

VACUUM DRYING PLANT-BASED MATERIAL

Vacuum dryer with heating blankets preserves product quality while reducing processing time

Application

Plant structures are made of cells such as cellulose and chloroplasts. They may also contain up to 95% water which is vital to plant growth. When part of a plant is cut from its base or root system, flowers, seeds, leaves, and fruit start to lose their freshness almost immediately. Preservation techniques may be used maintain desired flavor, vitamin and mineral content, color, and chemical properties.

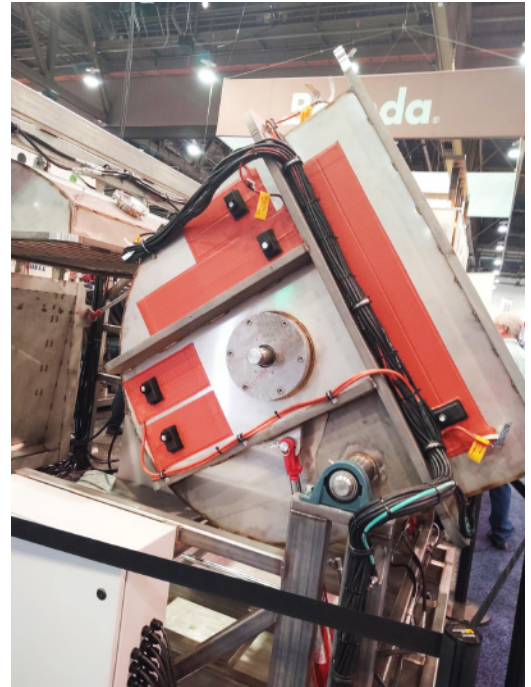
Cannabis that was once harvested can no longer produce cannabinoids, and potency starts to decrease. The moisture content is about 75% and must be reduced to 10-15% for smooth, even burning. Traditional air drying in dark, temperature and humidity controlled drying rooms preserves color, taste, and potency, but this process may take 7 to 15 days. Drying with higher heat reduces the processing time but sacrifices color, taste, and some potency. Commercial producers need a process that will dry the buds in less time while still preserving the desired properties.

Solution

An engineering and design company developed a machine to vacuum dry and decontaminate plant-based materials (biomass). Cannabis flowers can be processed in less than 4 hours, preserving color, aroma, and potency. Recently harvested biomass is trimmed and placed in the vacuum chamber. Once sealed, the sub atmospheric vacuum pressure starts to vaporize water contained in the biomass. When most of the water has been extracted and the biomass is dehydrated, the temperature inside the vacuum chamber can reach freezing. This is known as vacuum freeze drying and processing can take weeks. Surface heating is required to prevent the material from freezing thereby resulting in drastically reduced processing time.

BriskHeat SRL-ADJ silicone heating blankets are used around the exterior of the vacuum chamber to aid in the evaporation of liquid and prevent the material from freezing. Heaters are designed with pressure-sensitive adhesive to provide for better heat transfer around the partial circumference and sidewalls of the vacuum chamber. The low temperature heats gently, preserving the quality of the biomass. These heaters also accept frozen material for processing.

According to the company president, the vacuum dryer can be used to process many other biomass products, including coffee and vanilla beans. The combination of vacuum and heat means more production in less space. BriskHeat silicone rubber heating blankets help end-users produce high-quality, market-ready products made from biomass in less time. For processes requiring more exact processing temperatures, BriskHeat recommends standard SRL, SRP, or SRW silicone blankets with separate temperature controllers such as the TB4000 or TC4000.



Industries

Agriculture/Farming/Ranching
Cannabis
Food & Beverage Processing
Life Science/Medical/Pharmaceutical

Products

SRL-ADJ Heating Blankets
SRL/SRP/SRW Heating
Blankets TB4000/TC4000