GRAINPRO®
MINI-COCOON™

INSTRUCTION MANUAL

MA5004TSD0324

GRAINPRO
STORING THE FUTURE

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1. INTRODUCTION

The GrainPro® Mini-Cocoon™ is a gas-tight storage container designed for insecticide-free fumigation specifically CO_2 fumigation to immediately control any infestation and promote safe storage of agricultural commodities. It is made of flexible UV-resistant Polyvinyl Chloride with low permeability to oxygen, carbon dioxide, and moisture. It has optimal UV Protection to make the Mini-Cocoon™ applicable for outdoor installation.

The capacity of the Mini-Cocoon™ is approximately (1) metric ton for milled rice. This is to cater to household storage requirements. It can be used for carbon dioxide fumigation by introducing CO_2 gas into the bottom side inlet port and discharging the oxygen on the top side through an outlet port. For monitoring, a gas-sampling port is included to check the oxygen levels inside the Mini-Cocoon™ using the GrainPro® Oxygen Analyzer.

1.1. FEATURES:

1.1.1. Preserves grain quality for long storage period
1.1.2. Uses chemical-free fumigation (CO_2 Fumigation) for quick control of infestations.
1.1.3. The product can be stored at ambient temperature instead of the alternative, energy-consuming cold storage method where low temperatures are required to prevent insect infestation and biochemical deterioration.
1.1.4. Weather-resistant and UV-protected (can be used indoors or outdoors).
1.1.5. Mobile and easy-to-install, no need for any infrastructure.
1.1.6. No maintenance and operation costs.
1.1.7. “Green” product fits the demands of organic growers.
1.1.8. Inhibits mold growth and aflatoxin production.
1.1.9. Controls insect infestation by depleting oxygen and increasing carbon dioxide in a gastight container.
1.1.10. Allows users to check oxygen and humidity levels.
1.1.11. A “green” technology for organic product storage.

1.2. PRODUCT GUARANTEE:

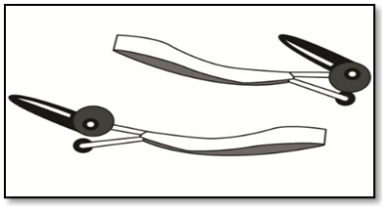
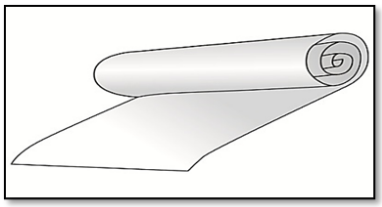
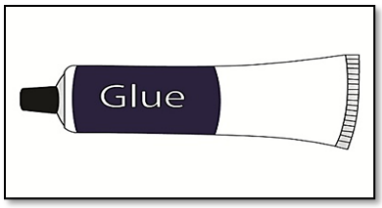
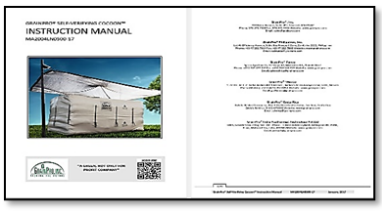
1.2.1. Under the terms and conditions herewith, GrainPro® Inc. fully guarantees the quality of this product if it is used according to the instructions stated in this manual.
1.2.2. Please read and understand the manual thoroughly before using the Mini-Cocoon™.

1.3. COMMENTS, COMPLAINTS, AND/OR CLARIFICATIONS:

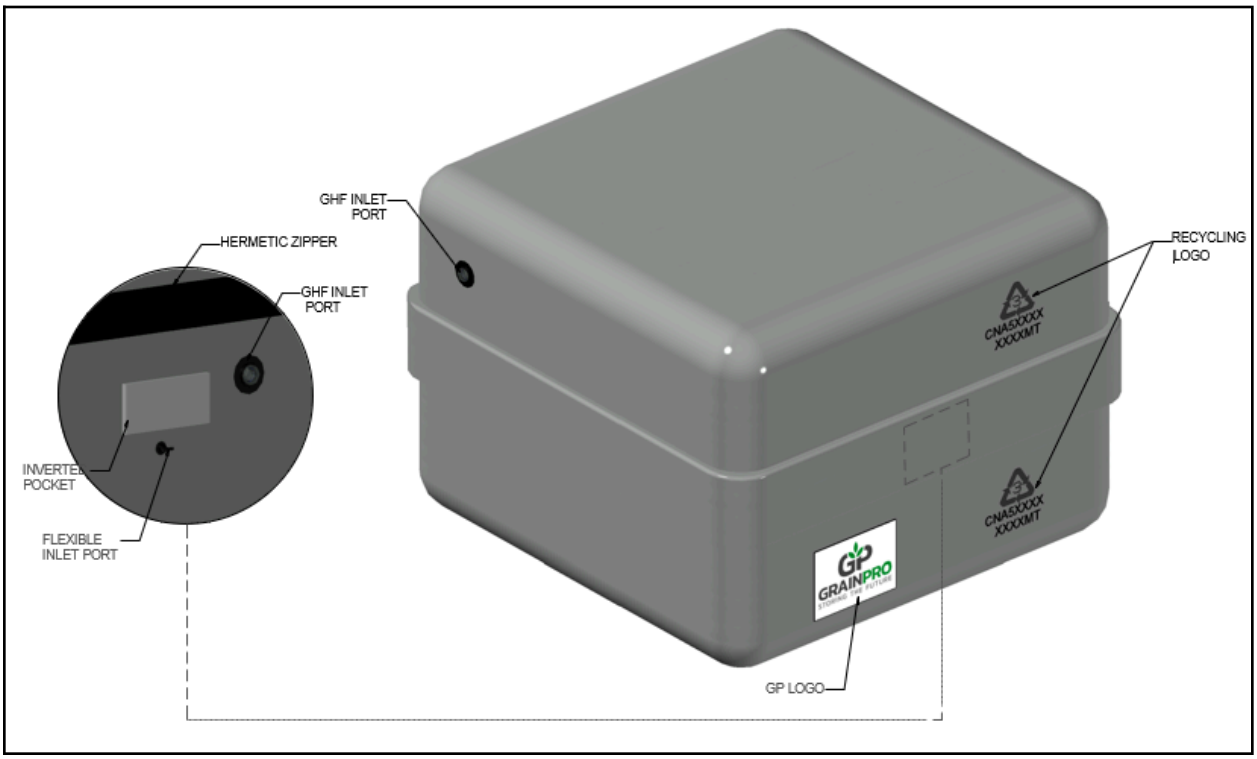
1.3.1. Please contact customercare@grainpro.com.
1.3.2. All queries will be answered by our team of post-harvest solution experts.

