



Grodan®

STONE WOOL RECYCLING FAQs

WHAT DO I DO WITH USED STONE WOOL?

Are there re-use/recycling opportunities for my used stone wool?

- Used Grodan stone wool has a number of re-use markets also referred to as “secondary applications.” This includes: feedstocks for brick manufacturers, compost, potting mix, industrial bedding, and engineered soils. These options vary in every region based on what processors exist.
- Stone wool consumers should follow all local solid waste guidelines in their districts and reach out to their municipal waste management authorities to determine suitable options for recycling.



My local/regional waste management isn't allowing my facility to put these blocks in any waste stream other than landfill and we have nowhere else to put them or store them. How do I deal with my local waste management not knowing a better way to dispose of the blocks?

- We understand that in many cases, the cheapest and easiest way to dispose of the product is via landfill. This is often due to infrastructure limitations, logistics constraints, and volume requirements.
- If desired, please reach out to info@grodan.com to coordinate a meeting with your local waste servicer and discuss alternative recycling opportunities in your area

Processed stonewool from Rotterdam, NL - sent to brick industry

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SELF PROCESSING

What can I do to process it myself?

- Each municipality has their own solid waste regulations; stone wool consumers seeking to process the material on-site should follow all local rules and regulations for handling and disposing of solid waste and alternative waste classifications.
- If stone wool consumers have confirmed that they are able to handle the material on-site; used stone wool makes a great amendment for potting soil.
- Consumers should de-sleeve the plastic wrapping this can be done using a conventional box cutter. Self-processing can consist of the removal of the stalk, stem, and other green waste. Crumble the stone wool, and sift the media in with potting soils always use gloves, goggles, and appropriate safety apparel.



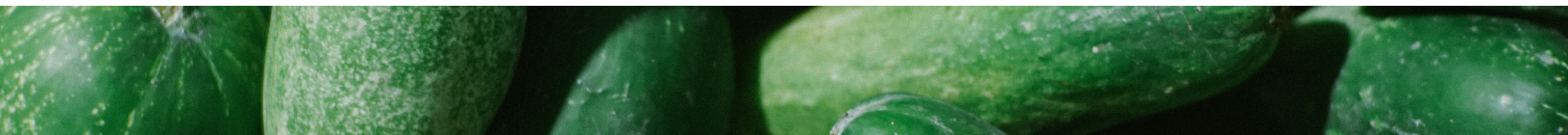
Remnants from grinding pilot in Santa Ana, CA with JWC Environmental

Do I need to separate out the plastic foil (de-sleeve)?

- Consumers should check with their recycler to see if 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 stone wool with a knife or box cutter during the harvest process.

If I compost or backfill with stone wool, will its degradation into the soil increase my heavy metal content? Does the used stone wool release heavy metals?

- No, both new and used stone wool have been thoroughly tested and have not shown any traceable leaching values. In Europe, Grodan stone wool qualified for the “EUROPEAN ECOLABEL” – which ensures safe ecological criteria for growing media, soil improvers, and mulch.
- 3rd Party testing results available on request.



SELF PROCESSING CONT.

What grinder/shredder do you recommend?

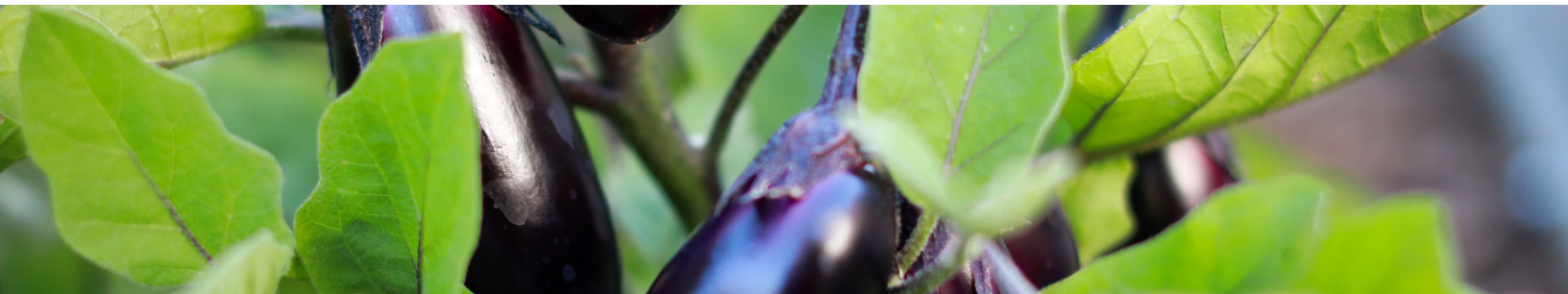
- Stone wool can be processed using most conventional grinders.
- Most conventional greenhouses will require small scale shredders with motor size ranging from 5-30 hp. This means they have less footprint, less operating costs, and are a fraction of the price of traditional shredders. Consumers should coordinate on the specific size requirements and other needs with the manufacturers and distributors.
- Two of the leading suppliers include JWC Environmental and High Yield Solutions Corp. Which includes the Muffin Monster Shredder Series from JWC and the Plant Muncher from HYSC.
- Material processing footage and results are available upon request.



