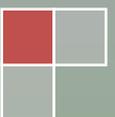


Environmental Guideline on Food Canning Industry



Department of Environment

The purpose of this environmental guideline is to provide guidance to prospective developers in the food canning industry on the basis of self-adherence and to assist Local Authorities at the Building and Land Use Permit stage.



1.0 Background

Food canning refers to the preservation of various types of food (pulses, fruits, vegetables, cheese, meat/poultry/fish and their derivatives through processing and sealing in airtight containers such as metal tins, cans, glass jars, laminate vacuum pouches amongst others.

Under Part VIII of the Food Regulations 1998, canned food is defined as “food in hermetically-sealed container which has been sufficiently heat-processed to destroy any *Clostridium botulinum* in the canned food which has a pH of less than 4.5;

Food processing increases the shelf life of food products which are changed into new or more convenient forms for consumption. The primary objective of food processing is the preservation of perishable foods in a stable form that can be stored and shipped to distant markets all year round. The canning process is to destroy any microorganisms in the food and prevent recontamination by microorganisms. Heat is the most common agent used to destroy microorganisms. Removal of oxygen can also be used in conjunction with other methods to prevent the growth of oxygen requiring microorganisms.

Canned food is usually in the form of paste, concentrates, sauce, juice, purée, jam, amongst others.

The food canning industry comprises the following processes, as applicable:

- sorting and grading
- washing, pasteurizing, boiling and blanching
- canning (filling and seaming)
- sterilization (use of heat or other methods)
- cooling
- labeling, packing and warehousing

A food canning industry is associated with environmental issues which relate to:-

- Site selection
- Solid wastes
- Wastewater
- Noise
- Housekeeping (Odour, flies rodents, pests and sanitary nuisances)
- Emissions
- Energy and water consumption

2.0 Objectives of the guideline

This guideline is meant to ensure that prospective developers:

- adopt appropriate mitigating measures.
- comply with provisions of relevant laws/ regulations/standards.
- adopt eco-friendly practices to optimize use of resources.

3.0 Applicable Legislation

Food canning industries do not warrant a Preliminary Environmental Report (PER) Approval or an Environmental Impact Assessment (EIA) Licence. They require, amongst others, a Building and Land Use Permit under the Local Government Act 2011. Food canning activities have to be carried out in accordance with the provisions under the Planning Policy Guidance and Outline Planning Scheme.

Note:

- 1) Any proposed development must comply with relevant provisions of the Local Government Act 2011, the Town and Country Planning Act 1954, the Building Control Act 2012, the Planning and Development Act 2004, as subsequently amended, the Food Act 1998 and all applicable guidelines and regulations.

- 2) *Any person carrying out a food canning activity as listed under the First Schedule of the Environment Protection (Industrial Waste Audit) Regulations 2008 shall conduct an Industrial Waste Audit and submit an Industrial Waste Audit Form to the Director of Environment.*

4.0 Location and Siting

- (i) Food canning industries should preferably be located in industrial areas.
- (ii) Food canning enterprises should not fall within any Environmentally Sensitive Area (ESA) and its prescribed buffer zone as per ESA Study 2009 such as wetland, steep slope and in areas that are likely to be affected by hazards such as inland flooding, landslide and storm surges, amongst others.
- (iii) On site wastewater disposal facility such as septic tanks and absorption pits/leaching fields shall be located not less than 30 m from any water course as per Rivers and Canals Act 1863.
- (iv) Existing natural drains and watercourses on or in the vicinity of the site shall not be tampered with.

5.0 Mitigation of Environmental Impacts

5.1 Solid waste management

Food canning activities may generate significant amount of solid wastes, including packaging wastes (plastic bottles, metal tins/cans, carton boxes), organic wastes and process by-products (rinds, seeds, peels, skin, fish spines, offals and bones), amongst others. These wastes require proper handling and disposal as they may give rise to sanitary nuisances such as odours and proliferation of flies, rodents and other pests.

Mitigating measures include:

- Domestic solid wastes should be collected in bins or waste handling receptacles and disposed of to the satisfaction of the Local Authority.
- Food wastes such as offals, skin, fish spines and bones should be stored in leak proof and airtight containers under chilled conditions until removal for disposal.
- Green wastes should be collected and stored separately from other solid wastes for eventual composting.
- Promotion of waste reduction (minimization of product loss), re-use (pet food from by-products) and recycling (carton boxes, plastic bottles).
- No waste of any type should be disposed of in any watercourse including drains, canals or in the surrounding environment.

5.2 Wastewater management

Wastewater generated in the food canning industry may contain suspended solids as well as brine, fats, oils, and greases which need to be disposed properly to avoid any form of sanitary nuisances.

