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.

Designation: D8449 – 23

Standard Specification for Label Content and Style, Format, Location, and Prominence of Elements for Consumer Products Containing Cannabinoids[1]

This standard is issued under the fixed designation D8449; 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 reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification shall define the label content and style and format specifications for consumer products containing cannabinoids sold in an adult-use or medicinal-use marketplace.

1.2 This specification shall define clear product categories for which these specifications apply.

1.3 This specification shall apply to all consumer products containing cannabinoids packaged, distributed, and sold in an adult-use or medicinal-use marketplace regardless of the methods of obtention (source) of the cannabinoids.

1.4 This specification shall not apply to inhalable or topical consumer products containing less than 10 000 PPM (1 %) total cannabinoids[2], of which, no more than 3000 PPM (0.3 %) shall be total THC[3].

1.5 This specification shall not apply to ingestible consumer products containing less than 250 PPM (0.025 %) total cannabinoids, of which, no more than 10 PPM (0.001 %) shall be total THC[4].

1.6 This specification shall not define the label specifications for approved dietary supplements, over-the-counter drugs, or pharmaceuticals containing cannabinoids.

1.7 This specification shall not define the label specifications for non-consumer products containing cannabinoids such as bulk or in-process products.

1.8 This specification shall not define the design characteristics for label material, adhesives, ink, or other features unrelated to label content or style, format, location, and prominence of elements.

1.9 Where aspects of this specification differ from jurisdictional regulatory requirements, the stricter of the two shall take precedence.

1.10 Where aspects of this specification conflict with jurisdictional regulatory requirements, the authority having jurisdiction shall take precedence.

1.11 *Units*—The values stated in either SI units or US Customary units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.12 *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.*

1.13 *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. Referenced Documents

2.1 *ASTM Standards:*[5]

D8233 Guide for Packaging and Labeling of Consumer Resin Cannabis Products for Sale to Adult Consumers, Legally Authorized Medical Users, and Caregivers in a Business-to-Consumer Retail Environment (Retailers)

D8270 Terminology Relating to Cannabis

[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.

Current edition approved April 1, 2023. Published April 2023. DOI: 10.1520/D8449-23.

[2] 10 000 ppm is the limit that the US Pharmacopeia Cannabis Expert Panel has recommended as the threshold for labeling cannabinoids. A reference is provided in the Related Materials section of this specification.

[3] 3000 ppm for total THC (delta-9-THC) is based on the harmonized specification for classifying Cannabis sativa L. plants as "hemp" in Europe and North and South America.

[4] 10 ppm is the Health Canada limit for total THC (delta-9-THC) above which all consumer products containing cannabinoids most be labeled with a Universal Symbol.

[5] 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.

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. United States

Documents
Document Sharing Hub
Full document details: ASTM D8449-23

D8441/D8441M Specification for International Symbol for Identifying Consumer Products Containing Intoxicating Cannabinoids

2.2 *United States Pharmacopeia (USP):*[6]

USP Chapter 17 Prescription Container Labeling

2.3 *NIST Standards:*[7]

NIST Handbook 130 Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality, Section IV, Part A – Uniform Packaging and Labeling Regulation

NIST Handbook 133 Checking the Net Contents of Packaged Goods

3. Terminology

3.1 *Definitions:*

3.1.1 *General*—Definitions are in accordance with Terminology D8270, unless otherwise indicated.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *adult-use, n*—any non-therapeutic application associated with the production/manufacture of products containing cannabinoids intended to be incorporated through any route of administration by adult[8] consumers.

3.2.1.1 *Discussion*—When referring to adult-use marketplaces, the preferred term is "adult-use," because ASTM Committee D37 does not want to associate consumer products containing cannabinoids intended for adult consumers, especially those with significant concentrations of delta-9-tetrahydrocannabinol, with those intended for general consumer populations.

3.2.2 *cannabis inflorescence (flower), n*—flowering tops of a cannabis plant.

3.2.2.1 *Discussion*—Cannabis flowers may occur singularly or in clusters (cola), possessing glandular trichomes, bracts, calyxes/sepals, and stigmas, and bear the reproductive structures (for example, stamens or pistils) involved in the development of seeds.

3.2.3 *cannabis resin, n*—terpenophenolic secondary metabolites produced within the secretory cells (glandular trichomes) of a cannabis plant, including the cannabinoids, terpenes, and other phytochemicals, whether refined or unrefined.

3.2.4 *concentrate, n*—cannabis resin preparations resulting from a separation process; or substance that results from the separation of the glandular trichomes of a cannabis plant.

3.2.5 *confusingly similar, adj*—in the case of goods and services, the likelihood that a reasonable person, exercising the degree of care typically afforded when purchasing similar goods or services, would be confused as to the origin, sponsorship, or approval of the goods or services.

3.2.6 *display panel, n*—that part, or those parts, of a package/container that is, or are, most likely to be used to affix a label or display required information.

3.2.6.1 *Discussion*—Depending on the packaging layer, the display panel in use and the principal display panel may be the same.

3.2.7 *exogenous, adj*—descriptive term used to define something as relating to or developing from external factors/sources/influences.

3.2.7.1 *Discussion*—When used to describe cannabinoids derived from sources other than a cannabis plant or any part thereof, refer to the cannabinoids as "exogenous cannabinoids."

3.2.8 *extract, n*—cannabis resin preparation resulting from an extraction process; or substance that results from the extraction of the flowers and/or glandular trichomes of a cannabis plant.

3.2.9 *finished, adj*—refers to any product that is in the final form in which it will be sold/provided to an authorized consumer/purchaser.

3.2.9.1 *Discussion*—In other words, a packaged and labeled product intended for sale.

3.2.10 *label, n*—any written, printed, or graphic matter affixed to, applied to, attached to, blown into, formed, molded into, embossed on, debossed, or appearing upon or adjacent to a product/package, for the purposes of branding, identifying, or giving any information with respect to the commodity or to the contents of the package.

3.2.10.1 *Discussion*—An inspector's tag or other non-promotional matter, affixed to or appearing upon a product/package, shall not be considered a label requiring the repetition of label information required by this specification.

3.2.11 *medicinal use, n*—any therapeutic application associated with the production/manufacture of products containing cannabinoids intended to be incorporated through any route of administration.

3.2.12 *operator, n*—refers to any entity or individual licensed/permitted by an authority having jurisdiction to cultivate, process, handle, package, distribute, or sell, or combinations thereof, a cannabis plant, its parts, or products, or combinations thereof.

3.2.13 *package, n*—the term "package," whether standard (fixed), or random in quantity, means any product enclosed in a container or wrapped in any manner in advance of being offered or exposed for retail sale; or whose weight, measure, or count has been determined in advance of being offered or exposed for retail sale. **See also** *finished*.

3.2.13.1 *Discussion*—An individual item or lot of any adult-use or medicinal-use consumer product containing cannabinoids on which there is marked a declaration of quantity per unit of weight or of fluid measure or of count, or combinations thereof, shall be considered a package or packages.

3.2.14 *phytochemical, n*—any chemical that is derived from a botanical source.

3.2.15 *primary, adj*—descriptive term used to define the hierarchy of the term to follow, typically indicating the first in a series.

3.2.15.1 *Discussion*—When used to describe the container

[6] Available from U.S. Pharmacopeial Convention (USP), 12601 Twinbrook Pkwy., Rockville, MD 20852-1790, http://www.usp.org.

[7] Available from National Institute of Standards and Technology (NIST), 100 Bureau Dr., Stop 1070, Gaithersburg, MD 20899-1070, http://www.nist.gov.

[8] The term "adult" shall be defined by the authority having jurisdiction.

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

that immediately touches the product, refer to the container/package as the "primary package."

3.2.15.2 *Discussion*—In the context of packaging and labeling, "immediate" is synonymous with "primary."

3.2.16 *principal display panel, n*—that part, or those parts, of a label that is, or are, so designed as to most likely be displayed, presented, shown, or examined under normal and customary conditions of display and purchase.

3.2.17 *resin cannabis product, n*—any product, whether finished or work in progress, containing or comprised of cannabis flowers or resins or both and includes, but is not limited to, the cannabis flowers and resins themselves, extracts/concentrates/derivatives thereof, and preparations therefrom.

3.2.18 *topical use, n*—any application associated with the production of non-edible health and beauty products from a cannabis plant.

3.2.18.1 *Discussion*—Topical-use products containing cannabinoids shall be subcategorized into adult use or medicinal use.

3.2.19 *total cannabinoids, n*—means the sum of the most prominent cannabinoids found in nature with certified reference materials (such as those provided by the US Pharmacopeia: d8-THC, d9-THC, d9-THCA, CBD, CBDA, CBDV, CBN, CBG, CBGA, and CBC), taking into consideration conversion from acidic form to neutral form.

3.2.19.1 *Discussion*—The list of cannabinoids included in the definition of "total cannabinoids" is intended to be updated as other cannabinoids with certified reference materials become available for use in testing.

3.2.20 *total CBD, n*—is defined as CBD + 87.7 % × CBDA.

3.2.21 *total THC, n*—is defined as delta-9-THC + 87.7 % × delta-9-THCA.

3.2.22 *universal symbol, n*—a graphic representation, as defined by the authority having jurisdiction, indicating a warning of potentially harmful substances and/or effects of improper use.

3.2.23 *work in progress, adj*—refers to any product or good that is in any stage of manufacture before being classified as a "finished" product.

3.2.23.1 *Discussion*—"In process" is synonymous with "work in progress."

3.3 *Abbreviations:*

3.3.1 *CBC*—cannabichromene.

3.3.2 *CBD*—cannabidiol.

3.3.3 *CBD-A = CBDA*—cannabidiolic acid.

3.3.4 *CBG*—cannabigerol.

3.3.5 *CBN*—cannabinol.

3.3.6 *CO2*—CO_2—carbon dioxide.

3.3.7 *delta-9-THC*—delta-9-tetrahydrocannabinol or delta 9 tetrahydrocannabinol; **also** *delta 9 THC, d9-THC, d9 THC, Δ9-THC, Δ9 THC (or any combination thereof).*

3.3.8 *delta-9-THC-A*—delta-9 tetrahydrocannabinolic acid or delta 9 tetrahydrocannabinolic acid; **also** *delta 9 THC A, delta-9-THCA, delta 9 THCA, d9-THC-A, d9 THC A, Δ9-THC-A, Δ9 THC A, d9-THCA, d9 THCA, Δ9-THCA, Δ9 THCA (or any combination thereof).*

3.3.9 *LPG*—liquefied petroleum gas.

3.3.10 *PPM or ppm*—parts per million.

3.3.11 *THC*—tetrahydrocannabinol.

3.3.12 *THC-A*—THCA—tetrahydrocannabinolic acid.

3.3.13 *w/o*—without.

4. Significance and Use

4.1 This specification shall provide label content specifications that can be used as acceptance criteria for verifying/certifying:

4.1.1 An adult-use consumer product containing cannabinoids' label possesses the minimum information required to maintain public and environmental health and safety; and

4.1.2 A medicinal-use consumer product containing cannabinoids' label possesses the necessary additional information for a patient to know exactly what they are consuming and how to consume it.

4.2 This specification shall provide label style and format specifications to ensure label content is distinguishable and prominent features appear in a consistent location, style, and format across product form and type.

4.3 The user of this specification shall be responsible for evaluating a product's label to conformance with these specifications and those of the authority having jurisdiction in which the product is to be sold.

4.4 The standard shall define types of display panels and the required information thereon.

4.5 Prior to label manufacture/printing, the user of this specification shall consider the ecological impact of the label production/manufacturing process to satisfy the goals of the UN Sustainability Criteria.

5. Applicable Adult-Use and Medicinal-Use Consumer Product Categories Containing Cannabinoids

5.1 This specification shall apply to the following forms of adult-use and medicinal-use consumer products containing cannabinoids.