2. CHECKLIST

Please inspect your GrainPro® Mini-Cocoon™ to ensure that the package includes the following items:

PART NAME	DESCRIPTION	IMAGE
2.1. Carry Bag	2.1.1. Contents: Mini-Cocoon™ (Top and Bottom) Small Parts Repair Kit Instruction Manual	
2.2. Zipper pulls	2.2.1. For hermetic zipper sealing: One (1) set (left and right)	
2.3. Patching Material	2.3.1. White-colored PVC roll for patching holes, or other damages. One (1) pc (30cm x 1.5 cm)	
2.4. Glue	2.4.1. For patching PVC materials. One (1) tube.	
2.5. Instruction Manual	2.5.1. Installation instructions 2.5.2. Maintenance instructions 2.5.3. Frequently asked questions. 2.5.4. Warranty clause	

3. COMPONENTS



4. SPECIFICATIONS

4.1. Materials

Parameters	Standard
Material	UV-Protected Polyvinyl Chloride
Color	White
Material weight, g/m^2	1050
Oxygen Transmission Rate (OTR), cc/m^2/day @ 23± 0.5℃, RH = 0%	<500
Water Vapor Transmission Rate (WVTR), g/m^2/day	<9
Product life, years	10
Warranty, years	5
Sealing mechanism	PVC Hermetic zipper
Capacity, MT	0.6
Dimensions, cm (L x W x H)	120 x 120 x 95

* The capacity of the Mini-Cocoon™ is based on the density of wheat.

5. WARNING!

5.1. Do not put fresh harvest commodities inside the Mini-Cocoon™.
5.2. Do not wear shoes with spikes as this may cause damage to the Mini-Cocoon™.
5.3. Do not directly install the Mini-Cocoon™ without clearing away debris and other foreign materials.
5.4. Do not smoke while installing, cigarette butts may burn and damage the Mini-Cocoon™.
5.5. Do not keep the Mini-Cocoon™ unclean.

6. Recommended maximum moisture content for safe storage (wet basis)

Commodity	Recommended MC
Barley	12%
Black pepper	10%
Cashew nuts	8%
Chia seeds	7%
Chickpeas	12%
Cocoa beans	7%
Coffee beans	12%
Cotton seed	10%
Cowpea	12%
Maize	13.5%
Millet	12%
Mung bean	12%
Oats	12%
Paddy	13.5%
Paddy, rice bran	11%
Peanuts shelled	7%
Rec chili pepper	8-10%
Milled rice	12%
Rye	12%
Sesame	5.5%
Sorghum	12%
Soybean	12%
Sunflower	7%
Wheat	13%

You may also contact us through customercare@grainpro.com for more information or for commodities that are not on the list.

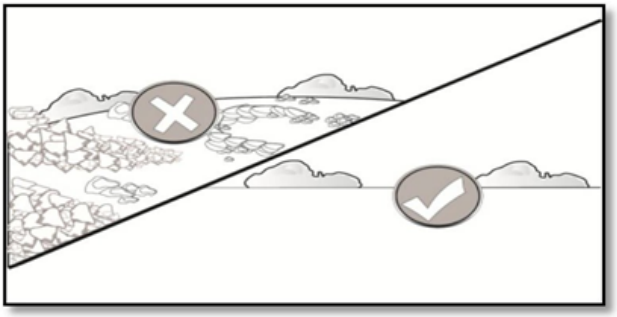
7. INSTALLATION

7.1. Site Selection

7.1.1. The Mini-Cocoon™ is designed for both indoor and outdoor installations,

a. A smooth area away from standing or running water.

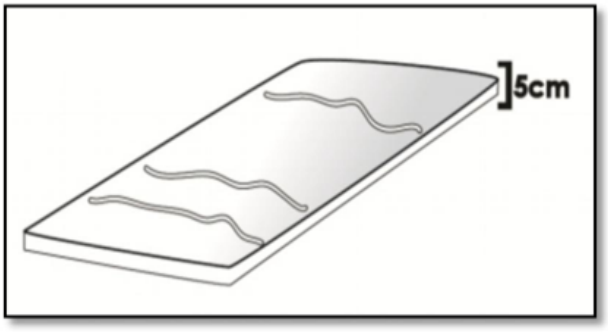
b. Ensure that the site is protected from stray animals and theft.



7.1.2. Prepare the selected site by clearing away all sharp objects (stones, broken glass, nails, etc.) that may puncture the Mini-Cocoon™. Sufficient space to accommodate the Mini-Cocoon™ and an inspection path around (at least 50 cm on each side).

7.1.3. If ground soil is used as flooring, put a layer (5cm) of fine sand or any equivalent on top of the soil as a ground foundation.

7.1.4. During loading, make sure that workers do not wear shoes with spikes that may damage the Mini-CocoonTM. Preferably, choose a site that offers ease in loading/unloading, away from crowded areas and rubbish. For indoor installation, clean the area to remove sharp objects.



7.2. Termite Control

7.2.1. Overview of Termite

7.2.1.1. The two most common types of termites are “dry wood” and “ground,” or subterranean termites.

7.2.1.2. Termites need moisture to survive and will die if exposed to sunlight or open air for more than a few minutes. Their tunnels protect them from these elements.

7.2.1.3. High moisture areas like basements and crawl spaces are very attractive to termites and can serve as starting points for an infestation.

7.2.2. Description (Subterranean Termite)

7.2.2.1. Food and moisture:

- Need a great deal of moisture from soil or damp wood. Cellulose from wood is

part of their diet.

