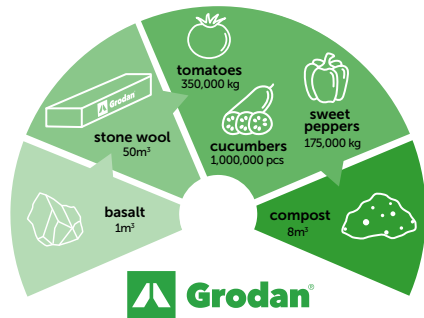


# Frequently Asked Questions: GRODAN STONEWOOL RECYCLING



## What do I do with used stone wool?

### What do I do with the my used rockwool?

- Growers should contact their waste management and service provider to determine suitable options for their location/s
- Each recycler/waste management provider is unique and has a different set of Standard Operation Procedures
  - The ability to effectively process and recycle the stonewool will depend upon the type of recycling facility that it is and what kind of equipment they have on-site
  - For Example: Many recyclers are able to accept stonewool, but the material has to have the plastic de-sleeved

### Are there re-use/recycling opportunities for my used stonewool?

- Used Grodan stonewool has a number of secondary applications, this includes brick feedstocks, compost, and engineered soils
- Grodan has an Alternative Application guide which will provide more technical details on secondary outlets for the used stonewool

### Is Grodan stonewool recyclable?

- Absolutely! Not only is Grodan stonewool recyclable but it is composed up to 75% recycled content! The durability and resilience that the stonewool provides for the growing process also makes the material an attractive product on the recycling market

### How is used stonewool beneficial in composts and other applications?

- In North America, Grodan composts over 5,000 tons of stonewool per year through leading compost facilities
- Technical Benefits:
  - Better growth response from potted plants
  - Increased aeration
  - Higher total porosity
  - Higher levels of available soluble minerals
  - Improved bulk density
  - Increased available water capacity/retention
- If your local recycling facility would like to add Grodan stonewool as a beneficial use amendment and has questions, please contact your Grodan account manager for more details, and third-party testing results

# Frequently Asked Questions: GRODAN STONEWOOL RECYCLING

## Grodan Recycling Initiatives

### What partnerships and projects does Grodan have available for recycling?

- Grodan works with a number of 3rd party recycling service providers that are able to process, handle, and recycle stonewool
- Grodan has two Product Lifecycle Managers that are overseeing recycling and sustainability initiatives worldwide and aim to offer the best possible recycling solution per customer
- Grodan and its parent company ROCKWOOL International are committed to sustainability and the Circular Economy. ROCKWOOL International's RockCycle Project is taking back used stonewool to factories across the globe and introduced new waste reclamation services in Italy, Austria, and the United Kingdom
- Our manufacturing facilities in Denmark and Netherlands offer a takeback system – a circular manufacturing model and is expanding into additional manufacturing facilities

### Where does Grodan offer recycling services?

- In North America, Grodan is proud to work with recycling service providers in Toronto, Ottawa, Edmonton, Vancouver (British Columbia), Ohio, Denver, and Palm Springs
- New recycling service providers are coming on-line, connect with your Grodan account representative to find out more
- If you would like to set up a local recycling option in your area connect with your Grodan Account Representative



### How much material does Grodan recycle each year?

- In 2021, Grodan recycled over 45% of its total stonewool production worldwide
- **Grodan's goal is to achieve a 65% recycling rate in 3 years!!!**
- ROCKWOOL INTERNATIONAL aims to offer recycling services in over 30 countries by 2030
- See the charts below for additional recycling datapoints

### What are Grodan's Recycling KPIs?

A key goal in Grodan's Sustainability program is to quantify the success and growth of the program.

- Amount of material recycled worldwide: Measured in cubic meters; this is the estimated amount of stone wool that is processed by our recycling partners and Grodan take back programs. This material is used in brick manufacturing, compost, potting soils, and concrete.
- Recycling Rate: The ratio for how much material we have sold compared to how much product was recycled.
- Percentage of Customers offered recycling: How many direct Grodan customers are offered recycling solutions for their stone wool in their local markets.

| Recycling Rate | % of Cust. Offered Recycling |
|----------------|------------------------------|
| 45%            | 65%                          |

\* only direct customers - excludes growers purchasing from retailers

# Frequently Asked Questions: GRODAN STONEWOOL RECYCLING

## Self Processing

### What can I do to process it myself?

- Growers can self-process their stonewool and should follow all local rules and regulations for proper handling, recycling, and/or disposal
- Self-processing can consist of the removal of stalk, stem, and other green waste, potentially removing the plastic sleeve, and shredding the material
- Customers should contact local recycling and waste service providers for potential options in their areas

### What grinder/shredder do you recommend?

- Stonewool can be processed using most conventional grinders
- Grodan performed pilot trials with JWC Environmental and its Muffin Monster Shredder series. The JWC shredders are far smaller than most conventional shredders in terms of size and motor. The specific model is the 3-SHRED-H-1200 Monster Industrial Grinder. This means they have less footprint, less operating costs, and are a fraction of the price of larger and more traditional shredders. Case studies and pictures/videos of the pilot are available on request
- If desired, your Grodan Account representative can connect you with the appropriate JWC Environmental contact



### Do I need to separate out the plastic foil?

- Some recyclers are able to take the material but only without the plastic foils
- Please connect with your local recycling company to verify that they are able to accept the material with plastic
- If the recycler is not able to take the plastic foil – it can be easily torn and separated from the stonewool

# Frequently Asked Questions: GRODAN STONEWOOL RECYCLING



## Material Questions

### Why do you use plastics?

- Grodan's R&D team is actively researching environmentally friendly alternatives to plastic foil
- The plastic foil plays a pivotal role in the growing process, technical features include:
  - Without the foil - blocks could receive algae build up and colonization due to exposure to light on outside of the block
  - The roots avoid light, without the foil a different root system architecture could develop
  - Without the foil - water retention & rate of dry-back will vary due to increased exposure
  - Without the foil – There is an increased probability of vegetative actions (frequent small irrigations) to keep the water content up
  - The foil helps prevent cross contamination

### Is your plastic foil biodegradable?

- Grodan's R&D team is actively researching the possibility of incorporating biodegradable plastics and alternative materials to best suit the environment
- Presently, most biodegradable plastic products are not suitable to perform in high temperature and high moisture greenhouse environments

### Does the used stonewool release heavy metals?

- Both new and used stonewool have been thoroughly tested and have not shown any traceable leaching values. In Europe, Grodan stonewool qualified for the "EUROPEAN ECOLABEL" – which ensures safe ecological criteria for growing media, soil improvers, and mulch
- 3rd Party testing results are available on request

### How is stonewool is non-hazardous/non-toxic?

- Stonewool is non- toxic, non- ignitable, non- reactive, and non-corrosive as concluded through independent laboratories. Used Grodan stonewool is typically classified as "Non-Hazardous - Solid Waste.", please confirm with your local regulator. If you require independent testing please reach out to your local Grodan account representative who will be able to assist

### How is the stonewool media inert?

- Stonewool fibres have no cation exchange capacity (CEC) and therefore will not chemically bind fertilizer elements or the active ingredients in agrochemical products. This contrasts with growing media based on plant fibres or soils which will have significant CEC

### What are the THC levels in cannabis roots?

- Independent testing has concluded that cannabis roots do not contain a significant number of cannabinoids. The D9-tetrahydrocannabinol (THC) content percentage has typically shown to be 0.0% on average. For context, products are legally considered CBD if it has a reading of 0.3 mg/g THC