5.2 It is the responsibility of the user of this specification to define the product form and intended use to determine the appropriate label specifications.

5.3 *Inhalation:*

5.3.1 *Forms*—Flower, Extract/Concentrate, Pre-Rolls, and Vape Cartridges.

5.3.2 *Uses*—Single (discrete) and Multiple (non-discrete).

5.4 *Ingestion:*

5.4.1 *Forms*—Solid and Liquid.

5.4.2 *Uses*—Single (discrete) and Multiple (non-discrete).

NOTE 1—Concentrates/Extracts intended for ingestion shall follow solid ingestible label specifications.

NOTE 2—Ingestible products include edibles.

NOTE 3—Ingestible products include oral-mucosal and sublingual products intended for systemic effects. For example, a product intended to be held in the mouth and absorbed into the blood [illegible] of

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

an oral-mucosal or sublingual product intended for systemic effects.

5.5 *Topical:*

5.5.1 *Forms*—Dermal and Mucosal.

5.5.2 *Uses*—Single (discrete) and Multiple (non-discrete).

NOTE 4—Concentrates/Extracts intended for topical use shall follow topical label specifications.

NOTE 5—Topical products include oral-mucosal products intended for localized topical effects. For example, a product applied to a canker sore that forms a protective film and affects only the canker sore itself is an example of an oral-mucosal product intended for localized topical effects.

5.6 *Immature Plants and Seeds.*

6. Prohibited Content and Design Elements

6.1 Adult-use and medicinal-use labels for consumer products containing cannabinoids are prohibited from displaying the following content and design elements as well as those prohibited by the authority having jurisdiction:

6.1.1 The label shall not be confusingly similar to the trademarked, characteristic, or product-specialized label of any commercially available food or beverage, over-the-counter drug, or prescription product.

6.1.2 The label shall not bear any statement, artwork, or design that could reasonably lead an individual to believe that the package contains anything other than an adult-use or medicinal-use consumer product containing cannabinoids.

6.1.3 The label shall not bear any seal, flag, crest, coat of arms, or other insignia that could reasonably mislead an individual to believe that the product has been endorsed, manufactured, or approved for use by an authority having jurisdiction, unless explicitly approved by the authority having jurisdiction to include such iconography/symbology.

6.1.3.1 This requirement shall not prohibit design elements such as iconography/symbology indicating a product as compliant with dietary or religious, quality management, sustainability considerations, etc.

NOTE 6—See the Claims and Other Label Specifications section of this specification for more information.

6.1.4 The label shall not bear any caricature, cartoon, image, graphic, or feature that might make the package attractive to children (or minors).

NOTE 7—The term "children" (or "minors") shall be defined by the authority having jurisdiction.

6.1.5 The label shall not make any false or misleading statements, including but not limited to structure/function or cannabinoid dominance/ratio or other unsubstantiated claims.

NOTE 8—See the Claims and Other Label Specifications section of this specification for more information.

6.1.6 The label shall not bear any color combinations that result in poor contrast making the label content illegible.

6.1.7 Required label content, excluding branding elements, shall NOT be located on the bottom of a package - that part of a package upon which the package is most likely to be placed when displayed, presented, shown, or examined under normal and customary conditions of display and purchase.

7. Label Specifications

7.1 *General Label Specifications*—Adult-use and medicinal-use labels for consumer products containing cannabinoids shall meet the following characteristics and features:

7.1.1 For all display panels, text shall be displayed using an easily decipherable type face.

7.1.2 For all display panels, except the principal display panel, font size shall be no less than six points.

NOTE 9—When using a font size of six points, uppercase letters shall be required to ensure the label content is legible and easily readable.

7.1.3 Non-alterable.

NOTE 10—Meaning the label cannot be written on or otherwise altered by any means.

7.1.4 Unobstructed and conspicuously placed.

NOTE 11—Labels shall not be placed on top of other labels or the universal symbol unless otherwise approved by the authority having jurisdiction.

NOTE 12—In marketplaces requiring a point-of-sale label or dispensary label, a space/area shall be left vacant to accommodate the application of a dispensing entity's label at the point of sale of the product to prevent information displayed on the package by the manufacturer from being obstructed.

7.1.5 Language requirements of the authority having jurisdiction.

NOTE 13—For brevity, examples shown in this specification are in English only and do not represent a jurisdiction where multiple languages are required to be on the label. However, the principles outlined in these examples are applicable in other languages.

7.1.6 Serving and Dosage information represented in SI units only.

NOTE 14—The term "serving" shall only appear on adult-use consumer products containing cannabinoids and shall identify the maximum amount of THC in a single unit/piece allowed by the authority having jurisdiction. Nothing precludes multiple pieces/units from making up a "serving" so long as the total THC does not exceed the maximum amount of THC allowed by the authority having jurisdiction.

NOTE 15—Serving information should reflect the weight or volume of the suggested serving size and weight of the active ingredient(s) in each serving of an adult-use consumer product containing cannabinoids.

NOTE 16—The term "dosage" or "dose" shall only appear on medicinal-use consumer products containing cannabinoids. Dosage information should reflect the weight of the active ingredient(s) in each dose of a medicinal-use consumer product containing cannabinoids.

7.2 *Label Content Specifications:*

7.2.1 All adult-use and medicinal-use consumer products containing cannabinoids shall be labeled with the following content:

7.2.1.1 Declaration of Identity;

7.2.1.2 Declaration of Responsibility;

7.2.1.3 Declaration of Quantity;

7.2.1.4 Declaration of Cannabinoids;

7.2.1.5 Declaration of Terpenes (optional for adult-use);

7.2.1.6 Universal Symbol;

7.2.1.7 Batch Number;

7.2.1.8 Beyond Use/Use By/Best Before Date or an Expiration Date (requires shelf-life testing);

7.2.1.9 Intended Use;

7.2.1.10 Storage Instructions;

7.2.1.11 Warning Statements; and

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

7.2.1.12 Any other information mandated by the authority having jurisdiction.

7.2.2 Required content may appear on one or more display panels of the package/container and on one or more package layers.

7.2.3 At least one package layer shall possess all required content.

NOTE 17—Typically this is the outer most package layer and is the layer of packaging most likely to be used to display the product.

8. Declaration of Identity

8.1 Consumer products containing cannabinoids shall be labeled with a declaration of identity clearly distinguishing the product as containing cannabinoids.

8.2 The declaration of identity for adult-use consumer products containing cannabinoids shall be in terms of:

8.2.1 The name specified in or required by the authority having jurisdiction;

8.2.2 The common or usual name of the product; or

8.2.3 The brand name, or other appropriate description, and a statement of function (such as "flavored seltzer with added cannabinoids").

8.2.3.1 *Example*—Cannablasters (flavored gummies with cannabinoids).

NOTE 18—At a minimum, the word "cannabis," "cannabis-based," "cannabis-derived," or other common name acknowledged by an authority having jurisdiction, shall appear on the product label.

NOTE 19—Adult-use consumer products containing cannabinoids with defined cannabinoid dominance and/or ratio claims shall declare the cannabinoid dominance and/or ratio in the declaration of identity. See the Cannabinoid Dominance and Ratio Claims section of this specification for more information.

8.3 The declaration of identity for medicinal-use consumer products containing cannabinoids shall be in terms of:

8.3.1 The name specified by the producer, including a statement of active ingredients;

8.3.2 The cannabinoid dominance and/or ratio and the scientific name of the product; or

8.3.3 The naming convention defined by an internationally recognized pharmacopeia, such as the United States Pharmacopeia, for the form of consumer product containing cannabinoids.

8.3.3.1 For the inflorescence (flowers) of a cannabis plant use an herbal material naming convention.

8.3.3.2 For the concentrates and extracts of a cannabis plant use a concentrate or extract naming convention, respectively.

8.3.3.3 For ingestible and topical forms of consumer products containing cannabinoids use a dietary supplement naming convention.

8.3.3.4 *Example*—THC-Dominant Cannabis Inflorescence.

8.4 The declaration of identity shall appear, at a minimum, on the immediate container and each principal display panel and shall not be misleading or deceptive.

8.5 The declaration of identity shall appear generally parallel to the base of the display panel in use and shall not exceed an angle of 22°.

8.6 The declaration of identity shall stand out from other text using prominent bold print or type of a size that is reasonably related to the most prominent printed feature and should be one of the most important features on the label.

NOTE 20—Generally, the declaration of identity should be at least half the size of the largest print on the label.

8.7 The declaration of identity may appear on one or more lines of print or type.

9. Declaration of Responsibility

9.1 Consumer products containing cannabinoids shall be labeled with a declaration of responsibility clearly defining with whom liability falls if a product complaint or recall occurs.

9.2 The declaration of responsibility shall appear on the package including:

9.2.1 The name;

9.2.2 Address;

9.2.3 Telephone number;

9.2.4 Email address or website; and

9.2.5 Permit/license number of the manufacturer, packer, or distributor of the product.

9.3 The declaration of responsibility shall appear in the form of:

9.3.1 "[Cultivated, Manufactured, Distributed, etc.] by [Insert Name Here], [Insert Permit Number Here], [Insert Address Here], [Insert Telephone Number Here], [Insert Email Address Here]"; or

9.3.2 Any other wording of similar import that expresses the facts.

9.4 The "name" shall be the actual legal name, or, when not incorporated, the name under which the business is conducted, of the entity that is responsible for the consumer product containing cannabinoids.

9.5 The "permit/license number" shall be the actual permit/license number of the entity that is responsible for the consumer product containing cannabinoids.

9.6 The "address" shall be in the format customary to the country of the entity that is responsible for the consumer product containing cannabinoids and shall include *(a)* street information, *(b)* city, *(c)* state/province/territory, *(d)* ZIP code or other form of mailing code used, if any, and *(e)* country.

9.6.1 The street information may be omitted only if it is listed in a readily accessible, well-known, widely published, and publicly available resource, including but not limited to a printed directory, electronic database, or website.

9.6.2 The "address" shall be a physical location. P.O. Boxes, or similar, should be avoided and are not recommended.

9.7 The "telephone number" shall be an actual phone number of the entity that is responsible for the consumer product containing cannabinoids and shall be in the format customary to the country in which the product was manufactured and/or distributed.

9.7.1 The "telephone number" shall include the country code for consumer product containing cannabinoids distributed and/or sold internationally.

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

9.8 The "email address" or "website" shall be an actual email address or website URL of the entity that is responsible for the consumer product containing cannabinoids.

9.9 The declaration of responsibility shall appear, at a minimum, on the immediate container and each packaging layer, and may be located on any display panel.

9.10 The declaration of responsibility may appear on one or more lines of print or type.

9.11 Elements of the declaration of responsibility that are not required by the authority having jurisdiction where the product is to be distributed or sold, or both, may be omitted.

9.12 It is the responsibility of the user of this specification to know which elements of the declaration of responsibility are applicable in the jurisdiction where the product is to be distributed or sold, or both, and to comply with those requirements.

10. Declaration of Quantity

10.1 Consumer products containing cannabinoids shall be labeled with a declaration of quantity clearly defining the net quantity of contents contained within the package.

10.2 The declaration of quantity shall be exclusive of wrappers and any other material packed with the product.

10.3 The declaration of quantity shall be in terms of the largest whole unit.

NOTE 21—The declaration of quantity of a product shall always declare the net quantity of contents even when such terms are not used.

NOTE 22—Only declarations of quantity in terms of fluid measure may omit the term "net."

NOTE 23—The term "net" shall not be abbreviated.

10.4 The declaration of quantity shall appear, at a minimum, on the primary packaging (immediate container) and each principal display panel.

10.5 The declaration of quantity shall appear generally parallel to the base of the display panel in use and shall not exceed an angle of 22°. (See Fig. 1.)

10.6 The area around the quantity declaration shall be clear of other text and graphics by the height of the letter N (in the font used) on the top and bottom of the quantity declaration and width of two letter N's (in the font used) on either side of the quantity declaration. (See Fig. 2.)

