Australian Renderers Association Inc.

ARA Code of Practice for Hygienic Rendering of Animal Products V3.2

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5th Revision

Version 3.2

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Introduction

The Australian Renderers Association Code of Practice for Hygienic Rendering of Animal Products was first published in 1994. The code was the initiative of the ARA's founding president, Brian Bartlett AM.

The Code was revised and re-published in December 1996. The second version introduced a requirement to implement a documented quality-management program that included HACCP. The sections of the Code were made outcome-based and along with the requirement for quality management, the Code was brought into line with the Australian Standards for meat production.

In 1997 the Department of Agriculture started to use the ARA's Code of Practice accreditation scheme as the basis for listing rendering establishments as eligible to export to markets for which conditions of access must be verified. The Code and accreditation system, along with AS 5008, continues to be the basis for market-access listings in conjunction with specified market-access requirements.

The *Australian Standard for the Hygienic Rendering of Animal Products* AS 5008 was first developed by the Agricultural Resource Management Council (ARMCANZ) Meat Standards Committee in 2001. It incorporated sections of the Code of Practice.

This latest revision of the Code incorporates separate requirements for the transfer of raw material by road and within plant; clarification of requirements for control of foreign matter; requirements for traceability and recall including sample retention; requirements for chemical control and more detailed requirements for quality management.

Compliance with AS 5008 is the minimum standard for the operation of a rendering plant in Australia. The Code of Practice offers manufacturers the opportunity to strengthen existing manufacturing systems to ensure product integrity and safety.

This document is published by the Australian Renderers Association. In referencing, the ARA should be cited as both the author and publisher of this document.

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1 Scope and Application

The scope of the ARA Code of Practice applies to the construction, equipment and operation of Australian rendering plants. The Code is intended to provide a set of standards which provide control over the production of rendered products.

The Code is applied in conjunction with the *Australian Standard for the Hygienic Rendering of Animal Products* AS 5008.

The Code has the following components:

- Specific requirements for standards of construction, equipment and methods of operations.
- Quality management including HACCP.
- A sampling and testing program designed to verify that post-processing contamination of rendered products is controlled and finished product is fit for intended purpose.
- Compliance with applicable legislative requirements.
- Establishment of a training program.

The ARA provides accreditation to establishments. An independent certification body appointed by the ARA assesses compliance with the Code and recommends accreditation of establishments.

2 Objectives of the Code

The objectives of the Code are to:

- Prescribe standards recommendations and give direction to rendering plant management about hygienic production of rendered products.
- Provide for consistent application of heat treatments in the rendering process to minimise the risk of survival of microorganisms that are hazardous to animal health.
- Minimise the risk of recontamination of rendered products after the heat treatment.
- Use HACCP techniques to identify and control biological chemical and physical hazards.
- Provide a coordinated sampling program to verify that quality management and provisions of the Code are effective.
- Operate the rendering plant with regard to applicable legislation.

3 Definitions

Approved Laboratory

A Laboratory that has been certified by the National Association of Testing Authorities, Australia (NATA) and approved to test product for *Salmonella* and *Clostridium perfringens*.

Audit

A systematic and independent examination to determine whether activities and related results comply with planned and documented arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

Controlling Authority

A government agency that has jurisdiction over the rendering industry.

Critical Control Point (CCP)

A point, step or procedure where control can be exercised and the control is essential to prevent or eliminate a hazard or reduce the hazard to an acceptable level.

Dry Cleaning

Removal of objectionable matter and debris without the use of water or water-based cleaning agents. Cleaning by scraping, sweeping, brushing, and/or vacuuming.

Foreign matter

Plastic, metal, glass, wood or other physical contamination in raw material or finished product.

Hazard Analysis Critical Control Points (HACCP)

A system that identifies, evaluates and controls hazards that could affect product safety according to the Codex Alimentarius Code of Practice: "*Recommended International Code of Practice General Principles of Food Hygiene*".

Heat Treatment

The total heat applied in the principal heating step of the rendering process to destroy pathogenic microorganisms.

Meal Handling Area

The area of the rendering plant where dried material is milled, screened, stored and bagged.

Other Process

Rendering processes that do not rely on heat alone to eliminate pathogens and stabilise raw materials, for example, chemical treatments.

Plant

Building or equipment and rendering process environment and boundaries.

Preventable delay

Delays in the transport of raw material from source to rendering plant caused by systematic planning failures including pick up routes, operator (driver) training and communication with suppliers.

Processed animal protein (PAP)

De-fatted and dried solid product of the rendering process. May include but is not limited to meat meal, meat and bone meal, blood meal, feather meal, poultry meal and fish meal.

