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भारतीय मानक मसौदा

खाद्य तेल और वसा की प्रसंस्करण इकाइयों हेतू स्वास्थ्यकर संहिता

(आइ एस 14349 का पहला पुनरीक्षण)

Draft Indian Standard

**CODE FOR HYGIENIC CONDITIONS FOR PROCESSING UNITS OF
EDIBLE OILS AND FATS**

(First Revision of IS 14349)

ICS No. 67.200.10

Oils and Oilseeds Sectional Committee, FAD 13 **Last Date of Comments: 31 March 2025**

FOREWORD

(Formal clauses would be added later)

Consumers do not have the available knowledge or means of determining the hygienic quality of the food they purchase. For this, they rely on the hygienic standards of various industries that prepare and handle food materials. Unless the factory producing the food is governed by a strict hygienic code in respect of plant layout, and personnel, the quality of food produced cannot be considered as safe. These factors have been taken into consideration in the preparation of this code. This code is an adjunct to IS 2491 : 2013 'Code for hygienic conditions for food processing units (*third revision*)' and it covers requirements specific to the edible oil and fats.

This standard was first published in 1996. This first revision has been undertaken to update provisions regarding protection of building and site from rain water, slope for drainage, raw material handling, installation of equipment and employee hygiene. In this revision, the title and references have also been updated.

This standard is subject to the provisions in the *Factories Act, 1948* and *Food Safety and Standards Act, 2006* and the Rules thereunder. The basic principles of hygiene underlining the technical advice in this code should be applied by all the intended industrial units with essential modifications.

1 SCOPE

This standard prescribes the hygienic conditions required for establishing and maintaining manufacturing, packing or storage and also transportation facilities for edible oils and fats, and also for non-edible grade oils or fats which are meant to be processed for making edible oils and fats.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
IS 1172 : 1993	Code of basic requirements for water supply, drainage and sanitation (<i>fourth revision</i>)
IS 3103 : 1975	Code of practice for industrial ventilation (<i>first revision</i>)
IS 3646 (Part 1) : 1992	Code of practice for interior illumination: General requirements and recommendations for working interiors (<i>first revision</i>)
IS 10500 : 2012	Drinking Water – Specification (<i>second revision</i>)

3 SITE

Units for manufacturing, packing or storage of edible oils and fats shall preferably be situated in a clean and healthy surrounding away from vehicular traffic, dust and open sewage drains etc. It shall be free from sources of obnoxious fumes, smoke, odours or excessive dust or entry of surface run off of rain water from outside.

4 BUILDING

4.1 The structure shall be of permanent nature and shall be suitable in size, construction and design to facilitate maintenance and hygienic operations for processing purposes. It should provide sufficient space for housing of equipment and storage of materials (raw as well as finished products) as is necessary for hygienic operations. The material of construction shall be of brick, plaster, cement, concrete, tile or any other equivalent materials which ensure cleanliness.

4.1.1 Construction of the building shall be such that it shall be rodentproof, flyproof. Birdproof and rain proof.

4.2 No portion of building shall be used for domestic purposes or manufacture of non-edible oil or processing of by-products such as spent bleaching earth, soaps, fatty acids, unless separated by suitable partitions or locations or other effective means so as to avoid contamination of the product with micro-organisms, odour, chemicals, filth or other foreign material.

4.3 Ventilation and Lighting

The premises shall be adequately lighted and ventilated. Ventilation and lighting shall also be in accordance with the *Factories Act, 1948* [see IS 3103 and IS 3646 (Part 1)]. Exhaust fans shall be provided where necessary. Attention shall be given to provide proper ventilation to the equipment producing excessive heat, steam, vapours and gases.

4.4 Floor

The floor shall not be slippery. It shall be washable, properly sloped to gullies connected to sewers or drains. It shall be impervious to water and not affected by weak acids, alkalis or steam. Cemented floor shall be made for work rooms, store rooms and godowns/warehouse.

