

GRAINPRO® FIBC HERMETIC POUCH

INSTRUCTION MANUAL

MA4071TSD1218-2



**“A GREEN, NOT ONLY FOR
PROFIT COMPANY”**



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1. INTRODUCTION

The efficient conservation of grains depends basically on the ecological conditions of storage; the physical, chemical and biological characteristics of the grain; the storage period; and the type and functional characteristics of the storage facility. Losses due to fungi must be prevented for both economic and health safety reasons because of aflatoxins and mycotoxins.

GrainPro's safe storage products all operate on the same simple organic mechanism. If a container is airtight, all infesting insects, microorganisms, and the stored commodity itself, through their respiration alone, will create a low-oxygen, high-carbon dioxide environment. This will inhibit mold growth and control the insects of all stages including eggs, larvae, pupae and adults. While inhibiting mold growth through hermetic technology, the production of aflatoxins and mycotoxins during storage is inhibited.

To deal effectively with infestation, changes in moisture, mold growth and oxidation while storing agricultural commodities, GrainPro® has developed an Ultra-Hermetic™ solution specially designed as a hermetic envelope for FIBC (Flexible Intermediate Bulk Container) or big bags. The GrainPro® FIBC Hermetic Pouch handles up to two stacks of big bags on a pallet. This allows users to safely store grains in big bags in warehouses using modified atmosphere technology. The Hermetic Pouch allows ease of mechanical operations using a forklift when relocating several stacks in various locations. With a hermetic liner design for big bags, labor cost is also reduced when stacks need to be transferred to the container van for transit by eliminating additional installation. Not only does the hermetic liner reduce operational costs, it also improves use of space inside the container by 20% over previous hermetic designs.

1.1. FEATURES:

- 1.1.1. A green technology for storage or organic produce (safe storage for organic products as secondary packaging).
- 1.1.2. Effectively eliminates insect infestation while products are in transit
- 1.1.3. Reduces the oxidation of commodities and development of microorganisms
- 1.1.4. Retains taste and aroma
- 1.1.5. Designed for easy installation
- 1.1.6. Retains shape of inner container such as conventional FIBC for efficient use of transport and container space.

1.2. PRODUCT GUARANTEE:

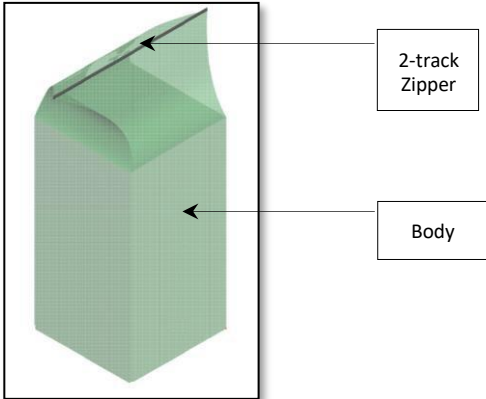
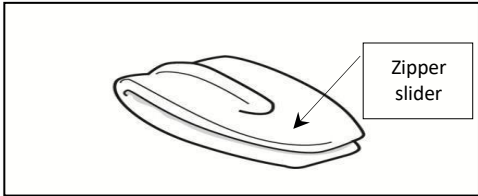

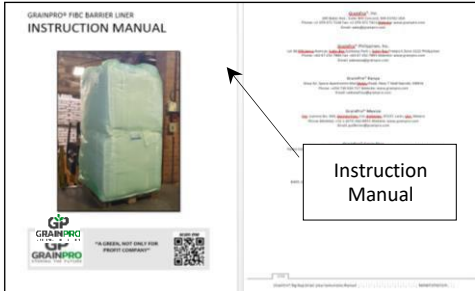
- 1.2.1. In accordance with the terms and conditions herewith, GrainPro®, Inc. guarantees the quality of this product per its written warranty provided it is used according to the instructions in this manual.
- 1.2.2. Please read and understand the manual thoroughly before using the GrainPro® FIBC Hermetic Pouch.

