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**Packaging of pesticides — Requirements**

**Part 1: Solid pesticides**

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## Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 565-1 was prepared by Technical Committee RSB/TC 064, *Pesticides*.

In the preparation of this standard, reference was made to the following standard:

IS 8190-1: Requirements for packing of pesticides — Part 1: Solid pesticides

The assistance derived from the above source is hereby acknowledged with thanks.

DRS 565 consists of the following parts, under the general title *Packaging of pesticides — Requirements*:

- *Part 1: Solid pesticides*
- *Part 2: Liquid pesticides*
- *Part 3: Household pesticides*
- *Part 4: Fumigants*

## Committee membership

The following organizations were represented on the Technical Committee on *Agrochemicals* (RSB/TC 007) in the preparation of this standard.

Rwanda Forensic Laboratory

Rwanda Agriculture and Animal Resources Development Board

Rwanda Inspectorate, Competition and Consumer Protection Authority

University of Rwanda/College of Sciences and Technology

Rwanda Housing Authority

Rwanda Food and Drugs Authority

Rwanda Standards Board (RSB) – Secretariat

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## Packaging of pesticides — Requirements — Part 1: Solid pesticides

### 1 Scope

This Draft Rwanda Standard gives the requirements for packaging of solid pesticides.

It does not cover the packaging requirements for solid pesticides meant for household use (DRS 565-3) and fumigants (DRS 565-4).

### 2 Normative references

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.

RS 406, *Pesticides — Terminology*

RS EAS 865, *Corrugated fibre board boxes for general packaging — Specification*

### 3 Terms and definitions

For the purposes of this standard, the terms and definitions given in RS 406 apply.

### 4 General requirements

4.1 The solid pesticides, technical and their formulations, shall be packaged in containers in the quantities of 50 g, 100 g, 250 g, 500 g, 1 kg, 5 kg, 10 kg, 20 kg, 25 kg and 50 kg each. Further technical grade pesticides meant for bulk consumption may also be packaged in containers in the quantities of 100 kg and 200 kg each. Formulated granules can also be packaged in containers in the quantity of 2 kg each. Any other quantity per pack specified in Tables 1 to 4 is in addition to the quantity per package specified above.

4.2 Retail package up to 1 kg shall be further packaged in corrugated fibreboard boxes complying with the requirements of RS EAS 865.

4.3 The high density polyethylene (HDPE) used in the fabrication of HDPE container or its components shall be of designation HDPE 43BA, 42BA or 42BB having melt flow index not more than 1.8 g/10 minutes.

4.4 Containers made of mild steel and tinplate shall be painted/lacquered externally to prevent rusting if not lithographed. If lithographed, top and bottom components shall be lacquered externally.

4.5 Heat-sealing of the containers and machine stitching of the bags (see 4.7) shall be such that no material comes out from the seams/seals during normal handling.

4.6 Closure, wherever provided, shall be leak-proof and temper-proof. The stitching thread of the bags shall be sealed with the metal seal at both ends or the temperproofness.

4.7 Double hessian jute bags DW tarpaulin laminated jute bags, HDPE woven sacks and HDPE woven bags, used for packaging pesticides, wherever allowed, shall be provided with an internal loose LDPE liner of thickness not less than 0.062 mm and in the form of tubular sheath, bottom sealed. Alternatively, loose liner may also be of HM-HDPE of thickness not less than 0.031 mm, wherever expressly specified so in Tables 1 to 4. The length and breadth of the loose liner shall be 10 % and 5 % more respectively than those of outer bag.

4.8 For the individual package of 5 kg and above in case of encapsulated granules (see Table 4) hand-gloves shall also be provided.

4.9 The containers shall be of sturdy design and shall conform to the relevant specific standard.

## 5 Specific requirements

### 5.1 Technical grade pesticides

The technical grade pesticides shall be packaged in dry and clean containers as described in Table 1.