NOTE 24—The free area requirement ensures that the quantity declaration is not "lost" among other information.

10.7 The declaration of quantity shall appear on the lower 30 % of the principal display panel in use. (See Fig. 3.)

10.7.1 Immediate containers meeting small container exemptions are exempt from this requirement.

NOTE 25—See Section 11.16 Small Packages of NIST Handbook 130 (latest version), Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality, Section IV, Part A - Uniform Packaging and Labeling Regulation.

10.8 The declaration of quantity shall be of a text size no smaller than the minimum size requirements proportionate to the dimensions of the principal display panel in use but shall be no less than 1.6 mm (1/16 in.) in height and no more than three (3) times as high as they are wide.

NOTE 26—The process for how to determine the minimum text size for the principal display panel in use is provided in Section 8.2 Calculation of Area of Principal Display Panel for Purposes of Type Size of NIST Handbook 130 (latest version), Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality, Section IV, Part A - Uniform Packaging and Labeling Regulation.

10.9 The declaration of quantity may appear on one or more lines of print or type.

10.10 The declaration of quantity shall appear in the format customary to the country or geographical region in which the product is to be distributed or sold, or both. In authorities having jurisdiction where a dual unit customary format is used, SI units shall precede the alternate unit declaration.

10.10.1 *Example:*

Customary Format	Style Reference
Dual Unit	SI Units (U.S. Customary) kg (lb) g (oz) mL (fl oz) L (gal)
SI Only	mL or L g or kg

10.11 The declaration of quantity shall be either by Weight, Volume, or Count and Weight or Volume as defined by the form of consumer product containing cannabinoids.

10.12 A declaration of quantity in terms of weight or volume shall be combined with appropriate declarations of the count of the individual units unless a declaration of weight or volume alone is fully informative.

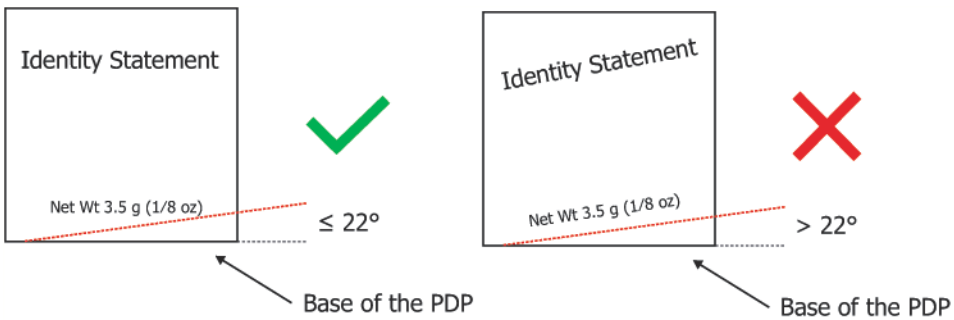

FIG. 1 Generally Parallel Requirement Visualization

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

PRINTED INFORMATION
NNNNNNNNNNNNNNNNNNN
PRINTED INFORMATIONNN**NET WT 454 g (1 lb)**NNPRINTED INFORMATION
NNNNNNNNNNNNNNNNNNN
PRINTED INFORMATION

FIG. 2 Free Area Requirement Visualization

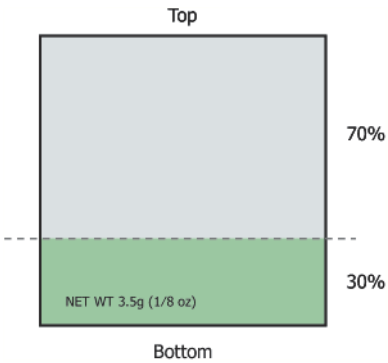

FIG. 3 Upper 70 % Lower 30 % Requirement Visualization

10.13 A declaration of quantity in terms of count shall be combined with appropriate declarations of the weight or volume of the individual units.

10.14 *Weight Declarations:*

10.14.1 When stating the net quantity of contents in terms of weight, the quantity declaration must include the term "net mass" or "net weight" either preceding or following the declaration.

10.14.1.1 *Example:*

Customary Format	Style Reference
Dual Unit	Net Weight 196 g (7 oz) 454 g (1 lb) Net Mass
SI Only	Net Weight 196 g 454 g Net Mass

NOTE 27—The term "weight" may be abbreviated as "wt," "Wt," or "WT."

10.14.1.2 *Example*—"Net Wt 3.5 g (⅛ oz)" (U.S. Customary Style Reference Shown)

10.15 *Fluid Measure (Volume) Declarations:*

10.15.1 When stating the net quantity of contents in terms of fluid measure (that is, volume), the quantity declaration may stand alone or may include the term "net" or "net contents" either preceding or following the declaration.

10.15.1.1 *Example:*

Customary Format	Style Reference
Dual Unit	30 mL (1 fl oz) Net Contents 30 mL (1 fl oz) or 30 mL (1 fl oz) Net Contents Net 30 mL (1 fl oz) or 30 mL (1 fl oz) Net
SI Only	30 mL Net Contents 30 mL or 30 mL Net Contents Net 30 mL or 30 mL Net

10.16 *Count Declarations:*

10.16.1 When stating the net quantity of contents in terms of count, a quantity declaration must include the count and the term "total net weight" or "total net mass," in the case of weight, or the term "total net contents" or "total net" or "total contents," in the case of fluid measure.

10.16.2 For improved clarity, the weight or volume of each unit included in the package may also appear in the declaration of quantity.

10.16.2.1 *Example:*

Customary Format	Style Reference
Dual Unit	28 pre-rolls, total net wt 28 g (1 oz) Or 28 pre-rolls, 1 g (.035 oz) each, total net wt 28 g (1 oz)
SI Only	28 pre-rolls, total net wt 28 g Or 28 pre-rolls, 1 g each, total net wt 28 g

10.17 *Product Form Considerations:*

10.17.1 *Aerosols and Other Pre-pressurized Containers Dispensing Product Under Pressure*—The declaration of quantity on an aerosol, and on other pre-pressurized containers dispensing products under pressure, shall disclose the net quantity of the commodity (including propellant) in terms of weight and the minimum number of usable sprays if required by the authority having jurisdiction.

NOTE 28—Aerosols and other pre-pressurized containers dispensing product under pressure utilizing propellants shall declare the type of propellant in the ingredients list.

10.18 *Character of Declaration (Restrictions on Declarations of Quantity):*

10.18.1 *Average*—The average quantity of contents in the packages of a particular lot, shipment, or delivery shall at least equal the declared quantity, and no unreasonable shortage in any package shall be permitted even though overages in other packages in the same shipment, delivery, or lot compensate for such shortage.

10.18.1.1 The user of this specification shall be responsible for utilizing guides/resources, such as NIST HB 133, to determine what is an unreasonable shortage.

10.18.2 *Rounding*—In all conversions for the purpose of showing an equivalent SI or U.S. customary quantity to a rounded U.S. customary or SI quantity, or in calculated values to be declared in the net quantity statement, the number of

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

significant digits retained must be such that accuracy is neither sacrificed nor exaggerated.

10.18.2.1 Conversions, the proper use of significant digits, and rounding must be based on the operator's knowledge of the accuracy of the original measurement that is being converted.

10.18.2.2 In no case shall rounded net content declarations overstate a quantity; the operator may round the converted values down to avoid overstating the net contents.

10.18.2.3 The user of this specification shall be responsible for utilizing guides/resources, such as NIST HB 130, to determine the rounding rules that are applicable.

NOTE 29—For packages labeled with a dual unit declaration of quantity, the larger of the two values shown on the label is what is used during an inspection to validate the label claim.

NOTE 30—Appendix B: Converting U.S. Customary Units to SI Units for Quantity Declarations on Packages of NIST Handbook 130 (latest version), Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality, Section IV, Part A - Uniform Packaging and Labeling Regulation has guidelines on rounding SI conversions of U.S. customary values.

10.18.3 *Approximations*—The label shall not approximate declarations of quantity.

10.18.3.1 In no case shall any declaration of quantity of contents be qualified by the addition of the words "when packed," "minimum," "not less than," or any words of similar import (for example, "estimated," "approximate," etc.), nor shall any unit of weight, fluid measure, or count be qualified by any term or symbol (such as "jumbo," "giant," "full," "± ," "≈ ," or the like) that tends to exaggerate the amount of product in a package.

10.18.4 *Point of Sale Declaration of Quantity Stipulations (Bulk Bin):*

10.18.4.1 Product sold at the point of sale by weight shall have a label affixed to the package prior to transfer to the consumer with the label requirements defined in this specification.

11. Declaration of Cannabinoids

11.1 Adult-use and medicinal-use consumer products containing cannabinoids shall be labeled with a declaration of cannabinoids clearly defining the net quantity of cannabinoids contained within the package.

11.2 Adult-use consumer products containing cannabinoids shall be labeled with a declaration quantifying, at a minimum, total cannabinoids, total THC, and total CBD by weight or volume contained within the product.

11.3 Medicinal-use consumer products containing cannabinoids shall be labeled with a declaration identifying, at a minimum, the total cannabinoids and the main cannabinoids that have certified reference materials (delta-8-THC, delta-9-THC, delta-9-THCA, CBD, CBDA, CBDV, CBN, CBG, CBGA, and CBC) by weight or volume contained within the product.

11.3.1 At a minimum, inhalable medicinal-use consumer products containing cannabinoids shall be labeled with a declaration identifying the cannabinoids listed above and all quantifiable cannabinoids contained within the product exceeding 1 % by weight or volume.

11.4 Cannabinoid content declarations shall be no less than (NLT) 85 % and no more than (NMT) 115 % of the labeled amount (that is, ±15 %), or NLT and NMT three times the limit of quantitation (LOQ) of the labeled amount (that is, ±3 × LOQ), whichever is least restrictive.

11.5 Cannabinoid content declarations shall appear in the form of:

11.5.1 A percentage of the net quantity, or weight measurement in milligrams per gram, for inhalable product forms and immature plants and seeds; or

11.5.2 A weight measurement in milligrams per container and per serving/dose for ingestible and topical product forms.

NOTE 31—For immature plants and seeds, cannabinoid content declarations reflect projected values of cannabinoids that could result if the seeds were propagated, or the plants were allowed to mature, and DO NOT reflect cannabinoid content of the immature plants and seeds themselves.

11.6 Cannabinoid content declaration shall be displayed in a box with a border no less than 1.5 mm (.059 in.) thick.

11.7 Cannabinoid content declarations may appear on one or more lines of print or type.

11.8 Cannabinoid content declarations shall be located, at a minimum, on the immediate container and each layer of product packaging.

11.9 The declaration of cannabinoids for ingestible and topical product forms shall appear on the principal display panel and in a cannabinoid information label. Specifications for the Cannabinoid Information Label are outlined in the Form Specific Label Requirements, Ingestible and Topical sections of this specification.

12. Declaration of Terpenes (Optional for Adult-Use)

12.1 Medicinal-use consumer products containing cannabinoids shall be labeled with a declaration of terpenes clearly defining the net quantity of terpenes contained within the package.

12.2 Medicinal-use consumer products containing cannabinoids shall be labeled with a declaration identifying, at a minimum, the total terpenes.

12.2.1 For further clarity, the top five terpenes in descending order should be included with the declaration of terpenes but shall not need to be quantified.

12.3 Terpene content declarations shall be no less than (NLT) 85 % and no more than (NMT) 115 % of the labeled amount (that is, ±15 %), or NLT and NMT three times the limit of quantitation (LOQ) of the labeled amount (that is, ±3 × LOQ), whichever is least restrictive.

12.4 The declaration of terpenes shall be in the form of:

12.4.1 A weight measurement in milligrams per gram, for inhalable product forms and immature plants and seeds; or

12.4.2 A weight measurement in milligrams per package/container and per serving/dose for ingestible and topical product forms.