7.2.2.2. Habitat:
- Usually, they live in the soil but can be above ground if enough moisture is present. They have large colonies.

7.2.2.3. Evidence of activity:
- Protective mud tubes ascending from the ground to the structure or protruding from walls, etc.

7.2.2.4. Prevention:
- Treat the soil before construction using termiticide.
- For more information search for Chemical Soil Treatment.
- A termite bait station monitoring system to monitor termite activity and bait placements after detection.
- Regular inspections.

7.2.2.5. Control measures:
- With current activity use a baiting program or a termite barrier treatment.

7.2.3. Termite Treatments

7.2.3.1. The traditional method of controlling subterranean termites was to apply a liquid pesticide, known as a termiticide, to the soil. This chemical treatment relied on the application of a chemical barrier around and beneath the structure designed to block all possible routes of termite entry. Any termites attempting to penetrate through the treated soil were either killed or repelled.

7.2.3.2. There are several different insecticides currently used by pest control operators for termite soil treatments. All of them are safe and effective when used per label directions. The insecticides remain effective in the soil for approximately 5 to 10 years.

7.2.3.3. Effective termite treatments require a great volume of termiticide.

7.3. Rodent Control

7.3.1. Prevention:

7.3.1.1. Eliminate unnecessary folds on the sidewalls of the Mini-Cocoon™ when installed.

7.3.1.2. Remove all potential food sources from the premises, such as scattered grains, etc.

7.3.1.3. Remove all trash and debris around the Mini-Cocoon™ as it may be used as a shelter for rodents.

7.3.1.4. Keep trash cans closed with tightly fitted lids and should be away from the Mini-Cocoon™.

7.3.1.5. Trim trees, bushes, and vines at least 1.5 meters away as they may be used by the rodents to crawl on top of the Mini-Cocoon™.

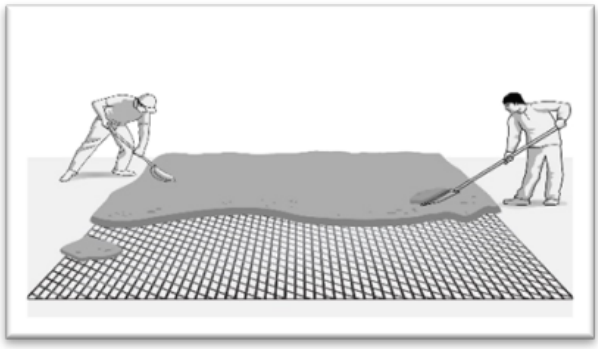
7.3.2. (Optional) Procedure for installing wire mesh:
For ground installation areas with a high risk of rodent attacks, it is highly recommended to use wire mesh not larger than ¼ inch to exclude mice.

7.3.2.1. To install the wire mesh, prepare the selected site by clearing away all sharp objects (stones, broken glass, nails, etc.) that may puncture the Mini-Cocoon™.

7.3.2.2. Cut the wire mesh at least 50 cm wider than the bottom of the Mini-Cocoon™.

7.3.2.3. Spread the wire mesh before the fine sand and equivalent as a recommended protection of the Mini-Cocoon™.

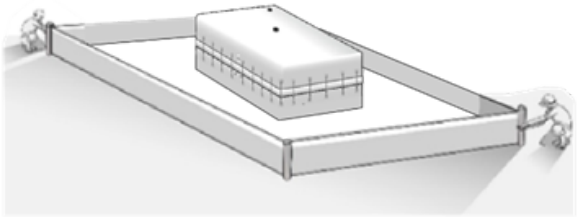
7.3.2.4. Then, follow the standard procedure on how to install Mini-Cocoon™.



7.3.3. (Optional) Procedure for installing GI sheet:

7.3.3.1. Install the GI sheet 1 meter away from the sidewall of the Mini-Cocoon™.

7.3.3.2. Make sure that the GI sheet has wooden posts or any equivalent that can withstand the wind.



7.3.4. Requirement for GI sheet:

7.3.4.1. The length and width of the GI sheet should be 170 cm x 170 cm.

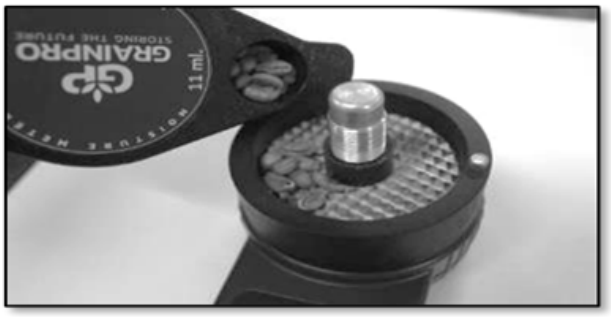
7.3.4.2. Gauge or thickness is at least 16.

7.4. Loading

7.4.1. Check the moisture content of the commodity to ensure the Mc is at a safe level.

7.4.2. Loading the bottom section:

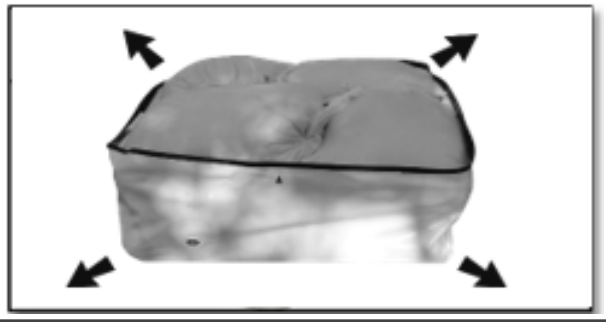
a. Unfold the bottom section of the Mini-Cocoon™ and lay it out on the prepared site.



b. Start piling the sacks on the bottom section.
c. Put down the first four bags on the first layer of the Mini-Cocoon™.
d. Make sure that the bottom section is stretched by pulling the corners with the bags. Stretching will reduce the risk of rodent damage.

