Part of ROCKWOOL Group



# Grodan Slabs

Grodan imp

## Instruction manual

For medicinal crops



Conternational Conter

EN - Original instructions V01 - 07/2024

## Designed to grow

Thank you for choosing Grodan!

Grodan is the global leader in supplying soilless rootzone management solutions for Controlled Environment Agriculture. These solutions are applied to the cultivation of vegetables and medicinal crops. Research shows that high-tech greenhouses have the biggest positive impact on the UN Sustainable Development Goals compared to all other growing systems and score highest within water and nutrient efficiency. The use of stone wool Precision Growing media in a greenhouse can produce higher yields with significantly less resources than other cultivation methods. The key is precision. The essence of Precision Growing is the use of less soil, less water, less fertiliser, lower  $CO_2$  emissions, and gaining a higher yield.

Combined with stone wool growing media, Grodan enables Precision Growing by offering a sensor system, a software platform and personal advice to help maximise crop potential with data-driven cultivation. Grodan's innovative growing media solutions facilitate the sustainable production of healthy, safe, and fresh food produce. Furthermore, it creates the possibility to use biocontrol and reduce, or even eliminate, the use and risk of chemical plant protection products.

Sustainability plays a prominent role within Grodan, from the manufacture of stone wool growing media to end-of-life solutions.

## Disclaimer

Although all our information and advice is compiled with the greatest possible care and attention to detail and includes the latest technical developments, we cannot accept any liability for the contents.

Grodan is part of ROCKWOOL B.V.; the general conditions of sale and delivery of ROCKWOOL B.V. apply to all information and advice supplied by us and to the agreements we enter into and to the delivery of all our products. These general conditions have been filed with the Limburg Chamber of Commerce under number 13014428 and may be obtained free of charge from Grodan. For the conditions and extra information on the Kiwa Product certificate we refer you to www.grodan.com.

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## **1** About this document

This user manual contains advice and guidelines on the cultivation of medicinal crops using Grodan products. Optimal cultivation results can only be achieved if Grodan products are used according to the instructions and guidelines provided in this user manual.

This user manual has been composed with great care. The contents of this manual are based on Grodan's knowledge of our products' properties and of the specific requirements that they must meet in practice.

This edition of the user manual replaces all other previously published information.

### 1.1 Intended reader

Grodan products are intended for medicinal crop growers.

If you intend to propagate other crops, contact Grodan to ask for the applicable guidelines.

### 1.2 Symbols used in this manual

This manual contains symbols that indicate useful information that complements the instructional text and illustrations. Familiarise yourself with the following symbols before reading the rest of this manual:

| Symbol                 | Meaning  |
|------------------------|--|
| <b>A</b> CAUTION!      | Indicates a hazardous situation that could result in moderate or minor injury. |
| NOTICE                 | Indicates a situation that could result in product damage.                     |
| SAFETY<br>INSTRUCTIONS | Reference to the safety instructions in §3 of this manual.                     |
| Ţ.                     | Reference to another chapter or paragraph within this manual.                  |
|                        | Reference to the appendices or to an external document.                        |

## 1.3 Terminology

This user manual contains technical terms to describe important processes or parts.

Familiarise yourself with the following terms before reading this manual:

#### 1.3.1 Nutrient solution

The water-based solution that contains all macro and micro nutrient elements that are essential to plant growth and development in the absence of soil. Nutrient solution is used to wet Grodan products.

#### 1.3.2 Wetting

The act of saturating a Grodan product with nutrient solution.

#### 1.3.3 Water content (WC)

The amount of water that has been absorbed by a Grodan product after being saturated with the nutrient solution. WC is expressed as a percentage of the maximum amount of water the product can absorb.

#### 1.3.4 Electrical Conductivity (EC)

EC is a measure of the total salts concentration in the nutrient solution. EC is therefore a mixture of essential (e.g. NO3 -, Fe3 +) and non-essential (e.g. Na+) elements required for plant growth.

#### 1.3.5 pH

pH is a measure of how acidic or alkaline the nutrient solution is. pH plays an important role as it influences the availability of nutrients in the solution to the plant. The pH of the nutrient solution should be within range 5.2 - 6.0.

## 1.4 About Grodan

Grodan – part of the ROCKWOOL group – was founded in 1969 and is active in more than seventy countries worldwide. The head office is located in Roermond, the Netherlands.



