

# MPOB ROADSHOW FOR CODES OF GOOD PRACTICE

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# CODE OF GOOD PRACTICE FOR PALM KERNEL CRUSHERS

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# Introduction

- To establish a food safety system in the production, processing, handling, storage and distribution of palm kernel oil (PKO) and palm kernel cake (PKC)
- To assist the industry in enhancing food safety and quality requirements of PKO as food and PKC as feeding stuffs





- To provide guidance to palm kernel crushers in establishing procedures for:

1. Handling and storage of incoming palm kernel (PK)
2. Processing of PK at the crushing and extraction plants in the production of CPKO and PKC
3. Handling, storage and transportation of CPKO and PKC

# Scope

To provide guidelines for good processing practices from PK reception through to production, handling, storage and transportation of PK, CPKO and PKC



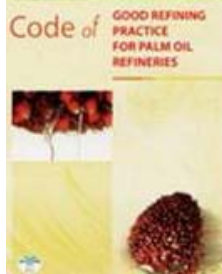
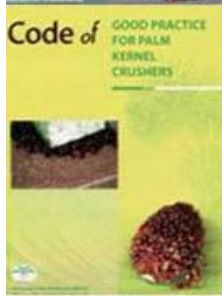
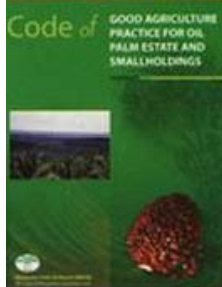
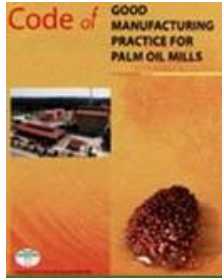
# Definitions

1. Palm Kernel (PK)
2. Crude Palm Kernel Oil (CPKO)
3. Palm Kernel Cake (PKC)
4. Palm Kernel Expeller (PKE)
5. Solvent Extracted Palm Kernel Meal (PKEM)



# Requirements

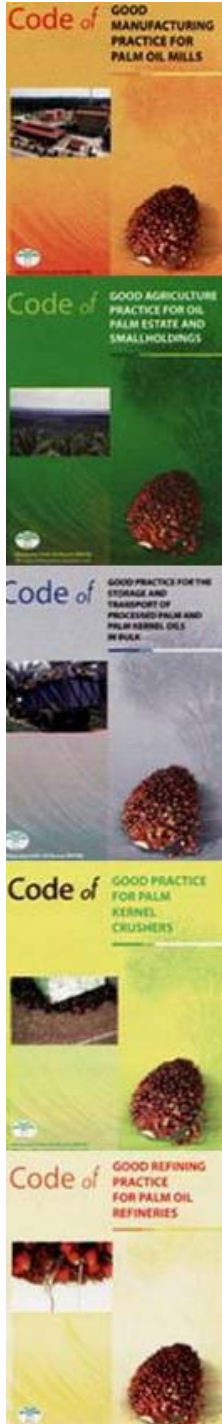
Issue	Principle
4.1 GMP	To ensure PK comes from GMP palm oil mills
4.2 Records & Traceability	To know where the raw materials come from
4.3 Plant Construction & Design	To ensure adequate facilities & equipment for optimum production & safe environment
4.4 Reception & Despatch	To ensure the delivery of raw materials & products are control and maintain at all time
4.5 Storage & handling	To minimize quality deterioration and cross contamination
4.6 Process inspection & monitoring	To optimize production & reduce loss and wastage





# Requirements

Issue	Principle
4.7 Shut down	To reduce loss
4.8 Transportation & shipment	To ensure the raw material & products are safe for consumption and utilization in food industry.
4.9 Labelling	To enhance traceability of products
4.10 Environment	To minimize adverse impact on environment
4.11 Laboratory	To ensure the quality of raw material & products
5. Legality	To respect all applicable laws of Malaysia and agreements of which country is signatory



# Requirements

## 1. Good milling practices (GMP) for palm kernel suppliers

- source PK from palm oil mill with GMP
- accept and process PK of within specifications

## 2. Documentation on Traceability

- Records documented



# Requirements

## 3. Plant Construction and design

### i. Building and structures

- proper facilities and equipment
- suitable size and design for production of good quality, contamination free PK products



# Requirements

## 3. Plant Construction and design

### ii. Plant design and layout

- sufficient space for equipment and storage
- process layout to prevent cross contamination between and during processing
- good lighting,
- facilitate cleaning and maintenance
- protection against pests
- adequate drainage and waste disposal system
- fire and solvent safety provision



# Requirements

## 3. Plant Construction and design

### iii. Plant equipment and related facilities

- SOP documented, practised and accessible to operators
- established and implement procedures for maintaining cleanliness of plant area and facilities
- calibration and regular verification of instruments and controls, and storage tanks.

