

Joint FAO/WHO Food Standards Programme  
CODEX ALIMENTARIUS COMMISSION

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CODEX ALIMENTARIUS  
VOLUME XV

CODEX GENERAL STANDARD FOR  
IRRADIATED FOODS  
AND  
RECOMMENDED INTERNATIONAL  
CODE OF PRACTICE FOR THE  
OPERATION OF RADIATION  
FACILITIES USED FOR THE  
TREATMENT OF FOODS

FIRST EDITION

FOOD AND AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS  
WORLD HEALTH ORGANISATION  
Rome, 1984

Table 1: IRRADIATION CLASSES OF FOODSTUFFS

FOODSTUFF CLASS AND PURPOSE OF IRRADIATION	APPLICATION PROCEDURES
<p>CLASS 1: BULBS, ROOTS, TUBERS</p> <p><i>Purpose of treatment:</i> To inhibit sprouting during storage</p>	<p>Once only application from foodstuff owner per single food irradiation installation.</p>
<p>CLASS 2: FRESH FRUITS AND VEGETABLES (OTHER THAN CLASS 1)</p> <p><i>Purpose of treatment:</i> a) To delay ripening b) Insect disinfestations c) Shelf-life extension</p>	<p>Once only application from foodstuff owner per single food irradiation installation and per purpose of treatment.</p>
<p>CLASS 3: CEREALS, MILLED CEREAL PRODUCTS, NUTS, OILSEEDS, PULSES, DRIED VEGETABLES, DRIED FRUITS and SUGAR</p> <p><i>Purpose of treatment</i> a) Insect disinfestations b) Bacterial contamination</p>	<p>Once only application from foodstuff owner per single food irradiation installation.</p>
<p>CLASS 4 - RAW FISH AND SEAFOOD AND THEIR PRODUCTS (FRESH OR FROZEN) FROZEN FROG LEGS</p> <p><i>Purpose of treatment</i> a) Reduction of certain pathogenic micro –organisms b) Shelf-life extension c) Control of infection by parasites</p>	<p>Every request from foodstuff owner for every purpose of treatment and every single food irradiating installation with justification for the minimum absorbed dose.</p>
<p>CLASS 5 - RAW POULTRY AND MEAT AND THEIR PRODUCTS (FRESH AND FROZEN)</p> <p><i>Purpose of treatment</i> a) Reduction of certain pathogenic micro-organisms b) Shelf-life extension c) Control of infection by parasites</p>	<p>Every request from foodstuff owner for every purpose of treatment and every single food irradiating installation with justification for the minimum absorbed dose.</p>
<p>CLASS 6 - DRY VEGETABLES, SPICES, DRY HERBS AND</p>	

<p style="text-align: center;"><b>HERBAL TEAS</b></p> <p><b><i>Purpose of treatment:</i></b>  a) Reduction of certain pathogenic micro - organisms  b) Insect disinfestations</p>	<p>Once only application from foodstuff owner per single food irradiation installation and per purpose of treatment.</p>
<p style="text-align: center;"><b>CLASS 7 – DRIED FOOD OF ANIMAL ORIGIN</b></p> <p><b><i>Purpose of treatment</i></b>  Insect disinfestations</p>	<p>Once only application from foodstuff owner per single food irradiation installation.</p>
<p style="text-align: center;"><b>CLASS 8 – HIGH DOSE TREATMENT OF MEAT MEALS</b></p> <p><b><i>Purpose of treatment</i></b>  Shelf stable</p>	<p>Once only application from foodstuff owner per single food irradiation installation.</p>
<p style="text-align: center;"><b>CLASS 9 – SPECIAL PHYTO SANITARY REQUIREMENTS</b></p> <p><i>Phyto-sanitary</i>  Honey / garlic</p>	<p>Every application from every foodstuff owner for every food irradiating installation. Requirements of the National Department of Agriculture.</p>
<p style="text-align: center;"><b>CLASS 10 – INTEGRATED COMBINATION PROCESSES</b></p> <p><b><i>Purpose of treatment:</i></b>  a) Irradiated food plus additional treatment where irradiation does not sterilize completely.  b) Special microbiological concerns and where radiation does not sterilize completely.  c) Radiated outside South Africa</p>	<p>Every new application from the foodstuff owner at every food irradiation installation and every purpose</p>
<p style="text-align: center;"><b>CLASS 11 – IMPORTED FOODSTUFFS WITH NO SPECIAL PHYTO-SANITARY REQUIREMENTS</b></p> <p>a) Radiated outside South Africa</p>	<p>Every consignment.</p>