Contact our customer service if you have any questions about this user manual:

| North-West Europe   | ROCKWOOL B.V. /<br>Grodan<br>Industrieweg 15<br>P.O. Box 1160<br>6040 KD Roermond<br>The Netherlands | +31 (0)475 35 30 <b>40</b>                     |                           |
|---|--|--|---------------------------|
| Benelux   |  | +31 (0)475 35 30 <b>20</b>                     | -<br>+31 (0) 475 35 37 16 |
| Spain, Portugal,<br>South-Korea and<br>Latin America  |  | +31 (0)475 35 38 <b>57</b>                     |                           |
| Central and East<br>Europe<br>Mediterranean<br>Middle East<br>Asia Pacific<br>Gulf region<br>South Africa | Grodan (ROCKWOOL<br>Polska Sp. z o.o.)<br>Postępu 6<br>02-676, Warsaw<br>Poland                      | +48 22 375 07 80                               | N.A.                      |
| North America   | Grodan (ROXUL Inc.)<br>8024 Esquesing Line<br>Milton, ON L9T 6W3<br>Canada                           | +1 800 872 2476 (toll free)<br>+1 905 636 0611 | +1 905 636 1901           |

#### 1.4.1 Online

|    | North America                      | Europe                                |
|----|------------------------------------|---------------------------------------|
|    | info@grodan101.com                 | info@grodan.com                       |
|    | www.grodan101.com                  | www.grodan.com                        |
| in | www.linkedin.com/company/grodan101 | www.linkedin.com/company/grodan       |
| y  | www.twitter.com/grodan101          | www.twitter.com/grodan                |
| Ø  | @grodan101                         | @grodaninternational                  |
| f  | www.facebook.com/Grodan101         | www.facebook.com/Grodaninternational  |
|    | www.youtube.com/@grodan1014        | www.youtube.com/user/Grodansubstrates |

## 1.5 Warranty

Grodan warranty terms and conditions apply to all Grodan products.

Any product defects or performance issues must be reported to a Grodan account manager or via an official complaint procedure.



Information about the Grodan complaints procedure can be found in §6.2 of this manual.

More information about the warranty terms and conditions can be found at www.grodan.com/general-terms-of-sale-and-delivery.

## **2** About this product

This chapter contains the information that is necessary to understand the function and design of your Grodan product.

## 2.1 Intended use

Grodan Slabs are intended to be used to cultivate medicinal crops after successful propagation.

If you wish to cultivate other crops, please contact Grodan for custom guidelines.

Grodan Slabs are intended for professional use.

#### 2.1.1 Unintended use

Grodan Slabs are not intended to be used to cultivate anything other than plants.

Grodan Slabs are not intended to be used outside of the recommended pH and EC ranges.

## 2.2 Design & function

Successful plant cultivation depends on the growing medium in which a plant can develop. Grodan Slabs have been designed to promote fast growth and root development for various medicinal crops, using the unique qualities of stone wool.

#### 2.2.1 Key properties

Grodan has designed high quality slabs to provide the following benefits to growers:

- Available in various dimensions, block hole patterns and quantities to ensure a matching solution for your cultivation requirements.
- Able to adapt to variable climate conditions, as well as different nutrition and irrigation regimes, in order to promote optimum plant quality and growth.
- Unparalleled support from Grodan's network of dedicated crop Technical Advisors.

#### 2.2.2 Stone wool

Grodan Slabs are made of stone wool: a natural material made from basalt rock. During production, the basalt is heated to 1500 °C / 2750 °F and spun into long fibres to create a wool-like structure. The result is a lightweight, absorbent material that is ideal for the cultivation of plants.

Stone wool offers many benefits to Grodan Slabs:

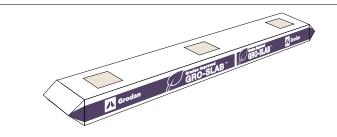
- Lightweight and easy to handle. At the same time, the products are structurally sound, sturdy and flexible.
- Water and nutrients will not bind to the stone wool fibres, meaning all the water and nutrients added to the slab are available for plant growth.
- Contains no pathogens or unwanted seeds due to the manufacturing process.
- Unique hydrophilic fibres that allow for rapid and even water distribution throughout the entire slab. This gives the slabs excellent buffer and re-saturation capability.
- Homogenous growing medium, ideal for precise application of water and nutrients for consistent plant growth.

