DRAFT TANZANIA STANDARD

Code of practice for Honey processing

TANZANIA BUREAU OF STANDARDS

First Edition

0. Foreword

Honey in its natural form requires proper handling during processing and packaging in order to maintain its' quality and safety

This code of practices was prepared to addresses Good Beekeeping Practices (GBPs), Good Hygiene Practices (GHPs) and Good Manufacturing Practices (GMPs) that will help control microbial, chemical and physical hazards associated with all stages from primary production to packaging, that directly/or indirectly impact on the safety and quality of honey.

In the preparation of this Tanzania Standard assistance was drawn from RS 153 Apiary management handling and processing of bee products — Code of practice and Nigerian - Code of Practice for Honey - Processing and Packaging

1.0. Scope

This standard prescribes the code of practice for production, harvesting, processing, storage, packaging and transportation of honey.

This Standard applies to honey produced by Apis mellifera bees. However, honey from other bee species may be allowed as long as the honey produced by other bee species meets the criteria in the standard

2.0. Normative Reference

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

TZS 538, Pre -packaged food labeling - general requirements.

TZS 851, Honey specification

TZS 789, Portable water –Specification

TZS 1921, Beehives-Specification

TZS 109, food processing units — Codes of hygiene

3.0 Terms and definition

For the purposes of this standard, the following terms and definitions apply:

3.1 Apiary
place where bee hives of honey bee colonies is kept.

3.2 Bee
insect scientifically referred to as *Apis mellifera* species**.**

3.3 Bee colony
honeybee family consisting of thousands of individual bees living together as one social unit.

3.4. Combs
structure of small hexagonal cells constructed from beeswax by bees and used to store honey and larvae

3.4 Traditional beekeeping
Use of traditional techniques of beekeeping, harvesting and processing honey and other bee products, using various traditional styles of hives and other equipment.

3.5 Modern beekeeping
Means Keeping of bees in hives having top bars or provided with frames on which honeycombs are anchored by the bees.

3.6 Honey
a natural sweet substance produced by honey bees from the nectar derived from floral and extrafloral nectaries of plants (blossom honey/nectar honey) or from secretions of living parts of plants or excretions of plant-sucking insects on the living parts of plants (honeydew honey), which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, and store in the honeycomb to ripen and mature by natural processes.

3.7 Brood
Any immature stage of a honey bee including the egg, larva and pupa or any honeybee which has not emerged from its cell in a honey comb.

3.8 Contamination
The presence of undesirable chemicals, e.g. detergent or foreign bodies, e.g. glass; or living organisms, e.g. *Salmonella* in a food

3.9 Cross-contamination
The transfer of microorganisms from one source such as raw food, people, equipment or the

environment, to another source.

3.10. Super

boxes placed on top of a beehive used exclusively for honey collection

4.0 Production

Ensure that adequate supply of potable water is available for hygienic operations so as to minimize contamination and maintain the fitness for intended purpose from production to processing of honey of as stipulated under TZS 789

4.1. General Requirements for Bee Hives

4.1.1. **Requirements during the construction of traditional hives**

4.1.1.1. Traditional hives should be properly constructed from durable materials, which have no scent that can affect the bee colonization process.

4.1.1.2. The material use shall not have a negative impact on the quality of the honey and shall not be made of materials that are not approved for use in the production of food unsuitable products include: cement bricks; untreated metal containers such as drums; faucal material such as cow dung; and, non-food grade plastics.

4.1.1.3. The dimensions of beehives should provide an environment that meets the desired conditions for the bees. Similarly, the hives should be constructed in such amanner that they are easy to inspect externally for the presence of pests.