### iv. Water Supply – sufficient for processing and temperature control



# Requirements

## 3. Plant Construction and design

### v. Sanitation and Pest Control

- Implement pest control program
- Buildings, plants and facilities maintained in sanitary condition
- All facilities in contact with CPOK or PKC kept clean at all times
- Washing points, emergency showers, changing rooms and toilets made available and in clean condition
- Oil spillage and leakages should be cleaned immediately
- Pest control measures against birds, rodents, other animals or insects



# Requirements

## 4. Reception and Despatch

- i. Weighbridge area – clean from mud, debris, oil, water and palm kernel
- ii. Documentation on all receipt and despatch maintain systematically for easy retrieval and must meet regulatory requirements.
- iii. Annual inspection and calibration of weighbridge
- iv. Implement security procedures for PK and CPKO including use of security seals
- v. PK samples taken and retained for analysis



# Requirements

## 5. Storage and Handling

### i. Palm kernel

- Designated storage area
- Inspection of condition of lorry and PK on arrival, off spec material should be handled according to GMP
- PK process on FIFO basis
- Storage facilities – proper ventilation
- Chemicals and other harmful materials stored separately to avoid contamination
- Any pesticides used must be recorded and monitored





# Requirements

## 5. Storage and Handling

### ii. Crude palm kernel oil

- Tanks, containers and equipment in contact with CPKO designed and constructed easy to clean and maintained to avoid product
- Quality of CPKO in storage tank analysed and recorded daily
- Flash point of extracted PKO monitored,  $< 121^{\circ}\text{C}$
- CPOK Storage tank clean regularly, at least once a year.



# Requirements

## 5. Storage and Handling

### iii. Palm kernel cake

- Warehouse covered, well ventilated and kept clean
- Visual inspection of PKC on daily basis for any fungal infestation or contamination
- PKC samples analysed regularly including aflatoxin
- Moisture content and temperature of PKC monitored to prevent fungal infestation and self ignition.
- Temperature during shipment  $< 55^{\circ}\text{C}$
- PKC stored separately from PK, chemical and other harmful materials to avoid contamination



# Requirements

## 6. Process inspection and monitoring

- i. Presses should not be running empty
- ii. Time and temperature should be monitored. Combined duration of the two stage pressing should be at least 5 minutes and temp. at press discharge  $> 85^{\circ}\text{C}$
- iii. Samples of PK, pressed cake and PKO collected regularly analysed and recorded
- iv. Solvent extraction plant – checked for leakage of solvent vapour



# Requirements

## 7. Shut down procedure

- i. Follow documented procedure and
- ii. Have regular preventive maintenance
- iii. Solvent plant – stringent precaution must to be taken, free of solvent vapour before any welding work is carried out.



# Requirements

## 8. Transportation and shipment

### i. Palm kernel

- transport in clean, properly covered with canvas and sealed lorries.
- measures taken to prevent contamination by bird's droppings or foreign materials during transportation.
- precautions taken to prevent contamination with petroleum based products during loading and unloading.
- representative samples taken for quality analysis



# Requirements

## 8. Transportation and shipment

### ii. Crude palm kernel oil

- procedures for loading and unloading be documented
- CPKO tankers inspected for cleanliness and suitability, preferably dedicated lorry tanker.
- Loaded CPKO tanker, all access points securely sealed with numbered seals and recorded
- representative samples taken for quality analysis for each consignment.



# Requirements

## 8. Transportation and shipment

### iii. Palm kernel cake

- dispatch on FIFO basis.
- transport in clean, properly covered with canvas and sealed lorries.
- precautions taken to prevent cross-contamination with PK during transportation.
- measures taken to prevent contamination by bird's droppings or foreign materials during transportation.
- precaution taken to prevent contamination with petroleum based products during loading and unloading.
- representative samples taken for quality analysis.



# Requirements

## 9. Labelling – where applicable

Labelling should contain the following information

- Name of product
- Name and address of manufacturer
- Date of manufacture
- Batch number and
- Net weight in kg or tonne





# Requirements

## 10. Environment

- i. Comply with all relevant environmental legislation.
- ii. Ensure cleanliness of premises, plant and equipment
- iii. Policies and procedures for minimizing production of waste and its impact on environment.
- iv. All waste products appropriately disposed in accordance with existing legislation.



# Requirements

## 11. Laboratory

Lab sufficiently equipped and competent staff.

## 12. Control of non-conforming products

Non-conforming incoming raw materials and processed products dealt with accordingly to established procedures

## 13. Specifications

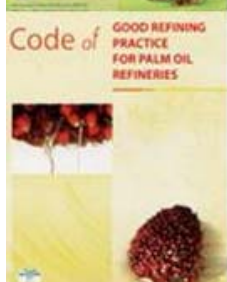
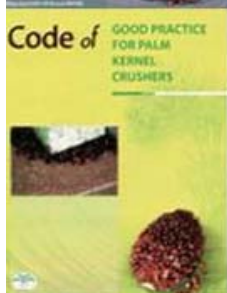
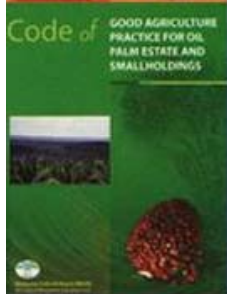
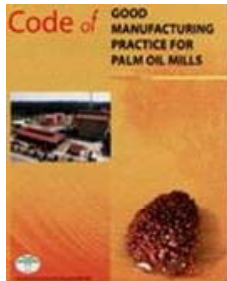
PK, CPKO and PKC conform to trade spec or MS





# Legal Requirements

All palm kernel crushing activities and products should in all other aspects comply with the requirements of the legislation currently in force in Malaysia



# Thank you