4.5 Walls and Ceilings

4.5.1 Internal walls and ceilings shall have smooth, non-absorbent light-coloured surface, free from crevices and sharp angles, to facilitate their efficient cleaning. The junction of the floor with the walls and the junction between the two walls should be rounded to prevent accumulation of dust and to facilitate easy cleaning.

4.5.2 The walls of the premises shall be oil painted or painted in such a way that washing can be done easily, upto a height of two metres above the floor (except in the case of finishes with glazed tiles) and the rest of the wall and ceiling being painted with suitable non peeling material.

4.6 Repairs

The building shall be maintained in a proper state of repair and cleanliness at all times. Whenever required, it may be lime washed, painted, disinfected, disinfested and deodorized.

4.7 Drainage

Effective drainage should be provided to drain off a large quantity of water used for washing the raw material, machinery, equipment, furniture, floor, etc. Half circular drains with glazed pipe at the bottom with diameter between 15 to 30 cm, shall be provided for this. The slope of the floor shall be towards the drain and all the areas are accessible to easy and effective cleaning. The drain openings shall be provided with screen traps to prevent solid matter from clogging the drains. The ends of the drains leading to the outside of the factory shall be made rodent proof by providing screens. The screens shall be examined periodically and replaced, if necessary. The drains should have water seals of minimum 5 cm diameter. At least 50 percent of the length of the drain should be covered to facilitate the movement of trolleys. Mesh type cover for the drain should be better to prevent habitation of cockroaches and rodents in closed areas of the drain. The slope of the drain to be made in direction from high risk to low risk zones.

4.8. Waste disposal

4.8.1 Waste storage shall be located in such manner that it does not contaminate the food process, storage areas, the environment inside and outside the food establishment and waste shall be kept in covered containers and shall be removed at regular intervals.

4.8.2 Periodic disposal of the refuse / waste should be made compulsory. No waste shall be kept open inside the premises and shall be disposed of in an appropriate manner as per local rules and regulations including those for plastics and other non-biodegradable materials.

5. RAW MATERIAL HANDLING

5.1 The raw material to be accepted for processing shall not contain decomposed toxic or extraneous substances which cannot be removed to acceptable levels during processing.

5.2 The raw material storage tanks shall preferably be in cylindrical in shape, installed vertical or horizontal, made of stainless steel and protected from extraneous contaminants or pollutants. Sediments shall be cleared at least once in six months or whenever the type of material is changed. Each such storage tanks shall be labelled in bold capital letters as to the type of oil it holds. (Eg; refined oil, raw oil, raw grade oil-not meant for direct human consumption, etc.)

5.3 The packaging materials storage area shall be protected from rodents, dust and other extraneous contamination and rain water damage.

5.4 Quality standards of raw materials, processing chemicals/aids and also packaging materials shall comply with the standards under appropriate Regulations under *Food Safety and Standards Act, 2006* and also BIS, whichever is applicable.

6 FACTORY AND PROCESSING HYGIENE

6.1 All the floors in a unit manufacturing, processing or storing edible oils or fats, shall be cleaned at least once in a day, or more frequently to ensure general cleanliness.

6.2 Waste and rubbish shall be collected in covered receptacles and shall not be allowed to scatter on the floor of the unit. It should be disposed of in a manner which is not detrimental to the hygiene of the surroundings after its disposal.

6.3 Adequate measures shall be taken to prevent mould growth on equipment and internal structures of processing and storage rooms. Adequate steps shall be taken to prevent infestation by cockroaches and other household pests.

6.4 When pesticides are used in the plant and premises, due care shall be exercised to prevent entry of such materials inside the processing vessels, pipelines, final products, materials in process, raw materials and packing materials. Under no circumstances shall these be used during processing.

6.5 The process room shall not be used or converted to a store room for raw materials or cleaning powders or detergents. Only the item required for processing on a particular day shall be kept in the processing room.