1.3. COMMENTS, COMPLAINTS, AND/OR CLARIFICATIONS:

- 1.3.1. Please contact **customercare@grainpro.com**, we shall be glad to address any of your concerns.

2. CHECKLIST

Please inspect your GrainPro® FIBC Hermetic Pouch package to ensure it includes the following items:

PART NAME	DESCRIPTION	IMAGE
2.1. GrainPro® FIBC Hermetic Pouch	2.1.1. High strength PE with barrier layer	
2.2. ZIPPER SLIDER	2.2.1. For zipper sealing 2.2.2. One (1) piece	
2.3. WARNING STICKER	2.3.1. One (1) piece	
2.4. INSTRUCTION MANUAL	2.4.1. Installation instructions 2.4.2. Maintenance instructions 2.4.3. Frequently asked questions 2.4.4. Warranty clause	

3. COMPONENTS



4. SPECIFICATIONS

PARAMETERS	FIBC Hermetic Pouch-1	FIBC Hermetic Pouch-2
Material	High Strength PE with Barrier Layer	High Strength PE with Barrier Layer
Thickness, microns	100±5%	100±5%
Color	Green (Pantone 3385)	Green (Pantone 3385)
Material weight, g/m ²	97.5	97.5
Oxygen Transmission Rate (OTR), cc/m ² /day at 0.1 MPa	<9	<9
Water Vapor Transmission Rate (WVTR), g/m ² /day	<4	<4
Product life, years	2	2
Warranty, year	1	1
Sealing mechanism	2-track PE Zipper	2-track PE Zipper
Capacity, in tonnes*	1	2
Dimensions, cm (inch)	115 x 115 x 110 (45 x 45 x 43)	115 x 115 x 220 (45 x 45 x 87)
Product weight (per piece), kg (lb)	1.5 (3.3)	2.0 (4.4)
Packed dimensions, cm (inch)	110 x 55 x 8 (43 x 22 x 3) per 8 pieces	110 x 55 x 8 (43 x 22 x 3) per 5 pieces
Packed volume, m ³ (ft ³)	0.05 (1.8) per 8 pieces	0.05 (1.8) per 5 pieces
Packed weight without pallet, kg (lb)	12 (26.45) per 8 pieces	10 (22.05) per 5 pieces

*Based on maize

5. INSTALLATION

5.1. PREPARATION

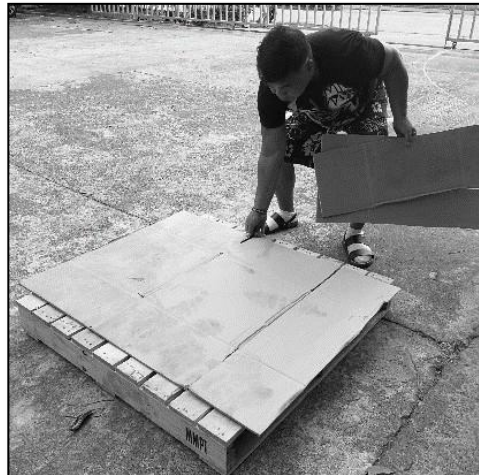
- 5.1.1. Check the moisture content of the commodity using GrainPro MM5 moisture meter (available for sale from GrainPro, Inc.) to ensure the MC is at a safe level for storage.



- 5.1.2. Ensure that pallet is free of any sharp objects (stones, nails, screws) or protruding nails that may damage the liner.



- 5.1.3. Place a mat or thick cardboard on the pallet where the Hermetic Pouch will be placed as additional protection.



5.1.4. Carefully open the package and unfold the Hermetic Pouch at the prepared site.



5.1.5. Roll the sides of the liner to prevent damage during loading when using the forklift.



5.1.6. Make sure the bottom is stretched by pulling the corners.



5.1.7. Place one or two big bags inside the FIBC Hermetic Pouch using a forklift. Up to two stacks of big bags can fit in the FIBC Hermetic Pouch if the 2-meter high version is used.