Table 1 – Packaging requirements of solid pesticides, technical grade

S/N	Pesticides	Requirements
i.	BHC, technical and refined; binapacryl; carbendazim (MBC); copper sulphate; endosulfan; mancozeb; pentachlorophenol; phosalone; quintozene; thiram.	Mild steel or tinplate or fibreboard containers or double hessian jute bags or DW tarpaulin laminated jute bags or HDPE woven sacks/bags.
ii.	Gamm-BHC lindane; dalapon-sodium.	Mild steel or tinplate or fibreboard containers with polyethylene liner of thickness not less than 0.062 mm.
iii.	diuron; nickel chloride; propoxur	Mild steel containers with polyethylene liner of thickness less than 0.062 mm
iv.	2, 4-D sedum salt	Mild steel containers or double hessian jute bags or DW tarpaulin laminated jute bags or HDPE woven sacks/bags.
v.	2, 4-D; MCPA	Mild steel containers. For packs up to 10 kg, tinplate containers may also be used.
vi.	ziram	Mild steel or fibreboard drums lined with polyethylene of thickness not less than 0.062 mm.
vii.	Copper oxychloride, cuprous oxide, zineb	Double hessian jute bags or DW tarpaulin laminated jute bags or HDPE woven sacks/bags
viii.	Zinc phosphide	Galvanized steel sheet of tinplate or mild steel airtight containers
ix.	Coumafuryl, <i>p</i> -Dichlorobenzene; Warfarin; Warfarin sodium	Galvanized steel sheet or tinplate or HDPE or mild steel, airtight containers.
x.	Chlorpyrifos; Deltamethrin; phenyl mercury acetate; phenyl mercury salicylate; stabilized mathoxy ethyl mercury chloride concentrate and tetradifon	Mild steel drums lacquered and with polyethylene liner of thickness not less than 0.125 mm.
xi.	Ethyl mercury chloride; phenyl mercury chloride; trichlorfon	Mild steel drums with polyethylene liner of thickness not less than 0.125 mm.
xii.	Nitrofen; propanil	Mild steel containers
xiii.	Carbaryl	Multiwall polycoated paper bags (6 ply) or double hessian jute bags or DW tarpaulin laminated jute bags or HDPE woven sacks/bags
xiv.	Dimethoate	Mild steel containers, lacquered and with polyethylene liner of thickness not less than 0.062
xv.	Alachlor; chlormequat chloride	Airtight mild steel or fibreboard containers lined with polyethylene of thickness not less than 0.062 mm or HDPE
xvi.	Sodium cyanide	Mild steel airtight resealable drums with an opening large enough to allow the contents to be easily removed and having HDPE liner of thickness not less than 0.062 mm.
xvii.	Isoporturon	Fibreboard drums with polyethylene liner of thickness not less than 0.125 mm or HDPE woven sacks laminated with 0.025 mm LDPE with suitably modified dimensions.

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## 5.2 Dusting powders

The dusting powders shall be packaged in dry and clean containers as described in Table 2.

**Table 2 – Packaging requirements of solid pesticides, dusting powders**

S/N	Pesticides	Requirements
i.	BHC; carbaryl;; endosulfan; heptachlor; malathion; phosalone; quinalphos; quintozene; trichlorfon	Mild steel or tinplate or fibreboard containers or double hessian jute bags or DW tarpaulin laminated jute bags or HDPE woven sacks/bags
ii.	Copper oxychloride; cuprous oxide	Double hessian jute bags or DW tarpaulin laminated jute bags or HDPE woven sacks/bags
iii.	Pyrethrum; sulphur	Mild steel or tinplate or fibreboard containers or double hessian jute bags or DW tarpaulin laminated jute bags or HDPE woven sacks/bags
iv.	Methyl parathion	Mild steel or tinplate or fibreboard containers or double hessian jute bags or DW tarpaulin laminated jute bags or HDPE woven sacks/bags. The bag/sack shall have loose liner made of either LPE or HM-HDPE.
<p>NOTE – Retail package up to 1 kg of material shall be packaged in polyethylene bag of not less than 0.062 mm thickness, its mouth heat-sealed and then packaged in cardboard carton individually. Carton for package up to 500 g shall be as given in RS EAS 865 but carton for 1 kg shall be an 'E' fluted corrugated board carton of minimum specification 240 gsm duplex board/80 gsm Kraft/80 gsm kraft.</p>		

### 5.3 Water dispersible powder concentrates

The water dispersible powder concentrates shall be packaged in clean and dry containers as described in Table 3.

**Table 3 – Packaging requirements of solid pesticides, water dispersible powder concentrates**

S/N	Pesticides	Requirements
i.	BHC; carbendazim (MBC); Diuron; Mancozeb; Quintozone; Zineb; Ziram	Mild steel or tinplate or fibreboard containers lined with polyethylene of thickness not less than 0.062 mm (see note 1, 2 and 3).
ii.	Endosulfan; malathion	Mild steel or tinplate containers, suitably lacquered and/or with polyethylene liner of thickness not less than 0.062 mm. Galvanized steel sheet drums may also be used without a liner.
iii.	Diazinon	Mild steel or tinplate containers
iv.	Thiram	Galvanized iron or mild steel or tinplate or fibreboard containers with polyethylene liner of thickness not less than 0.062 mm (see note 2).
v.	Carbaryl; Isoproturon	Polyethylene bags of thickness not less than 0.062 mm inserted in suitable cardboard cartons which are further packed in corrugated boxes (see note 2).
vi.	Copper oxychloride; cuprous oxide	Mild steel or tinplate or fibreboard containers with polyethylene liner of not less than 0.062 mm thickness (see Note 2).
vii.	Sulphur	Galvanized iron or tinplate or mild steel container with polyethylene liner of thickness not less than 0.062 mm or HDPE woven bags for 5 to 10 kg only (see Note 2).