7.4.3. Required stack height:

a. Load and follow the direction of the first layer as shown in the photo.
b. Continue adding layers in an interlocking manner, i.e., the same as the previous layer.
c. Stack sacks to the corresponding heights.



7.4.4. The top layer:

a. Continue piling the sacks until the desired height is reached.
b. Once you have reached the required stacking height, provide extra sacks in the middle of the stack.
c. The extra sacks will eliminate rainwater accumulated on top of the Mini-Cocoon™.

8. ZIPPING

8.1. Preparing to zip:

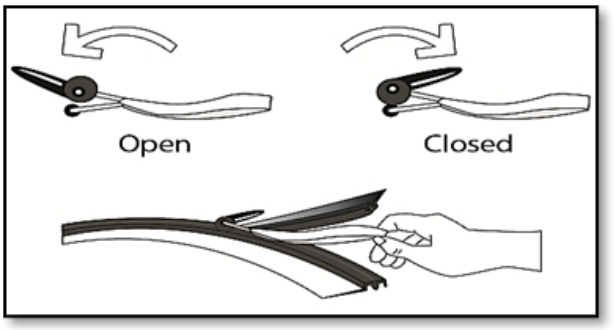
a. Insert one hand inside the inverted pocket and engage the zipper track of the top and bottom liners by pressing the zipper track.
b. Manually close the zipper track to a length of 10 cm before using the zipper pull.

NOTE:

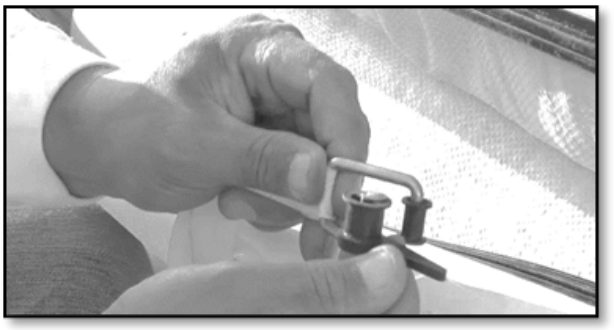
- Zipper pulls are designed to zip either to the right (marked with “Right”) or the left (marked with “left”) directions.

8.2. Engaging the zipper pull:

a. Open the zipper pull by moving the black plastic handle with the large wheel opposite the flexible pulling loop.



b. Starting with the inverted pocket, place the smaller black running wheel inside the liner facing downward to engage the zipper track of the bottom section of the Mini-Cocoon™.



c. Place the larger wheel outside the liner facing upward to engage the zipper track of the top section of the Mini-Cocoon™.

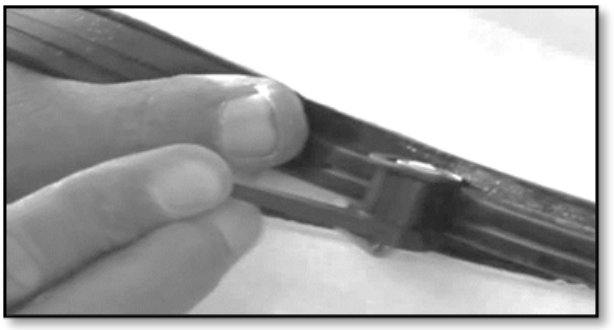
8.3. Using the zipper pull:

a. Rotate the zipper pull's handle to 180° towards its pulling loop to lock the zipper tracks. Slide the zipper pull around the Mini-Cocoon™.

b. Sealing the rest of the zipper:

Note:

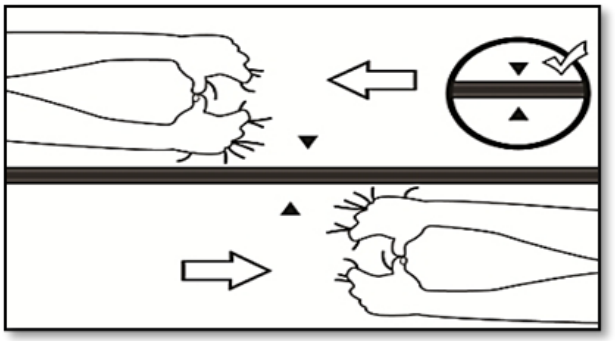
- To make zipping easier, a second person may pull the top and bottom zipper track closer.



8.4. Completing the zipping process:

a. Check the marks “arrows” printed on both top and bottom sections in pairs. The markings at the top section are located under the protective flap.

b. If the arrows do not match, slide the zipper tracks by pulling the top and bottom liners in opposite directions until the marks meet.



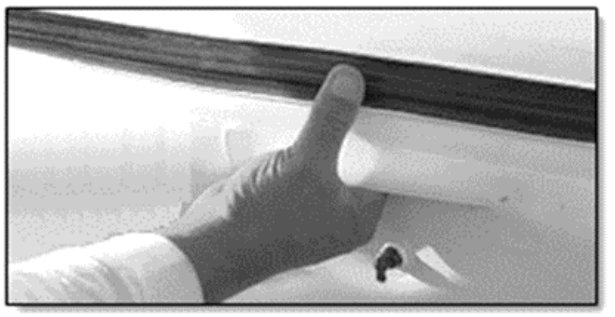
Note:

- If the marks are not aligned, the zippers may have been exposed to different temperatures resulting in elongation of the zipper. Both sections can be placed under direct sunlight to even out any difference in their lengths.

8.5. Removing the zipper pull:

a. Complete the sealing process at the inverted pocket. Take the zipper pull off the track by rotating the plastic handle.

b. Manually close the last few centimeters of the zipper track by inserting one hand into the inverted pocket and supporting the back of the zipper, then pressing your thumb in the front zipper.



8.6. Check the zipper:

a. Check to ensure that the entire length of the zipper track is fully closed.
b. If not, press the zipper tracks by hand to seal.

