

## **FLUX - Cannabis Dryer**

### **WHY USE RF for the drying of cannabis?**

Radio frequency (RF) technology offers a highly controlled and efficient approach to the drying and stabilization of cannabis inflorescences, addressing key limitations associated with conventional thermal methods. By delivering volumetric heating throughout the biomass rather than relying on surface heat transfer, RF enables uniform moisture reduction, improved batch-to-batch consistency, and significant reductions in processing time. This uniform energy distribution helps preserve thermolabile compounds such as terpenes while maintaining cannabinoid integrity, which is critical for medical and pharmaceutical-grade products. Additionally, RF systems are inherently scalable, energy-efficient, and easily parameterized, allowing operators to fine-tune voltage, exposure time, and electrode configuration to achieve target moisture levels without inducing thermal degradation. The technology also supports integrated process steps—such as simultaneous drying, microbial reduction, and partial decarboxylation—thereby streamlining post-harvest workflows and reducing overall operational costs while maintaining high quality standards.

### **HOW THE TECHNOLOGY WORKS?**

*RF drying is based on dielectric heating, where an alternating electromagnetic field (typically in the 1–300 MHz range) interacts with polar molecules—primarily water—within the plant matrix. These molecules attempt to realign with the rapidly oscillating electric field, generating internal friction that produces heat uniformly throughout the material. Unlike convective or conductive heating, which transfers energy from the surface inward, RF energy penetrates deeply and produces volumetric heating, minimizing thermal gradients and localized overheating. The heating rate can be precisely controlled by adjusting process variables such as applied voltage, treatment time, and electrode spacing, enabling accurate control of moisture removal kinetics. This mechanism allows rapid and homogeneous drying of heterogeneous structures like cannabis flowers while reducing processing times from hours to minutes and maintaining a stable phytochemical profile.*

### **WHY THE CONVENTIONAL METHODS ARE NOT EFFICIENT AS RF?**

*Traditional drying methods—such as hot air convection, oven drying, or prolonged ambient curing—rely on slow heat transfer from the exterior of the inflorescence toward the core, resulting in significant temperature and moisture gradients. This often leads to uneven drying, localized overheating, terpene volatilization, and partial degradation of cannabinoids due to extended exposure times. Moreover, conventional processes are energy-intensive, difficult to standardize, and highly dependent on environmental conditions such as airflow, humidity, and operator handling, which compromises reproducibility and scalability. In contrast, RF technology dramatically shortens processing times, reduces energy consumption, and delivers uniform heating independent of external air dynamics. By minimizing thermal stress and enabling precise process control, RF drying achieves higher product quality, improved microbial safety, and greater operational efficiency than conventional methods, making it particularly suitable for regulated cannabis production environments.*