4.1.2 Requirements for the construction of improved and modern hives (Re-numbering)

4.1.1.1. General requirements

a) Modern hives shall be constructed from long lasting or durable well-seasoned dry timber, which is free from knot holes, and cracks. The timber shall have smell that is not offensive to the bees.

b) During construction, well-seasoned and planed timber shall be used, and all sections shall be glued and securely nailed.

c) All sharp edges or splinters shall be removed from the bee entrances to the hive and all cracks and gaps filled with suitable gap filler;

d) Neither shall the timber used for the construction of hive nor the hive after construction be painted or applied any wood preservative that can have a negative effect on the honey or bees. Inside structures can be coated with molten beeswax to preserve the wood; external

surfaces can be painted with an oil-based (heavy metal free) paint if needed.

4.1.1.2. Specific requirements for modern hives include the following:

a) Modern hives should be properly constructed. The bars or frames should fit properly into the main body of the hive. When the hive is fully assembled, the bars or frames should provide for adequate space to enable the bees to construct honeycombs;

b) The overall top cover of the hive should fit properly on the hive. It should provide for easy removal during inspection and harvesting and should prevent the hive from adverse; weather conditions like rain and direct sunlight;

c) Top-bars or frames should be provided with a base material in the form of beeswax to act as a bait and therefore promote early colonization. In the case of top bars, this can be a thin coating of wax along the bottom rib, while for frame hives, the frames fitted with foundation sheets or foundation strips.

Bee hives shall comply with the requirements stipulated under TZS 1921 Beehives-Specification

4.2. Requirements for establishing an apiary

Criteria for selection of a site for establishing an apiary

The following provisions shall apply when selecting a suitable site for an apiary:

a) The site shall be easily accessible by both the bees and the beekeeper.

b) The site shall be hygienic with no potential sources likely to contaminate the forage especially agrochemicals. There shall be low frequency of insecticide application in the area.

c) The site shall neither be water logged nor in a dense damp forest.

d) There shall be adequate number of flora (forage source) to serve as a source for nectar and pollen, a good source of shade, in any case the hive should be away from direct sunlight and have a source of water, good air circulation but free from excessive effect of winds.

4.3. Recommended practices during installation of hives

The following shall apply.

a) Before installation of hives, the site shall be slashed, fenced off and protected from the intrusion of animals and humans.

b) A hive should be sited away from the next beekeeper and appropriate distance from people, livestock, and public places, in any case a minimum of 100 m from public places.

c) As far as practicable, steep slopes or gradients, should be avoided.

d) The hives shall be protected from pests especially termites, black ants and the area shall be slashed to keep away fire.

e) Hives shall be installed on strong poles for example, metallic poles or poles with capability to germinate (live poles). To enable ease of inspection and harvesting, hives shall be sited at the waist level from the ground. Where germinating poles have been used, pruning shall be done regularly to reduce possibilities of pest infestation.

f) The wire used for hanging hives shall be smeared with grease to prevent attack of ants that could destabilize the colonies.

g) Areas subject to flooding shall not be used except sufficient safeguards are provided.

4.4. Inspection of apiaries and beehives

4.4.1. Inspection of apiaries

An apiary shall be inspected:

a) To ensure that the surroundings are not overgrown with weeds, which if present shall be slashed;

b) For the presence of pests along the supporting poles; on the wires, or on the outside of the hive itself; if present remedial actions can be sought such as re-coating the surfaces, using rat and reptile guards and oil baths.

c) For the presence of water in the containers provided as the water source, and if depleted, these shall be replenished.

d) Morning or evening hours are considered as being suitable for inspection purposes due to relatively low temperatures and at these times of the day, bees are calmer and less aggressive.

4.4.2. Inspection of modern hives

4.4.2.1. For proper inspection of modern hives, the following steps shall be followed.

a) With a hive tool or knife, remove a couple of bars from the rear side to create working space.

b) Examine a bar at a time by looking at one side first and then the other side and put it back in its original position on the hive.

c) Hold the bar with combs firmly between thumb and next two fingers, vertically above the hive to avoid its breakage and dropping the queen outside the hive.

d) Avoid crushing the bees as this triggers the release of pheromones which provokes other bees into aggressive action including attack and stinging action.

e) Combs which are constructed together or fastened to the walls of the hive or across the hive should be cut off with a knife and the bees allowed constructing the comb afresh. Experienced beekeepers can reposition or re-orientate the combs.

f) Any comb material shall be properly disposed of in order to prevent wax moth infestation.