**TABLE 3: CHECKLIST FOR MONITORING OF IRRADIATION FACILITY AND PREMISES OF FOOD OWNER BY ENVIRONMENTAL HEALTH PRACTITIONERS**

**To be faxed to:**

The Director: Food Control  
**Department of Health**  
 Private Bag X828  
 PRETORIA 0001  
 Fax: 012 312 3162

**Enquiries to:**

Ms F Makhoane  
 Tel: 012 312 0158  
 e-mail: [makhof@health.go.za](mailto:makhof@health.go.za)

<b>DETAILS OF INSPECTING OFFICER AND PREMISES</b>	
<b>Name of the irradiation facility</b>	
<b>Name of person in charge of the facility</b>	
<b>Name of monitoring officer (EHP)</b>	
<b>Name of responsible Local Authority</b>	
<b>Postal address of the Local Authority</b>	
<b>Telephone Number</b>	
<b>Fax number</b>	
<b>E-mail address</b>	
<b>ITEMS TO BE CHECKED</b>	<b>DETAILS/COMMENTS</b>
<b>1. Is the certificate of acceptability still valid</b>	<b>YES/NO</b> (if no provide reasons why)
<b>2. Number of approvals granted for irradiation since last visit</b>	(provide total number)
<b>3. List of food products for which approvals were granted since the last visit</b>	(give only the type, e.g fresh garlic, crushed garlic, honey, spices)
<b>4. Is it possible to trace food products irradiated/to be irradiated on this day to product owner(s)</b>	<b>YES/NO</b> (if no request written explanation from the person in charge)

<p><b>5. Are standard operating procedures still being adhered to. You will need to walk through the premises to determine this.</b></p>	<p><b>YES/NO</b> (if no request written explanation from the person in charge)</p>
<p><b>6. On this visit is the packaging of all food products to be irradiated in good condition (i.e not broken or torn)</b></p>	<p><b>YES/NO</b> (if no request written explanation from the person in charge)</p>
<p><b>7. Is the separation between un-irradiated and irradiated food products still intact and provides good separation</b></p>	<p><b>YES/NO</b> (if no request written explanation from the person in charge)</p>
<p><b>8. Is it easy to spot irradiated products and distinguish them from un-irradiated products</b></p>	<p><b>YES/NO</b> (if yes, describe method used for quick visual identification of irradiated products)</p>
<p><b>9. Any other comments</b></p>	
<p><b>Signature of the EHP conducting the inspection: Date:</b></p>	<p><b>Signature of the person in charge: Date:</b></p>

## LABELLING REGULATIONS WITH ANNEX 5 OF THE REGULATIONS

**Irradiation**

{ }3.(28)(a)(i) All containers of irradiated *foodstuffs* shall be unambiguously *labelled* with the internationally recognized “Radura” emblem in accordance with the specifications in Annex 5 together with one of the following words: “Irradiated” or “Radurised”, “Bestraal” or “Geraduriseerd” directly below the emblem.

{ }3.(28)(a)(ii) Where bulk containers of irradiated *foodstuffs* are opened at the point of sale in such a manner that thereafter the statement that the *foodstuff* has been irradiated is obscured from the consumer’s view a notice with the information prescribed in subparagraph 3.(28)(a)(i) shall be displayed in immediate proximity to such a *foodstuff* and in clear view of the purchaser.

{ }3.(28)(b)(i) In the case of *foodstuffs* containing an irradiated component(s) in more than 10% of the mass of the finished product, the words “irradiated” or “Radurised”, “Bestraal” or “Geraduriseerd” shall appear opposite the relevant component(s) in the list of ingredients on the *label* and the internationally recognized “Radura” emblem may be omitted.