NOTE 32—For immature plants and seeds, terpene content declarations reflect projected values of terpenes that could result if the seeds were propagated, or the plants were allowed to mature, and DO NOT reflect

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

terpene content of the immature plants and seeds themselves.

12.5 The declaration of terpenes shall be displayed in a box with a border no less than 1.5 mm (.059 in.) thick.

12.6 The declaration of terpenes shall be located, at a minimum, on the immediate container and each layer of product packaging.

12.7 The declaration of terpenes may appear on one or more lines of print or type.

12.8 Adult-use consumer products containing cannabinoids may be labeled with a declaration of terpenes.

12.8.1 The declaration of terpenes for adult-use consumer products containing cannabinoids may be in the form of a percentage of the net weight or volume.

13. Universal Symbol

13.1 All consumer products containing cannabinoids for which these specifications apply shall be labeled with a universal symbol.

13.2 The universal symbol shall have dimensions no less than 12.7 mm by 12.7 mm (½ in. by ½ in.) and be prominently displayed on the immediate container and each principal display panel. See 23.4.1 for specifications related to the universal symbol and vaporizer cartridges.

13.3 Universal symbol specifications shall be defined by the authority having jurisdiction.

13.4 For consumer products containing intoxicating cannabinoids, the standardized symbol as per Specification D8441/D8441M should be used to identify these consumer products.

14. Batch Number

14.1 Adult-use and medicinal-use consumer products containing cannabinoids shall be labeled with a batch number that corresponds to the entire life cycle of the product from start to finish, that is, from seed to sale.

14.2 Only one batch number associated with the product shall appear on the package.

NOTE 33—If a label is to be applied to the package by the dispensing entity at the point of sale, the batch number associated with the product on the dispensing entity's label shall be the same as the batch number that appears on the package.

NOTE 34—This is to avoid confusion, increase accountability, and eliminate multiple batch numbers from being associated with the same finished product.

14.3 The batch number associated with the packaged good shall be in the form of one or preferably both of the following:

14.3.1 The alphanumerical code generated by the electronic tracking system employed by the authority having jurisdiction; or

14.3.2 A scannable, 2-D or 3-D barcode/QR-code programmed with the corresponding product's batch number and integrated with the electronic tracking system employed by the authority having jurisdiction.

14.4 The batch number shall be displayed on the immediate container and each layer of product packaging.

15. Beyond Use/Best Before/Use By/Durable Life Dates and Expiration Dates

15.1 A "Beyond Use Date," "Best Before Date," "Use By Date," "Durable Life Date," or "Expiration Date" shall designate the time during which the product is expected to remain within established shelf-life specifications if stored under defined conditions, and after which it should not be used.

15.2 Operators should perform a shelf-life determination for all consumer products containing cannabinoids prior to distribution and/or sale to establish shelf-life specifications using an internationally recognized pharmacopoeia guideline, such as the US Pharmacopeia.

15.3 A "Beyond Use Date," "Best Before Date," "Use By Date," "Durable Life Date," "Expiration Date," or "Packaging Date" shall be prominently displayed on the package and shall be in the format customary to the country or geographical region in which the product is to be sold.

15.4 A "Beyond Use Date," "Best Before Date," "Use By Date," "Durable Life Date," "Expiration Date," or "Packaging Date" shall be located, at a minimum, on the immediate container and each packaging layer.

15.5 *Packaging Date:*

15.5.1 Consumer products containing cannabinoids without a defined "Beyond Use Date," "Best Before Date," "Use By Date," "Durable Life Date," or "Expiration Date" shall be labeled with the "Packaging Date" and a statement informing the consumer that no shelf life determination has been performed.

15.5.2 *Example*—The statement: "The shelf life of this product has not been determined." may suffice.

15.6 *Beyond Use Date:*

15.6.1 A "Beyond Use Date" shall be used ONLY when a product is taken out of its original packaging or manipulated.

15.6.2 Appropriate "Beyond Use Date" declarations shall be made using an internationally recognized pharmacopoeia guideline, such as the US Pharmacopeia.

15.7 *Best Before Date:*

15.7.1 A "Best Before Date" shall be used when a product can reasonably be assured to have a shelf-life more than ninety (90) days.

15.8 *Use By Date or Durable Life Date:*

15.8.1 A "Use By Date" or "Durable Life Date" shall be used when a product has a shelf-life of ninety (90) days or less.

15.9 *Expiration Date:*

15.9.1 An "Expiration Date" shall be used ONLY when a product has analytical testing data verifying the manufacturer's shelf-life determination.

15.9.2 Consumer products containing cannabinoids without analytical testing data verifying the shelf-life shall not be labeled or marketed in such a way as to reasonably lead an individual to believe that the product has a defined expiration date.

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

16. Route of Administration (Intended Use Statements)

16.1 Consumer products containing cannabinoids shall be labeled with a statement indicating the route of administration or intended use for the product.

16.2 For inhalable product forms, the statement: "For Inhalation," may suffice.

16.3 For ingestible product forms, the statement: "For Ingestion," may suffice.

16.4 For topical product forms, the statement: "For Topical Application," or "For Topical Use Only," may suffice.

16.4.1 For topical products intended for vaginal or rectal use, the statement: "For Vaginal Use," or "For Rectal Use," may suffice.

16.5 Not applicable to seeds and immature plants.

16.6 Usage statements for consumer products containing cannabinoids shall be located, at a minimum, on each packaging layer.

17. Storage Instructions

17.1 Storage instructions shall be in the form of a simple statement informing the consumer of any temperature, lighting, and/or moisture considerations.

17.1.1 *Example*—For temperature sensitive products, the statement, "Keep Refrigerated," may suffice.

17.2 Storage instructions shall be located on each packaging layer and may appear on any display panel but shall not be located on the bottom of the package/container.

18. Warning Statements

18.1 All adult-use and medicinal-use consumer products containing cannabinoids shall be labeled with the following warning statements or similar wording that expresses the facts:

18.1.1 Do not consume during pregnancy or while breastfeeding.

18.1.2 This product may impair the ability to drive or operate heavy machinery.

18.1.3 Keep out of reach of children and pets.

18.1.4 Any additional warning statements required by the authority having jurisdiction.

18.2 All ingestible products containing more than 10 ppm total THC by weight or volume and inhalable and topical products containing more than 3000 ppm total THC:

18.2.1 This product contains THC. Consume at your own risk.

18.3 All ingestible products containing more than 250 ppm total cannabinoids by weight or volume and inhalable and topical products containing more than 10 000 ppm total cannabinoids:

18.3.1 This product contains cannabinoids. Consume at your own risk.

NOTE 35—Consumer products containing cannabinoids satisfying both 18.2 and 18.3 do not need to repeat the "Consume at your own risk.", statement.

18.4 Warning statements shall appear in the style and format customary to the country or geographical region in which the product is to be sold.

18.5 Warning statements shall be located on each packaging layer and may appear on any display panel but shall not be located on the bottom of the package/container.

18.6 Warning statements in conflict with the authority having jurisdiction can be omitted.

18.7 It is the responsibility of the user of this specification to know if warning statements required by this specification conflict with the authority having jurisdiction.

18.8 *High Terpene Content Warning:*

18.8.1 Products containing more than 10 % by weight or volume total terpene content shall be labeled with the following warning statement:

18.8.1.1 This product contains concentrated terpenes. Consume at your own risk.

19. Claims and Other Labeling Requirements

19.1 *Cannabinoid Dominance and Ratio Claims:*

19.1.1 Cannabinoid ratios shall be displayed using the following format:

[Cannabinoid Abbreviation 1]:[Cannabinoid Abbreviation 2] [Numerical Value 1]:[Numerical Value 2]

OR

[Cannabinoid Abbreviation 1]:[Cannabinoid Abbreviation 2]
[Numerical Value 1]:[Numerical Value 2]

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

19.1.2 Cannabinoids shall be listed in descending order of dominance from left to right with a colon (":") separating the items, where the items are the cannabinoid abbreviations or numerical values, respectively.

19.1.2.1 *Example*—A ratio of 5 to 2 THC to CBD.

Format 1	THC:CBD 5:2
Format 2	THC:CBD 5:2

NOTE 36—Cannabinoid ratios can have more than two components.

19.1.3 Cannabinoid dominance and ratio claims shall be backed up by analytical data verifying the product meets the manufacturer's specifications.

19.1.4 Consumer products containing cannabinoids without analytical data verifying the cannabinoid dominance or ratio or both shall not be labeled or marketed in such a way as to reasonably lead an individual to believe that the package contains a specific cannabinoid or ratio of cannabinoids.

19.1.5 To be labeled as a "Y"-Dominant adult-use or medicinal-use consumer products containing cannabinoids, the product shall meet the following specifications:

19.1.5.1 The ratio of the total cannabinoid "Y" content to remaining total cannabinoid content shall be no less than 5:1.

19.1.5.2 Total cannabinoid "Y" means the target cannabinoid neutral form plus 87.7 % of the target cannabinoid acidic form.

(1) Example—Total CBD = CBD + 87.7 % × CBDA

19.1.5.3 If "THC"-Dominant, the content of CBN shall be no more than 2 % of the content of total THC and no unidentified peak in the chromatogram shall exceed the area of the CBN peak.

NOTE 37—For "THC"-Dominant products, CBN is tracked to account for degradation of THC.

19.1.6 To be labeled as a "X to Y ratio" adult-use or medicinal-use consumer product containing cannabinoids, the product shall meet the following specifications:

19.1.6.1 The ratio of the total cannabinoid "α" content to total cannabinoid "β" content shall be NLT or NMT 20 % of the cannabinoid "α" component and NMT or NLT 20 % of the cannabinoid "β" component (that is ±20 %X and ±20 %Y).

(1) Example—For a 5 to 2 ratio of CBG to CBN, the product shall contain a ratio NLT (80 % × 5) or NMT (120 % × 5) of the CBG component and NMT (120 % × 2) or NLT (80 % × 2) of the CBN component.

(2) Example—For a 1 to 1 ratio of THC to CBD, the product shall contain a ratio NLT (80 % × 1) or NMT (120 % × 1) of the THC component and NMT (120 % × 1) or NLT (80 % × 1) of the CBD component.

19.1.6.2 If a ratio of 1 to 1 THC to CBD, the content of CBN shall be no more than 2 % of the content of total THC and no unidentified peak in the chromatogram shall exceed the area of the CBN peak.

NOTE 38—For THC:CBD 1:1 products, CBN is tracked to account for degradation of THC.

NOTE 39—The term "intermediate-type" or "intermediate" can be used to refer to products with a THC to CBD ratio of 1 to 1.

19.1.7 Cannabinoid dominance and/or ratio declarations shall appear prominently, at a minimum, on the immediate container and each principal display panel.

19.1.8 Cannabinoid dominance and/or ratio declarations shall appear generally parallel to the base of the display panel in use and shall not exceed an angle of 22°.

19.1.9 Cannabinoid dominance and/or ratio declarations shall stand out from other text using prominent bold print or type of a size that is reasonably related to the most prominent printed feature and should be one of the most important features on the label.

NOTE 40—Generally, cannabinoid dominance or ratio declarations, or both, should be at least half the size of the largest print on the label.

19.1.10 Cannabinoid dominance and/or ratio declarations may appear on one or more lines of print or type.

19.2 *Structure/Function Claims:*

19.2.1 Structure/function claims, if allowed, shall be backed up by analytical data verifying the product meets the specifications defined by the authority having jurisdiction to make such claims.

19.2.2 Consumer products containing cannabinoids without analytical data verifying the structure/function claims shall not be labeled or marketed in such a way as to reasonably lead an individual to believe that the product possesses any structure/function claim.

19.3 *Exogenous Phytochemicals:*

19.3.1 Products containing cannabinoids, terpenes, or any other phytochemicals derived from sources other than a cannabis plant shall state the origin/source of the exogenous ingredient on the label.

