Smart and Simple Storage System

The DryStore-Glass is a new product with smart and simple design that would fit right into the space and environment of anywhere in the world. Based on Drying Beads® technology, it is intended for dry and storage purposes which can be widely utilized, for seed drying, seed storage, anti-moisture, anti-mold, in storing cameras, video recorders, computer magnetic doks, audio and video products, jewelries and watches, stamps, photos, precision instruments, medical materials, high grade tonics and nutritious food.

DryStore® are also available in small or large models, with either in square box 1.6 L or 8.4 L or 16 L or drum 50 L or 100 L. Choose either a standard size of DryStore® to meet your specific needs.

Relative humidity (RH) is reduced to 10-15% by Drying beads, to protect any components requiring controlled storage conditions combine with standard airtight and dust-off container. This is the ideal to store seed for both medium and short term.

Regeneration of drying beads; Hot air oven method at 200-250 C for 2-3 hours (thickness 5-10 cm). Microwave method at 600-800 watt (thickness 3-5 cm) for 2 minutes and open the microwave for 10 seconds to avoid the overheating then continue till 10-12 minutes. DON’T FORGET to put potato or carrot in the microwave during regeneration.

**CAUTION!!** Drying Bead should not be done above 300 °C

Buid-in Hygrometer as a standard on all containers: Each DryStore® has a built-in hygrometer giving a quick-check on relative humidity and temperature levels inside the controlled chamber. The hygrometer is capable of measuring humidity over the entire humidity range from 10 to 100% RH, with accuracy of ± 1-2% RH, ± 1-2 C. These digital monitoring provides the indicators and controls necessary to set the desired humidity and temperature level and to measure the actual humidity level inside the chamber.

**CAUTION!!** Never use water or other cleaning agent on the hygrometer

**Set-up of DryStore®**

Before operation, carefully unpack the DryStore® and accessories and check for signs of damage or missing parts.

All DryStore® are checked prior to packaging to ensure proper chamber. However, they can come out of part or crack during shipping.
Following Roberts EH (1972). Rhino Research developed the “DryStore® & DryBox®” which can be used to dry and store seeds under almost optimal conditions, while giving a RH with ‘Color Sign’ warning if the seed moisture content inside the container (drum/box) increases.

Therefore we designed a system that not only keeps your seeds in a sealed condition, but also will alert the seedsmen with a RH with ‘Color Sign’ warning when the environment inside the container is no longer sufficiently dry.

Refer storage condition without insect by Roberts EH (1972)
- In post-harvest technology, seed industry, warehouse, farmer level, storage seeds at RH lower 35% were recommended to ensure fungi, bacteria, mites and insect free.

Refer storage condition to maintain germination, vigor and longevity by RH with color sign
- **Agro-seeds**: RH lower 25% (long term storage) if over 60% should regenerate the Drying Beads®.
- **Vegetable seeds**: RH lower 40% (long term storage) if over 60% should regenerate the Drying Beads®.

CAUTION!! The seed surface should be dried before apply drying bead for drying or storage purposes otherwise the exothermic reaction (above 100 °C) of Drying Bead® will take place.
INTRODUCTION

MobiDry® is a smart way for drying and storing your seeds. The Drying Beads® give a fast and easy way for drying the seeds and, if stored properly, increase the shelf life tremendously. These beads can be easily regenerated and re-used for many times. This makes that this MobiDry® system not only increases the quality of the dried and stored seeds, but this also in a very efficient and cost-effective way.

Seed storage can be a major problem because the majority of the world’s poor countries are located in the tropics, where the combination of high temperature and high relative humidity causes rapid deterioration of seed quality. In South Asia, seeds harvested before or during the monsoon season need to be dried and stored until the next planting season. The relative humidity of the air for most of the period between harvest and planting often exceeds 75% and temperatures remain above 30°C, causing seeds to deteriorate rapidly. Seeds absorb water from the ambient air when they are stored in humid environments and lose water when stored in low relative humidity. Generally speaking, a seed’s longevity is reduced by approximately half for every 1% increase in seed moisture content (water content as a percent of fresh weight) or 6°C increase in temperature, and the effects are additive. Thus, seeds stored at 10% moisture content and 30°C will last only one-quarter as long as seeds stored at 9% moisture content and 25°C. This principle implies that seed storage life can be enhanced considerably by lowering both moisture and temperature. However, moisture content is the key factor that can be lowered for successful seed storage in tropical countries. Cold storage is expensive and difficult to maintain because electricity supplies are often inconsistent and unreliable. In addition, seeds that are dried to low moisture contents are more tolerant of storage at warm temperatures. However, even prolonged sun drying in high humidities cannot reduce seed moisture content to the levels low enough to assure long-term viability.

These problems can be overcome by drying seeds to low moisture contents using inexpensive hermetic containers and drying beads, a recently developed desiccant technology. Using drying beads, seeds can be quickly and efficiently dried to safe storage moisture contents, and storing seeds in hermetic containers not only maintains low moisture contents, it also prevents losses to rodents, insects and molds. Seed desiccant drying beads provide a simple, inexpensive and reusable method for seed drying in humid climates.
WHAT ARE DRYING BEADS®

Drying beads® are modified ceramic materials that specifically absorb and hold water molecules very tightly in their microscopic pores. The beads will continue to absorb water until all of their pores are filled, up to 20 to 25% of their initial weight. When placed in an enclosed space like a plastic or metal container, the beads will remove water from the air, creating and maintaining a very low humidity environment. Seeds (or other materials such as fruits or herbs) placed into a container with the beads will lose water due to the low air humidity, and will continue to do so until they come to equilibrium. Hence, desiccant-based drying simply transfers the water in the seed to the drying beads through the air without the need for heating. The drying beads can subsequently be removed and regenerated separately by heating at >200°C for 3-4 hours to release the absorbed water.