{ }3.(28)(b)(ii) Where *foodstuffs* containing an irradiated component(s) in more than 10% of the mass of the finished product, are presented for sale in such a manner that the consumer can no longer see that the *foodstuff* contains an irradiated component(s), a notice with the information prescribed in paragraph 3.(28)(a) shall be displayed in immediate proximity to such a *foodstuff* and in clear view of the purchaser.

{ }3.(28)(c) The producer of an irradiated *foodstuff* may, in addition to the *labelling* requirements, indicate the purpose of irradiation of such *foodstuff*, e.g.:

“IRRADIATED FOR PURPOSES OF INSECT CONTROL”

## ANNEX 5

The internationally recognised Radura emblem together with the words “Irradiated” or “Radurised” directly below it in the form of either of the facsimiles hereunder shall be displayed in a conspicuous place on the bulk container of irradiated products. The emblem shall be clearly visible and the letters clearly legible.

**Specification**

1. Emblem and qualifying words “Irradiated” or “Radurised” shall be printed in bold print against a contrasting background, clearly visible, easily legible and indelible and the legibility shall not be affected by pictorial or any other printed matter.
2. The minimum outer circle diameter of the emblem shall be 10 mm except in the case of a *package* of which the area of the main panel is less than 12 000 mm<sup>2</sup> where the size of the emblem may be reduced in the proportions prescribed in regulation 2.(8)(b)(i).
3. The emblem shall be constructed as indicated in Facsimile 3 with relative sizes and indicated by “A”.
4. The letters of qualifying words shall be of uniform size throughout and of the same relative size as indicated by “A”.

## ANNEX F

### APPLICATION FOR THE RADIATION OF A FOODSTUFF IN TERMS OF THE REGULATION GOVERNING IRRADIATED FOODSTUFFS (R1600 OF 22 JULY 1993)

Application to be submitted to:

The Director: Food Control  
Department of Health  
Private Bag X828  
PRETORIA 0001

Tel: 012 312 0161  
Fax: 012 312 3162  
E-mail :fouriy@health.gov.za  
[www.gov.za](http://www.gov.za) (Pharmaceutical Policy and  
Planning – Food Control)

For Attention: Food Irradiation

A To be completed by the food owner (food manufacturer):

DETAILS	SECTION TO BE COMPLETED
Name of Applicant	
Physical address of Applicant	
Postal address of Applicant	
Telephone number(s)	
Facsimile number:	
Email address:	
Name of contact Person:	
Name of Foodstuff:	
Foodstuff Class:	
Purpose of irradiation:	
Copy of Phyto Sanitary Permit in case of Class 9	
Proposed Minimum Dose	
Proposed Maximum Dose where applicable	
Signature of Manager	
Date	
Copy of Certificate of Acceptability	

B To be completed by the Manager of the Food Irradiation Installation.

DETAILS	SECTION TO BE COMPLETED
Name of Food Irradiation Installation	
Foodstuff to be irradiated	
Contact name	
Name of manager	
Signature of manager	
Date	

**FOR CONDITIONS, PLEASE CONSULT THE FOODSTUFFS, COSMETICS AND DISINFECTANTS ACT, 1972 (ACT NO. 54 OF 1972), THE REGULATIONS GOVERNING IRRADIATED FOODSTUFFS (R1600 OF 22 JULY 1993), THE REGULATIONS GOVERNING THE LABELLING AND ADVERTISING OF FOODSTUFFS (R2F034 OF 29 OCTOBER 1993) AND THE GUIDELINES FOR MONITORING IRRADIATED FOODSTUFFS IN SOUTH AFRICA**

(On official letterhead of government only)

ANNEX G

Approval number:

**FOODSTUFFS, COSMETICS AND DISINFECTANTS ACT, 1972  
(ACT 54 OF 1972): APPLICATION FOR THE UNLIMITED SALE  
OF IRRADIATED FOODSTUFFS**

Your application dated ..... refers.

Pursuant to Government Notice No. R.1600 of 22 July 1983, promulgated under section 15(1) of the Foodstuffs, Cosmetics and disinfectants Act (Act 54 of 1972), approval is granted to:

Foodstuff owner (Name and address): .....  
to sell the foodstuff.....; irradiation Class.....