5.2. SEALING

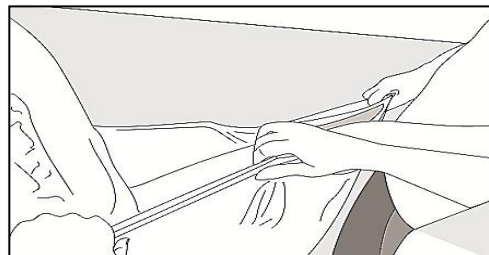
5.2.2. Unroll the sides of the liner towards the top of big bags.



5.2.3. Raise the FIBC Hermetic Pouch after stacking one or two big bags.



5.2.4. Pull the ends of the zipper together for sealing.

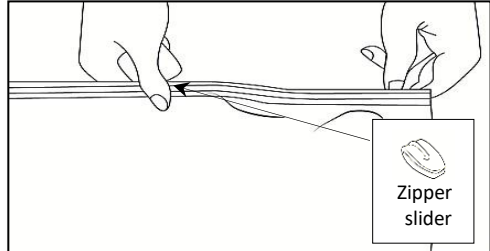


5.2.5. Positioning of zipper slider:

- a) Manually zip a few centimeters enough to initially engage the slider.

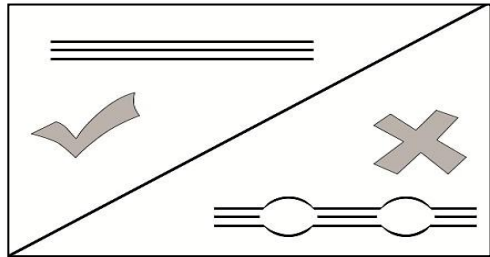
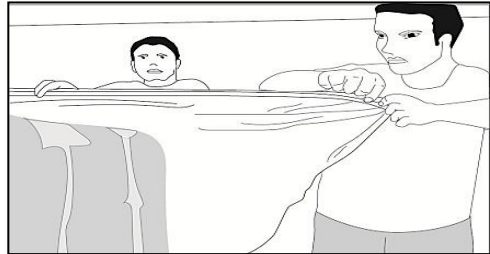


- b) Insert and position the slider on the manually zipped portion of the zip lock.



5.2.6. Two persons are required for easy zipping.

- a) One person does the zipping and the other person holds the other end steadily, making both sections of the zipper straight to avoid misalignment.
- b) Moving the slider while the zipper or slider is curved forces one of the zipper sections to elongate.
- c) If uneven zipper ends are observed, both ends should be slightly stretched. Then do the zipping from end to end.



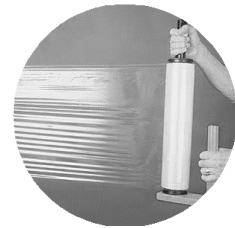
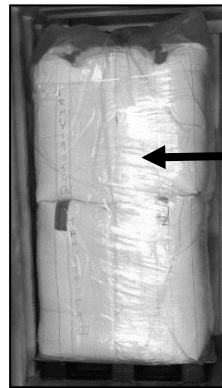
5.2.7. Fold extra liner and secure using adhesive tape.