ADVANTAGES OF DRYING BEADS®

A major advantage of bead drying is that it is not dependent upon the sun or other direct sources of energy and it is independent of the ambient humidity. It does require the use of moisture-proof containers in which the beads and seeds can be enclosed. Once both the beads and seeds are in the closed container, the transfer of water from the seeds to the beads will occur automatically. In addition, by enclosing the seeds in a container, they are protected from rodents, birds, insects, molds and rainfall. The time needed to spread and collect the seeds daily and protect them from birds and rainfall during open drying will be saved. Once the seeds have reached the desired moisture content, the beads can be removed and the seeds will stay at that moisture content as long as they remain within the moisture-proof container. Seeds dried to these low moisture levels can be stored for several years even at warm temperatures. It is more convenient to use this method with vegetable and other high-value, low-volume seeds than with the large quantities of seeds utilized in agronomic crops such as cereals or legumes. Nonetheless, there are ways to utilize drying beads on larger industrial scales and store the seeds in hermetic packaging.

Enclosing seeds inside of sealed containers goes against most traditional knowledge about seed storage. Enclosing moist seeds in such containers will result in damage due to molds and insects. Thus, traditional knowledge is correct in humid regions where it is not possible to dry the seeds to the low levels required for safe storage in sealed containers. However, the addition of drying beads to the seeds in the sealed containers, by lowering the seed moisture content, changes everything and results in the multiple advantages of greater seed longevity as well as protection from losses due to animals, insects and molds.
WHY NOT JUST USE SILICA GEL OR OTHER DESICCANTS?

Seed drying with desiccants is not a novel technology, and specific drying equipment based upon silica gel is available. Even other seeds, such as rice grains, when heated to dry them to very low levels, will absorb moisture from other seeds and act as a desiccant. However, silica gel has less affinity for water than seed drying beads at the low humidity needed to dry seeds to optimal storage moisture contents. Also, while silica gel can be regenerated by heating at relatively low temperature, there is loss of water-holding capacity with each cycle and it must eventually be replaced. In contrast, there is no loss of water-holding capacity of seed drying beads when heated for regeneration. It has been estimated that they could be regenerated a minimum of 10,000 times without loss of capacity. The beads are non-toxic and pesticide-free.

EQUIPMENT NEEDED

Any type of locally available airtight container (plastic, metal can, aluminum foil etc.) of any size can be used. A gasket inside the cap may be needed to ensure airtight conditions in plastic or metallic containers. A simple test can determine whether the container is airtight. Place a small quantity of fresh indicator silica gel inside the container for a few days. A color change indicates that the container is not moisture proof.

Beads can be mixed with the seeds for more rapid drying, and can be easily screened out from the seeds for reuse. Alternatively, the beads can be enclosed in a porous bag or container within the hermetic container for convenience. The only requirement is that beads and seeds be in contact with the same atmosphere that is sealed from the external atmosphere. Wet seeds, such as fresh tomato or melon seeds, should be surface dried by the sun or other method before mixing directly with seed drying beads.

Note: adding liquid water directly to drying beads generates heat. Avoid bringing liquid water into direct contact with drying beads.

HOW TO APPLY DRYING BEADS TO THE SEED
CAN DRYING BEADS DAMAGE SEEDS?

If an excess of beads is stored with seeds, the seed moisture content will be reduced to very low levels. Most desiccation-tolerant (“orthodox”) seeds are not damaged even when dried to 3-5% moisture. Some larger seeds, particularly cucumber, watermelon, bottle gourd and bean, can be damaged by rapid rehydration from very low moisture contents, called imbibitional damage. To be safe, it is a good practice to remove seeds from the sealed storage container and allow them to rehydrate in air under ambient conditions for a few days prior to planting or bringing into contact with liquid water. In most tropical regions, the ambient humidity will safely rehydrate the seed sufficiently to prevent imbibitional damage. Some seeds also become brittle when very dry and should be handled gently until they have had a chance to rehydrate from the humid air. This is particularly important for bigger seeds like beans. Some seeds (termed “recalcitrant”) are damaged by drying and should not be dried using desiccant beads. Many tropical tree seeds like mango, durian, and palm or other seeds like citrus are recalcitrant and should not be dried using these beads.

PRECAUTIONS

The beads release heat by an exothermic reaction when they absorb water. At the rate that water is absorbed from the air, this heat is readily dissipated and no discernible increase in temperature will be detected. However, if liquid water is added directly to drying beads, the rapid release of heat will raise the bead temperature to levels that can be injurious to the seeds and to workers. Thus, Do Not add beads directly to very wet seeds such as cucumber, melons or tomato seeds immediately after washing. Dry the seeds in air first to remove excess water before mixing directly with beads.

OTHER USES

The drying beads can be used to dry herbs, fruits and vegetables, to purify essential oils, or other applications where the specific removal of water is desired.

WHAT QUANTITY OF DRYING BEADS IS NEEDED TO DRY SEEDS?

The amount of drying beads required depends upon several factors:
1) The water-holding capacity of the beads;
2) The quantity of seeds to be dried;
3) The initial seed moisture content; and
4) The final desired seed moisture content
Therefore, the water-holding capacity of the drying beads can vary somewhat depending upon how they have been stored and handled prior to use.
HOW TO DETERMINE DRYING BEADS’S CURRENT WATER-ABSORBING & THE TOOLS NEEDED

➢ Plastic box or other kind of container & mesh wire sieve

➢ A water saturated environment (100% RH) or other water source
Weigh 3-4 samples of 50-100 grams/each of cooled reactivated beads and then place inside of a container with an open container of water, a wet sponge, or other water source.

After leaving sealed for a day, the drying beads can be removed and weighed again. The final weight minus the initial weight is the weight of water absorbed, and dividing this value by the initial weight gives the water-holding capacity.

Drying beads water-holding capacity (%)

$$\text{Drying beads water-holding capacity (\%)} = \frac{\text{Final drying beads weight} - \text{Initial drying beads weight}}{\text{Initial bead weight}} \times 100$$

For a given bead water-holding capacity (generally 18 to 24%), the charts below show the ratios of seed to bead weights that will reduce the indicated initial seed moisture content down to the corresponding final moisture content (Fig. 1). For example, for seeds at 25% initial moisture content, if the beads will hold 20% of their weight in water, a 1:1 ratio of seeds to beads would reduce the final seed moisture content to 6% (Fig. 1). Kew Gardens provides a utility for estimating the initial seed moisture content for many species based on the ambient temperature and relative humidity.