NOTE 41—This does not include phytochemicals derived from cannabis plants that can be classified as hemp by an authority having jurisdiction.

19.3.1.1 *Example*—Exogenous Terpene: Myrcene (from oranges) or Myrcene (botanically derived).

19.3.1.2 *Example*—Exogenous Cannabinoid: THC (synthetic) or THC (from hops).

19.4 *Use of Ionizing Radiation:*

19.4.1 Finished products that have been decontaminated by means of ionizing radiation shall be labeled according to authority having jurisdiction requirements.

19.4.2 Where no jurisdictional requirements or regulatory conflicts exists, finished products that have been decontaminated by means of ionizing radiation shall bear the international symbol for irradiation, the Radura symbol, and be prominently labeled with the following statement:

19.4.2.1 Treated with radiation; or

19.4.2.2 Treated by irradiation.

19.4.3 It is the responsibility of the user of this specification to know if the use of ionizing radiation is allowed by the authority having jurisdiction. The application of ionizing radiation is outside the scope of this specification and therefore is not covered.

19.5 *Dietary Restrictions and Other Claims:*

19.5.1 Compliance with dietary restrictions and other claims, including seed/genetic certification, shall be backed up

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

by analytical data verifying the product meets the specifications defined by the authority having jurisdiction to make such claims.

19.5.1.1 *Example*—Recyclability, Kosher, Halal, Vegan, Organic, Gluten Free, 1 % for the Planet, Sustainable, etc.

19.5.2 Consumer products containing cannabinoids without analytical data verifying the compliance with dietary restrictions or other claims shall not be labeled or marketed in such a way as to reasonably lead an individual to believe that the product complies with any dietary restriction or other claim.

19.5.3 Use of symbols or iconography associated with compliance to a dietary restriction or other claim are subject to approval by the authority having jurisdiction.

20. Display Panel Specifications

20.1 *Principal Display Panel:*

20.1.1 That part, or those parts, of a package that is, or are, so designed as to most likely be displayed, presented, shown, or examined under normal and customary conditions of display and purchase.

20.1.2 Wherever a principal display panel appears more than once on a package, or on more than one packaging layer, all requirements pertaining to the "principal display panel" shall pertain to all such "principal display panels."

20.1.3 At a minimum, a principal display panel shall appear on the outer most layer of packaging.

20.1.4 The area of the principal display panel dictates the minimum text size for numbers and letters used in the declaration of quantity.

NOTE 42—The process for how to determine the minimum text size for the principal display panel in use is provided in Section 8.2 Calculation of Area of Principal Display Panel for Purposes of Type Size of NIST Handbook 130 (latest version), Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality, Section IV, Part A - Uniform Packaging and Labeling Regulation

20.1.5 The principal display panel shall include, at a minimum:

20.1.5.1 Declaration of Identity;

20.1.5.2 Declaration of Quantity; and

20.1.5.3 Universal Symbol.

20.2 *Non-Principal Display Panels.*

20.3 Those parts of a package that are not designed as to most likely be displayed, presented, shown, or examined under normal and customary conditions of display and purchase.

20.4 Non-principal display panels may display information about the product, whether that be for branding, marketing, making declarations, presenting warning statements, or providing other information.

21. Immediate Container Labels

21.1 The immediate container label or labels are intended to display the minimum information required to understand the product and shall be affixed to the primary package/container.

NOTE 43—The immediate container label or labels are used to identify the product as an adult-use or medicinal-use consumer product containing cannabinoids, if the product has become separated from its other layer(s) of packaging.

21.2 All primary packages/containers shall be affixed with a label, or labels, containing, at a minimum:

21.2.1 Declaration of Identity;

21.2.2 Declaration of Responsibility;

21.2.3 Declaration of Quantity;

21.2.4 Declaration of Cannabinoids;

21.2.5 Declaration of Terpenes (optional for adult-use);

21.2.6 Universal Symbol;

21.2.7 Batch Number; and

21.2.8 Beyond Use/Use By/Best Before Date or an Expiration Date (requires shelf-life testing).

21.3 Those label elements that cannot fit on the principal display panel of the immediate container shall be incorporated onto the next available display panel of the immediate container.

21.4 Label requirements, outside of the eight listed above, that cannot fit on the immediate container shall be incorporated, at a minimum, onto the next layer of packaging.

22. Additional Container Labels, Wrappers, and Other Accessories

22.1 Any number or style of labels may be used to display the required information so long as they conform to the specifications defined in this specification. For example, and not by means of limitation, labels may be accordion, expandable, extendable, or layered to permit labeling of containers of any manner of size or shape.

22.2 Multiple labels may be affixed to a container provided none of the information required by this specification or by the authority having jurisdiction is obstructed.

22.3 *Wrappers and Other Accessories Accompanying or in Immediate Contact with Consumer Products Containing Cannabinoids:*

22.3.1 Depending on the authority having jurisdiction, wrappers and other accessories accompanying or in immediate contact with consumer products containing cannabinoids may not be regulated in the same way as the product labels themselves, and as such fall outside the scope of this specification.

22.3.2 It is the responsibility of the user of this specification to know if wrappers and other accessories accompanying or in immediate contact with consumer products containing cannabinoids are regulated in the same manner as product labels by their authority having jurisdiction and if the specifications herein apply.

23. Form Specific Labeling Requirements

23.1 *Inflorescence (Flower):*

23.1.1 *Declaration of Identity:*

23.1.1.1 The declaration of identity for adult-use cannabis flower shall be in the form of:

(1) The name of the part of the plant from which it came, that is, Cannabis Flower, along with a description of the type of cannabis plant, and, if applicable, cannabinoid dominance or ratio, or both; or

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

(2) The strain/varietal name of the cannabis plant along with a description of the type of cannabis plant, and, if applicable, cannabinoid dominance or ratio, or both.

23.1.1.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Cannabis Flower (Indica, CBD-Dominant).

(2) Example 2—SFV OG (hybrid) - (THC Dominant).

NOTE 44—Strain/varietal lineage information may accompany the declaration of identity.

(3) Example 3—Sour Diesel (sativa); NYC Diesel x Sour Kush

23.1.1.3 The declaration of identity for medicinal-use cannabis flower shall be in terms of:

[{Cannabinoid Dominance} and/or {Ratio}] [{Standardized Common Name (SCN)} or {Other Common Name (OCN)} or {Latin Binomial w/o Authority}] [Botanical Material(s)].

where the items in brackets, "[]," are mandatory and the items in braces, "{}," are used as appropriate.

23.1.1.4 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—CBG-Dominant Cannabis Inflorescence.

(2) Example 2—THC:CBD 1:1 Cannabis Flower.

(3) Example 3—THC-Dominant Cannabis Parthenocarpic Infructescence.

23.1.2 *Declaration of Responsibility:*

23.1.2.1 The declaration of responsibility for cannabis flowers shall be in the form of:

"Cultivated By [Name Here], [Permit Number Here], [Address Here], [Telephone Number Here], [Email Address Here]," or similar wording comprised of the required items.

23.1.3 *Declaration of Quantity:*

23.1.3.1 The declaration of quantity for cannabis flowers shall be in the form of weight.

NOTE 45—Common retail denominations of cannabis flower include grams, eighths of an ounce, quarters of an ounce, half ounces, and whole ounces.

(1) Examples—The references below are only examples and other ways of displaying this information may be used.

Customary Format	Style Reference
Dual Unit	1 g (.035 oz) Net Mass Net Wt 3.5 g (⅛ oz) Net Weight 7 g (¼ oz) 14 g (½ oz) NET WT net wt 28 g (1 oz)
SI Only	1 g Net Mass Net Wt 3.5 g Net Weight 7 g 14 g NET WT net wt 28 g

23.1.4 *Declaration of Cannabinoids:*

23.1.4.1 The cannabinoid content declaration for cannabis flowers shall be in the form of a percentage of the net weight, or weight measurement in milligrams per gram (for example, "10 mg/g").

23.1.5 *Declaration of Terpenes (Optional for Adult-Use):*

23.1.5.1 The declaration of terpenes for medicinal-use cannabis flowers shall be in the form of a weight measurement in milligrams per gram (for example "1 mg/g").

23.1.5.2 The declaration of terpenes for adult-use cannabis flowers may be in the form of a percentage of the net weight, or weight measurement in milligrams per gram.

23.1.6 *Route of Administration (Intended Use Statement):*

23.1.6.1 Adult-use and medicinal-use cannabis flowers shall be labeled with a statement indicating the route of administration for the product.

23.1.6.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Intended Use: Inhalation.

(2) Example 2—For inhalation.

23.1.7 *Storage Instructions:*

23.1.7.1 For adult-use and medicinal-use cannabis flowers, storage instructions shall be in the form of:

"Keep product in its original container. Store in a cool dry place protected from light and moisture."

23.1.8 *Adult-Use and Medicinal-Use Cannabis Flower Label Specifications Table:*

23.1.8.1 Appendix X1: Summary Table—Cannabis Inflorescence (Flowers) shall summarize all the required elements of a label for a package of adult-use and medicinal-use cannabis flowers.

23.2 *Concentrate and Extract:*

23.2.1 *Declaration of Identity:*

23.2.1.1 The declaration of identity for adult-use concentrates and extracts shall be in terms of:

(1) The common name of the product, that is, Cannabis Concentrate or Cannabis Extract, along with a description of the type of cannabis plant, and, if applicable, the cannabinoid dominance and/or ratio; or

(2) The strain/varietal name of the cannabis plant along with a description of the type of concentrate or extract, and, if applicable, the cannabinoid dominance and/or ratio.

23.2.1.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1:

Indica Cannabis Extract
THC:CBD
1:1

(2) Example 2—SVG OG (Live Resin)—THC Dominant.

NOTE 46—Strain/varietal lineage information may accompany the declaration of identity.

(3) Example 3:

Sour Diesel Shatter
NYC Diesel × Sour Kush

23.2.1.3 The declaration of identity for medicinal-use concentrates and extracts shall be in terms of:

[{Cannabinoid Dominance} and/or {Ratio}] [{Fresh*} Source Material] [{Consistency*} {Solvent*} {Concentrate} or {Extract} or {Oleoresin}].

(1) Where the items in brackets, "[]," are mandatory and the items in braces, "{}," are used as appropriate.

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

(2) Where the term "fresh" indicates that undried plant material was used.

(3) Where the consistency can be described as "dry/solid," "soft/semi-solid," or "liquid."

(4) Where the type of "solvent" used can be included to provide further differentiation.

23.2.1.4 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—CBG-Dominant Cannabis Solid Ethanol Extract.

(2) Example 2—THC:CBD 1:1 Cannabis Liquid Concentrate.

(3) Example 3—THC-Dominant Fresh Cannabis Dry Oleoresin.

23.2.2 *Declaration of Responsibility:*

23.2.2.1 The declaration of responsibility for concentrates and extracts shall be in the form of:

"Manufactured By [Name Here], [Permit Number Here], [Address Here], [Telephone Number Here], [Email Address Here]," or similar wording comprised of the required items.

23.2.3 *Declaration of Quantity:*

23.2.3.1 The declaration of quantity for concentrates and extracts shall be in the form of weight.

NOTE 47—Common retail denominations of cannabis concentrates and extracts include half grams and whole grams.

(1) Example:

Customary Format	Style Reference
Dual Unit	1 g (.035 oz) Net Mass Net Wt 1 g (.035 oz) Net Weight 500 mg (.018 oz) 500 mg (.018 oz) NET WT
SI Only	1 g Net Mass Net Wt 1 g Net Weight 500 mg 500 mg NET WT

23.2.4 *Declaration of Cannabinoids:*

23.2.4.1 The cannabinoid content declaration for concentrates and extracts shall be in the form of a percentage of the net weight, or weight measurement in milligrams per gram (for example "10 mg/g").