5.2.8. Make sure that there are no folds or slacks along the liner.

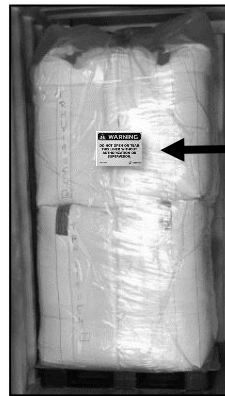


5.2.9. Use of shrink wrap is recommended.



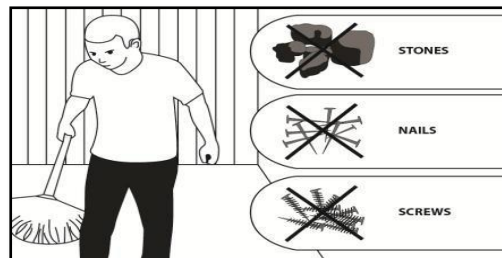
Shrink Wrap

5.2.10. Place warning sticker.

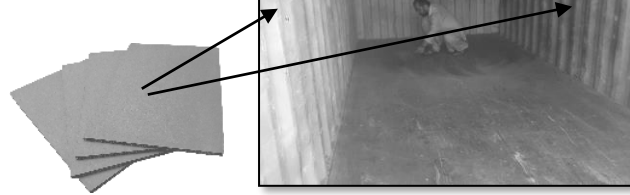


5.3. LOADING

5.3.1 Ensure that container floor is free of any sharp objects that may damage the liner.



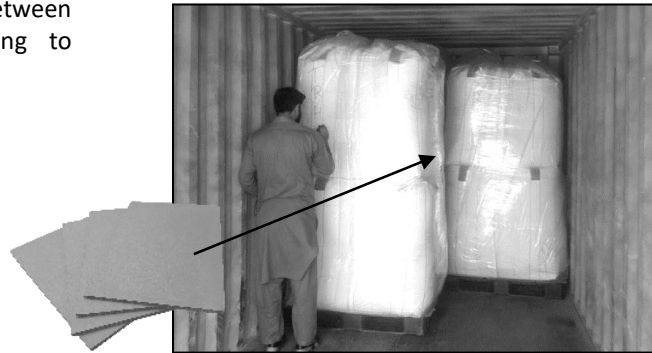
5.3.2. Place cardboards along the container walls.



5.3.3. Start to load using a forklift.



5.3.4. Recommended: Place cardboards in between FIBC Hermetic Pouch during loading to prevent damage during transit.



5.3.5. Close the container van carefully. Make sure not to pinch/squeeze the excess liner material between the container doors.



6. MAINTENANCE AND CARE

6.1. REPAIRING PUNCTURES AND OTHER DAMAGES

6.1.1. Use an ordinary 2" wide plastic tape to patch the damaged section of the liner.

- a. Clean the surface of the damaged area with damp cloth and allow the surface to dry before applying the plastic tape.
- b. Cut out a piece of tape enough to cover the damaged area (outside surface) of the liner.



6.1.2. Protective maintenance:

- a. Check the plastic tape occasionally and replace or re-patch if necessary.

6.2. SAFEKEEPING

6.2.1. The empty liner should be stored away from heat or direct sunlight and on a table or platform to protect from rodents.

6.2.2. Do not place heavy objects on top of the liner to prevent damage.

6.3. RECYCLING

GrainPro FIBC Hermetic Pouch is made of polyethylene with barrier layer.

6.3.1. The products can be delivered to the nearest recycling facilities in the area.

6.3.2. Plastic #4 – LDPE (Low Density Polyethylene) can be recycled into compost bins, paneling, trash can liners and cans, floor tiles, and shipping envelopes.