Processing Area

The area of the plant where rendering processes take place.

Typically, rendering plants are separated into the areas of:

- raw material receipt: the area where raw materials are received, handled and prepared for rendering;
- processing area;
- meal handling area: the area where de-fatted and dried material is transferred from the processing equipment, milled, screened, stored and loaded out.

Quality Management

All the planned and systematic actions to be implemented to provide confidence that a product will satisfy given requirements for quality and legislation.

Raw Material

Any biological material from animals used for the purpose of the processing into fats, oils, processed animal protein or fertiliser.

Raw Material Area

The area of the plant designated for cleaning, storing, conveying and size reduction of raw material in preparation for the rendering process.

Rendering

The process of heat treating raw materials to remove water and/or liberate fat.

Restricted Animal Material

Any material taken from a vertebrate animal, other than tallow, gelatine, milk products or oils. It includes rendered products such as blood meal, meat meal, meat and bone meal, fish meal, poultry meal and feather meal, and compound feeds made from these products.

Ruminant Feed Ban

Legislation in Australia that bans feeding of restricted animal material to ruminants.

Specified Heat Treatment

A heat treatment operated according to specified processing parameters. Specified heat treatments may be designed to comply with regulatory requirements, and/or achieve a specific microbial outcome.

Tallow

Rendered fat extracted from animal tissue.

Validate

Provide evidence to demonstrate the effectiveness of a system of controls.

Wet cleaning

Removal of objectionable matter and debris with the use of water and water-based cleaning agents.

4 Construction of Premises

4.1 Site and services

Objective
Premises are provided with essential services for hygienic rendering

4.1.1 Rendering plants shall conform to relevant government and statutory requirements.

4.1.2 Rendering plants shall have:

- adequate supplies of hot and cold potable water;
- drainage that prevents overflow and/or pooling;
- waste disposal systems sufficient to manage solid and liquid wastes;
- energy sources sufficient to maintain hygienic rendering.

4.2 Hygienic construction

Objective
Premises shall be constructed and maintained to facilitate hygienic production.

4.2.1 Buildings in which rendering operations take place and rendered products are processed shall be fully roofed. The roof shall be in good repair and be weatherproof. Rendered products may be stored outside the building in enclosed bins, silos, containers or tanks that are weatherproof.

4.2.2 Walls and internal divisions or bays shall be of solid construction.

4.2.3 Doors shall be soundly constructed and close fitting.

4.2.4 Drainage shall not flow or seep into the meal handling area without proper containment.

4.2.5 External areas, storage tank areas and roadways shall be constructed so that they can be maintained and spills can be removed.

4.2.6 Buildings shall be ventilated and/or be equipped with extraction to prevent condensation and excessive build up of heat and to control dust.

4.2.7 Buildings shall be designed to restrict access to pests including birds, vermin and insects.

4.3 Defined areas

Objective
The plant layout and operational procedures shall minimise the risk of biological, chemical and physical contamination of rendered products.

4.3.1 Buildings shall be constructed or internally separated so that there are clearly defined areas. There shall be defined areas for:

- raw material handling and processing;
- handling and storage of rendered product, and
- load-out.

4.3.2 The areas of the rendering plant shall be defined and recognised for the purpose of controlling personnel traffic between the areas. The defined area shall be documented on a layout of the premises.

4.3.3 The facilities shall be constructed so there is no direct contamination from the raw material area to the meal handling area.

5 Raw material collection and reception

Objective
Transportation of raw materials shall minimise loss through leaks or spills and minimise the risk of contamination.

5.1 Raw material road transport

5.1.1 All raw materials shall be transported and conveyed from the source to the processing site without preventable delay.

5.1.2 All vehicles used for collection and transport of raw materials shall be leak proof.

5.1.3 Vehicles and equipment used to transport raw materials shall not be used for transporting cooked products unless they have been thoroughly cleaned, sanitised, dried and inspected.

5.1.4 Vehicles and equipment used to collect and transport raw material shall be maintained in a clean state and be cleaned after every delivery.

5.1.5 Vehicles and other moveable equipment used to transport raw material shall be cleaned in a designated area. This area shall be situated and/or designed to prevent the risk of contamination of heat treated products.

5.2 Raw material transfer within the plant

5.2.1 All raw material shall be transported and conveyed from the source to processing without preventable delay.

5.2.2 All vehicles and equipment used for collection and transfer of raw material shall be leak proof.

5.2.3 All equipment, either moveable or fixed, shall be identified to indicate that it is for use with raw material.

5.2.4 Equipment used for transferring raw material shall not be used for transferring cooked product unless it has been thoroughly cleaned, sanitised, dried and inspected.

