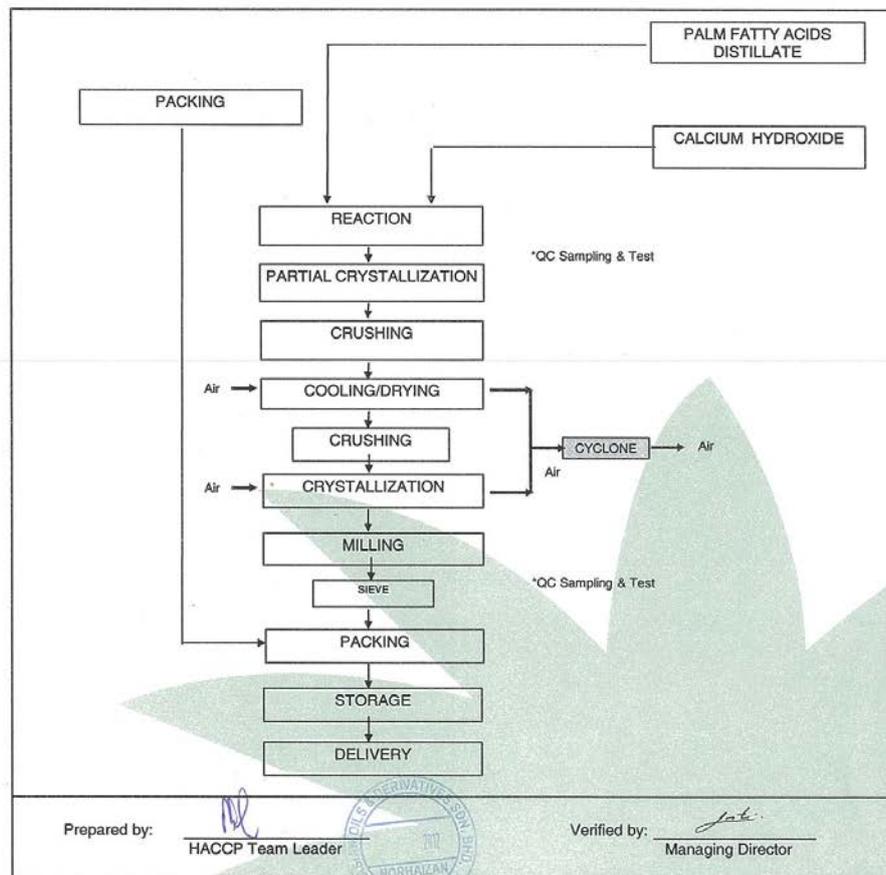
**Asian Oils & Derivatives Sdn Bhd**  
(Co. No. 689827-P)

Process Flow Diagram

Calcium Salts of Palm Oil Fatty Acids  
ENERGIZER

Rev: 1

Date: 2/10/2006



PLO 672, Jalan Keluli 9, Pasir Gudang Industrial Area, 81700 Pasir Gudang, Johor, Malaysia.  
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Standard Specification of Palm Fatty Acids Distillates

<b>Document No:</b>	<b>Effective Date:</b>	<b>Revision No:</b>	<b>Last Rev Date:</b>	<b>Page</b>
AOD/S/01	28/01/2013	4	3	1 of 2

<b>Product Name:</b>	<b>Palm Fatty Acids Distillates</b>	<b>Product Use:</b>	<b>Calcium Salts</b>
			<b>Energizer Gold</b>

<b>No.</b>	<b>Description</b>	<b>Remarks</b>
1	<b>Palm Fatty Acids Distillates</b>	

**Specification:**

<b>Free Fatty Acid (as C16:0)</b>	<b>83 % min</b>
<b>Moisture &amp; Impurities</b>	<b>1.0% max</b>

Source : Deodorizer distillate from palm oil only.  
From companies that currently certified against GMP+ or another assurance scheme, accepted as equivalent to GMP+.