(http://data.kew.org/sid/viability/mc1.jsp)
Figure 1. Charts to estimate the seed: drying beads ratio required to reduce initial seed moisture content to different final moisture contents. Lines show the relationships between the initial (x-axis) and final (y-axis) seed moisture contents for different seed: drying beads weight ratios. The different graphs show the relationships for 18, 20, 22 and 24% bead water-holding capacities. Arrows show the example described in the text. Although the lines show seed moisture content going to zero, in practice the minimum final moisture content is generally not less than 2%.

Attention!!

The amount of beads do not include any amount that is compensating for any efficiency losses that can occur, drying the air volume inside the drying recipient, absorbing moisture out of the environment during the setup etc.

We cannot calculate this for you, but we found out if the setup has been done swiftly, the recipient has been chosen correctly and the recipient is airtight, that there is no significant loss of drying capacity.
HOW TO CALCULATE AMOUNT OF DRYING BEADS?

Rhino Research with the support from the HortCRSP project and UCDAVIS. We developed the Excel sheet for calculation amount drying beads and the effect of seed moisture content to the seed longevity. Please download this excel sheet on www.dryingbeads.org

| Common name | Corn | Temperature (°C) | 30 |
| Botanical name | Zea mays | Bead capacity (%) | 17.5 |
| Seed oil content (%) | 74.62 | Initial MC (%) - Fresh Weight basis | 14 |
| Basis | Initial RH (%) | Desired RH (%) | 32.38 |
| MC (FW) | Desired MC (%) - Fresh Weight basis | Beads needed (g) | 685.71 |
| Amount of seeds (g) | 2000 | Beads available (g) | 1000 |

Moisture Release Curve and Drying Steps

![Graph showing moisture content vs. relative humidity](image)
1. Select the species of interest on the list. If you would like to enter manually the oil content, choose the item "other" from the list.
   The manual oil content field will appear below to enter desired value.

2. Enter the equilibrated temperature of seed in Celsius from temperature, relative humidity measurement unit.

3. Enter bead capacity (%). Follow the method described in the introduction sheet for bead capacity (moisture content) measurement.

4. Select the base value from the list which you would like to work with, i.e., Relative Humidity (RH), Moisture Content dry basis - MC (MC) or fresh basis (FW).

5. Based on the selection in item 4, enter initial and desired storage values.

6. Specify the amount of seeds intended for drying.

7. Enter the quantity of available reactivated Drying Beads.
8. The amount of Drying Beads needed will be calculated and shown. In the case where there is not enough Drying Beads for drying in one step, the following options will appear below. You can opt to use always the same amount of Drying Beads on all steps by selecting "Y" on the first field (8A).

You can also set the acceptable final difference in RH, avoiding more steps for a small difference (8B). All steps needed will be shown below together with the amount of Drying Beads needed.

![Graph showing repeated drying steps]

9. The graph shows the isotherm curve (MC X RH relationships) for selected seed species and based on the temperature indicated (gray line), the initial state (red diamond) and the desired final state (green diamond). If repeated drying is needed, color coded circles will be shown that indicate beads needed to achieve seed parameters after every drying step.

(Crampton Equation)

10. Seed survival curves showing predicted final germination percentage (Y axis) over storage period (X axis) for known initial seed quality and MC and desired storage MC.

11. Seed parameters including initial seed quality, storage T and MC are needed for Seed Viability Equation to predict storage life (Ellis & Roberts, 1980).

(Ellis & Roberts equation)

12. Species T and MC constants needed for Seed Survival Curves
HOW TO REACTIVATE DRYING BEADS?

➢ Separate seed and Drying beads®

➢ To regenerate the beads for reuse with a hot air oven or other heat source. This can be any type of oven capable of heating to over 200-250°C for 2-3 hours, thickness of the beads between 5-7 cm. For example, an oven for baking bread could be used to regenerate the beads. After heating for 2-3 hours,
Microwave method at 600-800 watt (thickness 3-5 cm) for 2 minutes and open the microwave for 10 seconds to avoid the overheating then continue till 10-12 minutes. DON'T FORGET to put potato or carrot in the microwave during regeneration. After regenerate, the beads should be cooled in a metal container with a lid (to reduce re-absorption of water) until they can be safely handled, then stored in a moisture-proof container at ambient room.

Packaging/Storage; for small quantity the glass jar or plastic bag. For transport or re-pack, we recommend to use vacuum sealing with aluminium foil. For big quantity, we recommend to out in the drum with a seal lid.
HOW TO CONTACT US

The owner of the Intellectual Property (IP) innovator & producer:

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Patcharin Taridno (Ann): ann@rhino-research.com
Drying and storing high quality seeds have never been easier. Combining quality storage with easiness, these DryStore® products allow companies to dry their seeds in a very easy way to low seed moisture contents, furthermore, the same tool will store their high value seeds in a low moisture environment and a control of the moisture content of these products take only seconds. Cost effectiveness combines with efficiency and quality, DryStore products are the best way for storing your high quality seeds, drying your breeder lines and maintaining the quality of your foundation seeds.

Seeds should be dried and stored in containers that are hermetically closed and that thus can maintain a low RH. Sealed and vacuum-sealed bags are of course ideal, but are often not available nor practical. Therefore we designed a system that not only keeps your seeds in a sealed condition, also will alert the seeds professional with a ‘Color/Sign’ warning when the environment inside the container is no longer sufficiently dry.

Following Roberts EH (1972), “DryStore®” has been developed and use to dry and store seeds under almost optimal conditions, while giving a RH with ‘Color / Sign’ warning if the seed moisture content inside DryStore® increases.
### Introduction DryStore® Set Small

This set provide the multiple units and includes beads. This set is good for a seed company or an organization who interest to setup a trial for small quantity of seed sample with the simple and easiest technology of Drying Beads®.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item of DryStore® Set Small</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DryStore® 1.6 L (incl. beads 100 gr)</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>DryStore® 8.4 L (incl. beads 500 gr)</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>DryStore® 16 L (incl. beads 1 kg)</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>DryStore® 50 L (incl. beads 4 kg)</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>DryStore® 100 L (incl. beads 8 kg)</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Drying Beads® 50 kg (pack in drum)</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Starter Pack Complete</td>
<td>1</td>
</tr>
</tbody>
</table>

