

UPuper®

Gen-Next Pro Series

Next-generation precision stone wool propagation plugs engineered for modern Controlled Environment Agriculture and high-tech commercial nurseries. Designed for automated seeding lines, robotic grafting, and precision transplanting systems.



Premium
BASALT RAW MATERIAL

< 0.08 ppm
HEAVY METAL

0
PATHOGENS

| PRODUCT OVERVIEW

UPuper® Gen-Next Pro Series precision stone wool propagation plugs are next-generation, high-efficiency cultivation substrates engineered specifically for modern Controlled Environment Agriculture (CEA) and high-tech commercial nurseries. Seamlessly integrating the premium physical properties of high-grade basalt stone wool with advanced substrate manufacturing expertise, these plugs leverage exceptional porosity and capillary suction to foster a sterile, highly oxygenated, and perfectly uniform rootzone environment for initial root development. Compared to traditional peat-based media prone to waterlogging, pathogen retention, and inconsistent moisture, UPuper® stone wool plugs drastically improve seed germination uniformity, abbreviate propagation cycles, and catalyze explosive, multi-directional root growth.



Key Applications

Controlled Environment Agriculture (CEA) & Greenhouse Production

*High-volume commercial nurseries (tomato, pepper, cucumber)
Automated precision seeding & point-sowing lines*

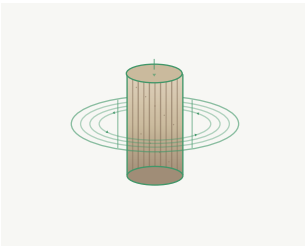
Robotic grafting systems

High-speed sorting & automated transplanting

Hydroponic & soilless propagation systems

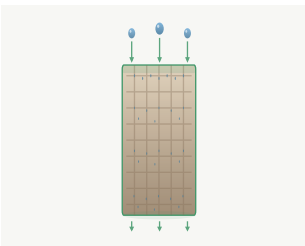
Vertical farming seedling production

| CORE ENGINEERING & KEY ADVANTAGES



3D Pleated Structure & Precision Trimming

Our high-frequency 3D pleated manufacturing technology weaves basalt stone wool fibers into a meticulously dense and uniform three-dimensional matrix, anchoring absolute structural integrity from the core. Every plug undergoes high-precision industrial trimming to minimize dimensional tolerances and cell-to-cell variance — maximizing operational efficiency on automated conveyor lines and significantly reducing machine jam risk and operational downtime.



Hydrophilic Formula & Rootzone Synchronization

Infused with our proprietary hydrophilic formula and paired with a perfectly uniform fiber architecture, this series successfully eliminates the gravity-induced "top-dry, bottom-wet" deficit of traditional stone wool media. It ensures an ideal three-dimensional equilibrium of water and nutrients within the plug, allowing immediate moisture-gradient alignment with secondary propagation blocks. Post-transplantation, young roots swiftly pierce the plug's outer walls to anchor deep into the growing medium, significantly condensing transplant shock and accelerating early vegetative growth.



Centripetal Conical Seed-Hole Design

Our seed cavities are sculpted using meticulous 3D geometric engineering. The specialized conical geometry functions as a highly effective centripetal guide, ensuring seeds automatically land in the absolute dead center of the plug during automated pneumatic seeding or manual pinning. This zero-variance centering guarantees every embryo is enveloped by an identical thickness of stone wool fibers, experiencing completely mirrored moisture and oxygen levels — substantially elevating germination uniformity for high-value crops such as tomatoes, peppers, and cucumbers.

| TECHNICAL CHARACTERISTICS & PERFORMANCE

PARAMETER	REFERENCE VALUE	CULTIVATION & ENGINEERING BENEFIT
Wettability (Sink Time)	< 3 seconds	Rapid saturation eliminates internal surface-tension blind spots throughout the plug matrix, fully supporting automated overhead misting and dipping systems on high-throughput seeding lines.
Total porosity	≥97%	Secures an extraordinary air-water balance ensuring ample oxygen diffusion while maintaining superior moisture retention. This optimized, high-oxygen microenvironment accelerates seed imbibition and germination, enhancing germination vigor and promoting robust, balanced initial root initiation.
Initial Electrical Conductivity (Initial EC)	< 0.1 dS/m	The inert matrix contains zero inherent nutrients or soluble salts, delivering an exceptionally low initial EC. Enables growers to implement a high-precision, customized nutritional regime from day one without interference from substrate-native chemistry.

Heavy Metals & Residues (Heavy Metal Content)	Non-detectable < 0.08 ppm	Sourced exclusively from premium pure basalt minerals with intrinsically limited heavy metal content. The highly stable chemical lattice guarantees zero leaching of harmful heavy metals throughout the entire crop propagation lifecycle, fundamentally safeguarding plant development safety.
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| PRODUCT SPECIFICATIONS

MODEL	DIMENSIONS INCH	QUANTITY / BOX (PIECE)	
UPuper® Plug CP 20R	0.8" × 1"	10,000 pcs/carton	
UPuper® Plug CP 22R	0.86" × 1"	8,500 pcs/carton	
UPuper® Plug CP 20-tray	23.5" x 15.6" x 1.7"	14 pcs/carton (240 plug /tray)	
UPuper® Plug CP 22R-tray	23.5" x 15.6" x 1.7"	14 pcs/carton (240 plug /tray)	

| STORAGE & TRANSPORTATION SPECIFICATIONS

WAREHOUSE ENVIRONMENT

UPuper® stone wool substrates should be stored in a dry, covered environment to protect the integrity of the packaging and prevent external contamination.

TEMPERATURE & CLIMATE CONTROL

Long-term storage at extreme temperatures may affect the performance of the rock wool substrate, avoid prolonged exposure to extreme temperatures to maintain optimal material stability.

QUALITY INSPECTION & INVENTORY ROTATION

Regularly check the stock condition and dispose of any accidentally contaminated or physically damaged media in a timely manner.

HANDLING & STACKING

The maximum stacking height of the UPuper® rock wool substrate is recommended to be < 2 meters (placed horizontally with original package).

Important Notice: All technical values stated herein represent reference performance figures obtained under controlled laboratory test conditions and are intended for comparative and specification purposes only. Actual field performance may vary depending on local growing environment, irrigation system, crop variety, and agronomic management practices. UPuper® reserves the right to update product specifications without prior notice. This document is intended for authorized distributors and commercial growers only and shall not be reproduced or redistributed without express written consent.