Note :

1. The minimum of 83.0% required for the process.
2. Avoid buying from refinery integrated with palm oil mills, unless we are sure that mixing with oil residues does not occur.
3. Do not buy PFAD from oils extracted from bleaching earths.
4. Do not buy from refineries that process PKO in the same deodorizer.
5. Free from undesirables substance: limit Dioxin & heavy metals as per GMP+ BA1 Product Standard

Prepared By:



(QA Manager)

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## Asian Oils & Derivatives Sdn Bhd

(Co. No. 689827-P)

### Standard Specification of Calcium Hydroxide

Document No:	Effective Date:	Revision No:	Last Rev Date:	Page
AOD/SP/02	28/01/2013	3	2	1 of 1

Product Name:	Calcium Hydroxide	Product Use:	Calcium Salts
			Energizer Gold

No.	Description	Remarks
1	Calcium Hydroxide Pre Cal 96	

#### Specification:

### **CALCIUM HYDROXIDE $\text{Ca(OH)}_2$ HL 96**

Assay of $\text{Ca(OH)}_2$	94 % min
Moisture	1.0 % max
Residue, (75 $\mu\text{m}$ ) test sieve (dry)	2.5 % max
Packaging	1000kg bulk bag

#### **Source :**

1. Conformity with PhEur, USP and FCC and for the food additive E526 acc. to 96/77/EU.
2. From companies that currently certified against GMP+ or another assurance scheme, accepted as equivalent to GMP+.

#### **Prepared By:**

  
\_\_\_\_\_  
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## Appendix 6: GMP+ B2 Standard

The front cover of this standard is reproduced here. The full document is available at: [https://www.gmpplus.org/pagina/288/home\\_un.aspx](https://www.gmpplus.org/pagina/288/home_un.aspx)



# GMP+ Feed Certification scheme

**B**

*Module: Feed Safety Assurance*

## GMP+ B2(2010) Production of Feed Ingredients

**2**  
(2010)

Version: 1 March 2013

**EN**

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*Feed  
for  
Food*

## **Appendix 7: Malaysian Phytosanitary Certification Assurance (MPCA) Scheme<sup>1</sup>**

### **1. INTRODUCTION**

Malaysia is a contracting party to International Plant Protection Convention (IPPC) under Food and Agriculture Organization (FAO). The Department of Agriculture (DOA) Malaysia the National Plant Protection Organization (NPPO) is responsible to discharge functions specified by the IPPC. Hence, DOA is responsible for the setting up of arrangements and procedures leading to the implementation of phytosanitary certification, measure and regulation, with the objective of ensuring that exported plants, plant products and other regulated articles and consignments thereof are in conformity with the International Standards for Phytosanitary Measures (ISPM) and the requirements of the importing countries in particular (Article V of the International Plant Protection Convention (IPPC).

The Malaysian Phytosanitary Certification Assurance Scheme (MPCA) designed by the Crop Protection and Plant Quarantine Division, Department of Agriculture (DOA) Malaysia is to certify farms, collecting centres, packing houses and factories which require phytosanitary certification for the produce before exportation. This scheme is totally based on the International Standards for Phytosanitary Measures (ISPMs) formulated by the International Plant Protection Convention (IPPC), Food And Agriculture Organization (FAO) of the United Nations. It is open to all interested parties dealing with exportation of plants, plant products and regulated articles related to plant quarantine regulations and Sanitary and Phytosanitary (SPS) requirement imposed by importing countries.

Department of Agriculture has established close relationship with other importing countries for exchange of information pertaining to export opportunities and quarantine requirements.

In ensuring that the product from the farm/premise certified under this scheme is in compliance with the importing country phytosanitary requirement, the farm and premises shall be subjected to auditing by DOA and joint monitoring visit by official from importing countries. This auditing is in line with the National Provisions and ISPM Standard which take into consideration the different hazard critical point associated with agricultural processes, rules and criteria.

World Trade Organization's Agreement on Sanitary and Phytosanitary (WTO - SPS) Measures requires, countries intending to engage in trade with each other could make their own formal agreements on a bilateral/multilateral basis. To facilitate expeditious implementation of this programmed bilateral agreement have been and will be established with importing countries with regards to phytosanitary requirements.