### Introduction DryStore® Set Medium

This set provide the multiple units and includes beads. This set is good for a seed company who interest to setup a trial and dry or store small quantity of seed sample with the simple and easiest technology of Drying Beads®.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item of DryStore® Set Medium</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DryStore® 1.6 L (incl. beads 100 gr)</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>DryStore® 8.4 L (incl. beads 500 gr)</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>DryStore® 16 L (incl. beads 1 kg)</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>DryStore® 50 L (incl. beads 4 kg)</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>DryStore® 100 L (incl. beads 8 kg)</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Drying Beads® 50 kg (pack in drum)</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Starter Pack Complete</td>
<td>1</td>
</tr>
</tbody>
</table>

### Introduction DryStore® Set Large

This set provide the multiple units and includes beads. This set is good for a seed company who interest to dry or store small and medium quantity the seed sample with the simple and easiest technology of Drying Beads®.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item of DryStore® Set Large</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DryStore® 1.6 L (incl. beads 100 gr)</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>DryStore® 8.4 L (incl. beads 500 gr)</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>DryStore® 16 L (incl. beads 1 kg)</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>DryStore® 50 L (incl. beads 4 kg)</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>DryStore® 100 L (incl. beads 8 kg)</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Drying Beads® 50 kg (pack in drum)</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Starter Pack Complete</td>
<td>1</td>
</tr>
</tbody>
</table>
Starter Pack Complete

This set provides the complete package of the necessary tools needed for the setup of the drying protocol using the Drying beads® technology.

<table>
<thead>
<tr>
<th></th>
<th>Item Description</th>
<th>Quantity/Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DryStore® 1.6 L</td>
<td>3 units</td>
</tr>
<tr>
<td>2</td>
<td>DryStore® 8.4 L</td>
<td>2 units</td>
</tr>
<tr>
<td>3</td>
<td>DryStore® 16 L</td>
<td>1 unit</td>
</tr>
<tr>
<td>4</td>
<td>Plastic Box 1.45 L</td>
<td>3 units</td>
</tr>
<tr>
<td>5</td>
<td>Sieve</td>
<td>3 units</td>
</tr>
<tr>
<td>6</td>
<td>Balance</td>
<td>1 unit</td>
</tr>
<tr>
<td>7</td>
<td>Data Logger (include software + battery)</td>
<td>2 units</td>
</tr>
<tr>
<td>8</td>
<td>Plastic white basket</td>
<td>1 unit</td>
</tr>
<tr>
<td>9</td>
<td>Silica gel (pack in aluminum foil - 500 gram)</td>
<td>1 unit</td>
</tr>
<tr>
<td>10</td>
<td>Drying Beads® (pack in aluminum foil - 1 kg)</td>
<td>3 units</td>
</tr>
<tr>
<td>11</td>
<td>Net bag (Small-3 pcs; Medium-3 pcs)</td>
<td>6 pcs</td>
</tr>
<tr>
<td>12</td>
<td>Stainless tray</td>
<td>3 units</td>
</tr>
<tr>
<td>13</td>
<td>Glass jar</td>
<td>3 units</td>
</tr>
<tr>
<td>14</td>
<td>Folder/Files/Worksheet/CD</td>
<td>1 unit</td>
</tr>
</tbody>
</table>

A hermetic container with the hygrometer to mix seed and drying beads with different capacity 1.6, 8.4 and 16 L depend on sample size. Seeds should be dried and stored in containers that are hermetically closed and that thus can maintain a low RH.

To test drying beads capacity after reactivate or before use beads.

To weigh seed and/or drying beads.

To record humidity (RH), temperature and dew point.

To separate the beads from seed (in case user blend beads and seed/product together-direct method).

To indicate a drying beads are active or not.

To dry seed or other agro products.

To put drying beads in case user do not want to separate beads and seeds/product afterward (indirect method).

An A container to place in oven for reactivate drying beads, temp 200-250 °C for 3 hours thickness of beads 3-5 cm.

To keep/store Drying beads after reactivation.

To provide all information and instruction on how to use drying beads.
DryStore® 1.6 L

The DryStore is a new product with smart and simple design that fit right into the space and environment of anywhere in the world. Base on Drying Beads® technology, it is intended for dry and storage purposes which can be widely utilized, for seed drying, seed storage, anti-moisture, anti-mold and anti-insect.

This unit provide a necessary tools needed for drying or storing seed using the drying beads technology. As Seeds should be dried and stored in containers that maintain a low Relative humidity (RH). RH is reduces to 10-15% by beads, to protect any components requiring controlled storage conditions combine with standard airtight and dust-off container. This is the ideal to store seed for both medium and short term.

Build-in Hygrometer as a standard on all containers: Each DryStore® has a built-in hygrometer giving a quick-check on relative humidity and temperature levels inside the controlled chamber. The hygrometer is capable of measuring humidity over the entire humidity range from 10 to 100% RH, with accuracy of ± 1-5% RH, ± 1-3 C. These digital monitoring provides the indicators and controls necessary to set the desired humidity and temperature level and to measure the actual humidity level inside the chamber.

DryStore® are also available in small or large models, with either in square box 1.6 L or 8.4 L or 16 L or drum 50 L or 100 L.

Features

- A hermetic container with build-in the hygrometer to contain/mix a seed and drying beads together in order to dry or maintain seed to safe level.
- User can monitoring a temperature and humidity inside a hermetic container and able to set desired humidity and temperature level for either for a seed drying or storing purposes.
- User can take replace or add more drying beads in the coantiner once a humidity over the desired level.
- User can create and optimize a right condition for drying or storing seed for different crops.
- Replaceable lithium battery.

**Composition of package:** One set of DryStore® 1.6L is 24 units.

One unit including

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plastic container</strong></td>
<td>A hermetic container volume 1.6 L with build-in hygrometer measuring humidity over the entire humidity range from 10 to 100% RH, with accuracy of ± 1-5% RH, ± 1-3 C.</td>
</tr>
<tr>
<td><strong>Drying beads</strong></td>
<td>These beads absorb water until all of their pores are filled, up to 20-25% of their initial weight. Regeneration of drying beads: hot air oven method at 200-250°C for 2-3 hours (thickness 5-10 cm). Microwave method at 600-800 watt (thickness 3-5 cm) for 2 minutes and open the microwave for 10 seconds to avoid the overheating then continue till 10-12 minutes. DON’T FORGET to put potato or carrot in the microwave during regeneration.</td>
</tr>
</tbody>
</table>

For further questions, please do not hesitate to contact us

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[www.centorthai.com](http://www.centorthai.com)
DryStore® 8.4 L

The DryStore is a new product with smart and simple design that fit right into the space and environment of anywhere in the world. Base on Drying beads® technology, it is intended for dry and storage purposes which can be widely utilized, for seed drying, seed storage, anti-moisture, anti-mold and anti-insect.