4.4.2.2. During inspection the following shall be noted:

a) The strength of the colony, observing the brood (eggs, larvae and pupae);

b) The presence of the queen. In case she is hiding, the newly laid eggs are an indicator of her presence;

c) Prolificacy of the queen, that is, whether she is laying enough eggs or not;

d) the health status of the colony, especially the presence of bee pests and bee diseases; the indicators of bee diseases include physical observation of the parasite in the hive or on the bees, bees becoming less active, the number of eggs laid by the queenbee becoming progressively less than normal, weak colony, a very low number of colony members, low hive productivity, abscondment or swarming from diseased hives and death).

e) The food stores (honey and pollen);

f) Maturity of honey as indicated by capping of the honey cells. At least three quarters of a comb shall be capped;

g) The adequacy of space for the available bees; in case it is inadequate, remove some brood combs and replace with empty bars; and

h) Indicators of swarming which include construction of many queen cells. In this case, destroy some and provide more room provided the queen is still present.

5. Harvesting of honey

5.1. General

5.1.1. When still in a hive, honey is a perfect natural product and therefore requires proper handling during harvesting in order to maintain its quality. During harvesting only sealed or capped combs shall be harvested and then sorted according to colour of the comb.

5.1.2. It is a good practice for farmers to keep a bee calendar which shall provide guidance on the time when harvesting is expected to take place. The bee calendar should among others indicate the flowering regime of the plants, time of colonization and time of siting.

5.2. Indicators and techniques used for assessing the presence of mature honey in the hive

The indicators for the presence of mature honey in a hive include the smell of honey from the hive; clustering of bees outside the hive; bees are observed not to be carrying pollen; bees become more aggressive; or the honeycomb being fully capped or sealed at the time of inspection.

The behaviour of the local flowering plants can be very useful in determining when honey may be harvested with maximum results. Mature honey can be obtained when the local flowering plants drop most of their flowers. At this time the bees have capped most of the honey in their nest.

5.3. Observation of the colonies

The beekeeper should always observe the colonies for indicators of bees being ready to swarm and these include ceasing of brood rearing as characterized by foraging bees sending little or no pollen into the hive.

Few bees are seen at the entrance during the day; but most of the bees continue buzzing and ventilate the hive at night.

5.4. Preparation for harvesting of honey

5.4.1. Inspection of the apiary

The apiary shall be inspected to ensure that the conditions are conducive to harvesting of honey; especially the environment should be hygienic and not polluted with agrochemicals, human or animal waste or garbage in general.

5.4.2. Preparation of equipment

Before the harvesting of honey, equipment such as airtight buckets, knives, etc that may come into direct contact with the product shall be washed with potable water and shall be dried properly.

5.4.3. Techniques for honey harvesting

5.4.3.1. Equipment for honey harvesting

The tools for harvesting include clean airtight honey containers, knives, bee brush or quill feather and hive tool.

a) Honey containers may be made of earthenware, stainless steel, or airtight buckets, but shall always be rustproof.

b) Safety gear shall include overall, gloves, bee-veils, gumboots (rain boot) and a torch (if harvesting at night).

c) Smoking instruments or materials including a bee smoker, smoking materials, for example, grass, maize cobbs, oil palm inflorescence, wood shavings, dried paw paw stems, dried cow dung, papers and source of fire.

5.4.3.2. Preliminary preparations

After inspecting the apiary and the hives, steps shall be taken to ensure that all the required equipment indicated in 7.4.1 is prepared and made available before harvesting can start.