23.2.5 *Declaration of Terpenes (Optional for Adult-Use):*

23.2.5.1 The declaration of terpenes for medicinal-use cannabis concentrates and extracts shall be in the form of a weight measurement in milligrams per gram (for example "1 mg/g").

23.2.5.2 The declaration of terpenes for adult-use cannabis concentrates and extracts may be in the form of a percentage of the net weight, or weight measurement in milligrams per gram.

23.2.6 *Route of Administration (Intended Use Statement):*

23.2.6.1 Adult-use and medicinal-use cannabis concentrates and extracts shall be labeled with a statement indicating the route of administration for the product.

23.2.6.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Concentrate or Extract for Inhalation:

(a) Intended Use: Inhalation.

(2) Example 2—Concentrate or Extract for Ingestion:

(a) For ingestion.

NOTE 48—Concentrates and extracts intended for ingestion shall follow solid or liquid ingestible label content specifications depending on consistency.

(3) Example 3—Concentrate or Extract for Topical Use:

(a) Intended Use: Topical.

NOTE 49—Concentrates and extracts intended for topical-use shall follow topical label content specifications.

23.2.7 *Storage Instructions:*

23.2.7.1 For all adult-use and medicinal-use cannabis concentrates and extracts, storage instructions shall be in the form of:

"Keep product in its original container. Store in a cool dry place protected from light and moisture."

23.2.7.2 For those adult-use and medicinal-use cannabis concentrates and extracts requiring refrigeration, storage instructions shall also include the statement:

"Keep refrigerated."

23.2.7.3 Nothing precludes these requirements from being combined into a singular statement, for example:

"Keep product refrigerated and in its original container. Store in a cool dry place protected from light and moisture."

23.2.8 *Other Required Content:*

23.2.8.1 The label for adult-use and medicinal-use cannabis concentrates and extracts shall include a statement declaring the method of production and solvent or solvents used to manufacture the product, if applicable.

NOTE 50—If a solvent is used, it is recommended to include the grade/type in a parenthetical notation along with the solvent declaration.

(1) Example 1—Solvent: n-Butane (analytical grade).

(2) Example 2—Method of Obtention: CO2 Extraction.

(3) Example 3—Produced via mechanical separation.

23.2.9 *Adult-Use and Medicinal-Use Cannabis Concentrates and Extracts Label Specifications Table:*

23.2.9.1 Appendix X2: Summary Table—Cannabis Concentrates and Extracts shall summarize all the required elements of a label for a package of adult-use and medicinal-use cannabis concentrate and extract.

23.3 *Cigarettes and Pre-Rolls:*

23.3.1 *Declaration of Identity:*

23.3.1.1 The declaration of identity for adult-use cannabis cigarettes and pre-rolls shall be in the form of:

(1) The common name of the product, that is, Cannabis Pre-Roll or Cannabis Cigarette, along with a description of the type of cannabis plant, and, if applicable, the cannabinoid dominance or ratio, or both; or

(2) The strain/varietal name of the cannabis plant along with the common name of the product, and, if applicable, the cannabinoid dominance or ratio, or both.

23.3.1.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Cannabis Pre-Roll (indica, CBD-Dominant).

(2) Example 2—SFV OG Cigarettes (hybrid) (THC-Dominant).

NOTE 51—Strain/varietal lineage information may accompany the declaration of identity.

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

(3) Example 3—Pre-Roll—Sour Diesel (sativa); NYC Diesel × Sour Kush.

NOTE 52—Cannabis pre-rolls and cigarettes incorporating cannabis concentrates, or extracts, or both into or on the product shall be labeled with the type of cannabis concentrates or extracts used.

(4) Example 4—Indica Live Rosin Infused Cannabis Pre-Roll.

23.3.1.3 The declaration of identity for medicinal-use cannabis cigarettes and pre-rolls shall be in terms of:

[{Cannabinoid Dominance} and/or {Ratio}] [{SCN} or {OCN} or {Latin Binomial w/o Authority}] [Botanical Material(s)] [{Cigarette} or {Pre-Roll}].

(1) Where the items in brackets, "[]," are mandatory and the items in braces, "{}," are used as applicable.

23.3.1.4 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—CBG-Dominant Cannabis Inflorescence Pre-Rolls.

(2) Example 2—THC:CBD 1:1 Cannabis Inflorescence Cigarette.

(3) Example 3—THC-Dominant Cannabis Parthenocarpic Infructescence Pre-Rolls.

23.3.2 *Declaration of Responsibility:*

23.3.2.1 The declaration of responsibility for cannabis cigarettes and pre-rolls shall be in the form of: "Manufactured By [Name Here], [Permit Number Here], [Address Here], [Telephone Number Here], [Email Address Here]," or similar wording comprised of the required items.

23.3.3 *Declaration of Quantity:*

23.3.3.1 The declaration of quantity for cannabis cigarettes and pre-rolls shall be in the form of count and total weight of the contents in the package, unless sold individually, in which case the declaration of quantity for an individual cannabis cigarette or pre-roll may be in the form of weight only.

Multiunit Example:

Customary Format	Style Reference
Dual Unit	5 ct | Total Net Wt 5 g (.179 oz) 7 pre-rolls, Total Net Weight 7 g (¼ oz) 28 units, 28 g (1 oz) Total Net Mass Or 5 ct | 1 g (.035 oz) ea | Total Net Wt 5 g (.179 oz) 7 pre-rolls, 1 g (.035 oz) each, Total Net Weight 7 g (¼ oz) 28 units, 1 g (.035 oz) ea, 28 g (1 oz) Total Net Mass
SI Only	5 ct | Total Net Wt 5 g 7 pre-rolls, Total Net Weight 7 g 28 units, 28 g Total Net Mass Or 5 ct | 1 g ea | Total Net Wt 5 g 7 pre-rolls, 1 g each, Total Net Weight 7 g 28 units, 1 g ea, 28 g Total Net Mass

Single Unit Example:

Customary Format	Style Reference
Dual Unit	1 g (.035 oz) Net Weight Net Wt 1 g (.035 oz)
SI Only	1 g Net Weight Net Wt 1 g

23.3.3.2 The declaration of quantity for cannabis cigarettes and pre-rolls shall not include the weight of the rolling paper or filter/crutch or both and shall only declare the weight of the material contained within each cannabis cigarette or pre-roll.

23.3.4 *Declaration of Cannabinoids:*

23.3.4.1 The cannabinoid content declaration for cannabis cigarettes and pre-rolls shall be in the form of a percentage of the net weight, or weight measurement in milligrams per gram (for example, "10 mg/g").

23.3.5 *Declaration of Terpenes (Optional for Adult-Use):*

23.3.5.1 The declaration of terpenes for medicinal-use cannabis pre-rolls and cigarettes shall be in the form of a weight measurement in milligrams per gram (for example, "1 mg/g").

23.3.5.2 The declaration of terpenes for adult-use cannabis pre-rolls and cigarettes may be in the form of a percentage of the net weight, or a weight measurement in milligrams per gram.

23.3.6 *Route of Administration (Intended Use Statement):*

23.3.6.1 Adult-use and medicinal-use cannabis cigarettes and pre-rolls shall be labeled with a statement indicating the route of administration for the product.

23.3.6.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Intended Use: Inhalation.

(2) Example 2—For inhalation.

23.3.7 *Storage Instructions:*

23.3.7.1 For adult-use and medicinal-use cannabis pre-rolls and cigarettes, storage instructions shall be in the form of:

"Keep product in its original container. Store in a cool dry place protected from light and moisture."

23.3.8 *Adult-Use and Medicinal-Use Cannabis Pre-Roll Label Specifications Table:*

23.3.8.1 Appendix X3: Summary Table—Cannabis Cigarettes and Pre-Rolls shall summarize all the required elements of a label for a package of adult-use and medicinal-use cannabis cigarettes/pre-rolls.

23.4 *Vaporizer Cartridges:*

NOTE 53—Vaporizer cartridges and pods shall have the same label content and style, format, prominence, and location requirements. For the sake of brevity, the term "cartridge" is used throughout as synonymous with the term "pod."

23.4.1 *Device Requirements:*

23.4.1.1 At a minimum, the universal symbol, in whichever dimensions that allow it to fit, shall be displayed prominently on the vaporizer cartridge.

23.4.1.2 For medicinal-use vaporizer cartridges, cannabinoid dominance or ratio, or both, shall also be displayed prominently on the vaporizer cartridge.

23.4.2 *Declaration of Identity:*

23.4.2.1 The declaration of identity for adult-use cannabis vaporizer cartridges shall be in the form of:

(1) The common name of the product, that is, Cannabis Cartridge or Cannabis Pod, along with a description of the type of cannabis plant and, if applicable, the cannabinoid dominance or ratio, or both; or

(2) The strain/varietal name of the cannabis plant along with the common name of the product and, if applicable, the cannabinoid dominance or ratio, or both; or

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

(3) The description of the type of concentrate or extract use to make the product along with the common name of the product and, if applicable, the cannabinoid dominance or ratio, or both.

23.4.2.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Cannabis Cartridge (indica, CBD-Dominant).

(2) Example 2—SFV OG Cartridge (THC-Dominant).

(3) Example 3—Live Resin Cartridge; CBN:THC 5:2.

NOTE 54—Strain/varietal lineage information may accompany the declaration of identity.

(4) Vape Cartridge—Sour Diesel (sativa); NYC Diesel × Sour Kush.

23.4.2.3 The declaration of identity for medicinal-use cannabis vaporizer cartridges shall be in terms of:

[{Cannabinoid Dominance} and/or {Ratio}] [{Fresh*} Source Material] [{Solvent*} {Concentrate} or {Extract} or {Oleoresin}] [{Cartridge} or {Pod}].

(1) Where the items in brackets, "[]," are mandatory and the items in braces, "{}," are used as appropriate.

(2) Where the term "fresh" indicates that undried plant material was used.

(3) Where the type of "solvent" used can be included to provide further differentiation.

23.4.2.4 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—CBG-Dominant Cannabis Extract Cartridge.

(2) Example 2—THC:CBD 1:1 Cannabis Concentrate Pod.

(3) Example 3—THC-Dominant Fresh Cannabis Solventless Oleoresin Cartridge.

23.4.3 *Declaration of Responsibility:*

23.4.3.1 The declaration of responsibility for vaporizer cartridges shall be in the form of: "Manufactured By [Name Here], [Permit Number Here], [Address Here], [Telephone Number Here], [Email Address Here]," or similar wording comprised of the required items.

23.4.4 *Declaration of Quantity:*

23.4.4.1 The declaration of quantity for vaporizer cartridges shall be in the form of weight.

NOTE 55—Common retail denominations of cannabis vaporizer cartridges include half grams and whole grams.

23.4.4.2 *Example:*

Customary Format	Style Reference
Dual Unit	Net Wt 500 mg (.018 oz) Net Weight 1 g (.035 oz) 1 g (.035 oz) Net Mass
SI Only	Net Wt 500 mg Net Weight 1 g 1 g Net Mass

23.4.4.3 The declaration of quantity for cannabis vaporizer cartridges shall not include the weight of the cartridge itself (device/hardware) and shall only declare the weight of the material contained within each cartridge.

23.4.5 *Declaration of Cannabinoids:*

23.4.5.1 The cannabinoid content declaration for cannabis vaporizer cartridges shall be in the form of a percentage of the net weight, or weight measurement in milligrams per gram (for example "10 mg/kg").

23.4.6 *Declaration of Terpenes (Optional for Adult-Use):*

23.4.6.1 The declaration of terpenes for medicinal-use cannabis vaporizer cartridges shall be in the form of a weight measurement in milligrams per gram (for example, "1 mg/g") of the net weight.

23.4.6.2 The declaration of terpenes for adult-use cannabis vaporizer cartridges may be in the form of a percentage of the net weight, or a weight measurement in milligrams per gram.