This unit provide a necessary tools needed for drying or storing seed using the drying beads technology. As Seeds should be dried and stored in containers that maintain a low Relative humidity (RH). RH is reduces to 10-15% beads, to protect any components requiring controlled storage conditions combine with standard airtight and dust-off container. This is the ideal to store seed for both medium and short term.

Build-in Hygrometer as a standard on all containers: Each DryStore® has a built in hygrometer giving a quick-check on relative humidity and temperature levels inside the controlled chamber. The hygrometer is capable of measuring humidity over the entire humidity range from 10 to 100% RH, with accuracy of ±1-5% RH, ±1-3 C. These digital monitoring provides the indicators and controls necessary to set the desired humidity and temperature level and to measure the actual humidity level inside the chamber.

DryStore® are also available in small or large models, with either in square box 1.6 L or 8.4 L or 16 L or drum 50 L or 100 L.

Features
- A hermetic container with build -in the hygrometer to contain/mix a seed and drying beads together in order to dry or maintain seed to safe level.
- User can monitoring a temperature and humidity inside a hermetic container and able to set desired humidity and temperature level for either for a seed drying or storing purposes.
- User can take replace or add more drying beads in the coantiner once a humidity over the desired level.
- User can create and optimize a right condition for drying or stroing seed for different crops.
- Replaceable lithium battery.

### Composition of package:

One set of DryStore® 8.4 L is 12 units.

One unit including:

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DryStore® 8.4 L</td>
</tr>
<tr>
<td>2</td>
<td>Drying beads® (pack in aluminum foil of 500 gr)</td>
</tr>
<tr>
<td>3</td>
<td>Net bag (medium size)</td>
</tr>
<tr>
<td>4</td>
<td>Build-in hygrometer</td>
</tr>
<tr>
<td>5</td>
<td>Worksheet</td>
</tr>
</tbody>
</table>

For further questions, please do not hesitate to contact us

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www.centorthai.com
DryStore® 50 L

The DryStore is a new product with smart and simple design that fit right into the space and environment of anywhere in the world. Based on Drying beads® technology, it is intended for dry and storage purposes which can be widely utilized, for seed drying, seed storage, anti-moisture, anti-mold and anti-insect.

This unit provide a necessary tools needed for drying or storing seed using the drying beads technology. As Seeds should be dried and stored in containers that maintain a low Relative humidity (RH). RH is reduces to 10-15% by beads, to protect any components requiring controlled storage conditions combine with standard airtight and dust-off container. This is the ideal to store seed for both medium and short term.

Build-in Hygrometer as a standard on all containers: Each DryStore® has a built in hygrometer giving a quick-check on relative humidity and temperature levels inside the controlled chamber. The hygrometer is capable of measuring humidity over the entire humidity range from 10 to 100% RH, with accuracy of ± 1-5% RH, ± 1-3 C. These digital monitoring provides the indicators and controls necessary to set the desired humidity and temperature level and to measure the actual humidity level inside the chamber.

DryStore® are also available in small or large models, with either in square box 1.6 L or 8.4 L or 16 L or drum 50 L or 100 L.

Features

- A hermetic container with build-in the hygrometer to contain/mix a seed and drying beads together in order to dry or maintain seed to safe level.
- User can monitoring a temperature and humidity inside a hermetic container and able to set desired humidity and temperature level for either for a seed drying or storing purposes.
- User can take replace or add more drying beads in the coantiner once a humidity over the desired level.
- User can create and optimize a right condition for drying or storing seed for different crops.
- Replaceable lithium battery.

### Composition of package:

One set of DryStore® 50L is 4 units

One unit including:

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 DryStore® 50 L</td>
<td>A hermetic container with the hygrometer to mix seed and drying beads with different capacity 50 L.</td>
</tr>
<tr>
<td>2 Drying Beads: pack in aluminum foil of 4 kg</td>
<td>A modified ceramic materials that specifically absorb and hold water molecules very tightly in their microscopic pores. The beads will continue to absorb water until all of their pores are filled, up to 20 -25% of their initial weight.</td>
</tr>
<tr>
<td>3 Insert (cylinder) of beads</td>
<td>To contain drying beads of 4 kg inside the drum and able to regenerate the beads in oven as it is heat resistance.</td>
</tr>
<tr>
<td>4 Build-in hygrometer</td>
<td>3 units to monitoring humidity (RH) and temperature inside the hermetic container, replaceable of battery.</td>
</tr>
<tr>
<td>5 Worksheet</td>
<td>1 pc to provide all information and instruction on how to use drying beads</td>
</tr>
</tbody>
</table>

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DryStore® 100 L

The DryStore is a new product with smart and simple design that fit right into the space and environment of anywhere in the world. Based on Drying beads® technology, it is intended for dry and storage purposes which can be widely utilized, for seed drying, seed storage, anti-moisture, anti-mold and anti-insect.

This unit provide a necessary tools needed for drying or storing seed using the drying beads technology. As Seeds should be dried and stored in containers that maintain a low Relative humidity (RH). RH is reduces to 10-15% by beads, to protect any components requiring controlled storage conditions combine with standard airtight and dust-off container This is the ideal to store seed for both medium and short term.

Build-in Hygrometer as a standard on all containers: Each DryStore® has a built in hygrometer giving a quick-check on relative humidity and temperature levels inside the controlled chamber. The hygrometer is capable of measuring humidity over the entire humidity range from 10 to 100% RH, with accuracy of ± 1-5% RH, ± 1-3 C. These digital monitoring provides the indicators and controls necessary to set the desired humidity and temperature level and to measure the actual humidity level inside the chamber.

DryStore® are also available in small or large models, with either in square box 1.6 L or 8.4 L or 16 L or drum 50 L or 100 L.