JWC Environmental 'SHRED - H- 1200 Monster Industrial Grinder

Is your plastic foil biodegradable? Why not? What are we supposed to do with thousands of single-use plastic wrappers?

- Biodegradable plastics are still developing for commercial scales. Presently, most products in the marketplace are not fit for typical greenhouse environments and are often not accepted at composting facilities across the country.
- The plastic foil plays a pivotal role in the growing process; Grodan's R&D team is actively exploring how to best utilize this valuable resource, deliver the highest quality products to the marketplace, limit the environmental impact from its plastic stream, and identify long term viable and environmentally friendly alternatives to plastic foil
- Many plastic products in the market are claiming to be biodegradable. All biodegradable plastics should conform with the technical standards and requirements set by the Biodegradable Products Institute and include a "BPI Certification." If there is no BPI labelling, this material will not be accepted at most organic processing facilities.



RECYCLING OPTIONS?

Is Grodan stone wool recyclable?

- Absolutely! Not only is Grodan stone wool recyclable, our stone wool can contain up to 75% recycled content.* The durability and resilience that the stone wool provides for the growing process also makes the material an attractive product on the recycling market.

**Does Grodan stone wool consist of recycled materials?*

- Yes, Grodan stone wool can contain up to 75% recycled materials.
- The recycled content consists of cuttings and other factory wastes that are recycled back into the production stream aka virgin material.
- ROCKWOOL's RockCycle Project takes back used stone wool to factories across the globe. Currently, RockCycle is targeted more towards the insulation business.
- There should be no concerns of potential contamination from used materials. Uniform product quality is assured across each manufacturing facility – nothing can survive in the ROCKWOOL furnace.



Does Grodan actually recycle its stone wool?

- Grodan collaborates with leading recycling institutions across the globe, together we have achieved a worldwide recycling rate of 65% in 2022.
- For reference, Germany (believed to be the most efficient recycling country in the world) recently recorded a recycling rate of 68% - if Grodan was a country it would be one of the leading recyclers in the world.
- ROCKWOOL International is committed to sustainability, specifically circularity and aims to offer recycling services in over 30 countries by 2030.
- Our manufacturing facilities in Denmark and Netherlands offer a takeback system – a fully circular manufacturing model.

How is stone wool non-hazardous/non-toxic?

- Stone wool is non-toxic, non-ignitable, non-reactive, and non-corrosive as concluded through independent laboratories. The used Grodan material is typically classified as "Non-Hazardous - Solid Waste." – please confirm with your local regulator.

How is the stone wool media inert?

- Stone wool 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.

How is used stone wool beneficial in composts and other applications?

- In North America, Grodan composts over 5,000 tons of stone wool per year through leading compost facilities.
- Added value includes:
 - 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 stone wool as a beneficial use amendment and has questions, please contact info@grodan.com to assist in providing guidance, product details, and third-party testing results.



Where does Grodan offer recycling services?

- Grodan is constantly expanding its reach in order to have our consumers have better access to recycling across North America and around the globe. Together we can make stone wool one of the most recycled materials in the world.
- Please visit www.grodan.com/about/recycling-solutions/#NorthAmerica for the most up to date recycling vendors available.