Note:

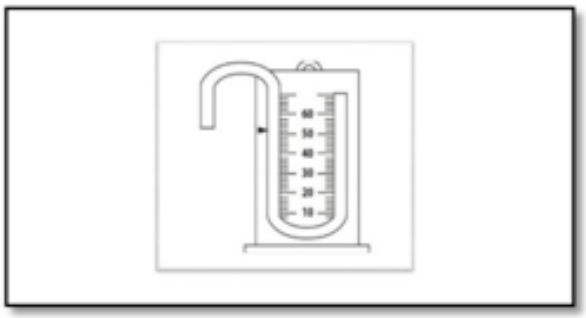
- Dirt or other objects on the zipper track can hinder sealing. Clean the zipper track before zipping.

9. PRESSURE DECAY TEST (PDT)

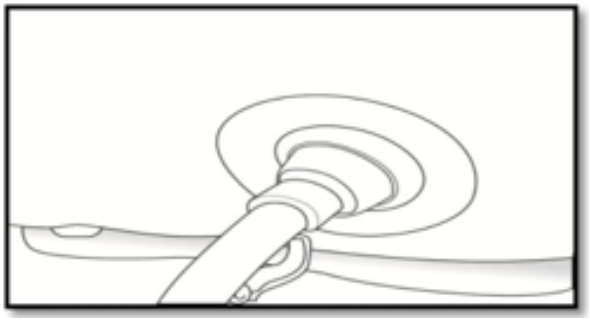
9.1. After completely zipping and closing all the ports of the Mini-Cocoon™, perform a Pressure (vacuum) Decay Test (PDT) to ensure gas-tightness:

a. Use a digital manometer.

9.2. Either a commercially available or improvised U-tube manometer can be used to monitor the pressure.



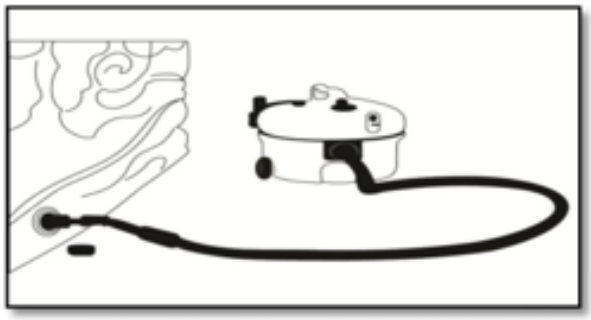
9.3. Connect the manometer hose to the flexible inlet gas sampling port (GHF) of the Mini-Cocoon™.



9.4. Use a vacuum pump at least 2.3 cubic meters per minute with 600 watts (0.80 horsepower) centrifugal pump:

a. Connect the vacuum pump hose to the inlet port of the Mini-Cocoon™.

b. Create at least -250 pascals (Pa) or -25 millimeters water (mm H_2O) vacuum.



Doing this can also help engage the zipper tracks properly as there may be imperfections during zipping.

- For it to be considered sufficiently airtight, the final pressure should not be greater than one-half (½) of the initial pressure (created by the vacuum pump) within five (5) minutes.
- If the PDT test failed, check for holes/tears and poorly sealed zipper then repeat the PDT procedures.

10. PROCEDURE FOR PURGING CARBON DIOXIDE (CO_2)

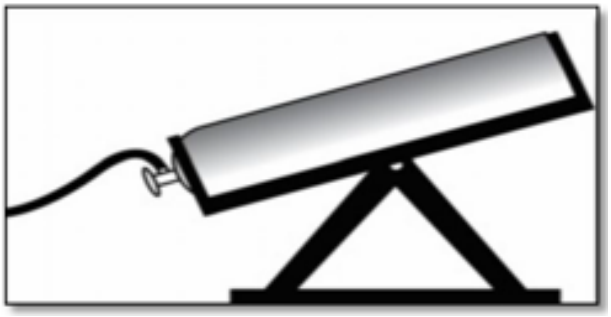
10.1. Calculation:

a. Total Volume - the volume occupied by the commodity.
b. For every 2.0 kg of CO_2 replace 1 cubic meter of air.
c. An additional 15% will be added to the total capacity.
d. Formula: (1 - bulk density) x volume x 2 x 1.15

Commodity	Bulk Density (MT/m^3)	Amount of carbon dioxide (CO_2) for purging, kg
Barley	0.62	1.17
Cashew nuts	0.50	1.54
Chia seeds	0.68	0.99
Chickpeas	0.74	0.80
Cocoa beans	0.56	1.36
Coffee beans	0.59	1.26
Cotton seeds	0.40	1.85
Cowpea	0.75	0.77
Maize	0.72	0.86
Millet	0.63	1.14
Mung bean	0.75	0.77
Oats	0.43	1.76
Paddy	0.60	1.23
Paddy rice bran	0.55	1.39
Peanuts shelled	0.64	1.11
Milled rice	0.80	0.62
Rye	0.72	0.86
Sesame	0.59	1.26
Sorghum	0.72	0.86
Soybean	0.75	0.77
Sunflower	0.41	1.82
Wheat	0.77	0.71

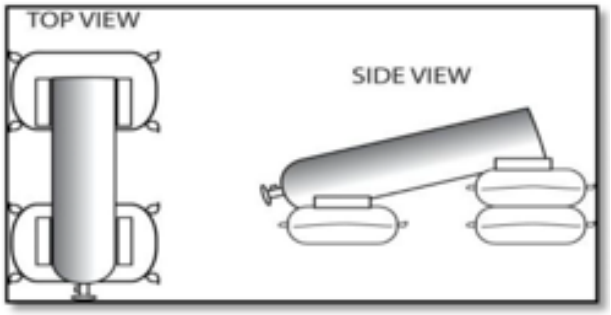
10.2. CO_2 application:

a. Make sure that enough CO_2 is available on-site. The weight of the CO_2 in the cylinder is supplied by the industrial companies (i.e., 22 kg standard capacities which may be used to calculate the number of cylinders required). CO_2 cylinders are available with or without a siphon (dip tube). For rapid flushing, the cylinder without a siphon should be inverted.



b. For rapid flushing, the cylinder should be inverted using a mechanical inverter. However, the cylinders with a siphon should be in an upright position during flushing.

c. If a mechanical inverter is not available, a makeshift inverter can be made using sandbags or other improvised techniques. The cylinder should be inverted with its top resting on one sandbag and the bottom end resting on a pile of two or three sandbags high.



d. Open the port located at the side (top section) of the Mini-Cocoon™ to relieve excess pressure and release air from the inside.