Features

- A hermetic container with build-in the hygrometer to contain/mix a seed and drying beads together in order to dry or maintain seed to safe level.
- User can monitoring a temperature and humidity inside a hermetic container and able to set desired humidity and temperature level for either for a seed drying or storing purposes.
- User can create and optimize a right condition for drying or storing seed for different crops.
- Replaceable lithium battery.

### Composition of package:

One set of DryStore® 100 L is 4 units

One unit including:

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steel drum</strong></td>
<td>A hermetic drum volume 100 L with 3 positions build –in hygrometer measuring humidity over the entire humidity range from 10 to 100% RH, with accuracy of ± 1-5% RH, ± 1-3 C.</td>
</tr>
<tr>
<td><strong>Drying beads</strong></td>
<td>These beads absorb water until all of their pores are filled, up to 20-25% of their initial weight. Regeneration of drying beads; hot air oven method at 200-250 C for 2-3 hours (thickness 5-10 cm). Microwave method at 600-800 watt (thickness 3-5 cm) for 2 minutes and open the microwave for 10 seconds to avoid the overheating then continue till 10-12 minutes. DON’T FORGET to put potato or carrot in the microwave during regeneration.</td>
</tr>
<tr>
<td><strong>1</strong> DryStore® 100 L</td>
<td>1 unit A hermetic container with the hygrometer to mix seed and drying beads with different capacity 100 L.</td>
</tr>
<tr>
<td><strong>2</strong> Drying Beads : pack in aluminum foil of 8 kg</td>
<td>1 unit A modified ceramic materials that specifically absorb and hold water molecules very tightly in their microscopic pores. The beads will continue to absorb water until all of their pores are filled, up to 20-25% of their initial weight.</td>
</tr>
<tr>
<td><strong>3</strong> Insert (cylinder) of beads</td>
<td>1 pc To contain drying beads of 8 kg inside the drum and able to regenerate the beads in oven as it is heat resistance.</td>
</tr>
<tr>
<td><strong>4</strong> Build-in hygrometer</td>
<td>3 units to monitoring humidity (RH) and temperature inside the hermetic container, replaceable of battery.</td>
</tr>
<tr>
<td><strong>5</strong> Worksheet</td>
<td>1 pc to provide all information and instruction on how to use drying beads.</td>
</tr>
</tbody>
</table>
Gas Oven Insert

This oven iron steel gas oven is a new type of gas heating product developed by our company. This special design is fit for both model of a insert (cylinder) DryStore® 50 and 100 L for regeneration beads inside these cylinders. This is a easiest method for reactivating the Drying Beads® this oven can be equipped with butane gas. A minimal temperature require for regenerate Drying Beads® is 200˚C (optimal is 250˚C) should be reached. This oven able to set the temperature by manually with build-in thermometer provides a controls necessary to set the desired temperature level and to measure the actual temperature level inside the chamber.

The cylinder which contain full filled with water beads from DryStore® 50 and 100 L place inside the chamber once the temperature reach 200-250 C after heating for 3-4 hours. The heated cylinder which contain hot beads should be cooled in a storage drum of 200L with a lid/cover until they can be safely handled, then stored in a moisture-proof container at ambient room. This cover would enable the cooling of the reactivated beads in an open environment, without significant re-absorption of moisture. It is evident that it is very important that the beads must be quickly protected from re-absorbing moisture from the air, and leaving the beads cooling off inside the oven is not adequate. Most of the moisture would be still available in the air and cooling the air would increase the air humidity. The beads would then quickly reabsorb this humidity and reduce the efficiency of the reactivation.

Features

• An iron steel reasonable structure for heat resistant.
• Quick heating with low energy consumption.
• With two doors, it is convenient for users to take in-out an insert without lose too much heat.
• Heating adjusting by gas valves which easy to operate.
• The temperature adjusting range is 0-300 C. Users can setup the regenerate temperatures according to their needs.
• A fan help to distribute heat generated from a circulate chamber that surrounds the fan.
• Wheel makes moving appliances a lot easier with the minimum effort.
### Composition of this unit:
A gas oven with 12 sockets (channels) without insert.

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat resources</td>
<td>Butane gas</td>
</tr>
<tr>
<td><strong>Number of Socket</strong></td>
<td>12 sockets (channels)</td>
</tr>
<tr>
<td>Socket size</td>
<td>1.68 x 16.8 cm</td>
</tr>
<tr>
<td><strong>Dimension (cm)</strong></td>
<td>123 x 90 x 133 cm</td>
</tr>
<tr>
<td>Total Weight (Kg)</td>
<td>200 Kg</td>
</tr>
<tr>
<td>Gas pipe line</td>
<td>4 lines</td>
</tr>
<tr>
<td><strong>Temperature Range (°C)</strong></td>
<td>0 – 300 C</td>
</tr>
</tbody>
</table>
MoistureBox®

Seed moisture is a very important factor for seed quality. On one hand water is needed for a seed to germinate and to ensure that the germ can develop successfully into a plant. But on the other hand water does play a very negative effect on seed quality during processing and storage. Measuring seed moisture content has always been a difficult job most available system are, or time consuming such as the oven method, imprecise such as measuring conductivity or costly such as the NIR method.

Therefore we do propose an alternative way for measuring seed moisture content through the measurement of equilibrium temperature and RH of seed inside the hermetic container. With the incorporated software package is converting these equilibrium temperature and RH to the classical seed moisture content (using standard or adapted oil content percentages).

The unit is a new product with smart and simple design that provide a measurement of equilibrium temperature and humidity of seed inside the hermetic container. MoistureBox® has a built- in hygrometer giving a quick-check on relative humidity and temperature levels of seed inside the hermetic container. The hygrometer is capable of measuring humidity over the entire humidity range from 10 to 90% RH, with accuracy of ± 5% RH, ± 0.1 °C. These LCD display digital monitoring provides the equilibrium humidity and temperature level and to measure the actual humidity level inside the chamber.