23.4.7 *Route of Administration (Intended Use Statement):*

23.4.7.1 Adult-use and medicinal-use cannabis vaporizer cartridges shall be labeled with a statement indicating the route of administration for the product.

23.4.7.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Intended Use: Inhalation.

(2) Example 2—For inhalation.

23.4.8 *Storage Instructions:*

23.4.8.1 For adult-use and medicinal use cannabis vaporizer cartridges, storage instructions shall be in the form of: "Store in a cool dry place protected from light and moisture."

23.4.9 *Other Required Content:*

23.4.9.1 The label for adult-use and medicinal-use cannabis vaporizer cartridges shall include a list of all ingredients used to manufacture the product.

23.4.9.2 The ingredient list for adult-use and medicinal-use cannabis vaporizer cartridges shall include the method of production and solvent or solvents used to manufacture the concentrate/extract used in the formulation, if applicable.

23.4.9.3 *Example for Cartridges Containing Only Cannabis Concentrate/Extract:*

(1) Example 1—Ingredients: Live Resin (LPG extracted).

(2) Example 2—Ingredients: Cannabis Extract (via CO2).

(3) Example 3—Ingredients: Concentrate (mechanically separated).

23.4.10 *Adult-Use and Medicinal-Use Cannabis Vaporizer Cartridge Label Specifications Table:*

23.4.10.1 Appendix X4: Summary Table—Cannabis Vaporizer Cartridges and Pods shall summarize all the required elements of a label for a package of adult-use and medicinal-use cannabis vaporizer cartridges.

23.5 *Solid and Liquid Ingestible:*

23.5.1 *Nutrition Information (Adult-Use and Medicinal-Use):*

23.5.1.1 Solid and liquid ingestible consumer products containing cannabinoids shall be labeled with the nutrition information, as defined by the authority having jurisdiction where the product is to be sold.

23.5.1.2 The nutrition information shall be located, at a minimum, on the immediate container and on a separate display panel from the principal display panel of each packaging layer and shall not be located on the bottom of the package/container.

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

23.5.1.3 The nutrition information shall appear in the customary format of the country or geographical region in which the product is to be sold, if allowed by the authority having jurisdiction.

23.5.2 *Cannabinoid Information Label:*

23.5.2.1 At a minimum, solid and liquid ingestible adult-use consumer products containing cannabinoids shall be labeled with a cannabinoid information label that declares the cannabinoid content in the form of a weight in milligram measurements for the following items:

(1) The total cannabinoids per package/container and per serving;

(2) The total THC per package/container and per serving; and

(3) The total CBD per package/container and per serving.

Cannabinoid Facts	*Per Serving*	*Per Package*
Total Cannabinoids	10 mg	100 mg
Total d9-THC	5 mg	50 mg
Total CBD	5 mg	50 mg

FIG. 4 Example Adult-Use Cannabinoids Information Label

23.5.2.2 At a minimum, non-discrete solid and liquid ingestible medicinal-use consumer products containing cannabinoids shall be labeled with a cannabinoid information label that declares the cannabinoid content in the form of a weight in milligram measurements, for the following items:

(1) The total cannabinoids per package/container and per gram for solids or per volume for liquids;

(2) The d9-THC and d9-THCA per package/container and per gram for solids or per volume for liquids;

(3) The CBD and CBDA per package/container and per gram for solids or per volume for liquids;

(4) The CBN per package/container and per gram for solids or per volume for liquids;

(5) The CBG per package/container and per gram for solids or per volume for liquids; and

(6) The CBC per package/container and per gram for solids or per volume for liquids.

23.5.2.3 At a minimum, discrete solid and liquid ingestible medicinal-use consumer products containing cannabinoids shall be labeled with a cannabinoid information label that declares the cannabinoid content in the form of a weight in milligram measurements for the following items:

(1) The total cannabinoids per package/container and per dose;

(2) The d9-THC and d9-THCA per package/container and per dose;

(3) The CBD and CBDA per package/container and per dose;

(4) The CBN per package/container and per dose;

(5) The CBG per package/container and per dose; and

(6) The CBC per package/container and per dose.

Cannabinoid Facts	*Per Dose*	*Per Package*
Total Cannabinoids	10 mg	100 mg
d9-THC	5 mg	50 mg
d9-THCA	0 mg	0 mg
CBD	5 mg	50 mg
CBDA	0 mg	0 mg
CBN	0 mg	0 mg
CBC	0 mg	0 mg
CBG	0 mg	0 mg

FIG. 5 Example Discrete-Unit Medicinal-Use Cannabinoid Information Label

23.5.2.4 The cannabinoid information label shall be displayed in a box with a border no less than 1.5 mm (0.059 in.) thick.

23.5.2.5 The style and format of the cannabinoid information label shall be in the format customary to the nutrition information of the authority having jurisdiction in which the product is to be sold.

23.5.2.6 The cannabinoid information label can be located on any display panel but should be in proximity to the nutrition information and shall not be located on the bottom of the package/container.

23.5.2.7 The cannabinoid and nutrition information can be incorporated into a single element/feature.

23.5.3 *Declaration of Terpenes (Optional for Adult-Use):*

23.5.3.1 If total terpene content is more than 1% of the formulation, medicinal-use solid and liquid ingestible consumer products containing cannabinoids shall be labeled with a terpene information label that declares the total terpene content in the form of a weight in milligram measurements per package/container and per dose for discrete units or per gram or volume for non-discrete units.

(1) For further clarity, the top five terpenes in descending order should be included with the declaration of terpenes but shall not need to be quantified.

23.5.3.2 The cannabinoid information and terpene information can be incorporated into a single element/feature, for example "Cannabinoid & Terpene Information."

23.5.4 *List of Ingredients:*

23.5.4.1 Solid and liquid ingestible consumer products containing cannabinoids shall be labeled with a list of all ingredients in descending order from greatest to least.

23.5.4.2 Solid and liquid ingestible consumer products containing cannabinoids shall identify the form of cannabis raw material used as an ingredient.

23.5.4.3 Medicinal-use ingestible consumer products containing cannabinoids shall differentiate between active and inactive ingredients.

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

23.5.4.4 The ingredient list shall be in proximity to the nutrition information in accordance with authority having jurisdiction requirements.

23.5.5 *Allergen Warning:*

23.5.5.1 If applicable, solid and liquid ingestible consumer products containing cannabinoids shall be labeled with a list of any allergens, or a declaration of manufacture in a facility that produces other products with known allergens and a list of those allergens.

23.5.5.2 For products containing known allergens the allergen warning shall be in the form of:

"Contains: [List of Allergen(s)]"

(1) Example—For a product containing peanuts, the statement: "Contains: Peanuts," would suffice.

23.5.5.3 For products manufactured in a facility that produces other products with known allergens, the warning shall be in the form of:

(1) "May contain: [List of Allergen(s)]"; or

(2) "Manufactured in a facility that processes [list of allergen(s)]."; or

(3) Other wording of similar import that expresses the facts.

NOTE 56—Some common food-borne allergens include celery, cereals containing gluten (such as wheat, barley, and oats), crustacean/shellfish (such as prawns, crabs, and lobsters), eggs, fish, lupin, milk, molluscs or "mollusks" (such as mussels and oysters), mustard, peanuts, sesame seeds, soybeans, sulfur dioxide and sulfites (if the sulfur dioxide and sulfites are at a concentration of more than 10 PPM) and tree nuts (such as almonds, hazelnuts, walnuts, brazil nuts, cashews, pecans, pistachios, and macadamia nuts).

23.5.5.4 The allergen warning shall be in proximity to the nutrition information and ingredient list in accordance with authority having jurisdiction requirements.

23.5.6 *Delayed Intoxication Warning:*

23.5.6.1 Solid and liquid ingestible consumer products containing cannabinoids shall be labeled with a statement indicating that intoxication is delayed when consuming ingestible adult-use and medicinal-use products containing cannabinoids.

(1) Example—For adult-use products, the statement: "Wait at least 60 minutes before taking another serving.", may suffice.

(2) Example—For medicinal-use products, the statement: "Intoxicating effects may be delayed up to 2 hours and may persist for up to 8 hours.", may suffice.

23.5.7 *Suggested Use/Directions (Medicinal-Use Only):*

23.5.7.1 Solid and liquid ingestible medicinal-use consumer products containing cannabinoids shall be labeled with the suggested use/directions for use.

23.5.7.2 Suggested use/directions for use shall be in the form of a simple statement informing the consumer of how to use the product.

(1) Example—For tinctures, the statement: "Take one milliliter by mouth or as directed by a medical professional.", may suffice.

23.6 *Solid Ingestible Product Specific Labeling Requirements:*

23.6.1 *Declaration of Identity:*

23.6.1.1 The declaration of identity for adult-use solid ingestible consumer products containing cannabinoids shall be in terms of:

(1) The name specified in or required by the authority having jurisdiction, and, if applicable, the cannabinoid dominance or ratio, or both;

(2) The generic, common, or usual name of the product, for example, Cannabis Edible, Cannabis Chocolate, Cannabis Gummy, etc., and, if applicable, the cannabinoid dominance or ratio, or both; or

(3) The brand name, or other appropriate description, and a statement of function (such as "flavored candy with added cannabinoids"), and, if applicable, the cannabinoid dominance or ratio, or both.

23.6.1.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Cannabis Chocolate

(2) Example 2—Cannabis Lozenge (CBD-Dominant)

(3) Example 3—Cannablasters (flavored gummies with cannabinoids)

23.6.1.3 The declaration of identity for medicinal-use solid ingestible consumer products containing cannabinoids shall be in terms of:

[Dietary Ingredient*]{Release Characteristics*}[Dosage/Product Form].

(1) Where the items in brackets, "[]," are mandatory and the items in braces, "{}," are used as appropriate.

(2) Where if the dietary ingredient is an herbal material, use [{Cannabinoid Dominance} and/or {Ratio}][{SCN} or {OCN} or {Latin Binomial w/o Authority}][Botanical Material].

(3) Where if the dietary ingredient is a concentrate or extract, use [{Cannabinoid Dominance} and/or {Ratio}] [{Fresh*} Source Material] [{Solvent*} {Consistency*} {Extract} or {Concentrate} or {Oleoresin}].

(4) Where the term "fresh" indicates that undried plant material was used.

(5) Where the consistency can be described as "dry/solid," "soft/semi-solid," or "liquid."

(6) Where the type of "solvent" used can be included to provide further differentiation.

(7) Where the release characteristics can be described as "delayed-release," "time-released," "extended-release," etc.

23.6.1.4 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—CBG-Dominant Cannabis Inflorescence Capsules

(2) Example 2—THC:CBD 1:1 Cannabis Carbon Dioxide Liquid Extract Extended-Release Tablets

23.6.2 *Declaration of Responsibility:*

23.6.2.1 The declaration of responsibility for solid ingestible consumer products containing cannabinoids shall be in the form of: "Manufactured By [Name Here], [Permit Number

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

Here], [Address Here], [Telephone Number Here], [Email Address Here],” or similar wording comprised of the required items.

23.6.3 *Declaration of Quantity:*

23.6.3.1 The declaration of quantity for solid ingestible consumer products containing cannabinoids shall be in the form of weight.

(1) Example:

Customary Format	Style Reference
Dual Unit	Net Wt 112 g (4 oz) Net Weight 10.5 g (⅜ oz) 47.6 g (1 ¾ oz) Net Mass
SI Only	Net Wt 112 g Net Weight 10.5 g 47.6 g Net Mass

23.6.4 *Declaration of Cannabinoids:*

23.6.4.1 The cannabinoid content declaration on the principal display panel for solid ingestible consumer products containing cannabinoids shall define:

(1) The total cannabinoids per package/container in the form of a weight in milligram measurements; and

(2) For discrete units: the total number of servings (or doses) and total cannabinoids per serving (or dose) in the form of a count and weight in milligram measurements.

