



Designation: D8376 – 21

# Standard Classification for Cannabis/Hemp Extract Vaporizers<sup>1</sup>

This standard is issued under the fixed designation D8376; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

## 1. Scope

1.1 This standard shall classify the various types of cannabis/hemp extract vaporizers.

1.2 This classification shall differentiate between the intended use of each type of cannabis/hemp extract vaporizers.

1.3 This classification shall provide examples of each type of cannabis/hemp extract vaporizers. Examples and pictorials shown in the Annexes and Appendixes or described in this classification are not intended to be all-inclusive and are included only as an aid in understanding and comprehension of the classification system.

1.4 For the purposes of this classification system, the term concentrate and extract are interchangeable in the context of source material being consumed. Concentrate and extract are two different products consumed in the same way.

1.5 This classification shall apply to vaporizers used to incorporate the extracts of a cannabis plant regardless of the type of cannabis plant from which they were derived. For the sake of brevity, the term “cannabis” shall be used from now on to refer to any type of cannabis plant (cannabis/hemp).

1.6 *Units*—The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.7 *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.*

1.8 *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.*

<sup>1</sup> This classification is under the jurisdiction of ASTM Committee D37 on Cannabis and is the direct responsibility of Subcommittee D37.08 on Cannabis Devices and Appliances.

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## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

D8270 Terminology Relating to Cannabis

D8372 Guide for Cannabis/Hemp Extract Vaporizers

## 3. Terminology

3.1 For definitions of terms used in this guide, refer to Terminology D8270 and the terms developed by Subcommittee D37.91 on Terminology.

3.2 *Definitions*:

3.2.1 *atomizer, n*—any device that transforms a substance by means of heating into vapour.

3.2.1.1 *Discussion*—The term atomizer in the vaping world is the component of the device responsible for heating up the substance to vapour. The word atomizer is also commonly used to reference the heating coils of any cartridge, the part that is responsible for vaporizing liquid.

3.2.2 *cartridge, n*—a container or receptacle used for storage of cannabis extracts, that typically contains an atomizer within and is intended to be single use or replaceable.

3.2.3 *chamber, n*—any vessel/receptacle where the user loads material directly into/onto the vaporization mechanism prior to inhalation.

3.2.4 *desktop, n*—any personal consumption device that is designed to rest on a stable horizontal surface while in use.

3.2.5 *handheld, n*—any personal consumption device that is explicitly designed to be held in the user’s hand.

3.2.6 *integrated single use, n*—a common term for an all-in-one disposable vaporizer, comprising a cartridge and battery.

3.2.6.1 *Discussion*—An integrated single use vaporizer can also be called a disposable vaporizer.

3.2.7 *pod, n*—a type of container style, explicitly designed for use with liquids of varying viscosities, typically proprietary, that attaches by means of magnetic connection to an appropriate magnetic vape battery.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

3.2.7.1 *Discussion*—A pod can also be referred to as a magnetic cartridge.

3.2.8 *prefilled, n*—any cartridge that is filled with an extract by a licensed producer, manufacturer, or distributor, as defined by the authority having jurisdiction, prior to distribution/sale.

3.2.8.1 *Discussion*—The term prefilled is attributable to any threaded cartridge or pod or like container that is not intended to be refilled by the user.

3.2.9 *refillable, n*—any cartridge that is filled with an extract by the user.

3.2.9.1 *Discussion*—The term refillable is attributable to any threaded cartridge, pod, container or chamber that is intended to be refilled by the user.

3.2.9.2 *Discussion*—The term refillable may also be applied to any open chamber vaporization device that is intended to be refilled by the user such as a dab pen (see Fig. A1.4) or dab straw (see Fig. A1.5).

3.2.10 *threaded cartridge, n*—a type of cartridge whose connection method to a battery is by means of a threaded system.

3.2.10.1 *Discussion*—Threaded cartridges may come in various threaded pitches. Some examples are 510, 512, and 710. The number refers to “X” threads at “Y” mm per thread type threading that is used to screw the bottom of the cartridge to an appropriate threaded vape battery.

3.2.10.2 *Discussion*—510 threaded cartridge is the most common type of vaporizer cartridge and has been adopted and commonly called “Universal.” Following convention, 510 refers to 10 threads at 0.5 mm per thread.

3.2.10.3 *Discussion*—Adapters exist to allow threaded cartridge types to work with magnetic batteries and vice versa.

3.2.11 *vaporizer, n*—a device that allows the input of solids or liquids and permits the decarboxylation of cannabinoids to generate a vapour (containing cannabinoids [for example, THC, CBD] and terpenes), which is intended for inhalation by means of a mouthpiece (which allows transfer from the device to the mouth and into the lungs).

3.2.11.1 *Discussion*—The term vape may also be used interchangeably as a shortened form for vaporizer.