Mitigating measures include:

- Provision of appropriate on-site waste disposal facility such as septic tanks and associated absorption pits/leaching fields as applicable or disposal to the satisfaction of the Wastewater Management Authority.
- Installation of grease traps or oil water separators for removal of floatable solids, as applicable.

Note:- *Maintenance of the grease trap or oil water separator is to be carried out by the owner / promoter.*

In case an industry is connected to the public sewer system or effecting carting away of its process effluents, as per the Wastewater (Standards for Discharge of Industrial Effluent into a wastewater system) Regulations 2004, the industry has to make an application to the Wastewater Management Authority for obtaining an Industrial Discharge Permit.

5.3 Noise abatement

Noise is generated from food canning industries, for example from conveyors, blanching operations among others. Noise can also be generated from electrical appliances, pumps, air extractors and electric motors. Necessary precautions shall be taken to ensure noise emitted from the enterprise is within permissible limits as per the Environmental Standards for Noise Regulations under the Environment Protection Act (EPA) which stipulates:-

Industrial Noise		Neighbourhood Noise	
Time	Noise exposure limits	Time	Noise exposure limits
07.00-21.00 hrs.	60 dB (A) L_{eq}	07.00-18.00 hrs.	60 dB (A) L_{eq}
21.00-07.00 hrs.	55 dB (A) L_{eq}	18.00-21.00 hrs.	55 dB (A) L_{eq}
		21.00-07.00 hrs.	50 dB (A) L_{eq}
A tonal character adjustment of +5 dB (A) should be applied to the measured value where the noise has a definite continuous note such as a whine or hiss.			

Mitigating measures include:

- Provision of appropriate noise attenuating materials/structures to abate noise generated from equipment such as electric appliances, pumps, conveyors and extractors.

5.4 Housekeeping (Odour, flies, rodents, pests and sanitary nuisances)

Poor housekeeping of food canning industries can result in proliferation of rodents, flies and pests as well as cause odour and sanitary nuisances. Odour may be released from boiling, blanching and other processes, as well as from decomposition of organic materials and solid wastes. Necessary precautionary measures should be taken to avoid any such nuisances.

Mitigating measures include:

- The premises shall be kept clean and tidy at all times with good housekeeping and proper ventilation.
- Provision of extractors and hoods to reduce odours from boiling and other cooking operations.
- Odour controlling equipment such as scrubber, activated carbon filter to be incorporated in the hood system to prevent odour nuisances.
- Installation of bait stations/traps to control pests and rodents.
- The building and facilities of the enterprise shall satisfy the sanitary requirements as per the provisions of the Food Act 1998.

5.5 Stack emissions

Certain food canning industries may have boilers which use fuel such as diesel. Burning of same releases atmospheric pollutants such as particulate matter, carbon dioxide, nitrogen oxide and sulphur dioxide which are associated with various environmental and health impacts. As such, gaseous emissions from boiler stacks shall be as per prescribed standards under the Environment Protection (Standards for Air) Regulations 1998.

Mitigation measures include:

- Use of cleaner fuels or technologies with maximum use of renewable energy resource.
- Use of air filters and stack height to be consistent with good engineering practices.

5.6 Other mitigating measures

- Necessary precautions should be taken to avoid disturbance to the neighbourhood by way of odour, dust, noise or traffic during construction and operation phase.
- Provision for adequate parking, loading and unloading facilities.
- Safe storage of materials on site and stored materials not unduly visible or intrusive in the street scene.
- Used cooking oil (as applicable) shall be collected and disposed of as per the provisions of the Environment Protection (Collection, storage, treatment, use and disposal of waste oil) Regulations 2006.
- Necessary bunded wall to be provided around any fuel storage tank.

5.7 Eco-friendly Measures and Sustainability

Prospective developers need to adopt best environment friendly practices such as use of cleaner fuel, renewable energy source (solar water heaters and photovoltaic cells), energy efficient appliances (fridges, chillers, ovens, Air Conditioners), energy-saving devices (LED lamps), climate and ozone-friendly products, waste segregation for recycling and composting, rain water harvesting for cleaning of site premises

Note:

- a. Relevant organizations need be consulted with regard to food hygiene, fire certification, occupational health and safety, traffic implications amongst others prior to embarking on the project to ensure compliance with their respective laws/regulations/standards.
- b. Non-compliance with standards for air and noise is an offence under the Environment Protection Act.

Copies of this guideline are available at the Department of Environment and on the website of the Ministry at <http://environment.govmu.org>; the government's portal at <http://www.govmu.org>, including the websites of Local Authorities.