5.2.5 Moveable equipment used for raw material handling shall be cleaned in a designated area. The area shall be situated and/or designed to prevent the risk of contamination of heat-treated product.

5.2.6 Any spillages, including raw material during unloading shall be cleaned up without delay.

6 Foreign matter

Objective
Raw material is fit for purpose and shall not compromise the safe use of rendered products.

6.1 Foreign matter in raw materials shall be controlled so that product safety and quality is not jeopardised by the presence of foreign matter including, but not limited to plastic, metal, glass or other material. There shall be a documented procedure for handling raw material.

6.2 Suppliers of raw material shall be identified according to an approved supplier program.

6.3 Raw material specifications shall be provided to all suppliers.

6.4 Raw material shall be inspected for foreign material. Results of inspections shall be recorded. If visual inspection of raw material is not possible, or raw material cannot be inspected safely, alternative methods of verifying that foreign matter is not in raw material shall be documented and implemented.

6.5 If foreign matter is observed in raw material, corrective action shall be taken and recorded.

7 Heat treatment and other processes

Objective
Heat treatments and other processes shall be sufficient to eliminate the risk of transferring pathogens that may be in raw materials to animals.

7.1 Heat treatment and other process parameters

7.1.1 The heat treatments and other processes applied in rendering shall be specified for each rendering process. This is achieved by specifying process values for the parameters that contribute to the effectiveness of the heat treatment. These parameters may include (depending on the rendering process):

- raw material particle size;
- temperature achieved in the heat treatment;
- pressure applied during rendering;
- duration of heat treatment process or feed rate to a continuous system;
- other conditions that are intended to contribute to the elimination of pathogens.

7.1.2 Accurately calibrated temperature gauges/recorders shall be used to monitor the processing conditions. Records shall be kept to show the date of calibration of temperature gauges/recorders.

7.1.3 Records shall be maintained to show that the specified process values are achieved for each critical control point.

7.1.4 Material that has not received the specified heat treatment or other process shall be reprocessed.

7.2 Process validation

7.2.1 The effectiveness of heat treatments and other processes shall be demonstrated annually and whenever process parameters change.

7.2.2 This shall be done by taking samples of processed animal protein collected after completion of the heat treatment or other process, typically at the cooker or drier discharge points.

7.2.3 Samples of each processed animal protein shall be taken at the rate of one per day for ten consecutive working days.

7.2.4 The samples shall be tested for *Clostridium perfringens* by an approved laboratory.

7.2.5 The results for the ten samples shall all be less than 10cfu/g. If *Clostridium perfringens* is detected in any sample, the heat treatment or other process shall be adjusted and a further ten samples tested until the heat treatment or other process is validated by demonstrating that *Clostridium perfringens* is less than 10cfu/g in ten consecutive samples.

7.2.6 The parameters of the heat treatment (see 7.1.1) shall be recorded at the time that individual samples are collected for *Clostridium perfringens* testing. The process validation applies to the heat treatment as defined by these parameters.

8 Storage and despatch of processed animal proteins

Objective
Processed animal proteins shall be handled with equipment that minimises the risk of microbial contamination.

8.1 Processed animal protein meals shall be packaged and/or stored and despatched in hygienic conditions.

8.2 All rendered products shall be protected from pests, splashes, aerosols, dust and other sources of contamination.

8.3 Storage bins, conveyors, elevators and other equipment shall be adequately ventilated to minimise condensation inside equipment.

8.4 Processed animal protein handling equipment shall be maintained in a clean and dry condition and shall have adequate inspection points so that equipment can be examined for cleanliness.

8.5 All storage facilities shall be emptied and cleaned according to a documented cleaning schedule.

8.6 All products in storage shall be clearly labelled with the identity of the product.

8.7 Every container or trailer shall be inspected and shall be clean and dry before it is loaded.

9 Traceability and recall

Objective
Raw material shall be traceable to the supplier. Raw material and products are identified and related. Products can be traced to customers and be recalled if necessary.

9.1 Records of receival of raw material shall be maintained. The records shall include:

- date of receival;
- type of material;
- source of material (supplier);
- quantity of material.

9.2 Records of the dispatch of all finished products shall be maintained. These records shall include:

- date of dispatch;
- description of product;
- destination or customer including address;
- quantity of product;
- identification of the carrier.

9.3 Packaged products shall be labelled with:

- product name or description;
- date of production or date code;
- name of the manufacturer.