### 3.3 Acronyms and Initialisms:

3.3.1  $\text{delta-9-THC} = \text{d9-THC} = \Delta\text{9-THC} = \text{THC} = \text{delta-9-tetrahydrocannabinol}$

## 4. Significance and Use

4.1 This classification defines various types of cannabis extract vaporizer devices.

4.2 Extract vaporizer devices can be used to incorporate extracts intended for inhalation from any type of cannabis plant. There is no distinction between those extracts intended for inhalation of a cannabis plant that can be classified as “hemp” and those that cannot, other than the delta-9-THC

content. Both forms of extracts are intended to be incorporated into the body by means of direct inhalation of the vapors that result from either combustion or vaporization of the substance. Therefore, the classification system presented in this standard shall be applicable to any vaporizer device intended to be used to facilitate the vaporization of an extract of a cannabis plant intended for inhalation regardless of the type of cannabis plant from which the extract was derived.

4.3 The purpose of this classification is to standardize the naming of device types under the classification.

4.4 The classification system breaks the device types into three main categories and two subcategories. These are intended to aid buyers and sellers of these devices in accurately defining the products they are buying or selling. This classification system shall also aid in the understanding of the various types of extract vaporizing devices that exist in the marketplace by reducing them down to their most common denominator: are they handheld or desktop or universal, do they come prefilled or not, and do they connect to a power source by means of threads or a magnet or otherwise.

4.5 This classification standard provides a uniform set of usage definitions within the cannabis industry. Included within this classification is a set of figures that outlines some individual components and aspects of various types of cannabis extract vaporizers.

4.6 This classification helps to clarify differentiations between the types of device configurations for consumption usage.

4.7 This classification will provide clarity to industry, government, and the public on various types of cannabis extract vaporizers available under each main classification.

4.8 This classification is not intended to define all terminology, design, mechanical, physical, or universal functions and impacts of different technologies attributable to cannabis extract vaporizers. Such characteristics, category details, and nomenclature will be defined in Guide D8372.

4.9 Reference to a particular type in this classification is not intended in any manner to denote endorsement or approval of said type by ASTM International.

## 5. Basis of Classification

5.1 The basis for classification appears in Table 1.

5.2 The classification for cannabis extract vaporizers is formed on the use case, using a main classification attribute and subclassification types for prefilled and refillable vaporizers.

5.3 For interpretation of classification for cannabis extract vaporizers, reference 6.2 that follows with examples.

5.4 For further clarity of types, reference cannabis extract vaporizer figures in Annex A1.

TABLE 1 Classification for Cannabis Extract Vaporizer Devices

Sub Classification System	Main Classification System		
	A. Handheld	B. Desktop	C. Universal
TYPE 1 – Prefilled Cannabis Extract Vaporizers			
a. Threaded Cartridge Vaporizer	A1a	B1a	C1a
b. Pod Vaporizer	A1b	B1b	C1b
c. Integrated Single Use Vaporizer	A1c		
TYPE 2 – Refillable Cannabis Extract Vaporizers			
d. Threaded Cartridge	A2d	B2d	C2d
e. Pod Vaporizer	A2e	B2e	C2e
f. Open Chamber Vaporizer	A2f	B2f	

6. Use of This System

6.1 The order of classification shall be as follows: handheld, desktop, or universal; followed by subclassifications, Type 1 – prefilled or Type 2 – refillable.

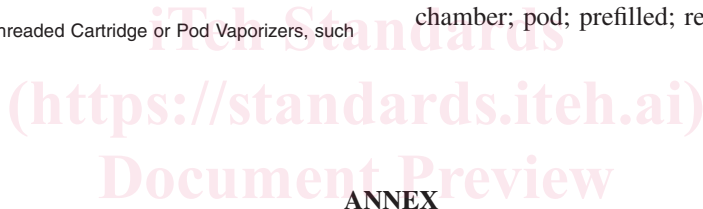
6.2 For examples, see below:

- A1a Handheld Prefilled Threaded Cartridge Vaporizers
- A1b Handheld Prefilled Pod Vaporizers
- A1c Handheld Prefilled Disposable Vaporizers
- A2d or A2e Handheld Refillable Threaded Cartridge or Pod Vaporizers
- A2f Handheld Refillable Open Chamber Vaporizers, such as dab pens or dab straws
  
- B1a or B1b Desktop Prefilled Threaded Cartridge or Pod Vaporizers, such as a vapor tap

- B2d or B2e Desktop Refillable Threaded Cartridge or Pod Vaporizers
- B2f Desktop Refillable Open Chamber Vaporizers, such as a self-contained dab rig, traditional e-nail, or dose insert vape
  
