

BULK PACKAGING SYSTEM

The bulk packaging system developed is based on corrugated fibre board (CFB) boxes. The boxes are designed to hold unit pouches in suitable numbers so as to have bulk packs of all the three products are given below:

- i) Dehydrated Onion Flakes - 4 kg & 6 kg capacities
- ii) AFD Corn - 4 kg & 6 kg capacities
- iii) Dehydrated Garlic Powder - 6 kg & 8 kg capacities

Various arrangements / patterns have been worked out for placement of unit cartons inside the bulk box. The dimensions of the boxes based on the above alongwith the corresponding board area requirements have been worked out and given in Annexures – XV, XVII & XIX for all the three selected products.

SELECTION OF BULK BOX DIMENSIONS FOR DEHYDRATED ONION FLAKES

A) 50 grams Unit Pack – 4 kg Bulk Pack

A Scrutiny of Annexure - XV shows that out of the five boxes, box No. 4 & 5 require lesser board areas compared to box Nos 1, 2 & 3. Though the box No. 4 requires lesser board area than the box No. 5, this can not be considered because of the odd shape of the box, where handling becomes difficult. Hence the box No. 5 is recommended as a bulk box to hold 80 nos. of pouches of 50 grams capacity.

B) 50 grams Unit Pack – 6 kg Bulk Pack

Out of the 6 different placement patterns shown in Annexure - XV box Nos. 2,4,5 & 6 are not considered due to larger board areas required for the manufacture of the boxes. In box No. 3 length of the box is much more than the width & height of the same box. Hence box No. 1 which has least area and because of the shape of the box can be considered & recommended as a bulk pack to hold 120 pouches of 50 grams capacity.

C) 100 grams Unit Pack – 4 kg Bulk Pack

Annexure – XV gives 6 different placement patterns for 40 Nos. of 100 grams pouches inside the bulk box. Box nos. 1 & 2 are not considered because of the larger board area. Box Nos. 4 & 5 are also not considered because of the odd shape of the box and the length in box No. 4 7 5 is much more than the width & height of the boxes. The board area of box No. 6 is less than the board area of box No. 3 and also box No. 6 is stable. Hence the box No. 6 is recommended as a bulk pack to hold 40 Nos. of pouches of 100 gram capacity.

D) 100 grams Unit Pack – 6 kg. Bulk Pack

Out of the 8 different placement patterns shown in Annexure - XV box No. 1, 2, 3, 4, 5 & 7 are not considered due to larger board areas required for manufacture of the boxes. In box No. 6 the board area is lesser, the length of the box is much more than the width & height of the same box. So the box No. 8 is recommended to hold 60 pouches of 100 grams capacity.

The dimensions of the recommended boxes is given in Annexure – XX.

SELECTION OF BULK BOX DIMENSIONS FOR DEHYDRATED GARLIC POWDER

A) 100 grams Unit Pack – 6 kg Bulk Pack

A Scrutiny of Annexure- XVII shows that out of the eight boxes, Box No. 1 & 2 are not considered because of the larger board area. Though the Box No. 6 has least board area, this can not be considered because of the shape of the box, where the handling becomes difficult as well as making the box unstable. Box No. 5 & 7 require lesser board area compared to box no. 3, 4 & 8. Though the box No. 7 has lesser board are compared to box No. 5, the box No. 7 can not be considered because of the odd shape of the box. Hence the box No. 5 is recommended to hold 60 nos. of pouches of 100 grams capacity.

B) 100 grams Unit Pack – 8 kg Bulk Pack

Out of the 5 different placement patterns shown in Annexure - XVII box Nos. 2, 3 & 5 are not considered due to larger board areas required for the manufacture of the boxes. Compared to box No. 1, the box No. 4 has lesser board area, but the box No. 4 can not be considered because of the odd shape of the box, when handling becomes difficult. So that box No. 1 is recommended to hold 80 nos. of pouches of 100 grams capacity.

C) 200 grams Unit Pack – 6 kg Bulk Pack

Out of the 6 different placement patterns shown in Annexure - XVII box Nos. 5 & 6 require lesser board area compared to box Nos. 1, 2, 3 & 4.

Though the box No. 6 require lesser board area compared to box No. 5, the box no. 5 is more stable & convenient in handling. Hence the box No. 5 is recommended to hold 30 nos. of pouches of 200 grams capacity.

D) 200 grams Unit Pack – 8 kg Bulk Pack

Out of the 6 different placement patterns shown in Annexure - XVII box Nos. 1, 2, 3 & 4 are not considered due to larger board areas required to manufacturer of the boxes. Though the box No. 5 has lesser board area compared to box No. 6, he box No. 5 can not be considered because of the odd shape of the box where handling & making of the box is difficult. Hence the box No. 6 is recommended to hold 40 nos. of pouches of 200 grams capacity.

The dimensions of the recommended boxes is given in Annexure – XXI.

SELECTION OF BULK BOX DIMENSIONS FOR AFD CORN

A) 50 grams Unit Pack – 4 kg. Bulk Pack

A Scrutiny of Annexure - XIX shows that out of five boxes, the box No. 4 requires least area to manufacturer a box but this can not be considered because of odd shape of the box where handling becomes difficult. Box No. 1 & 3 require lesser board area compared to box No. 2 & 5. In box No. 1 & 3, box No. 1 requires lesser board area compared to box No. 3. Hence box No. 1 is recommended as a bulk box to hold 80 nos. of pouches of 50 grams capacity.

B) 50 grams Unit Pack – 6 kg. Bulk Pack

Out of six different placement patterns shown in Annexure - XIX boxes No. 2, 4 & 5 are not considered due to larger board areas required for manufacturer of the boxes. Though the box No. 3 has least board area, length of the box is much more than the width & height of the

same box. In box No. 1 & 6, box No. 1 requires lesser board area than the box No. 6. Hence box No. 1 is recommended as a bulk pack to hold 120 pouches of 50 grams capacity.

C) 100 grams Unit Pack – 4 kg. Bulk Pack

Annexure - XIX gives 6 different placement patterns for 40 nos. of 100 gram pouches inside the bulk box. Box Nos. 1 & 2 are not considered because of the larger board area. Though box No. 4 & 5 are not considered because the length is much more than the width & height of the same boxes.

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In box No. 3 & 6, box No. 3 requires lesser board area than the box No. 6. Hence the box No. 3 is recommended as a bulk pack to hold 60 pouches of 100 grams capacity.

D) 100 grams Unit Pack – 6 kg. Bulk Pack

Out of the 8 different placement patterns shown in Annexure - XIX box No. 1, 2, 3, 4 & 5 are not considered due to larger board areas required for manufacturer of the boxes. Though box No. 6 require least board area, box No. 6 is not considered because the length of the box is much more than the width & height of the same box. In box No. 7 & 8, box No. 8 requires lesser board area compared to box No. 7. Hence box No. 8 is recommended as a bulk pack to hold 60 pouches of 100 grams capacity.

The dimensions of the recommended boxes is given in Annexure – XXII.