



Designation: D8432 – 22

Standard Specification for Environmental Conditions while In Transit for Packaged Cannabis/Hemp Flower¹

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INTRODUCTION

The cannabis/hemp industry, from seed to consumption, is undergoing a transition and modernization. Thus, standards for ensuring safety, quality, and weight stabilization during key steps of the cannabis/hemp flowers sojourn are in order. This specification is needed to ensure safety, quality, and weight stabilization of cannabis/hemp flower and will be used by purveyors who move the cured crop from the packaging process via the supply chain to another licensed operator or to the end user.

1. Scope

1.1 This standard specifies the environmental conditions, such as temperature, humidity, and lighting under which cannabis/hemp flowers packaged in fresh format and intended for human use are to be maintained in transit to ensure the safety and quality of the packaged flower.

1.1.1 This specification does not apply to frozen cannabis/hemp.

1.1.2 This specification does not apply to cannabis/hemp intended for extraction.

1.2 This specification applies to controlling the environment surrounding packaged cannabis/hemp flower in transit.

1.3 This specification is to be followed by licensed operators in the cannabis/hemp space who move the packaged crop(s) through the distribution supply chain to another licensed operator or to the end user.

1.4 Security of the packaged cannabis/hemp flower while in transit is not within the scope of this specification.

1.5 This specification is intended to remain valid until ownership of the packaged cannabis/hemp flower is transferred to another licensed operator or to the final consumer.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 *environmental conditions, n*—the atmosphere immediately surrounding the cannabis/hemp flower, whether contained within the package in which the flower is contained, or in the larger space surrounding the package containing the flower.

2.1.2 *mean kinetic temperature, n*—a simplified way of expressing the overall effect of temperature fluctuations during storage or transit of perishable goods.

2.1.2.1 *Discussion*—The MKT is widely used in the pharmaceutical industry. The mean kinetic temperature can be expressed as²:

$$T_K = \Delta H/R / -\ln[t_1 e^{(\Delta H/RT_1)} + t_2 e^{(\Delta H/RT_2)} + \dots + t_n e^{(\Delta H/RT_n)} / t_1 + t_2 + \dots + t_n] \quad (1)$$

where:

T_K = the mean kinetic temperature in degrees Kelvin,
 ΔH = the activation energy (in kJ mol⁻¹),
 R = the gas constant (in J mol⁻¹ K⁻¹),
 T_1 to T_n = the temperatures at each of the sample points in degrees Kelvins, and
 t_1 to t_n = time intervals at each of the sample points.

2.1.3 *relative humidity, n*—the relative humidity (RH) of an air-water mixture is defined as the ratio of the partial pressure

¹ This specification is under the jurisdiction of ASTM Committee D37 on Cannabis and is the direct responsibility of Subcommittee D37.04 on Processing and Handling.

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² USP-NF, Mean Kinetic Temperature in the Evaluation of Temperature Excursions During Storage and Transportation of Drug Products, <1079.2>, 2020. DOI: https://doi.org/10.31003/USPNF_M13855_02_01.