9.4 A recall procedure shall be documented and tested at least once a year.

10 Retained samples

Objective
Representative samples are retained in case further testing or product evaluation is required.

10.1 A representative sample of every load out of all products shall be retained for at least three months.

10.2 The retained sample shall be clearly labelled with the details of the load out.

10.3 The retained samples shall be packaged and stored in conditions that maintain the integrity of the products.

11 Ruminant feed ban

Objective
Comply with applicable legislation.

11.1 Legislation

Establishments shall comply with relevant state legislation for labelling animal material for the purpose of identifying those materials that must not be fed to ruminants.

11.2 Labelling of processed animal protein

All animal material is restricted animal material and cannot be fed to ruminants with the exception of:

- tallow with moisture and insoluble impurities no greater than 2%;
- gelatine;
- milk and dairy products.

Restricted animal material shall be labelled with the statement:

"This product contains restricted animal material - DO NOT FEED TO CATTLE, SHEEP, GOATS, DEER OR OTHER RUMINANTS".

For bulk product the statement shall be applied to a delivery docket and/or invoice according to legislation.

Bagged material including bulka bags shall be labelled with the ruminant feed ban statement according to legislation.

11.3 Tallow

Tallow intended to be used for stock feed manufacture shall be processed to ensure the moisture and insoluble material (M&I) does not exceed 2% and shall be labelled according to legislation.

12 Hygiene procedures

Objective
The plant is maintained in a condition to ensure the hygienic processing and handling of rendered products.

12.1 A documented pest-control program including appropriate use of pesticides shall be implemented to prevent infestation of the processing area by insects, vermin, birds or other pests.

12.2 Appropriate cleaning procedures shall be documented and implemented for all parts of the premises including fixed and portable equipment. Cleaning procedures shall include methods of wet and dry cleaning.

12.3 Suitable equipment and cleaning agents shall be provided and controlled. Equipment dedicated for use in a defined area shall be identified. Cleaning equipment shall be stored appropriately.

12.4 Hygiene control shall include regular inspections of the plant environment and equipment. Inspection schedules and results shall be documented.

12.5 All materials collected during cleaning shall be reprocessed through the heat treatment or disposed of in an appropriate manner.

12.6 A documented personnel traffic movement procedure shall be established to control the movement of staff and visitors between defined areas (see 4.3.2).

12.7 A documented traffic movement procedure relating to non-personnel traffic such as forklifts, bobcats, and trucks, shall be established.

13 Chemical control

Objective
Chemicals used within a rendering plant shall be handled and controlled to prevent hazards to product quality and safety.

13.1 Pest control and cleaning chemicals shall be approved by management. Chemicals shall be assessed by management to determine their appropriate use, storage and handling conditions.

13.2 Pest control, cleaning chemicals and lubricants shall be stored securely to prevent any risk of contamination of rendered products. There shall be designated storage areas for chemicals.

13.3 A register of chemicals used on the site shall be maintained.

13.4 All chemicals shall be clearly identified.

13.5 Safety data sheets (SDS) for all chemicals used on site shall be readily available.

14 Quality management

Objective
A quality management system to control all aspects of production that affect the hygienic quality of products shall be implemented.

14.1 Rendering establishments shall document a quality-management system that includes but is not limited to the following elements:

- a quality policy that states the management's commitment to produce rendered products that are safe for use as animal feeds and which comply with customer requirements;
- responsibilities of people who manage product quality;
- management review;
- internal audits;
- document control;
- training including induction of new employees;
- procedures for the hygienic production of rendered products. These procedures are prerequisite to developing a HACCP plan and are designed to control hazards to feed safety. They should include but are not limited to:
  - an approved supplier program;
  - procedures for collection of raw material that explain precautions taken to minimise contamination of raw material by foreign objects such as plastic and metal (these precautions include inspection of raw material and use of metal detectors6).
  - cleaning procedures that include but are not limited to methods of cleaning the wet and dry-processing areas of the rendering plant, a schedule of cleaning and inspection of cleanliness to verify the effectiveness of the cleaning procedures;
  - procedures for control of pests including birds, vermin and insects;
  - personnel hygiene procedures;

- movement of personnel and other traffic between defined areas of the plant;
- packaging, storage and labelling of products;
- calibration of measuring equipment;
- maintenance procedures;
- traceability of raw material and finished product including how raw material intake is recorded such that all raw material can be traced back to suppliers according to quantity and day of supply;
- recall procedure including mock recall;
- verification of procedures including sampling and testing for *Salmonella*;
- procedure for validating heat treatments or other processes including sampling and testing;
- procedures for compliance with applicable importing country requirements.