5.4.4. General harvesting techniques

These are applicable to all types of hives and include the following.

a) Before opening the hive, a small amount of smoke shall be puffed into the hive using a smoker. Then open the hive and, remove the combs one by one (giving a very small puff of smoke, if necessary) and examine the combs carefully. Empty combs, brood combs, and combs containing both brood and honey or uncapped honey should all be returned to the hive.

b) Select only combs that are either full or three quarters full of ripe honey. When such a comb is found, brush any bees on it into the hive and use a knife to cut the comb honey away into an airtight bucket. Close the bucket immediately after the honeycomb is put in.

c) Leave about 1 cm of the comb on the top-bar to guide the bees to work the next honey crop.

d) Carry on with the harvest until combs containing honey and brood are reached and at this point harvesting should be stopped as mature honey is finished from the hive.

e) Some combs may not be easy to remove because the bees may have attached them to each other. This usually happens when inadequate space was left between the top-bars. In this situation a hive tool or knife shall be used to separate them.

f) In hives where the hive entrance is located in the mid-section (rather than at the end), honey is always found on both sides of the entrance. Harvesting shall start on one side of the entrance, after which treat the other side in the same manner, but leaving ten combs in the middle. The bees will then work faster to produce the next honey crop than if all honeycombs were taken away.

g) After removing the surplus honey, rearrange the top-bars carefully in the same manner as before. If bees are rushing out between top-bars, drive them back with smoke, but avoid crushing them unnecessarily. Then close the hive carefully, making sure the lid is firmly placed on the hive. Cork the smoker after work is done. Do not throw leftover fuelinto the bush as it may cause bush fires.

5.4.5. Precautions during harvesting

5.4.5.1. General precaution

When stung during the harvesting process, you should move away from the location asfar as possible before removing the sting. As soon as you are sure that the distance is safe, then remove the sting by scrapping it off with a hive tool, knife or with a finger nail. Never remove it by squeezing as this leads to venom release into the flesh which leads to more swelling of the body and releasing of pheromones that attract more beesinto stinging action and attack.

5.4.5.2. Precautions while harvesting at night

Harvesting at night requires a source of light, however depending on the source of light there are various precautions that have to be taken to ensure that the desired quality ofhoney is achieved while at the same time ensuring that the colonies are not destabilised. It is therefore important that all necessary precautions are taken to ensurethat:

a) As few bees as possible are burnt to death by the lanterns or hive torches that are used;

b) The loss of brood combs shall be minimized;

c) Accidental crushing of bees between top-bars shall also be minimized; and

d) The bars shall fitted promptly.

e) Care shall be made to ensure that harvested combs do not drop to the ground to prevent attracting ants and other pests to the apiary.

5.4.5.3. Precautions while harvesting in daylight

One simple and effective system for harvesting honey or controlling the brood nest withlittle or no danger, even during the hottest hours of the day, makes use of the fact that foraging bees always return to the site of their hive, even if the hive is no longer there. To harness this fact, the following precautionary steps may be taken during harvesting.

a) Bring along to the site an empty hive and a container with a lid for carrying the harvested honey.

b) Smoke the hive heavily from the outside to force the "security bees and guard bees" and any other bees of the colony that are waiting outside the hive to return to it. It is important to continue smoking until the bees have lost all their aggressiveness.

c) Carry away the hive from the site, in the direction opposite to the flight runway, and placed on a platform (or on the ground) at least 50 m from the nearest hive in the apiary. The empty hive is left at the hive site to serve as a temporary home for any returning foragers or for any bees that escape from the moved hive.

d) Working as quickly as possible in order to avoid robber bees, which can otherwise cause trouble, carry out the harvesting or control operations in the normal manner.

e) When the work is completed, the hive is closed and carried back to its original position, and the empty hive is removed. Any bees in it, or members of the colony waiting outside, will then rejoin the hive.

6. Processing of honey

6.1. Receiving of supers

6.1.1. When the loading bay is located inside the building, measures must be taken to prevent contamination of materials, products, and the processing environment from dust, dirt, bees and other insects, fumes, and other environmental contaminants during the entry and exit of vehicles, and during unloading.