Features

• A hermetic container with build -in the hygrometer to put seed in the container without any exchange moisture to environment in order to bring seed into their equilibrium moisture level.
• User can monitoring an equilibrium temperature and humidity of seed from the LCD displays.
• This is mobile and quick measurement of seed moisture content
• Non destructive of seed sample
• Easy and simple operation
• Replaceable battery.
## Composition of package:

One set of MoistureBox is 10 units

One unit including:

<table>
<thead>
<tr>
<th></th>
<th>MoistureBox® 0.5L</th>
<th>1 unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A hermetic container with build-in high quality hygrometer to measure the temperature and humidity with capacity 0.5 L. These LCD display digital monitoring provides a humidity and temperature of seed in order to measure seed moisture content.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Build-in hygrometer</th>
<th>1 unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>to monitoring humidity (RH) and temperature inside the hermetic container, replaceable battery.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Worksheet</th>
<th>1 pc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>to provide all information and instruction on MoistureBox®</td>
<td></td>
</tr>
</tbody>
</table>

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RRMoisture

A very fast and precise matter do determine seed moisture is through the measurement of water activity (Aw). Even so, many academics are preferring the water activity above seed moisture content. It gives a much more “universal” number and can be easily translated to the equilibrium Rh (= Aw/100).

Dr. Cromarty did make an equation that connects the water activity with the seed moisture content and the oil content.

Our RR Moisture unit is using all this information and can measure the water activity and translate this (when the seed moisture content is added) into the oil content. Once this number is known, it can be stored as a constant (average per species, or per variety for oily seeds).

Features

Water activity probe
- Measurement range 0….1 (0….100 %RH), -45….85 °C
- On/Off switch
- UART (USB) interface for direct connection to a PC
- Adjusted at 23 °C and 10, 35 and 80 %RH

Sample holder 14 mm
- These stainless steel sample holders were developed specifically for the water activity probes. The sample holder provides excellent sample containment and optimum temperature stability.

Sample containers
- A containers for 14 mm sample holder

Software
- Standard software where the USB probe can directly be connected to a PC running the standard software package enabling water activity measurement capability. This device is a fit for a multi station. Application, as multiple probes can be attached to a single PC.
- Seed moisture software where the transition from water activity to SMC (fresh weight) using a standard database on species related to oil content with the possibility to adapt and/or add specific oil content feature.
**Item** | **Specifications**
--- | ---
**Software Water Activity** | Standard software where the USB probe can directly be connected to a PC running the standard software package enabling water activity measurement capability.

**Sample Holders WP-14-S** | Height: 14 mm, Material: V2A steel, Weight: 350 g

**Probe HC2-AW-USB** | Measurement probe connect to PC via USB to PC, 3 m cable, Accuracy at 23 °C ±5 K, ±0.008 AW / 0.8 %RH / ±0.1 K, Power supply via USB interface, Filter type: Wire mesh filter with 20 – 25 µm pore size, Dimensions: ø 68 x 60 mm, Weight: 66 g

**Disposable Sample Container PS-14** | Height: 14 mm Material: plastic, Weight: 5 g

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**Composition of package:** One complete set of RRMoisture including

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CD of Basic Software</td>
<td>1 unit</td>
</tr>
<tr>
<td>2</td>
<td>Sample Holders WP-14-S</td>
<td>1 unit</td>
</tr>
<tr>
<td>3</td>
<td>Probe HC2-AW-USB</td>
<td>1 unit</td>
</tr>
<tr>
<td>4</td>
<td>Disposable Sample container PS-14</td>
<td>5 units</td>
</tr>
</tbody>
</table>

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**DataLogger**

This DataLogger measures and stores up to 32,000 humidity (0 to 100%RH) and temperature (-35 to 80°C(-31~176°F)) readings. Dew point and more professional applications can be provided by the PC software DGraphTM. Logger status, alarm indication and low battery indication are via flashing red/green LED and yellow LED. The button on housing can be used to start logging, or confirm and clear LED alarm when LED alarm is hold status.

User can plug DataLogger straight into PC’s USB port without any cables. Before getting started, user need to install USB driver and DGraphTM software, provided on the CD which is included in product packing box. All the software can run under Windows XP, Vista, 7 or 8(32 bit and 64 bit Versions). User can easily use DGraph. Software to setup sample rate (from 10 seconds to 12 hours), high/low alarm. Limit and start/stop method, and download data to PC, etc. And then user can view, analyze and print the data, or export other file formats (txt, xsl, csv, bmp, jpg).

**Features**

- USB interface directly communicate with PC for setup and data download
- User can set access password for data logger
- User can name each channel and enable/disable specified channel freely
- LED alarm enable/disable, LED alarm hold enable/ disable and alarm limit settings for all channels
- User can input formula to customize compound graph from selected logging data
- User can create and customize new unit easily and freely for all measurement parameters
- Logging status indication via red/green LED and battery status indication via yellow LED
- Start logging method: Immediately, Button, Delayed
- User can input two point calibration value for each channel when setup
- Dew point calculated via software Dgraph
- Replaceable lithium battery and logged data are not lost if battery exhausted
Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature</strong></td>
<td></td>
</tr>
<tr>
<td>Measurement range</td>
<td>-35<del>80°C (-31</del>176°F)</td>
</tr>
<tr>
<td>Accuracy (Typ.)</td>
<td>+/- 0.3°C (+/- 0.5°F)</td>
</tr>
<tr>
<td>Resolution (Typ.)</td>
<td>0.1°C (0.2°F)</td>
</tr>
<tr>
<td><strong>Relative Humidity</strong></td>
<td></td>
</tr>
<tr>
<td>Measurement range</td>
<td>0~100%RH</td>
</tr>
<tr>
<td>Accuracy (Typ.)</td>
<td>+/- 3%RH</td>
</tr>
<tr>
<td>Resolution (Typ.)</td>
<td>0.1%RH</td>
</tr>
<tr>
<td><strong>LCD</strong></td>
<td>Yes</td>
</tr>
<tr>
<td>Memory Capacity</td>
<td>64Kbytes (Total 32,000 readings for all channels)</td>
</tr>
<tr>
<td>Sample Rate</td>
<td>User selectable from once every 10 seconds to once every 12 hours</td>
</tr>
<tr>
<td>PC Software</td>
<td>DGraphTM software and USB driver required (Included on CD)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>User replaceable 1/2AA 3.6V Lithium Battery, 1200mAh</td>
</tr>
<tr>
<td><strong>Battery Life</strong></td>
<td>Approx. 2 Years @ 1 Minute Sample Rate</td>
</tr>
<tr>
<td></td>
<td>Approx. 4 Years @ 10 Minute Sample Rate</td>
</tr>
<tr>
<td></td>
<td>Approx. 8 Years without any sample task</td>
</tr>
<tr>
<td><strong>Case Material</strong></td>
<td>ABS, TPU, PC</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>123mm * 37mm * 23mm (4.8&quot; * 1.5&quot; * 0.9&quot;)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 90 grams (3.19 oz)</td>
</tr>
</tbody>
</table>