NOTE 1 – Retail packages of carbendazim in quantities 10 g, 50 g, 100 g, 250 g, 500 g and 1 kg each shall be packaged as under:

- a) 10, 50 and 100 g packages in below moulded HDPE containers with ROPP plastic caps or in composite containers (metal cardboard) with inner liner of polyethylene or laminated material with plastic or laminated tagger. The top and the bottom shall be suitably lacquered.
- b) 250 g, 500 g and 1 kg packages in low density polyethylene bags of not less than 0.062 mm thickness and their mouths heat-sealed. The sealed pouches shall than be packaged in cardboard cartons made from duplex bora of minimum 240 gsm. The product may also be packaged in composite containers (metal cardboard) with inner liner of polyethylene or laminated material with plastic or laminated tagger. The top and the bottom shall be suitably lacquered.

NOTE 2 – Retail pack up to 1 kg of material shall be packaged in polyethylene bag of not less than 0.062 mm thickness, its mouth heat-sealed and then packaged in cardboard carton individually. Carton for packages up to 500 g shall be as given in RS EAS 865 but carton for 1 kg packages shall be in 'E' fluted corrugated board carton of minimum specification 240 gsm duplex board/80 gsm kraft/80 gsm kraft.

NOTE 3 – Retail package of Zineb and Mancozeb up to 1 kg may also be packaged in trilaminate (50 gsm paper/0.009 mm aluminium foil/0.0375 mm LDPE) pouch, heat-sealed and then packaged in cardboard carton individually. Carton for packages up to 500 g shall be as given in RS EAS 865 but carton for 1 kg packages shall be an 'E' fluted corrugated board carton of minimum specification 240 gsm duplex board/80 gsm kraft/80 gsm kraft.

#### 5.4 Granules

The granules shall be packaged in clean and dry containers as described in Table 4.

**Table 4 – Packaging requirements of solid pesticides, granules**

S/N	Pesticides	Requirements
i.	Blank	Single hessian jute bags or HDPE woven sacks/bags. The sacks/bags need not comply the general requirements given in clause 4.
ii.	Alchlor; aldicarb encapsulated; butachlor; carbaryl; diazinon; disulfoton, encapsulated; endosulfan; fenitrothion; fenthion; lindane; nitrofen; phenthoate; phorate, encapsulated; quinalphos; trichlorfon.	Tinplate or mild steel or composite containers, suitably and properly lacquered or lined with HDPE liner of thickness not less than 0.062 mm, or HDPE containers. For individual package up to 5 kg, polyethylene bags of thickness not less than 0.062 mm inserted in suitable cardboard cartons which are further packaged in corrugated boxes.
iii.	Carbofuran, encapsulated	Tinplate or mild steel or composite container (metal cardboard), suitably and properly lacquered or lined with HDPE liner of thickness not less than 0.062 mm, or HDPE containers. For individual package up to 5 kg, polyethylene bags of thickness not less than 0.062 mm inserted in suitable cardboard cartons which are further packaged in corrugated boxes. For individual package of 25 kg, HDPE woven sacks inserted in wooden cases individually.

## 5.5 Other solid formulations

Solid pesticides other than technical, dusting powders, water dispersible powder concentrates and granules shall be packaged in dry and clean containers as described in Table 5.

**Table 5 – Packaging requirements of solid pesticides, other than technical, dusting powder, water dispersible powder concentrates and granules**

S/N	Pesticides	Requirements
i.	Esters of 2,4-D	Mild steel drums. Tinplate containers may be used for packaging up to 10 kg of the material.
ii.	Thiram seed dressing formulation	Mild steel or tinplate or fibreboard containers or double hessian bags or DW tarpaulin laminated jute bags of HDPE woven sacks/bags.
iii.	Warfarin bait concentrates	Galvanized steel sheet or tinplate or mild steel or plastic or cardboard or HDPE airtight containers.
iv.	Warfarin sodium salt water soluble powders	Galvanized steel sheet or tinplate or HDPE airtight containers.
v.	Formulations based on stabilized methoxy ethyl mercury chloride concentrates	Mild steel or tinplate containers with polyethylene liner of thickness not less than 0.062 mm.
vi.	Organo-mercurial dry seed dressing formulations	Mild steel or tinplate containers with polyethylene liner of thickness not less than 0.062 mm.
vii.	Dalapon-sodium salt water soluble powder	Mild steel or fibreboard containers.

## Bibliography

[1] ES 695: 2002, *Pesticides — Packaging*

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