6.1.2. Supers must be transported on clean trucks and covered during transport in a manner that minimizes dust, engine fumes and other road-based contamination.

6.1.3. Honey supers that are infested, excessively dirty, or contaminated with faecal material (e.g. rodent or bird faeces) must not be accepted for processing.

6.2. Holding of full honey supers

6.2.1. Full honey supers must be stored in a suitable storage area or hot room.

6.2.2. supers that are not stored in a room or will not be processed immediately must be protected from moisture and contamination from dust, dirt, bees and other insects, fumes and other environmental contaminants.

6.2.3. Entry of live bees into the storage area, hot room or extraction room must be minimized.

6.3. De boxing and uncapping

6.3.1. Deboxing must be done in a manner that will minimize transfer of contamination from boxes to combs.

6.3.2. Combs should be visually inspected to ensure that contaminated combs are removed and excluded from processing. Combs that have the following condition should be excluded from

processing: infested with wax moth larvae; contain dead brood (bee larvae); or with signs of rodent infestation (e.g. faecal pellets, urine odour).

6.4. Extraction

6.4.1. The extractor must be clean and dry before the start of extraction.

6.4.2. Wax, caramelized honey, and foreign matter (e.g. wax, dirt, dead bees) must not be allowed to build up in the extractor.

6.4.3. The extractor must be covered with a lid when not in use (e.g. overnight) to prevent the entry of pests and to prevent steam and water from contaminating honey

6.4.4. Honey that has been spilt onto the processing floor must not be used for human consumption. Provided it is not contaminated with any chemical substance, spilt honey may be used for animal consumption. Any contaminated honey must be clearly identified as “Not Intended for Human Consumption

6.5. Straining/filtering

6.5.1. Strainers and filters must be made of material that is suitable for food.

6.5.2. The mesh size of the strainer or filter must be suitable for the type of material that is being filtered from honey.

6.5.3. Strainers or filters must be maintained in good condition and must not be a source of contamination.

6.6. Processing of the various types of honeys

6.6.1. Processing of comb honey

6.6.1.1. Beekeepers should implement hygienic practices for the handling, storage and transport of honey supers to minimize contamination of the supers which consequently impacts on the microbiological load of honey

6.6.1.2. The cut comb shall be processed (cutting and packaging) from selected pieces of sealed, clean and undamaged combs. In case of frame hives, honey shall be produced from frames which do not contain strengthening wire.

6.6.2. Processing of strained honey

6.6.2.1. Prepared from combed honey by uncapping the comb, followed by breaking the comb into pieces and straining using a clean cloth of mesh 500 microns or 200 microns (the use of unsealed combs having unripe honey or pollen is not advisable; as it may lead to deterioration in quality).

6.6.2.2. Framed honey combs are to be processed using a centrifuge, the combs shall be uncapped using an uncapping knife or uncapping fork or a suitable kitchen knife previously dipped in warm water. The frames shall then be put in a centrifuge extractor to allow the dripping or separation of honey from the uncapped comb.

6.6.2.3. Entry of live bees into the storage area, hot room or extraction room must be minimized.

7. Storage of processed honey

7.1. After processing, the product shall be kept in airtight containers.

7.2. Containers shall be made of food grade material, shall be thoroughly cleaned and shall not contain any traces of residue that can be harmful or affect the quality of the honey.