6.6 The place where raw materials are stored shall be separate from the processing premises and shall be free from dampness. The plant and machinery used for processing inedible materials and inedible by-products shall be totally separated from the plant and machinery used to process edible oils and fats.

6.7 Accumulation of cotton waste, oil soaked gunny bags, spent bleaching earth and spent catalyst shall be isolated away from the processing and finished product filling and storage rooms.

6.8 Fire hazard of seeds and cake storage, filter-aid and spent catalyst should be identified and necessary precautions shall be taken for preventing fire accidents in the unit. Enough numbers of fire extinguishers should be installed, numbered and the validity of each unit be marked on it, apart from keeping a record of such fire extinguishers.

6.9 The factory effluents shall be disposed of from the factory in a manner which is not detrimental to the hygiene of the factory and its surroundings. It is essential to suitably treat the polluted effluents before final disposal in accordance with the current pollution control rules and regulations.

6.10 Floors and drains shall be kept clean. The drains shall be made *pucca* with proper slope and be swept and washed periodically in order to keep them free from any deposits. Such deposits may provide suitable substrate for fast growth of micro-organisms.

6.11 There shall be an adequate supply of safe and potable water. The storage tank for water shall, unless completely sealed, be kept covered with tight fitting lids, examined and cleaned regularly.

6.12 Proper places shall be provided for storage of brooms, brushes, buckets and other cleaning gears.

6.13 Window glass and light fittings shall be maintained clean and dust-free at all times.

6.14 There shall be no cobwebs in any part of the unit. Birds and domestic animals shall not be allowed in any part of the unit.

6.15 No lavatory, sink, cesspool or garbage collection points should be located away from the processing and packaging divisions. Hand-washing facilities must be provided for the workers along with liquid soaps and disposable napkins or hand driers

7 SPECIAL HYGIENE MEASURES FOR FILLING AND PACKING SECTION

7.1 The doors and windows shall be such that they would not allow entry of flies or any other type of crawling insects and birds. The doors may be preferable double doors or doors with efficient door-closers. The windows and ventilators may be provided with wire-netting.

7.2 Flooring of the packing section shall be kept clean and dry.

7.3 Eating, spitting, nose clean-ups, use of tobacco by the employees shall be prohibited and a notice to this effect shall be displayed.

7.4 The staff employed in the packaging section must wear head gears, face masks and hand gloves. The personnel in the packaging division should adhere to all personal hygienity conforming to Schedule 4 of '*Food Safety and Standards (Licensing and Registration) Regulations, 2011*' also.

7.5 The packaging machines shall be calibrated periodically as per Regulations enforced by the Legal Metrology Department. A record of such calibrations shall be maintained in the packing division. Legal Metrology Rules and Regulations may be followed for calculating *Standard Deviation* in the quantity being packed.

7.6 The packing materials and the on-line printing ink shall comply with their corresponding Indian Standards.

8 PLANT AND EQUIPMENT HYGIENE

8.1 Materials for Equipment

8.1.1 All the equipment shall be made of impervious, corrosion free material such as mild steel, stainless steel, galvanized iron, epoxy coated food grade plastic which do not impart any toxicity to the food material. Direct food contact surfaces of equipment shall be made of food grade material and shall be easy to clean and located, designed and fabricated in such a way to permit necessary maintenance and periodic cleaning.

8.1.2 All surfaces coming in contact with the oil/finished product shall be smooth, free from pits, crevices and loose scales and shall be non-absorbent. Besides surfaces shall be non-toxic and unaffected by the edible oils and the cleaning chemicals.

8.1.3 Galvanized sheets shall not be used at places where these come in contact with edible oils/fats.

8.1.4 Cadmium and lead shall not be used where they may come in contact with any edible oils/fats.

8.1.5 All gasketing and packing materials shall be non-porous, non-absorbent and fitted in a manner such that stagnation of material between the gasketed joints is avoided and proper cleaning is possible.