## 2.3 Slab types

Grodan Slabs are available in different types. Each slab type has its own strengths and can offer specific benefits to the cultivation process, depending on the requirements of the customer.

Disclaimer: Check with your local Grodan Account Manager on the availability of slabs in your region.

#### 2.3.1 Grodan Improved Gro-Slab



Grodan Improved Gro-Slabs Slabs have the following characteristics:

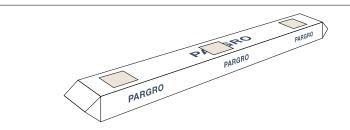
- Mono density composition
- Specialised for cultivating medicinal crops
- Available in different sizes foil wrapped with or without pre-cut plant hole patterns

#### 2.3.2 Grodan Improved Uni-Slab



Grodan Improved Uni-Slab Slabs have the following characteristics:

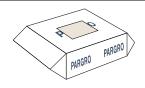
- Mono density composition
- Specialised for cultivating medicinal crops
- Available in different sizes foil wrapped with or without pre-cut plant hole patterns



Grodan Pargro Slabs have the following characteristics:

- Mono density composition
- Specialised for cultivating medicinal crops
- Available in different sizes foil wrapped with or without pre-cut plant hole patterns

#### 2.3.4 Pargro Single Slab



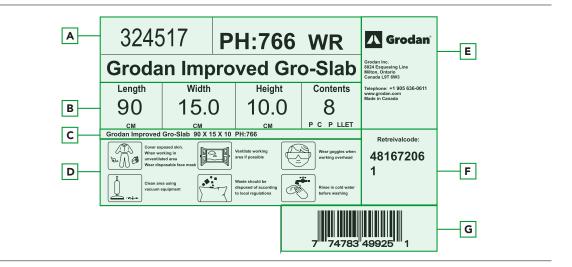
Grodan Pargro Single Slabs have the following characteristics:

- Mono density composition
- Specialised for cultivating medicinal crops
- Available foil wrapped, with pre-cut plant hole patterns

## 2.4 Product label

The product label contains important information about a delivery of Grodan Slabs. The product label is attached to the packaging of individual pallets and applies to all slabs on the pallet.

If there are any problems during use of the slab, essential data can be recovered using this label. Always retain and store the product label. Make sure that each label can be matched with the slabs it applies to.



The product label contains the following information:

- A Product identification number and name
- B Product dimensions and quantity per pallet
- C Product description and specifications
- D Safety symbols and information
- E Grodan contact information
- F Retrieval code
- G EAN or UPC-A bar code of the Stock Keeping Unit (SKU)

#### 2.4.1 Retrieval code

The retrieval code on the product label (F) is very important. This eight (8) digit code can be used to identify the product during troubleshooting.

Make a separate note of the retrieval code and a reference to the products it applies to.

#### 2.4.2 Tracing code

Grodan products are also given a tracing code. This code can be used to identify the exact moment of production of individual products.

The tracing code is printed on the foil wrapping of individual Grodan products.

## 2.5 GroSens and e-Gro

Grodan Blocks and Slabs can be combined with a GroSens system and e-Gro to enable the benefits of Precision Growing.

#### 2.5.1 GroSens system

The GroSens system enables 24/7 real-time insight into the WC, EC and temperature of the stone wool growing media. This provides valuable, timely information and guidance for optimising the irrigation strategy, allowing our customers to improve the yield and quality of their crops.

In combination with Grodan stone wool growing media and advice, the GroSens system makes it possible for the grower to optimise production and identify cost savings. You can connect the GroSens sensor to our e-Gro platform for additional insights.

For more information about the application of GroSens, please refer to the Grodan GroSens installation manual or speak with your Grodan Account Manager.

#### 2.5.2 e-Gro

e-Gro is the ultimate software platform that allows you to collect and combine the relevant data from your greenhouse and translate it into real-time insights for data-driven Precision Growing. e-Gro supports your knowledge, experience and growing strategy with real-time insights and smart recommendations based on the root zone, climate, crop and harvest data.

In short, using e-Gro with your GroSens system enables Precision Growing.