**Composition of package:** One set is include 10 units of DataLogger

One unit package including

1. DataLogger (USB) 1 unit
   USB interface directly communicate with PC for setup and data download. This data logger measures and stores up to 32,000 humidity 0 to 100%RH and temperature -35 to 80°C (-31~176°F)

2. Lithium Battery 1 unit
   Replaceable ½ AA 3.6 V Lithium Battery, 1200 mAh

3. CD of software 1 unit
   The software for install USB driver and DGraphTM software

4. Quick start guide 1 unit
   The instruction, how to install a software and setup a DataLogger

For further questions, please do not hesitate to contact us

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**Storage Drum 200 L**

This empty storage drum 200 L is able to place a hot beads after regeneration in the oven, in order to cool down regenerated bead. This empty storage drum able to contained 5 units of DryStore® insert. This is a necessary process after regenerate as the beads required cool in a metal container with a lid (to reduce re-absorption of water) until they can be safely handled, then stored in a moisture-proof container at ambient room.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Storage Drum 200 L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Open top steel drum</td>
</tr>
<tr>
<td>Capacity</td>
<td>200 Liters</td>
</tr>
<tr>
<td>Steel thickness</td>
<td>Top: 1.2 mm; Body: 0.9 mm, Bottom: 1.2 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>19 kg</td>
</tr>
</tbody>
</table>

**Composition of package:** One set of Storage Drum 200 L is 4 units.

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Starter Pack Complete

This set provide the complete package of the necessary tools needed for the setup of the drying protocol using the Drying beads® technology. These beads are modified ceramic materials that specifically absorb and hold water molecules very tightly in their microscopic pores. The beads will continue to absorb water until all of their pores are filled, up to 20 to 25% of their initial weight.

Seeds (or other materials such as fruits or herbs) placed into a container with the beads will lose water due to the low air humidity, and will continue to do so until they come to equilibrium. Hence, desiccant-based drying simply transfers the water in the seed to the drying beads through the air without the need for heating. The drying beads can subsequently be removed and regenerated separately by heating at 200-250 °C for 3-4 hours to release the absorbed water. This complete set of MobiDry® starter kit provides a necessary tool needed for setup of drying or storing protocol seed using the drying beads technology.

Features

• A different sizes of hermetic container with build-in the hygrometer to contain/mix a seed and drying beads together in order to dry or maintain seed to safe level.
• User can monitoring a temperature and humidity inside a hermetic container and able to set desired humidity and temperature level for either for a seed drying or storing purposes.
• User can take replace or add more drying beads in the coantiner once a humidity over the desired level.
• User can create and optimize a right condition for drying or storing seed for different crops.
• Replaceable lithium battery.

## Composition of package

One complete set of Starter Pack including:

<table>
<thead>
<tr>
<th>Item</th>
<th>Starter Pack Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plastic container</strong></td>
<td>A hermetic drum volume 1.6, 8.4 and 16L with build-in hygrometer measuring humidity over the entire humidity range from 10 to 100% RH, with accuracy of ± 1-5% RH, ± 1-3 C.</td>
</tr>
<tr>
<td><strong>Drying beads®</strong></td>
<td>These beads absorb water until all of their pores are filled, up to 20 -25% of their initial weight. Regeneration of drying beads; hot air oven method at 200-250 °C for 2-3 hours (thickness 5-10 cm). Microwave method at 600-800 watt (thickness 3-5 cm) for 2 minutes and open the microwave for 10 seconds to avoid the overheating then continue till 10-12 minutes. DON'T FORGET to put potato or carrot in the microwave during regeneration.</td>
</tr>
</tbody>
</table>

### DryStore® 1.6L

1. **DryStore® 1.6 L** 3 units
   - A hermetic container with the hygrometer to mix seed and drying beads with different capacity 1.6, 8.4 and 16 L depend on sample size. Seeds should be dried and stored in containers that are hermetically closed and that thus can maintain a low RH.

### DryStore® 8.4L

2. **DryStore 8.4 L** 2 units
   - To test drying beads capacity after reactivate or before use beads

3. **DryStore 16 L** 1 unit
   - To test drying beads capacity after reactivate or before use beads

### Plastic Box 1.45 L

4. **Plastic Box 1.45 L** 3 units
   - To test drying beads capacity after reactivate or before use beads

### Sieve

5. **Sieve** 3 units
   - To test drying beads capacity after reactivate or before use beads

### Balance

6. **Balance** 1 unit
   - To weigh seed and/or drying beads

### Data Logger (include software + battery)

7. **Data Logger (include software + battery)** 2 units
   - To record humidity (RH), temperature and dew point

### Plastic white basket

8. **Plastic white basket** 1 unit
   - To separate the beads from seed (in case user blend beads and seed /product together-direct method)

### Silica gel (pack in aluminum foil-500 gram)

9. **Silica gel (pack in aluminum foil-500 gram)** 1 unit
   - To indicate a drying beads are active or not

### Drying Beads (pack in aluminum foil-1 kg)

10. **Drying Beads (pack in aluminum foil-1 kg)** 3 units
    - To dry seed or other agro products

### Net bag (Small-3 pcs; Medium-3 pcs)

11. **Net bag (Small-3 pcs; Medium-3 pcs)** 6 pcs.
    - To put drying beads in case user do not want to separate beads and seeds/ product afterward (indirect method )

### Stainless tray

12. **Stainless tray** 3 units
    - A container to place in oven for reactivate drying beads, temp 200-250 °C for 3 hours thickness of beads 3-5 cm.

### Glass jar

13. **Glass jar** 3 units
    - To keep/store Drying beads after reactivation

### Folder/Files/Worksheet/CD

14. **Folder/Files/Worksheet/CD** 1 unit
    - To provide all information and instruction on how to use drying beads

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For further questions, please do not hesitate to contact us

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