- work instructions for specific production procedures including but not limited to:
  - all critical control points identified in the HACCP plan;
  - operation of the heat treatment including size reduction equipment and render vessel/cooker and drier;
  - operation of tallow/liquid phase and solids separation equipment such as press and/or decanter;
  - operation of mill and milled meal screen;
  - bagging or bulk load-out of meals;
  - other operations as appropriate such as feather hydrolysing and blood coagulating.

14.2 The quality management system shall include a HACCP plan. The HACCP plan shall be prepared according to the guidelines for application of HACCP contained in the Codex Alimentarius code of practice: "*Recommended International Code of Practice General Principles of Food Hygiene*".

15 Microbiological testing program

Objective
Microbiological verification of HACCP. Protein meals are tested for *Salmonella* and corrective actions taken where required.

15.1 One sample of about 250g of each processed animal protein shall be collected on every production day. The samples shall be collected from load-outs or bagging operations. On production days when there is no load out or bagging, daily samples shall be collected from bulk storage.

15.2 The daily samples from one week's production shall be combined into a composite sample by taking equal amounts of each daily sample and mixing the portions of daily samples in a clean sealable bag or container. A weekly composite sample of about 250g of each processed animal protein shall be submitted to an approved laboratory and tested for the presence of *Salmonella* in 25g by an approved method.

15.3 When there is no production, the result of *Salmonella* testing shall be recorded as "No Production".

15.4 Laboratory reports of microbiological testing shall be maintained for examination by the approved auditor and the Controlling Authority. A record of all samples of processed animal protein submitted for testing shall be maintained. The record shall include the type of processed animal protein, the week-ending date that the samples represents, the corresponding laboratory report number and the result of the test. Test results and the record of samples shall be retained for a minimum of two years.

15.5 Where any sample is positive for *Salmonella* management shall:

- conduct an immediate review of hygiene procedures, including sampling procedures;
- Identify and eliminate the source of contamination;
- Implement and record corrective action.

15.6 If *Salmonella* is detected in three samples in any ten consecutive weekly samples of a processed animal protein, daily testing shall be initiated and continued until:

- *Salmonella* is not detected in samples collected on five consecutive days; and
- no more than two samples are positive for *Salmonella* in any of the ten consecutive daily samples.

15.7 If *Salmonella* is detected in three samples in any ten consecutive weekly samples of a processed animal protein, management shall notify the auditor.

15.8 When the criteria specified in 15.6 are achieved, management shall inform the auditor and may return to testing weekly composite samples. Previous detections of *Salmonella* are not carried forward when weekly testing recommences.

15.9 If the establishment fails to achieve the criteria set out in 15.6 within 60 days from the initial notification of exceeding the trigger for initiating daily testing, the ARA shall be notified and the ARA may suspend accreditation.

15.10 If accreditation is suspended, it may not be resumed until:

- a satisfactory audit has been conducted, and
- no more than two out of ten consecutive weekly samples are positive for *Salmonella*.

15.11 Accredited plants shall report annual results of *Salmonella* testing as requested by the ARA Executive Officer.

16 Staff and training

Objective
All processing staff shall understand the principles of hygienic processing and handling of rendered products.

16.1 An establishment shall employ in a supervisory role at least one member of staff who is accredited in hygienic production of rendered products.

16.2 At least one member of the HACCP team shall be accredited in hygienic production of rendered products.

16.3 All rendering production staff shall receive training on hygienic rendering practices to a competent standard. Records shall be kept of employee training.

16.4 Refresher training shall be provided to all staff that operate critical control points. The frequency and method of refresher training shall be documented in the training program.

16.5 Training shall include applicable importing country requirements.

16.6 The ARA Code of Practice and the Australian Standard for the Hygienic Rendering of Animal Products AS 5008 shall be available to staff in the rendering plant.

17 Accreditation and market access listing

The ARA accredits rendering establishments that comply with this Code and the Australian Standard for the Hygienic Rendering of Animal Products AS 5008.

In addition, the Department of Agriculture and Water Resources (DAWR) lists ARA accredited establishments for market access. Market access listings are available to accredited establishments that comply with specific market requirements. Listings are subject to audits of compliance with relevant market access requirements through the ARA Accreditation and Market Access Program.

Auditing, reporting and recommendations for accreditation and market access listings are managed by an independent certification body appointed by the ARA. The conditions of accreditation are documented in "*ARA Accreditation Program Rules*" available from the members section of the ARA web site http://ausrenderers.com.au/.