For more information about the application of e-Gro, please visit www.grodan.com/e-gro or, if in North America, please visit www.grodan101.com/e-gro.

## 3 Safety

This chapter contains the information that is necessary to safely use your Grodan Slabs.

## 3.1 Safety symbols

The following symbols are shown on the product label:

| Symbol | Meaning  |
|--------|--|
|        | Ventilate closed areas when working with Grodan products if possible.  |
|        | Dispose of waste material according to local regulations.  |
|        | Cover exposed skin when working with Grodan products.<br>Wear a (disposable) face mask when working with Grodan products in an unventilated<br>area. |
|        | Clean the area using vacuum equipment after working with Grodan products.  |
|        | Wear safety glasses when handling Grodan products overhead.  |
|        | Rinse your hands in cold water before washing with soap after working with Grodan products.  |

## 3.2 Personal protective equipment (PPE)

The mechanical effect of fibres in contact with the skin or eyes may cause temporary irritation. This is why certain personal protective equipment is advised when working with Grodan products.

#### 3.2.1 Eye protection



#### **A** CAUTION!

When handling Grodan products overhead, there is an increased risk of stone wool particles falling into your eyes.

- Wear safety glasses when handling Grodan products overhead.
- EN166 standard safety glasses are advised.

#### 3.2.2 Skin protection



#### A CAUTION!

When handling Grodan products, the abrasive effect of fibres can cause temporary irritation, especially on sensitive skin.

- Cover exposed skin when working with Grodan products.
- Wear protective gloves to cover your hands. EN388 standard safety gloves are advised.
- ▶ If necessary, wear a protective overall to cover any other exposed skin.

#### 3.2.3 Respiratory protection



#### **A** CAUTION!

Working with Grodan products in an unventilated area, or during operations that can release extra stone wool particles, can cause shortness of breath and irritation to the respiratory system.

- Wear a (disposable) face mask when working with Grodan products in an unventilated area.
- ► EN 149 FFP1 standard masks are advised.

#### NOTICE

At high temperatures (> 175 °C) the binder will slowly decompose and trace gases will be released over a shorter period. Gases should be vented and appropriate respirators with a separate air supply should be used. These temperatures are usually not found in horticultural applications.

## 3.3 First aid procedures

As with all products, make sure to refer to the regional safety data sheets or safe use instruction sheets (available on request) and follow all PPE recommendations.

In rare circumstances some people may experience sensitivity or irritation of the throat, lungs, skin, or eyes when working with Grodan products. If irritation does occur, follow the first aid procedures in the table below.

#### A CAUTION!

In case of irritation of throat or lungs, do not leave the affected person alone.

| Irritated area | First-aid procedure   |  |  |  |
|----------------|---|--|--|--|
| Throat, lungs  | <ol> <li>Move to a location with fresh air.</li> <li>Remain calm. Flush your mouth with water.</li> <li>Blow your nose.</li> <li>Drink plenty of water afterwards.</li> </ol>   |  |  |  |
| Skin           | <ol> <li>Remove any clothing that came in contact with stone wool fibres.</li> <li>Rinse the irritated skin under running water.</li> <li>Wash the irritated skin with mild soap and water. Use a washcloth to<br/>help remove the stone wool fibres.</li> <li>Do not rub or scratch the area.</li> </ol> |  |  |  |
| Eye(s)         | <ol> <li>Do not rub the affected eye(s).</li> <li>If applicable, remove contact lenses.</li> <li>Hold the eyelids apart and flush the eyes with plenty of water for at least 15 minutes.</li> </ol>   |  |  |  |

Seek medical attention if symptoms of irritation persist after following the first-aid procedures.

## 4 Transport and storage

This chapter contains the information that is necessary to safely transport and store your Grodan products.

#### SAFETY INSTRUCTIONS

Make sure you have read and understood the safety instructions in §3 of this manual.

### 4.1 Delivery or collection

#### 4.1.1 Delivery by truck

Grodan Slabs can be delivered to your facility by truck (where applicable) or picked up at your local hydroponics dealer, either on a standard pallet or in standard cartons.

The customer is responsible for checking the delivery:

- The correct amount of pallets or cartons have been delivered.
- The outside packaging is not damaged.
- A legible product label is present on each pallet or carton.