**The approval is subject to the strict adherence to the following conditions:**

1. The radiation shall be performed in the facility of .....
2. The purpose for the irradiation of the foodstuff is .....
3. The foodstuffs must comply with all the provisions of the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act 54 of 1972), both before and after radiation.
4. Premises from which food is manufacture and prepared must comply with relevant provisions of the Health Act, (Act No. 63 of 1977).
5. Irradiation shall be conducted as described in the Guidelines for Monitoring Irradiated Foodstuffs in South Africa
6. The ..... must be irradiated at a D-min of at least ..... kGy
7. The D-max shall not be more than.....kGy (where necessary).
8. Additional conditions as deemed necessary (see attached).
9. Labelling:  
All packages must be labelled as depicted by sub regulation 3.(28) of the Regulations governing the Labelling and Advertising of Foodstuffs (GN. No. R.2034 of 29 October 1993), promulgated under the Act.

(Please consult the government website: [www.gov.za](http://www.gov.za) under Department of Health, Pharmaceutical Policy and Planning, Directorate: Food Control)

**DIRECTOR-GENERAL  
DATE:**

**TABLE 2: CHECKLIST FOR MONITORING BY NATIONAL DEPARTMENT OF HEALTH**

ITEMS TO BE CHECKED		RESPONSIBLE AUTHORITY	
Owner of irradiating facility		N	
Licence to operate an irradiation facility		RC	
Permission to irradiate food		FC	
Management: Line of command		N	
Personnel:	Qualifications	N	
	Experience	N	
	In house training	N	
Safety	Occupational	RC	
	Radiation	RC	
Facility Log book	Name of product	N	
	Log book record number (Batch/lot/consignment identified by a unique reference number)	N	
	Owner/Address of product	FC	
	Requested dose	N	
	Measured dose	N	
	Dose measurement reference number	N	
	Date and time of treatment	N	
	Special observations including any deviation from standard operation	N	
	Signature of personnel in charge (operator, dose measurer, loader)	N	
Dosimetry		N	
Dose distribution mapping	Dummy product (run/product itself)		
	Routine dose measurement vs reference position	N	
	Dose pattern	Geometry (arrangement of product relative to the source, density and geometric shape of goods, kinds and composition of the goods)	N
		Loading pattern (conveyor, trays, carriers, pallets, tote boxes)	N
Operation mode (inner/outer rail, repeated passes, turning of packages before second pass)		N	
Dosimetry	Calibration of dose metre (product equivalence / type of radiation)	N	

Dose meter selection	Trace ability (unbroken chain / national of international standard)	
	Calibration (dose measurement instruments)	
	Maintenance of dose (measurement instrumentation)	
	Storage of dose metre stocks	
Actual dose measurements	Reference number of dose metres	N
	Raw data	
	Correction of raw data (thickness, temperature, outliers)	
	Conversion of raw data into dose values (calibration curve, statistical properties of data)	
Monitoring of approvals		FC

**FC**    **Food Control**  
**N**     **Both Food Control and Radiation Control**  
**RC**    **Radiation Control**

**LIST OF FOOD IRRADIATION FACILITIES IN SOUTH AFRICA AND THE  
LOCAL AUTHORITIES IN WHOSE AREA OF JURISDICTION THE FACILITIES  
ARE LOCATED**

**HEPRO CAPE (PTY) LTD**

CONTACT: CHERIN BALT  
POSTAL ADDRESS: 6 FERRULE AVENUE  
MONTAGUE GARDENS  
CAPE TOWN  
8001

TEL: (021) 555-8880  
FAX: (021) 551-1766  
[hepro@iafrica.com](mailto:hepro@iafrica.com)

**RELEVANT PROVINCIAL OFFICE**

CONTACT: MR E BONZET  
POSTAL ADDRESS: PORT HEALTH OFFICE  
WESTERN CAPE PROVINCE  
P O BOX 6489  
ROGGEBAAI  
8012

TEL: (021) 421 1124  
FAX: (021) 418 5685  
[importctn@xsinet.co.za](mailto:importctn@xsinet.co.za)