8. Plant construction and layout

8.1. Requirements for plant location, size and design

The building and surrounding area shall be:

8.1.1. such as can be kept reasonably free of objectionable odours, smoke, dust, or other contamination; of sufficient size for the purpose intended without crowding of equipment or personnel; be easily cleaned and sanitized

8.1.2. be impervious, non-absorbent, and free from depressions, pits, cracks, and crevices that may harbor contaminants;

8.1.3. be unaffected by any corrosive substance with which it is likely to come into contact, to the extent necessary to ensure that it will not harbor contaminants and is not a source of contamination; of such construction as to protect against the entrance or harboring of insects or birds or vermin; in the case of surfaces (other than those used for walking or standing on during operations), be smooth and minimize the accumulation of condensation;

8.1.4. be durable, resistant to fracture, and capable of withstanding repeated exposure to normal cleaning and sanitizing;

designed as to permit easy and adequate cleaning. In areas experiencing high concentrations of air-borne pollutants, equipment shall be used to remove pollutants from the air blown across or through the product; and

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8.2. Requirements related to sanitary facilities and controls

8.2.1 Separation of processes

Handling area shall be completely separated from any part of the premises used as living quarters

8.2.2 Plumbing and waste disposal

8.2.2.1 All plumbing and waste disposal lines (including sewer systems) shall be large enough to carry peak loads. All lines shall be watertight and have adequate traps and vents.

8.2.2.2 Disposal of waste shall be effected in such a manner as not to permit contamination of potable water supplies. The plumbing and the manner of waste disposal shall be approved by the official agency having jurisdiction.

8.3. Lighting and ventilation

8.3.1. Lighting must be of a sufficient intensity and quality to enable satisfactory performance of all operations. Light bulbs and fixtures suspended over food in any step of preparation shall be of the safety type or otherwise protected to prevent food contamination in the case of breakage.

8.3.2. Good ventilation is important to prevent both condensation (which may drip into the product) and mould growth in overhead structures which growth may fall into the food.

8.4. Toilet rooms and facilities

8.4.1. Adequate and convenient toilets shall be provided and toilet areas shall be equipped with self- closing doors.

8.4.2. Toilet rooms shall be well lit and ventilated and shall not open directly into a food handling area. They shall be kept in a sanitary condition at all times.

8.4.3. There shall be associated hand-washing facilities within the toilet area and the notices shall be posted requiring personnel to wash their hands after using the toilet.

8.5. Requirements for equipment and utensils

8.5.1. Sanitary design, construction and installation

Equipment and utensils shall be so designed and constructed as shall prevent hygienic hazards and permit easy and thorough cleaning.
Stationary equipment shall be installed in such a manner as shall permit easy and thorough cleaning.

8.5.2. Equipment and utensils

All equipment that come into contact with edible honey must be designed, constructed, installed and operated in a manner that;

- Ensure the effective performance of the intended task;
- Ensure effective cleaning;
- Facilitates good hygienic practices, including monitory; and
- Does not cause contamination of the product

8.5.3. Equipment must be

- Durable;
- Resistant to chipping, flaking, delamination, abrasion;
- Able to withstand exposure to heat, water and honey under normal operating; conditions; and
- Corrosion resistant.

8.5.4. Hand-washing facilities

8.5.4.1. Adequate and convenient facilities for employees to wash and dry their hands shall be provided wherever the process demands. They shall be in full view of the processing floor.

8.5.4.2. The facilities shall be kept in a sanitary condition at all times.

9. Good Hygienic Practices

9.1. Management of personnel health and hygiene

All operators must establish and carry out procedures to as stipulated under TZS 109

9.2. Personnel health

9.2.1. Plant management shall ensure that that any person afflicted with infected wounds, sores, or any illness, notably diarrhea, immediately report to management.

9.2.2. Management shall take reasonable measures to ensure that a person (including any visitor or contractor) who is:

- infected with, or carrier of, an infectious disease in a communicable form and is likely

to be transmitted through food; or

- suffering from acute respiratory infection; or
- suffering from boils, sores, infected wounds, or any other condition that cannot be adequately prevented from becoming source of contamination;
- Permitted to work in any area of a food plant in a capacity in which there is a likelihood of such person contaminating food or food contact surfaces with pathogenic organisms.