If shipment is arranged by Grodan, the customer must sign the CMR shipping form. The CMR shipping form is provided by the transport company. Any issues with the delivery must be noted on the CMR shipping form.

#### 4.1.2 Delivery by container

Grodan products that were transported overseas are often delivered by shipping container. Container deliveries require immediate and thorough inspection in order to identify and report potential water damage in time.

Inspect the products and container for the following criteria:

- The outside of the container is undamaged.
- No water is present in the container and the products are completely dry.

#### NOTICE

If your delivery fails to meet any of these criteria, contact your Grodan Account Manager or Customer Service right away.

## 4.2 Handling the product on-site

After the products have been delivered, you can transfer them to a storage location or directly to the application area.

#### NOTICE

Minimise the amount of times the product is transferred to reduce the risk of product damage.

When handling the product:

1 Lift a pallet. Use a forklift or pallet truck.

#### ▲ CAUTION!

- Do not puncture the products on the pallet with the forks of a forklift truck.
- ► Do not stack pallets higher than three (3).
- 2 Transfer the pallet to the desired location.

#### **A** CAUTION!

- Do not drive too fast.
- Do not transfer the pallets by pushing them across the floor.

### 4.3 Storing the product on-site

Grodan Slabs must be stored in a location that meets the following requirements:

- Indoor
- Dry
- Ventilated and free of dust
- A flat, level floor without bumps or dents
- No direct sunlight
- No potential sources of contamination:
  - Rodents, insects, birds or other animals
  - Plant protection products or growth hormones
  - Exhaust fumes
  - Dust
  - Frequent human activity

Follow these instructions when storing Grodan products:

- Store the products on the pallet and in their original packaging, with the product label clearly visible.
- ▶ Transport the pallets to the storage location according to the instructions in §4.2.
- Do not stack the pallets more than three (3) high to prevent damage.

## 5 Installation

This chapter contains the information that is necessary to safely prepare your Grodan Slabs for use.

#### SAFETY INSTRUCTIONS

Make sure you have read and understood the safety instructions in §3 of this manual.

## 5.1 Removing the packaging

To remove the packaging from your Grodan products:

- 1 Remove the product label from the plastic packaging wrap around the pallet.
- 2 Store the product label in a secure location. The label serves to identify the moment of production and will need te be referenced in any correspondance with Grodan.

Make sure that the label can be matched with the products it applies to (see §2.4).

- 3 Make a separate note of the retrieval code and a reference to the products it applies to.
- 4 Remove the plastic wrapping which secures the slabs to the pallet during transportation and storage.
- 5 Lift the individual or bundles of slabs from the pallet.

#### NOTICE

Handle slabs carefully when you remove them from a pallet. Damage to the foil can result in uneven saturation and reduce the performance of the product.

### 5.2 Placing the slabs

Before the slabs are saturated, position them on the surface in the greenhouse or grow room where the plants will be cultivated. The recommended surface is a well-profiled hanging gutter with a 0.2% slope (2mm for every 1 m) or an industry standard size slide bench with proper drainage slope.

Place the slab directly, without dragging and with the correct side facing upward. Use the arrow and text on the foil wrapping as a guideline.

The slabs can be laid end-to-end, although the final distance between the slabs will be a function of your chosen slab length and initial planting density (plants/m<sup>2</sup>).

#### NOTICE

Transferring the slabs to the installation location might have caused a shift of the stone wool inside the foil bag. Visually inspect the product to ensure the inner stone wool is centered for all precut plant holes.

## 5.3 Saturating the product

The initial saturation of Grodan Slabs is crucial to control the WC and EC during the cultivation process. The wetting process forms the foundation for the root development and growth of the plant. To guarantee successful use of your Grodan Slab it is essential that you follow the wetting instructions detailed below.

#### 5.3.1 Preparing the nutrient solution

To saturate the stone wool slabs, prepare a balanced, crop appropriate nutrient solution:

- with an EC level of 1.5 3.0 mS/cm EC
- with a pH adjusted to 5.5 6.5 pH.
- with a nutrient solution temperature of 68 °F / 20 °C

#### NOTICE

Ensure that the pH of the nutrient solution is not lower than 5.2. A lower pH used during initial saturation and at any time in the cultivation process will dissolve the stone wool fibres resulting in a loss of structural integrity.