**RELEVANT LOCAL AUTHORITY**

CONTACT : MR L CILLIE  
POSTAL ADDRESS : BLOUBERG ADMINISTRATION  
CITY OF CAPE TOWN  
P O BOX 35  
MILNERTON  
7441

TEL: (021) 550 7521  
FAX: (021) 550 7537  
[leon.cillie@capetown.gov.za](mailto:leon.cillie@capetown.gov.za)

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**ISOTRON (PTY) LTD**

CONTACT: MR G C V VON KETELHODT  
POSTAL ADDRESS: P O BOX 3219  
KEMPTON PARK  
1620

TEL: (011) 974-8851  
FAX: (011) 974-8986  
[g.von.ketelhodt@gammaster.co.za](mailto:g.von.ketelhodt@gammaster.co.za)

**RELEVANT PROVINCIAL OFFICE**

CONTACT : MR ALBERT MARUMO  
POSTAL ADDRESS : ENVIRONMENTAL HEALTH SERVICES  
GAUTENG PROVINCIAL HEALTH  
PRIVATE BAG X62302  
MARSHALLTOWN  
2107

TEL : (011) 355 3478  
FAX : (011) 355 3381

**RELEVANT LOCAL AUTHORITY**

CONTACT : MR J CHAKA  
ADDRESS : EKURHULENI METROPOLITAN MUNICIPALITY  
LEVEL 6 ALBERTON CIVIC CENTRE  
ALWAYN TALJAARD STREET  
ALBERTON

TEL : (011) 861 2269  
FAX : (011) 861 8835  
[jerryc@ekurhuleni.com](mailto:jerryc@ekurhuleni.com)

CONTACT : MR B COETZEE  
POSTAL ADDRESS : ENVIRONMENTAL HEALTH SERVICES  
NORTHERN SERVICE DELIVERY REGION  
EKURHULENI METROPOLITAN MUNICIPALITY  
P O BOX 13  
KEMPTON PARK  
1620

TEL : (011) 921 2443/2475  
FAX : (011) 394 0396  
[Braamc@ekurhuleni.com](mailto:Braamc@ekurhuleni.com)

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**GAMWAVE (PTY) LTD**

CONTACT: MR D T GOVE  
POSTAL ADDRESS: P O BOX 26406  
ISIPINGO BEACH  
4115  
PHYSICAL ADDRESS: 19 AVENUE EAST  
ISIPINGO BEACH

TEL: (031) 902 8890  
FAX: (031) 912 1704  
[Dale.gove@robertsons.co.za](mailto:Dale.gove@robertsons.co.za)

**RELEVANT PROVINCIAL OFFICE**

CONTACT: MS AP HARGREAVES  
POSTAL ADDRESS: PROVINCE OF KWASULU-NATAL HEALTH SERVICES  
PORT HEALTH SERVICES  
P O BOX 49454  
EAST END, DURBAN  
4018

TEL: (031) 337 2736/7/8  
FAX: (031) 332 0934  
[h001539@dohho.kzntl.gov.za](mailto:h001539@dohho.kzntl.gov.za)

**RELEVANT LOCAL AUTHORITY**

CONTACT: MS L NGUBANE  
POSTAL ADDRESS: ETHEKWINI MUNICIPALITY  
ENVIRONMENTAL HEALTH  
SOUTH OPERATING ENTITY  
P O BOX 26  
AMANZIMTOTI  
4125  
MR E NUNDEEKASEN

TEL: (031) 913 4587/913 4587  
FAX: (031) 903 1720  
[southhealth@durban.gov.za](mailto:southhealth@durban.gov.za)

**PACKAGING MATERIALS APPROVED FOR USE IN THE IRRADIATION OF  
PREPACKAGED FOODS (SPICES AND CONDIMENTS)**

<i>Material</i>	<i>Maximum overall average dose (kGy)</i>
Hessain sacks	10
Woven polypropylene sacks	10
Multiply paper sacks	10
Multiply paper sacks with polyethylene lining	10
Polyethylene coated multiply paper sacks	10
Cardboard cartons with polyethylene liners	10
Cardboard kegs	10

**(Adapted from UK requirements)**