9.2.3. All personnel who enter any processing or packing areas must wear suitable clean protective clothing and foot wear. Protective clothing (e.g. coats, overalls, aprons) must be visibly clean at the start of each day's operation

9.2.4. Fingernails shall be short and clean. False nails shall be not permitted.

9.2.5. The excessive use of cosmetics for example, perfume, aftershave and make up shall not be allowed. False eyelashes shall not be worn.

9.2.6. No jewellery except a plain wedding band may be worn provided they cannot be easily dislodged and can be effectively cleaned in the same manner as hands. Wristwatches and cufflinks shall not be worn.

9.2.7. Personal items such as purses, handbags etc shall not be allowed in production and packing areas. Suitable and approved secure storage shall be provided.

9.2.8. All sores, cuts, grazes, infected areas and other wounds shall be covered by a suitably coloured waterproof dressing, incorporating a metal strip, by the company and applied by the company medical representative who is responsible for providing first aid.

9.2.9. Any dressing applied shall be accounted for at the end of the shift. The loss of any dressing shall be reported immediately to the management. Where possible, dressings shall be covered by rubber gloves. Staff arriving at work with an unprescribed wound dressing shall have it checked and, if, necessary replaced.

9.2.10. The personnel responsible for Quality Assurance shall check personnel hygiene daily and record. Anyone not complying with the regulations on personnel should be requested to leave production areas.

9.3. Pre-season cleaning and maintenance check for extraction premises

9.3.1. Before the start of each extraction season, a complete and thorough cleaning of the extraction premises, facilities and equipment must be carried out. All facilities, essential

services (e.g. water, power) and equipment must be checked to ensure that they are in good working order ready for operation to commence. A record that these tasks have been completed must be kept by the operator.

9.3.2. All materials and items that may have been stored in the hot room or store room, and extraction room during the off-season that are not necessary for the extraction operation must be removed from the rooms.

9.3.3. Walls, floor, ceiling, windows, doors, light fixtures, sinks, fans and other fixtures must be cleaned with suitable cleaning agents so that they are visibly clean and free of honey and bee product residues, dirt, dust, moulds, insect parts and waste, and other debris. The condition of the floor and walls should be checked. They may need to be resealed.

9.3.4. All product contact surfaces, including equipment, containers and other implements, must be washed with a suitable detergent, sanitized, rinsed, drained and allowed to dry.

9.3.5. External areas surrounding the buildings and access ways must be cleaned and tidied. They must be free from any evidence of pest infestation or accumulated waste.

9.3.6. Waste must be collected in identified waste containers and must not be allowed to accumulate where it can contaminate any edible honey product or product contact surfaces.

9.4. Cleaning at end of day in the extraction, processing and packing areas

9.4.1. Products, packaging material and other materials that may be contaminated during wash down must be removed from the area and stored in appropriate locations, or they must be protected by covering them.

9.4.2. Waste collected during the day must be removed from the area and disposed of appropriately in designated waste bins.

9.4.3. Floors must be cleaned by hosing or other effective means. Water must be drained or removed completely.

9.4.4. Visible contamination on walls must be removed by hosing, wiping with clean wet clothes or by other effective means.

9.4.5. External surfaces of all equipment must be cleaned so they are visibly clean and free of honey, dirt, dust, moulds, insect parts and waste, and other debris. External surfaces of equipment are generally wiped clean with wet cloths, or hosed down as necessary. Dead and live bees must be removed from the extraction, processing, and packing rooms

9.4.6. cleaning Records containing the following information must be kept by the operator:

10. Management of pests and toxic substances

10.1. Use of pesticides

10.1.1. Pest control chemicals (rodenticides and insecticides) shall be handled, used and stored properly

10.1.2. Insecticides that have any residual activity or are dispensed as continuous aerosols shall not be used in any processing or storage area in a manner that could cause the contamination of edible bee product or product contact surfaces.

10.1.3. Honey and exposed packaging material shall be removed from the area or kept protected (e.g. covered) prior to the use of chemicals which may result to their contamination. Equipment and other product contact surfaces shall be cleaned by thorough washing after exposure to any chemical (i.e. after spraying with insecticide is completed).

