



## **Trichome Integrity**

### **If the terps are in your nose, they aren't in your plant.**

Trichomes are external, delicate structures on the cannabis plant which produce secondary metabolites. They arise from a series of anticlinal and periclinal divisions of epidermal cells to form globular and non-glandular appendages which protect the leaf from UV, water loss, and insect or animal destruction. Though many compounds are produced in this structure, the ones most valued in the cannabis industry are terpenes and cannabinoids. Terpenes are highly volatile organic compounds found in various plants which lend aroma and flavor. Mechanical handling and drying conditions in post-harvest can have a heavy impact on trichome cuticle integrity. **Trichome Integrity** refers to the preservation and protection of trichomes. Maintaining trichome integrity is crucial throughout the cultivation, harvesting, and processing stages to ensure the quality and potency of the final product. When trichomes remain intact, they can better protect the valuable compounds within from degradation and loss.

### **Vaportrol Technology is proven to preserve trichome structure better than traditional post-harvest methods, leading to cannabis with higher terpene retention.**

A trichome head can be theorized similar to a balloon. As pressure is manipulated in the drying environment by change in dew point, the cuticle will expand and contract. This constant movement (dictated by the drying environment setpoints and equipment capabilities) alongside the rapid drop in water content can cause rupture of the cuticle. Cuticle rupture allows the release and volatilization of terpenes and degradation of cannabinoids.

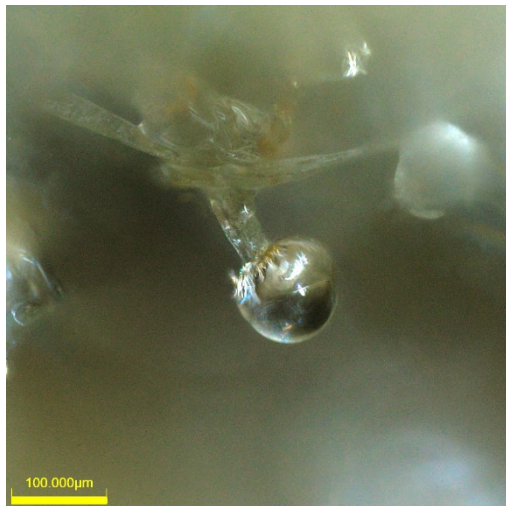
When the trichome head properly cures in a consistent, equalized environment, the cuticle has time to stabilize and thicken. If the vapor pressure in the space is constantly changing, with air conditioners and dehumidifiers turning on and off, the space never reaches an environmental equilibrium and the trichomes are constantly stressed.

### **Cannatrol Systems literally seal in terpenes.**

The images below taken by the Cannabis Research Coalition demonstrate how the trichomes are ruptured during traditional post harvest processing, while the trichomes in the Cannatrol system remain intact. In a grid count, 20-30% of trichomes in traditional conditions show damage, while there is only 1-2% damage in the Cannatrol sample.

These ruptured trichomes ‘leak’ terpenes and volatilize before they can be consumed.

### **Cannatrol Trichomes Are Well Preserved**



### **Traditional Drying Ruptures and Damages Trichome Heads**



Photos are unedited and taken by Dr Allison Justice of Cannabis Research Coalition on 2/20/24