11. MONITORING THE OXYGEN LEVEL AND RELATIVE HUMIDITY (RH%)

11.1. Use of an oxygen analyzer:

a. During the first 15 days of installation, the oxygen level should be checked daily using an oxygen analyzer.

b. Succeeding monitoring should be done twice a week. Normally, oxygen levels drop 1 - 2 % per day to a level less than 3% (though lower levels have been observed as well). Oxygen levels go up by a few percent but must not exceed 7%. Except for coffee beans and seeds, in this situation, sealing is probably compromised, and the commodity may not be adequately protected.

c. When the oxygen level does not drop for 3 to 7 days or an increase in carbon dioxide is not observed, check for pinholes or damage in the zipper sections.

11.2. Use of humidity indicator:

a. The humidity indicator is a special circular paper with moisture-sensitive chemicals. Its color changes from blue to pink when relative humidity exceeds 65%, and vice versa.

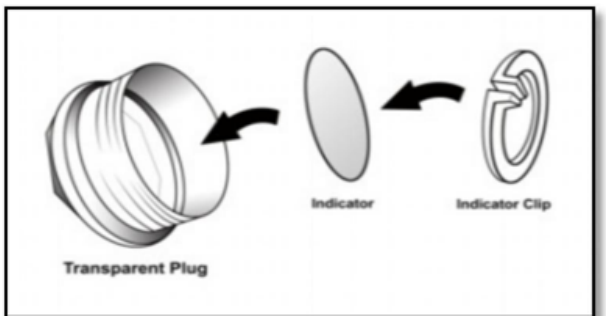
b. The humidity indicator provides an affordable and quick reference to relative humidity inside the Mini-Cocoon™.

c. It is easy to use and does not require meticulous preparation for installation.

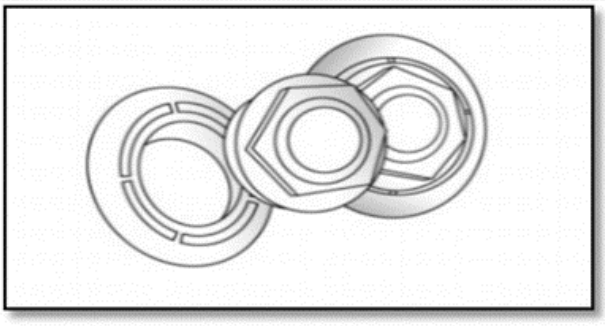
d. The material is non-toxic, and disposal does not need any special treatment.

e. Procedures on how to use the humidity indicator:

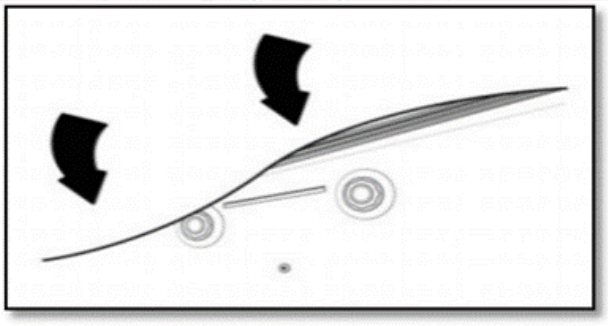
Get a humidity indicator from the pack.



Put the humidity indicator inside the transparent plug using the clip.



Attached is the transparent plug to the threaded flange



Hide the indicator with the zipper cover.

11.3. Instruction when the indicator turns pink:

a. Replace the pink indicator with an unused (blue) indicator. Make sure the plug is dry and the replacement is done quickly (cover the threaded flange to prevent excessive air from entering inside).
b. Monitor the indicator for 4 - 8 hours.
c. If the indicator turns pink within 4 - 8 hours, use other devices to check for the humidity inside or consult GrainPro®.
d. If the indicator does not turn pink, continue to monitor, Repeat the procedure if the indicator changes.

Note:

- Place the unused HUmidity indicators on a sealed container with the included desiccant.
- The Humidity indicator cards with pink or lavender spots can be turned to a blue color by placing indicators in a sealed container with 33 grams (1 unit) of desiccant for 4 - 8 hours or oven-dry for 10 - 20 minutes, setting the oven to 50℃ (122℉).

11.4. Dismantling

11.4.1. Although CO_2 is not toxic, it is an asphyxiant. It is advisable to unzip the Mini-Cocoon™ and wait until most of the CO_2 has dispersed.

11.4.2. This commodity will only be unloaded at the end of storage:

a. Using a coin, insert and twist the zipper (sharp objects should not be used for opening the zipper).
b. Gently pull the two sections apart, taking the top sections completely off.
c. Remove the sacks of stored commodities.

12. PREVENTING CONDENSATION

12.1. Why does condensation occur?

12.1.1. condensation is caused by temperature differences i.e., hot weather by day and cool at night or sudden rains on a hot sunny day. When air collides with a cool surface at dew point temperature the water in the air condenses on the surface. Air movement inside the Mini-Cocoon™ follows the natural forces i.e., in conventional currents hot air rises and cool air sinks (except for the phenomenon called inversion). Hence, when warm air inside the Mini-Cocoon™ rises and hits the cool top cover at dew point temperature, a condensation reaction occurs, and water condenses.

12.1.2. Therefore, avoiding trapped warm air inside the Mini-Cocoon™ can prevent condensation at the top layer. Condensation can be checked manually through the top

side port. Note: Close the port properly after checking.

12.2. Moisture Content (MC) requirement for safe storage

12.2.1. Commodities should be dried before storage to at least 12% MC for sorghum, 9 - 10% millet, 12 - 14% for paddy, and maize, and 13% wheat. (Refer to the recommended maximum moisture content for safe storage at No. 6).

12.2.2. When the commodity is properly dried, there is virtually no “free water” that the microorganisms can use to process the nutrients in the stored product for their growth and development.

