

JOHN'S CORNER

Soil Amendments - Rock Wool

By John Ferguson

This week I want to continue talking about soil amendments of volcanic origin and discuss Rock Wool. Like so many things in life there is a lot of variation in the products sold under the generic name Rock Wool. Rock Wool is mainly used in hydroponics and to a lesser degree as a general soil amendment. Sometimes it is called stone wool or mineral wool.

To make Rock Wool, a type of igneous rock (most commonly basalt) is re-melted and turned into long fibers as it is cooled. This is done by injecting steam into the molten rock or by using a technique called spinners where the liquid rock is spun off into thin long strands and allowed to cool and harden as fibers (think of cotton candy).

These fibers are then coated with some type of resin to help them stick together and pressed into a mat with different densities based on the desired properties of the Rock Wool. Rock Wool is often produced in slabs, blocks, cubes, etc., similar in appearance to bats of fiberglass insulation.

Being an inert rock product, rock wool has a zero cation exchange capacity (CEC) and essentially a neutral pH. The finished product can have a 97% porosity. This requires a grower to provide nutrients in a liquid form and carefully control moisture.

The physical properties of the Rock Wool depend on the orientation of the fibers (whether they are horizontal or vertical). Root development of plants grown in rock wool is often better and fuller if the fibers are horizontal; however, roots become longer and less spread out if the fibers are vertical.



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Rock wool is naturally yellow to green in color but is often brown to gray from the resins used to glue the fibers together

Other common uses for rock wool include fire proofing material, insulation, filtration media and sound proofing products. Rock wool is also used in products from brake pads to gaskets. In Europe it has been used as a planting media on green roofs.

Best usage is in hydroponic gardening systems and not as a soil amendment. For more information see the book: "Gardening Indoors with Rock Wool" by Alyssa Bust and George Van Patten.

PROS:

- will not break down (rot or decompose) hence does not lose its porosity
- does not compact
- has no offensive odors
- available in many shapes and sizes
- drains slowly giving growers more control over watering (also holds water well in case of a power outage or pump failure in hydroponics)
- high capillary action allows water to wick into the medium from below
- rapid germination of seeds and rooting of cuttings
- loosens the density of heavy clay soils (will take a lot, expanded shale is a better and lower cost option)
- neutral in pH so it does not change the acidity or alkalinity of soil
- free of pathogens
- as an soil amendment it reduces crusting , cracking and swelling of soils helping with tilth
- can be sterilized (heat or treating with chemicals) and reused in hydroponics
- can be cut up after it has been used in hydroponics and used as a soil amendment
- easy and convenient to use with almost unlimited supply of raw materials to make it

CONS:

- as in any mineral fiber it is an eye, skin and lung irritant and one should always wear a breathing mask and gloves

101 Sherbrook Circle • Conroe, Texas 77385-7750
(936) 321-6990 Metro • (936) 273-1200 Conroe • Fax (936) 273-1655



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- must carefully control moisture to prevent root rot and anaerobic conditions or to prevent drying out
- no natural nutrient availability, requiring users to provide all nutrients through irrigation
- has a low buffer capacity to prevent pH change
- variable benefits depending on your soil and where you live
- requires pre-treatment before using in hydroponics or soils
- a few producers use limestone during the melting and spinning phase hence they tend to be alkaline and the pH must be neutralized before usage.