10.2. Use of pest traps

10.2.1. Pest traps (including rodent boxes, bait stations and electric insect traps) shall be located where they do not present a risk of contamination to the product.

10.2.2. Bait stations shall not be located inside any processing area. The location of pest traps should be identified on a site or building plan, or other suitable record.

10.2.3. Rodenticides shall be used only in enclosed bait boxes.

10.3. Handling and disposition of contaminated materials

Where there is evidence of contamination from pests (excluding bees), the following actions shall be carried out:

a) The affected product shall be considered unfit for human consumption;
b) The affected product contact surfaces shall be cleaned and sanitized prior to reuse; and
c) Affected packaging materials that cannot be effectively cleaned and sanitized shall not be used for packing of any edible bee product.

10.4. Monitoring

Ongoing compliance to documented procedures, and the effectiveness of the pest control programme shall be regularly checked by the responsible person.

11. Packaging and storage

11.1. Packaging material

Honey shall be packaged in a food grade material that protects the integrity and safety of the

product.

11.1.1. Metal drums

All metal drums, including new, reused and reconditioned drums, shall be coated or lined with a food grade lacquered coating. The coating must:

a) provide a barrier between the metal surface of the drum and honey;
b) be inert;
c) not impart any flavour to honey;
d) Be resistant to delamination, flaking or peeling.

11.1.2. Plastic packaging

11.1.2.1. Plastics for food contact use shall be food grade

11.1.2.2. Packaging materials must be adequately protected during transport to the premises and during storage, against dust, pest and other contaminants, and physical damage.

11.1.3. Glass jars

11.1.3.1. Metals lids must be coated or lined with a food grade material suitable for an acidic food such as honey.

11.1.3.2. Glass jars must be handled in manner that does not cause any breakage or other damage.

12. Labelling

The labelling of finished products shall comply with requirements given in TZS 851- Honey specification and TZS 538 Pre -packaged food labeling - general requirements.

13. Preservation of finished product

13.1. The product shall be stored under suitable conditions of time, temperature, humidity, and atmosphere, to prevent significant deterioration.

13.2. Where honey is stored under conditions in which they may become infested by insects and mites, appropriate methods of protection shall be used regularly.

14. End product specifications

The finished product shall comply with requirements stipulated under TZS 851 – Honey specification.

15. Traceability and inventory control

15.1. There must be a system in place for the identification of raw materials and products, and documentation that will allow any finished product to be traced:

15.2. Back to the supplier and the apiaries that the bee product was sourced from; and to the next person or company that the product is transferred to for further processing, packing, or storage; distributed to; or sold to.

15.3. All outgoing products must be clearly identified and accompanied by appropriate documentation

16. Training

Ongoing training must be provided to ensure that workers are adequately trained on their specific tasks by ensure compliance to hygienic practices and/or of any problems observed and any corrective action taken (including restoration of control, product disposition and prevention of recurrence).

17. Record keeping

17.1. Records shall be available and be supplied on demand as evidence to establish food safety. These records shall be legible, permanent, and accurate and be signed and dated bythe individual(s) responsible.

17.2. They should include procedures, controls, limits, and subsequent follow-up documents. They shall be retained for at least one year after the expiration of the durable life date (best before date) or, at least two years after the food has been released to the consumer.

17.3. The records shall include where applicable:

i. raw material
ii. quality control record;
iii. grower/supplier agreements;
iv. drying control record (where applicable);

v.stock control record;

vi.company induction for all staff;

vii.training programme;

viii.daily personnel check list;

ix.sanitation record;

x.water analysis checks;

xi.accident and illnesses record;

xii.rodent control record;

xiii.chemicals records (additives, sanitizers);

xiv.insects control record;

xv.foreign matter control record;

xvi.finished product control record, lots records including distribution; and

xvii.consumer complaints register.