8.1.6 All openings such as inlets, outlets, draining out points, etc. should be made such that they can be locked and/or effectively sealed to avoid any cross contamination.”

8.2 Installation of Equipment

8.2.1 All equipment shall be installed in a foundation of durable and easily cleanable material.

8.2.2 Whenever an equipment is installed, care must be taken to give sufficient clearance to permit inspection, cleaning and maintenance.

8.2.3 All electrical connections, such as switch boxes, control boxes, conduit cables shall be installed in such a way as to facilitate proper cleaning, or be completely sealed to the equipment or wall.

8.2.4 The entire processing system shall be cleaned periodically to use.

8.2.5 Contaminating stores and spare parts of machinery shall be kept separate from the processing area.

8.2.6 Suitable bag filters or polish filters to be installed before packing of the final product to eliminate particulate matter like dust, sands, metal pieces etc.

9 WATER SUPPLY

9.1 There shall be an adequate supply of water (*see* IS 10500). Running water under pressure shall be easily accessible to all rooms and areas in which food is handled and equipment are washed.

9.2 The equipment shall be so installed and used that back siphonage of liquid into the potable water lines is precluded.

9.3 Hot and cold water in ample supply shall be provided for plant clean-up needs, where necessary.

9.4 The storage tanks for water should, unless completely sealed, be kept covered with tight-fitting lids, examined regularly, and cleaned out at least once every six months. The date of the last cleaning and of the next cleaning shall be prominently displayed on the storage tanks.

9.5 Water shall be periodically examined as desired by the Licensing Authority, chemically and bacteriologically. A record of such examination shall be maintained.

10 EMPLOYEE'S HEALTH AND HYGIENE

10.1 Every person employed in the manufacturing, processing, storage, transportation, and packing of edible oils and fats, shall be medically examined by an authorized registered medical practitioner at least once in a year to ensure that no employee is suffering from any infection, contagious or communicable disease. A record of such examination shall be maintained by the administration.

10.2 All the staff working on the operational floor must be compulsorily inoculated against enteric group of diseases, and a record to that effect shall be kept.

Employees shall keep their finger nails short and clean and wash their hands with soap or detergent and water before commencing work and after each absence, especially after using sanitary conveniences. Towels used for drying hands should be clean. No worker shall allow his hands or any part of his body or clothing to come in contact with the food. He should adopt strict hygienic practices so as to avoid adding any microbial contamination to the material.

10.3 All employees shall be inoculated and vaccinated against the enteric groups of diseases once a year. In case of an epidemic, all workers shall be inoculated. A record shall be maintained

10.4 No worker shall be allowed to work without proper clothing and foot wear. Employees shall be provided with clean uniforms (preferably white) or aprons or both and clean washable caps, where necessary. Such uniforms are to be worn by employees only inside the plant.

10.5 Separate rooms for changing clothes and for personal conveniences shall be provided for gents and ladies. No clothes shall be hung in any processing room.

10.6 Eating, smoking, spitting, nose cleaning or the use of tobacco in any form or chewing betel leaves shall be prohibited within the manufacturing, packing and storage area of the unit. Notice to this effect shall be displayed at prominent places inside the premises and enforced.

10.7 Sufficient and suitable sanitary conveniences shall be provided, maintained and kept clean in every factory. Number of toilets and washrooms shall be in proportion to the staff strength in the unit. The conveniences shall be properly lighted and ventilated. Separate conveniences shall be provided for each gender. No convenience shall open directly into any work-room in the factory.

10.8 Sufficient number of wash basins with adequate provision of nail brushes, soap and towels, latrines, and urinals in the prescribed manner should be provided, conveniently situated and accessible to workers at all times while they are at the factory (see *also* Table 3 of IS 1172). The wash basins shall be installed in or alongside the sanitary conveniences.