### **2. OBJECTIVES**

- I. To facilitate and expedite agriculture trade in relation to phytosanitary requirements;
- II. To encourage industries and stakeholders participation in regulating and in complying with phytosanitary measures;
- III. To ensure recognition of a credible phytosanitary certification system.;

### **3. BASIS FOR IMPLEMENTATION**

The implementation of this scheme is based on the following ISPMs: -  
ISPM No. 1: Principles of Plant Quarantine as Related to the International Trade;  
ISPM No. 2: Guidelines for Pest Risk Analysis

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<sup>1</sup> <http://www.doa.gov.my/skim-perakuan-pensijilan-fitosanitasi-mpca->

ISPM No. 4: Requirements for the Establishment of Pest Free Areas  
ISPM No. 5: Glossary of Phytosanitary Term  
ISPM No. 6: Guidelines for Surveillance  
ISPM No. 7: Export Certification System  
ISPM No. 8: Determination of Pest Status in an Area  
ISPM No. 10: Requirements for the Establishment of Pest Free Places of Production and Pest Free Production Sites  
ISPM No. 11: Pest Risk Analysis for Quarantine Pests Including Analysis of Environmental Risks  
ISPM No. 12: Guidelines for Phytosanitary Certificates  
ISPM No. 13: Guidelines for the Notification of Non Compliance and Emergency Action  
ISPM No. 14: The Use of Integrated Measures in a Systems Approach for Pest Risk Management  
ISPM No. 16: Regulated Non-Quarantine Pests: Concept and Application  
ISPM No. 17: Pest Reporting  
ISPM No. 19: Guidelines on Lists of Regulated Pests  
ISPM No. 32: Categorization of Commodities According To Their Pest Risk

#### **4. BENEFITS OF MPCA SCHEME**

##### **4.1 Benefits for the Participants**

1. A more orderly and coordinated approach in achieving a quality product especially on pest infestation, consignment integrity and traceability.
2. Ensuring client satisfaction with a consistently quality product and quality assurance.
3. Increased flexibility, in term of inspections by Quarantine Inspectors before certification. The participants have more flexibility in organizing timing of shipments, minimum handling, reduce bureaucracy and fast track.
4. Easy and quick access of goods for export markets especially perishable goods and other products as issuance of Phytosanitary Certificates is with minimal inspection.
5. Employees have a sense of direction and purpose. Jobs are well described, documented and understood.
6. Cost saving in terms of financial and manpower resources, minimum wasted and rejected materials through Good Agriculture Practices (GAP).
7. Expedite international market access as the scheme follows the guidelines stipulated in the International Standards for Phytosanitary Measures recognized worldwide.

##### **4.2 Benefits for the Department of Agriculture**

1. To relief the burden of a shortage of resources require for inspection services on higher frequency and volume of agriculture produce for export;
2. To ensure that there is a production system in place and adhere to by the exporter which complies with specific requirements of the importing country;
3. Establishment of Plant health information and plant Quarantine System.
4. Establishment and maintenance of pest free places of production, pest free production sites and low pest prevalence site.
5. Effective control of process and product quality.
6. Facilitate market promotion, market access and farming systems.
7. Establishment of effective review system of all aspects of export certification system and implement changes to the system if required.

#### **5. CERTIFICATION PROCESS**

1. Application for new applicants and renewing MPCA Scheme.
2. Premise visits by appointed guidance officer.
3. Training, advices and guidance to applicants.

4. Preparation of documentation base on requirement of importing country and MPCA requirement.
5. Auditing based on The Use of Integrated Measures in a Systems Approach for Pest Management System (ISPM 14) which focuses on protection of crop and products against pest at all stages of production from pre-planting to shipment.
6. Protection against pest infestation and re- infestation starting from receipt of raw materials to shipment in packing premises.

## **6. APPLICATION AND INFORMATION ON MPCA SCHEME**

Application and information regarding MPCA Scheme for interested parties may contact:-

The Secretariat,  
Malaysian Phytosanitary Certification Assurance (MPCA),  
Crop Protection and Plant Quarantine Division,  
Department of Agriculture (DOA),  
Jalan Sultan Salahuddin,  
50632 KUALA LUMPUR.  
Tel. No.: 03-2030 1429 (Attn : Mr Tony Nyanau)  
Email : tony@doa.gov.my  
Fax. No.: 03 2697 7164  
URL : <http://www2.doa.gov.my/pqnet>