#### 5.3.2 Saturating the slabs

It is recommended that the slabs are saturated by inserting pressure-compensating drip emitters with stakes into the stone wool slab in the centre of the pre-cut plant holes. If you have purchased slabs without pre-cut plant holes, cut holes into the upper surface of the foil at distances appropriate for your required plant density. Be careful not to damage the side walls or the bottom of the foil.

Recommendation for saturating the slabs:

• Allow the nutrient solution to flow continuously through the drippers until the foil wrapping is taut at the seams.

#### NOTICE

It is your responsibility to ensure that the complete irrigation system, including the drippers, is clean and free of substances that may hinder plant growth and development.

Grodan slabs must be saturated at least 24 hours before the drain hole is cut. This waiting period has two functions:

- To ensure the fine pore spaces between the stone wool are completely filled with balanced nutrient solution.
- To allow the nutrient solution to warm-up to the greenhouse air temperature and prevent shock to the young plant when placing the block onto the slab.

## 5.4 Evaluating the saturation process

After saturating the slabs for the first time, you are advised to check that all the slabs are completely saturated before the drain holes are cut. This is best done by visual inspection. The balanced nutrient solution should be visible as a thin surface of water at the top of each plant hole position. The side walls of the foil must be bulging.

If any of the slab has not absorbed enough nutrient solution:

- 1 Inspect the foil wrapping for leakages, focus on the heat sealed seams. Slabs with broken seams should be replaced.
- 2 Check that the dripper(s) are not blocked. Blocked drippers should be replaced.
- 3 Check the variation in output of the drippers.

#### NOTICE

It is your responsibility to ensure that a balanced nutrient solution was applied at the intended EC and pH level. However, as a simple check it is advised that you check EC and pH levels following initial saturation and before you cut the drain holes.

### 5.5 Cutting drain holes

After saturation, drain holes must be cut into the foil wrapping of the slabs. Drain holes allow excess nutrient solution to drain from a slab allowing you to control WC and EC during the cultivation process.

#### NOTICE

- For slabs located on a well-profiled hanging gutter or slide bench with an appropriate drainage slope, it is recommended to cut only one (1) drain hole at the lowest point of the slab. More than one drain hole will affect your ability to control WC and EC in the slab in later cultivation stages.
- If the surface profile is uneven more drain holes will be required. The location of additional drain holes should be chosen depending on the drainage issue that is experienced.
- Never make a drainage hole directly underneath a block. This will affect your ability to control the WC and EC in the slab in later cultivation stages.

Use a clean cutting tool to make an incision on the drain side of the slab, just below the seam. Make the incision along the width of the plastic. Make sure the stone wool substrate remains untouched in this process.

### 5.6 Placing blocks on a slab

Place a block on each plant hole that is cut in the foil wrapping of a slab.

## 6 Troubleshooting

This chapter contains the information that is necessary to identify and solve challenges that may be experienced when working with Grodan Slabs.

## 6.1 Common challenges

The most common challenges that may be experienced when working with Grodan Slabs are listed in this section.

#### NOTICE

- This section only describes challenges that are directly related to the design and function of Grodan products.
- If you experience a problem with your Grodan product that is not described in this section, please contact your Grodan Account Manager or the Grodan Customer Service (see §1.4).

Use the following table to identify the cause of the challenge and follow the instructions to resolve it:

| Challenge  | Cause   | Solution   |
|--|---|--|
| The product does not reach the correct WC.                           | The saturation<br>process was not<br>performed correctly. | Follow the instructions in §5.3 of this manual.  |
|  | The foil wrapping<br>was damaged.                         | Inspect the foil wrapping for leaks. If a manageable<br>number of slabs are leaking or have been already<br>partially filled, we advise to seal the leaks with good<br>(duct) tape that stops the leak for at least a few hours so<br>that the slab can saturate properly and evenly. If this is<br>not possible, we recommend contacting the Customer<br>Service department for your region (see §1.4). |
| The plant does not<br>develop further after<br>placing it on a slab. | The saturation<br>process was not<br>performed correctly. | Follow the instructions in §5.3 of this manual.  |
|  | The drain holes are not cut correctly.                    | Follow the instructions in §5.5 of this manual.  |
|  | The block with the plant is not placed correctly.         | Follow the instructions in §5.6 of this manual.  |
| The product is damaged.  | The product has been transported or                       | Do not use a damaged or contaminated product. For future transport:  |
| The product is contaminated.   | stored incorrectly.                                       | <ul> <li>If the product was damaged upon delivery from<br/>Grodan, please contact the Customer Service<br/>department for your region (see §1.4).</li> <li>If the product was damaged after delivery to your<br/>facility, follow the instructions in §4 to prevent<br/>damage during storage or transport.</li> </ul>   |