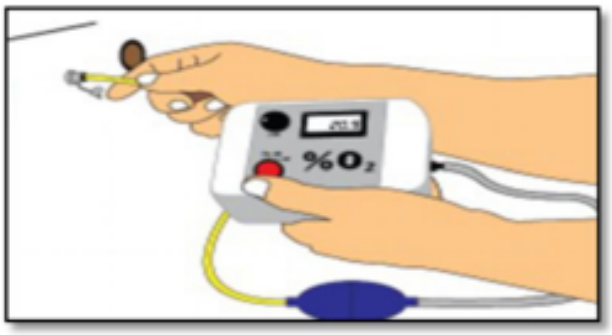
12.2.3. This condition can be maintained by avoiding ambient air (with variable moisture content) to be in contact with the dried product using the hermetic storage technology.

13. MAINTENANCE AND CARE

13.1. Regular examination

13.1.1. Measure oxygen concentration using an oxygen analyzer GrainPro® ICA model.

a. First-two weeks - Daily
b. Succeeding days - twice a week.

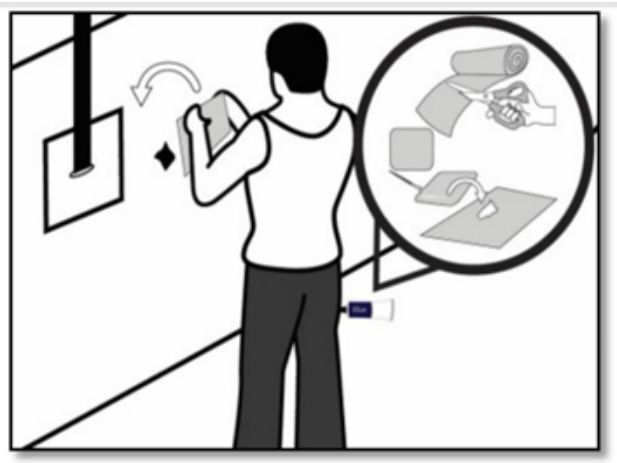


13.1.2. Check (at least weekly) possible condensation by opening (and closing) the port.

13.2. Repairing punctures and other damages

13.2.1. Repair procedures:

a. Use glue and patching material found in the repair kit to patch the damaged sections.
b. Clean the surface of the damaged area with a damp cloth and allow it to dry before applying the glue and patching material.
c. Cut out a piece large enough to cover the damaged section and put glue on one side of the patching material to be applied to the outside surface of the Mini-Cocoon™.
d. Manually press the patching material with glue against the damaged area.



13.2.2. Protective maintenance:

a. Check the patched repair occasionally and replace it if necessary.

13.3. Cleaning, inspection, and repair after use of Mini-Cocoon™.

13.3.1. Clean the Mini-Cocoon™ after use, dilute the liquid detergent/or dishwashing liquid to a water bottle using the 1 part liquid detergent to 20 - 30 parts of water (1:20 to 30 parts).

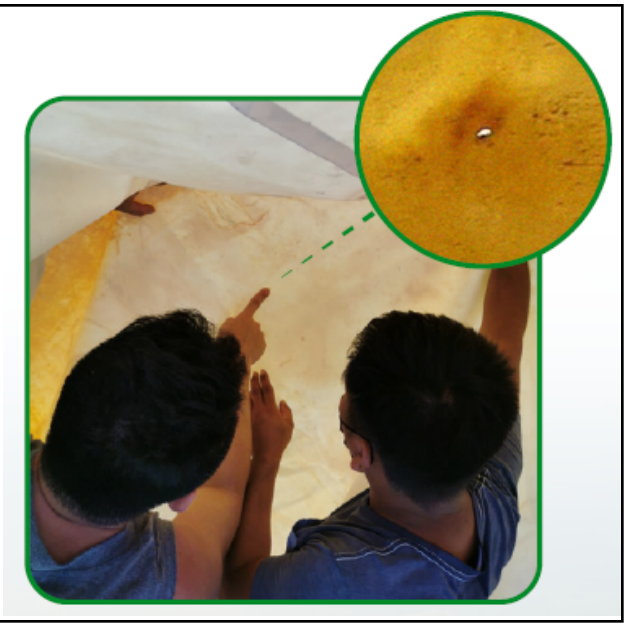
13.3.2. Using clean rags, wipe the entire Mini-Cocoon™ to remove dirt from the liner and the residual smell from the commodity. This will ensure that no pests will be attracted during safekeeping.

13.3.3. Dry under the sun after cleaning.

13.3.4. After drying visually check or inspect the liner of the Mini-Cocoon™ after cleaning and mark the visible damages.

13.3.5. To ensure the airtightness of the Mini-Cocoon™ for the next use, pinholes should also be repaired. To detect pinholes, expose the liner under the light, pinholes will be exposed by the light passing through it. Mark the pinholes with a marker in preparation for repair.

13.3.6. Repair the damages using the patching materials see 13.2.1. Repair procedure.

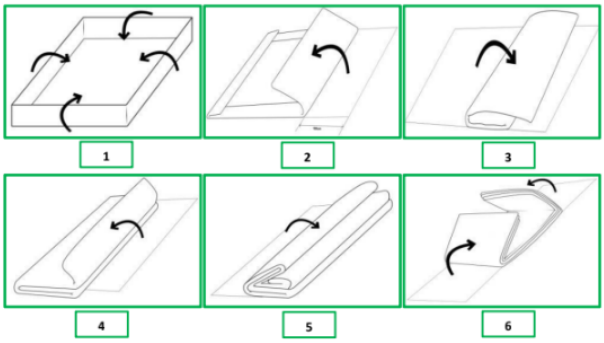


13.4. Safekeeping

13.4.1. The top and bottom hermetic zipper should be engaged before folding the Mini-Cocoon™.

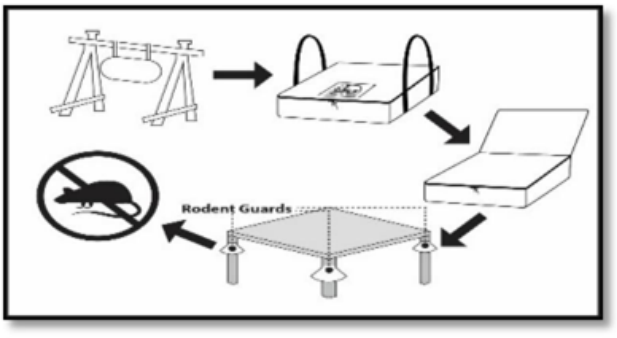
a. Fold both the longer sides of the Mini-Cocoon™.

b. Follow the steps in the image on the right side.