7. FREQUENTLY ASKED QUESTIONS

- 7.1. WHAT IS GRAINPRO® FIBC HERMETIC POUCH?
- The FIBC Hermetic Pouch is a low-cost Ultra Hermetic™ storage solution. With care, it can be used multiple times.
- 7.2. WHAT COMMODITIES CAN I STORE IN IT?
- The GrainPro® FIBC Hermetic Pouch, when loaded with FIBC or other non-hermetic container, is used to store a wide variety of dried commodities such as maize, soybean, wheat, cassava, and rice paddy in boxes or in bags. It also protects spices, coffee, and different seeds.
- 7.3. HOW LONG CAN IT PRESERVE COMMODITIES?
- Typically for more than six months.
- 7.4. DOES IT HELP IMPROVE SEED GERMINATION?
- The GrainPro® FIBC Hermetic Pouch does not improve seed germination but maintains it with very little change.
- 7.5. CAN I STORE LOOSE COMMODITIES?
- No. The FIBC Hermetic Pouch is designed to hold commodities loaded in big bags (FIBC).
- 7.6. HOW DOES THE GRAINPRO® FIBC HERMETIC POUCH KILL PESTS INFESTING THE COMMODITIES?
- GrainPro® FIBC Hermetic Pouch as a gastight container relies on the respiration of insects, commodity, and microflora which increases level of carbon dioxide and decreases available oxygen inside the storage. This in turn eliminates insects including eggs, larvae, pupae and adults.
- 7.7. DOES IT ONLY KILL ADULT INSECTS?
- The GrainPro® FIBC Hermetic Pouch is designed to eliminate all insects in all development stages.
- 7.8. CAN I SPEED UP THE PROCESS OF DEPLETING OXYGEN?
- Yes. The GrainPro® FIBC Hermetic Pouch can be flushed with CO₂ and rapidly create a “controlled atmosphere” which is low in O₂ and high in CO₂.
- 7.9. CAN I USE PHOSPHINE INSTEAD OF CO₂?
- Yes. While we do not encourage its use due to Phosphine adverse health effects to operators and growing insect resistance. We understand that many continue to use it and look for improved gas tightness.
- 7.10. IS IT REUSABLE?
- Yes. As long as the plastic material of the GrainPro® FIBC Hermetic Pouch is undamaged.

8. WARRANTY CLAUSE

GrainPro® hereby warrants that products sold to Buyers shall be free of defects in workmanship and materials, for a period as follows, starting from the date of shipment (B/L): One year for the GrainPro® FIBC Hermetic Pouch.

The warranty liability is limited to replacement of defective products within the warranty period at GrainPro's plant in accordance with the provisions specifically and expressly set forth herein.

The Buyer will pay for the products which need to be replaced under warranty, a percentage of the full list price according to the ratio between the period, which has passed until replacement, and the full warranty period.

The Buyer shall bear the shipping costs for shipment of defective Products to GrainPro®, and GrainPro® shall bear the shipping costs of returning good Products to Buyer.

The Warranty does not cover the cost of any service, work, or material required for the replacement of defective Products at the site of installation.

GrainPro® shall have no obligation under the warranty to replace defective Products or parts thereof if the defect is a result of any of the following: normal wear and tear; damages occurring after delivery, accidents, acts of God, or catastrophes, buyer's fault or negligence, improper storage or installation and improper maintenance.

Replacement costs and shipping charges for Products found not to be under warranty as specified above shall be paid in full by the Buyer before new/refurbished Products are shipped.

Notwithstanding the above, if the Products include main parts or sub-assemblies purchased by GrainPro® from other vendors ("Additional Equipment"), then the period and terms of warranty for Additional Equipment are limited to the period and terms offered by the vendors of such equipment.

The Buyer agrees that the warranty liabilities of GrainPro® shall be and are limited to the express foregoing terms: THE EXPRESS WARRANTIES AND OBLIGATIONS SET FORTH ABOVE, ARE AND SHALL BE IN LIEU OF ALL OTHER WARRANTIES AND OBLIGATIONS OF GRAINPRO®, and EXPRESSED OR IMPLIED. EXCEPT TO THE EXTENT HEREIN PROVIDED, GRAINPRO® DOES NOT MAKE AND SHALL NOT BE DEEMED TO MAKE ANY WARRANTY WHATSOEVER, TO ANY END USER OR TO ANY OTHER PERSON OR PARTY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR USE OR PURPOSE. GRAINPRO® SHALL NOT BE LIABLE FOR ANY LOSS OF USE, SALES OR PROFIT OR FOR ANY INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES CAUSED BY OR SUFFERED AS A RESULT OF THE SALE OR USE OF THE PRODUCTS.

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