## 6.2 Complaints procedure

When an issue occurs when working with Grodan Slabs that may be related to transportation, delivery, and/or the material or production quality of the slab, we advise you to follow the official complaint procedure. This procedure allows Grodan to resolve the issue as quickly as possible.

To submit a complaint to Grodan, follow this procedure:

- 1 Collect the following information:
  - The retrieval code that was printed on the product label (see §2.4).
  - The tracing code that is printed on the foil wrapping of the product (see §2.4.2).
  - A detailed description of the problem you are experiencing.
  - Photos or videos that help describe the problem.
- 2 If the problem is related to plant growth:
  - Collect 0.5 1 litre of nutrient solution from both affected and unaffected products.
     Store the liquid in a cool, dark place.
  - Collect a sample of at least 5 affected slabs.
  - Collect a sample of at least 5 unaffected slabs.
- 3 Immediately report the problem to your Grodan Account Manager or to a local representative of the Grodan Customer Service.
- 4 Together with your Grodan contact, decide on the best way to address the problem in order to minimize any direct and consequential loss.

#### NOTICE

A Grodan Account Manager or Grodan Customer Service representative will collect relevant information to the complaint handling. To identify the cause of the problem, it is important for the Grodan employee to have access to the location where the Grodan Slab is used.

## 7 End of Growing Cycle

This chapter contains the information that is necessary to safely decommission and prepare your Grodan products for recycling or disposal.

#### SAFETY INSTRUCTIONS

Make sure you have read and understood the safety instructions in §3 of this manual.

## 7.1 Confirm proper classification

- 1 Confirm with your local and proper regulatory body overseeing legal cannabis cultivation that growing media is not considered cannabis waste.
- 2 Confirm with the local waste authority that Grodan products are categorized as nonhazardous solid waste.

Always follow local rules and regulations when disposing of Grodan products.

### 7.2 Recycling Grodan products

Grodan products have a number of value added applications where the material can be used and recycled at the end of the growing cycle. Examples of some of these applications are listed below.

- Compost
- Potting Mix
- Strengthening additive for brick clay
- Use in re-cultivation
- Industrial bedding
- Re-processed into new stone wool

Reach out to local waste haulers and agricultural or organic recycling operators to determine best recycling option available in your area. For more information, please visit: www.grodan101.com/about-grodan/recycling-solutions/

#### NOTICE

The available recycling applications may vary depending on your country or region.

The organizations listed are independently operated service providers. Grodan does not guarantee recycling availability nor quality of service. It is up to the grower to determine and or negotiate the relationship with potential recycling operators.

#### 7.2.1 Managing the WC

To reduce the recycling or disposal costs, leave your Grodan products to dry after decommissioning.

#### 7.2.2 Self processing

Some recycling operators may require additional processing for the Grodan products to be recycled at their facilities. Additional processing includes removing foreign materials and or de-sleeving.

- 1 Remove any foreign materials from the stone wool, for example:
  - Plastic clips
  - Wood
  - Metal
  - Stone
  - Twine
- 2 Dispose of each foreign material in the corresponding waste stream.
- 3 Collect the stone wool in a container.

#### 7.2.3 Transporting to a recycling or disposal facility

Once prepared for recycling, Grodan products should be collected and stored in a separate container.

If sending the used Grodan products to a disposal facility, follow all non-hazardous solid waste guidelines. Grodan products can be collected and disposed of with other non-hazardous solid waste materials as permitted by local regulations.

#### NOTICE

Always follow local rules and regulations when recycling or disposing of Grodan products.

Only use registered haulers with your local municipality that are legally authorized to handle non-hazardous solid waste or recycling materials. Confirm with your municipal board if you have any questions.

In some markets, consumers have the option to self-haul materials to a recycling facility and/or a disposal site. If this is a desirable option, confirm with your municipal board before proceeding.

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