- C1a or C1b Prefilled Threaded Cartridges or Pods for use in a Handheld and Desktop Vaporizers
- C2d or C2e Refillable Threaded Cartridges or Pods for use in a Handheld and Desktop Vaporizers

7. Keywords

7.1 cannabis; cartridge; chamber; dab pen; dab rig; dab straw; desktop; disposable; extract; handheld; hemp; open chamber; pod; prefilled; refillable; vaporizer



ANNEX

(Mandatory Information)

ASTM D8376-21

<https://standards.iteh.ai/catalog/standards/sist/b9-4109-5555-78-a994-281481698228/astm-d8376-21>

A1. EXAMPLES

A1.1 Using Table 1 and 6.2, Figs. A1.1-A1.10 are examples of vaporizer classifications using the nomenclature outlined by major classification type, followed by subclassification type.

The examples are not intended to be all-inclusive, but are included only as an aid in the understanding and comprehension of some types of cannabis extract vaporizer devices.

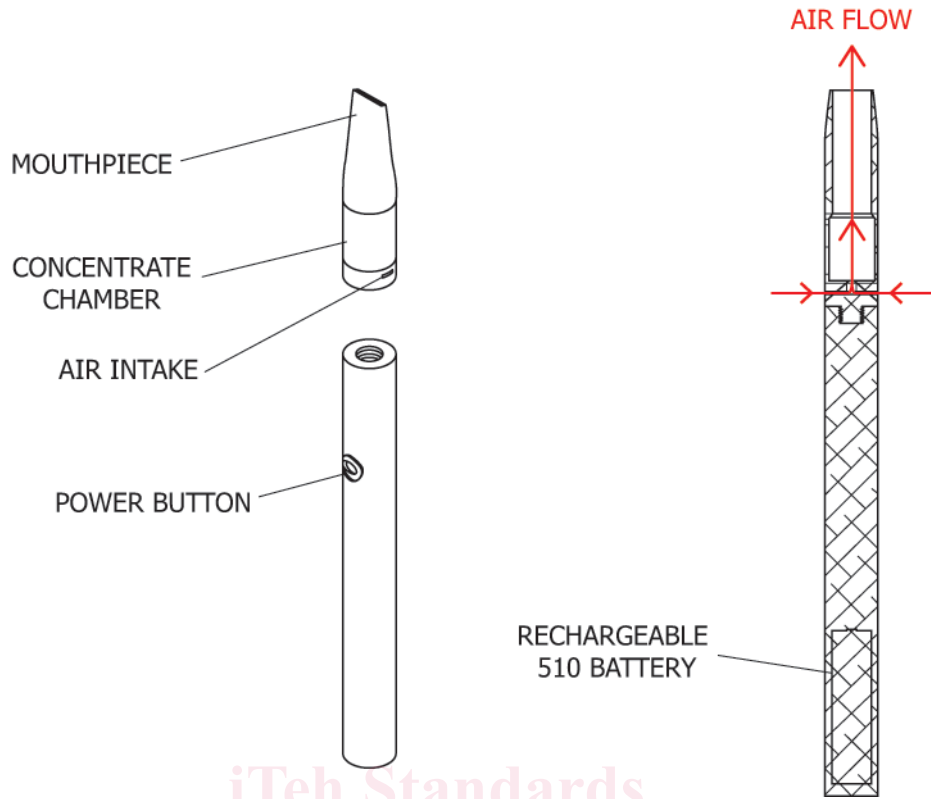


FIG. A1.1 Handheld Cannabis Extract 510 Vaporizer (A1a)