13.4.2. Put the folded Mini-Cocoon™ inside the carrying bag and keep the bag away from heat or direct sunlight and away from rodents.

13.4.3. Do not place heavy objects on top of the stored liners as they may damage or deform them.



13.5. Recycling

GrainPro® Mini-Cocoon™ is made of PVC.

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

13.5.2. Plastic #3 - PVC vinyl can be recycled into paneling, flooring, speed bumps, decks, or roadway gutters.

14. FREQUENTLY ASKED QUESTIONS AND ANSWERS

14.1. Should I pump the air out of Mini-Cocoon™

- If used as a simple storage, do not pump out or modify the air inside. The insect's natural activity will use up the available oxygen and convert them to carbon dioxide (CO_2).

14.2. Should I fumigate infested food before storage?

- No, you do not need to fumigate to get rid of the infestation. The insects will die in a matter of days due to lack of oxygen.

14.3. Is there any use not recommended for Mini-Cocoon™?

- Yes, the Mini-Cocoon™ is not recommended for sorting fresh fruits, vegetables, medicine, or insufficiently dried commodities.

14.4. Can you add or take out items, once the Mini-Cocoon™ is filled and closed?

- Yes, you can take out or add items. If the added items are infested, the insects will naturally die when oxygen is used up. However, it is not recommended to frequently open the Mini-Cocoon™.

14.5. Do I need to fill Mini-Cocoon™ for it to be hermetic?

- No. however, at least 90% of the capacity is recommended to ensure full operation from insect infestation and rodents.

14.6. Should the Mini-Cocoon™ be installed only indoors?

- No. the Mini-Cocoon™ is designed for indoor and outdoor use also under all climatic conditions.

14.7. Will a puncture negate the benefits of hermetic storage in the Mini-Cocoon™?

- Not completely, although a puncture allows oxygen to maintain an infestation in the immediate area of the punctured hole. Tight bag stacking of the stored products tends to prevent widespread infestation. Immediate repair of all punctures or cuts is highly recommended.

14.8. What is the safe product moisture content for storage in Mini-Cocoon™?

- The Mini-Cocoon™ works best with grains at safe moisture content which varies with locations and weather conditions. Equilibrium moisture content is affected by temperature and relative humidity.

14.9. Can rodents bite through the PVC material of installed Mini-Cocoon™?

- Yes, but only if there are scattered grains near the area that will attract the rodents. It is highly recommended to always keep the surroundings clean to protect the Mini-Cocoon™ from rodent attacks.
- Rodents can also damage the top cover by jumping down from an overhang such as a low-hanging branch of a tree. In areas with heavy soils and high rodent activity, it is recommended that the Mini-Cocoon™ be placed on a 5-centimeter-thick layer of sand. But concrete or paved flooring is best.

4.10. Can Mini-Cocoon™ be used to store agricultural commodities other than grains?

- Yes, most dry agricultural commodities such as seeds, pulses, beans, coffee, cocoa, some dried fruits, and even dried chilies can be safely stored. When in doubt, ask

GrainPro®.

4.11. How fast will the oxygen level drop after sealing?
- Normally, if the stored commodity is sufficiently dried and heavily infested, except for coffee, oxygen can drop down to 1 - 2% in 15 days. The drop depends on the infestation level, moisture content of the commodities, and other factors. If the oxygen level does not drop in 7 days, check for an open zipper track; inspect the top and bottom sections for holes and cuts. Contact GrainPro® for assistance.

4.12. What should be done when it is difficult to take an oxygen reading?
- First, check the flexible inlet valve and see if it is clogged or dirty. Clean the inlet to remove dirt and other impurities. Slightly flex the end of the flexible inlet valve to create an opening for air to pass through. When inserting the oxygen analyzer tube, slightly pinch the flexible inlet to get a proper reading. Refer to the Oxygen Analyzer Manual for further information.

4.13. Is it safe for the humidity indicators to change color?
- The GrainPro humidity indicators are non-toxic.

4.14. Should I replace the humidity indicators if they change color?
- Yes, If the humidity indicator turns pink replace it with an unused (blue) indicator. Please refer to procedure 11.3. Instruction when the indicator turned pink from step-by-step instructions.

4.15. How long will it take for the humidity indicators to change color?
- Normally, the indicators will change color within minutes of exposure to ambient conditions. However, the time it takes for the humidity indicator to turn from one color to another depends on %RH conditions.

15. WARRANTY CLAUSE

GrainPro® hereby warrants that Products sold by it to Buyer shall be free of defects in workmanship, including maintaining gas tightness for a period as follows - starting from the date of shipment (B/L): Five years for the Mini-Cocoon™ liner and zipper. One year for all other parts.

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

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

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

The Warranty does not cover the cost of any services, work, or materials required for the replacement of defective Products with good 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, fault or negligence, or improper storage installation, maintenance of the Products.

Replacement costs and shipping charges for Products found not to be under warranty as specified above would 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 LINE WITH 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 ANY OTHER PERSON OR PARTY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE. GRAINPRO SHALL NOT BE LIABLE FOR ANY LOSS OF USE, SALES, OR PROFIT OR ANY INDIRECT, CONSEQUENTIAL, OR INCIDENTAL DAMAGES CAUSED BY OR SUFFERED AS A RESULT OF THE SALE OR USE OF THE PRODUCTS.

For further information and clarifications, visit our website at www.grainpro.com; email our Technical Support team: at customercare@grainpro.com or call: +63 47 252 7884