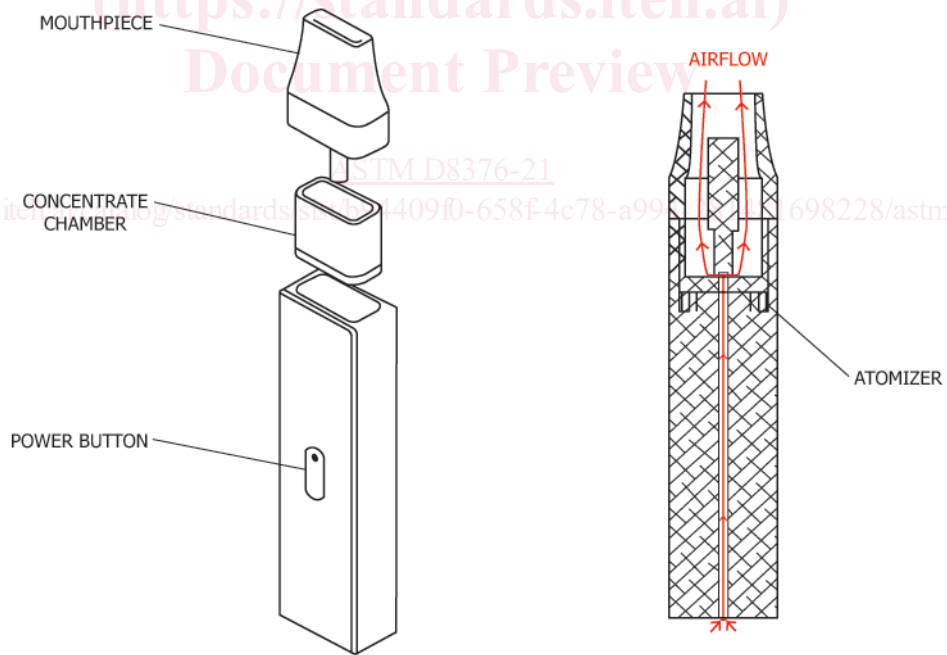


FIG. A1.2 Handheld Cannabis Extract Pod Vaporizer (A1b)

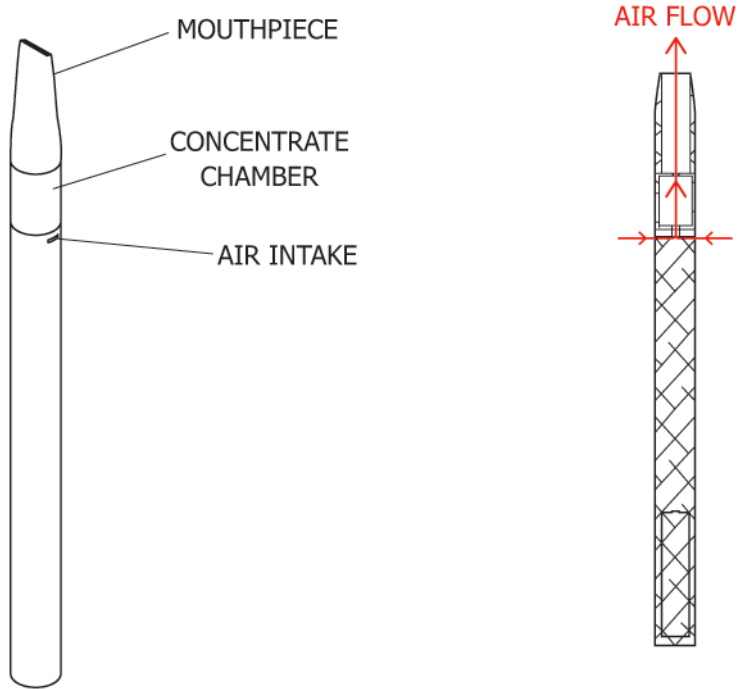


FIG. A1.3 Handheld Cannabis Extract Disposable Vaporizer (A1c)

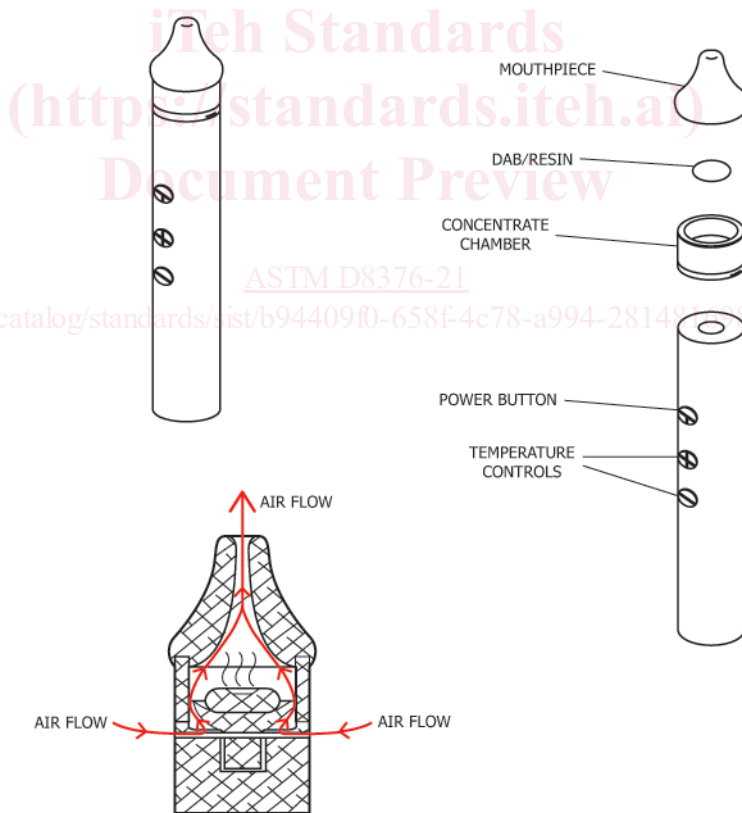


FIG. A1.4 Handheld Cannabis Extract Vaporizer – Dab Pen (A2f)