(3) For non-discrete units: the total cannabinoids per gram in the form of a weight in milligram measurements.

23.6.4.2 *Example 1*—100 mg per container | 10 – 10 mg servings

23.6.4.3 *Example 2*—10 mg per gram, 100 mg total cannabinoids

23.6.5 *Other Required Content:*

23.6.5.1 The ingredient list for adult-use and medicinal-use solid ingestible consumer products containing cannabinoids shall include the method of production and solvent or solvents used to manufacture the concentrate/extract used in the formulation, if applicable.

(1) Example—Ingredients: coco butter, sugar, milk, cannabis extract (via CO2), etc.

23.6.6 *Adult-Use and Medicinal-Use Solid-Ingestible Consumer Products Containing Cannabinoids Label Specifications Table:*

23.6.6.1 Appendix X5: Summary Table – Solid Ingestible Consumer Products Containing Cannabinoids shall summarize all the required elements of a label for a package of adult-use and medicinal-use solid-ingestible consumer products containing cannabinoids.

23.7 *Liquid Ingestible Product Specific Labeling Requirements:*

23.7.1 *Declaration of Identity:*

23.7.1.1 The declaration of identity for adult-use liquid ingestible consumer products containing cannabinoids shall be in terms of:

(1) The name specified in or required by the authority having jurisdiction and, if applicable, the cannabinoid dominance or ratio, or both;

(2) The generic, common, or usual name of the product and, if applicable, the cannabinoid dominance or ratio, or both; or

(3) The brand name, or other appropriate description, and a statement of function (such as “flavored seltzer with added cannabinoids”) and, if applicable, the cannabinoid dominance or ratio, or both.

23.7.1.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Cannabis Infused Tonic—THC:CBD 1:1

(2) Example 2—[Brand Name Here] (CBD Tincture)

(3) Example 3—CBD Sparkling Seltzer Water (seltzer infused with CBD)

23.7.1.3 The declaration of identity for medicinal-use liquid ingestible consumer products containing cannabinoids shall be in terms of:

[Dietary Ingredient*]{Release Characteristics*}[Dosage/Product Form].

(1) Where the items in brackets, “[],” are mandatory and the items in braces, “{},” are used as appropriate.

(2) Where if the dietary ingredient is an herbal material, use [{Cannabinoid Dominance} and/or {Ratio}][{SCN} or {OCN} or {Latin Binomial w/o Authority}][Botanical Material].

(3) Where if the dietary ingredient is a concentrate or extract, use [{Cannabinoid Dominance} and/or {Ratio}] [{Fresh*} Source Material] [{Solvent*} {Consistency*} {Extract} or {Concentrate} or {Oleoresin}].

(4) Where the term “fresh” indicates that undried plant material was used.

(5) Where the consistency can be described as “dry/solid,” “soft/semi-solid,” or “liquid.”

(6) Where the type of “solvent” used can be included to provide further differentiation.

(7) Where the release characteristics can be described as “delayed-release,” “time-released,” “extended-release,” etc.

23.7.1.4 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—CBG-Dominant Cannabis Inflorescence Tincture

(2) Example 2—THC:CBD 1:1 Cannabis Carbon Dioxide Liquid Extract Delayed-Release Oral Solution

23.7.2 *Declaration of Responsibility:*

23.7.2.1 The declaration of responsibility for liquid ingestible consumer products containing cannabinoids shall be in the form of: “Manufactured By [Name Here], [Permit Number Here], [Address Here], [Telephone Number Here], [Email Address Here],” or similar wording comprised of the required items.

23.7.3 *Declaration of Quantity:*

23.7.3.1 The declaration of quantity for liquid ingestible consumer products containing cannabinoids shall be in the form of liquid measurements.

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

(1) Example:

Customary Format	Style Reference
Dual Unit	Net 120 mL (4 fl oz) Net Contents 30 mL (1 fl oz) 500 mL (16 2/3 fl oz)
SI Only	Net 120 mL Net Contents 30 mL 500 mL

23.7.4 *Declaration of Cannabinoids:*

23.7.4.1 The cannabinoid content declaration on the principal display panel for liquid ingestible consumer products containing cannabinoids shall define:

(1) The total cannabinoids per package/container in the form of a weight in milligram measurements; and

(2) For discrete units: the total number of servings (or doses) and total cannabinoids per serving (or dose) in the form of a count and weight in milligram measurements.

(3) For non-discrete units: the total cannabinoids per volume in the form of a weight in milligram measurements.

23.7.4.2 *Example 1*—100 mg total | 10 – 10 mg servings

23.7.4.3 *Example 2*—10 mg per mL, 100 mg total cannabinoids

23.7.5 *Other Required Content:*

23.7.5.1 The ingredient list for liquid ingestible consumer products containing cannabinoids shall include the method of production and solvent or solvents used to manufacture the concentrate/extract used in the formulation, if applicable.

(1) Example—Ingredients: Vegetable glycerin, cannabis extract (alcohol), natural flavors, etc.

23.7.6 *Adult-Use and Medicinal-Use Liquid-Ingestible Consumer Products Containing Cannabinoids Label Specifications Table:*

23.7.6.1 Appendix X6: Summary Table – Liquid Ingestible Consumer Products Containing Cannabinoids shall summarize all the required elements of a label for a package of adult-use and medicinal-use liquid-ingestible consumer product containing cannabinoids.

23.8 *Topicals:*

23.8.1 *Cannabinoid Information Label:*

23.8.1.1 At a minimum, non-discrete unit topical consumer products containing cannabinoids shall be labeled with a cannabinoid information label that declares the cannabinoid content in the form of a weight in milligram measurements, for the following items:

(1) The total cannabinoids per package/container;

(2) The total cannabinoids per gram;

(3) The total THC per package/container;

(4) The total THC per gram;

(5) The total CBD per package/container; and

(6) The total CBD per gram.

23.8.1.2 At a minimum, discrete unit topical consumer products containing cannabinoids shall be labeled with a cannabinoid information label that declares the cannabinoid content in the form of weight in milligram measurements for the following items:

(1) The total cannabinoids per package/container;

(2) The total cannabinoids per application/use/dose;

(3) The total THC per package/container;

(4) The total THC per application/use/dose;

(5) The total CBD per package/container; and

(6) The total CBD per application/use/dose.

23.8.1.3 The cannabinoid information label can be located on any display panel but shall not be located on the bottom of the package/container.

23.8.1.4 The cannabinoid information label shall be displayed in a box with a border no less than 1.5 mm (0.059 in.) thick.

23.8.2 *List of Ingredients:*

23.8.2.1 Topical consumer products containing cannabinoids shall be labeled with a list of all ingredients in descending order from greatest to least.

23.8.2.2 The ingredient list shall include the method of production and solvent or solvents used to manufacture the concentrate/extract used in the formulation, if applicable.

(1) Example—Ingredients: Aloe vera, coco butter, cannabis concentrate (mechanically separated), essential oils.

23.8.2.3 The ingredient list shall be in proximity to the cannabinoid information label.

23.8.3 *Allergen Warnings:*

23.8.3.1 If applicable, topical consumer products containing cannabinoids shall be labeled with a list of any skin, fragrance, or preservative allergens, or a declaration of manufacture in a facility that produces other products with known allergens and a list of those skin, fragrance, or preservative allergens.

23.8.3.2 For products containing known skin, fragrance, or preservative allergens exceeding 0.0001 % (1 ppm) of the formulation for leave-on products, or 0.001 % (10 ppm) of the formulation for rinse-off products, the allergen warning shall be in the form of:

"Contains: [List of Allergen(s)]."

(1) Example—For a product containing lanolin, the statement: "Contains: Lanolin.", would suffice.

23.8.3.3 For products manufactured in a facility that produces other products with known skin, fragrance, or preservative allergens, the warning shall be in the form of:

(1) "May contain: [List of Allergen(s)].";

(2) "Manufactured in a facility that processes [list of allergen(s)]."; or

(3) Other wording of similar import that expresses the facts.

NOTE 57—Some common skin, fragrance, and preservative allergens include terpenes, like citral, geraniol, limonene, linalool, lanolin, and others, formaldehyde-releasing preservatives (e.g. hydantoin), benzyl alcohol, iso-triazolinones (or Kathon), etc[9].

23.8.3.4 The allergen warning shall be in proximity to the ingredient list in accordance with authority having jurisdiction requirements.

23.8.4 *Suggested Use/Directions:*

23.8.4.1 Topical consumer products containing cannabinoids shall be labeled with the suggested use/directions for use.

[9] For a more extensive list of common skin, fragrance, and preservative allergens see Table 13-1: Established contact allergens in humans., OPINION on Fragrance allergens in cosmetic products, European Commission, Scientific Committee on Consumer Safety, (2011), pp. 106-109., https://ec.europa.eu/health/scientific_committees/consumer_safety/docs/sccs_o_102.pdf

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

23.8.4.2 Suggested use/directions for use shall be in the form of a simple statement informing the consumer of how to use the product.

(1) Example—For balms, the statement: "Apply as desired; rub completely into the skin.", may suffice.

23.8.5 *Topicals Specific Warnings:*

23.8.5.1 Topical consumer products containing cannabinoids shall be labeled with the following warnings in addition to the warnings defined in the Warning Statement section of this specification:

(1) "Do not eat." Or "Not for ingestion."

(2) "Stop use if rash or inflammation of the application area develops."

(3) "Do not apply to open wounds or broken skin."

23.8.6 *Declaration of Identity—Topical:*

23.8.6.1 The declaration of identity for adult-use topical consumer products containing cannabinoids shall be in terms of:

(1) The name specified in or required by the authority having jurisdiction, and, if applicable, the cannabinoid dominance or ratio, or both;

(2) The generic, common, or usual name of the product, for example, Cannabis Topical, Cannabis Lotion, Cannabis Salve, Cannabis Shampoo, Cannabis Suppository, etc., and, if applicable, cannabinoid dominance or ratio, or both; or

(3) The brand name, or other appropriate description, and a statement of function (such as "moisturizer with added cannabinoids"), and, if applicable, cannabinoid dominance or ratio, or both.

23.8.6.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Cannabis Topical (skin cream with cannabinoids)

(2) Example 2—Canna-Balm; THC-Dominant Moisturizer

(3) Example 3—CBD Shampoo

23.8.6.3 The declaration of identity for medicinal-use topical consumer products containing cannabinoids shall be in terms of:

[Ingredient*]{Release Characteristics*}[Dosage/Product Form].

(1) Where the items in brackets, "[],," are mandatory and the items in braces, "{},," are used as appropriate.

(2) Where if the ingredient is an herbal material, use [{Cannabinoid Dominance} and/or {Ratio}][{SCN} or {OCN} or {Latin Binomial w/o Authority}][Botanical Material].

(3) Where if the ingredient is a concentrate or extract, use [{Cannabinoid Dominance} and/or {Ratio}] [{Fresh*} Source Material] [{Solvent*} {Consistency*} {Extract} or {Concentrate} or {Oleoresin}].

(4) Where the term "fresh" indicates that undried plant material was used.

(5) Where the consistency can be described as "dry/solid," "soft/semi-solid," or "liquid."

(6) Where the type of "solvent" used can be included to provide further differentiation.

(7) Where the release characteristics can be described as "delayed-release," "time-released," "extended-release," etc.

23.8.6.4 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—CBD-Dominant Cannabis Solid Extract Salve

(2) Example 2—CBD:CBC 5:2 Cannabis (LPG) Soft Extract Balm

(3) Example 3—Intermediate Cannabis Solventless Oleoresin Cream

23.8.7 *Declaration of Responsibility—Topical:*

23.8.7.1 The declaration of responsibility for topical consumer products containing cannabinoids shall be in the form of: "Manufactured By [Name Here], [Permit Number Here], [Address Here], [Telephone Number Here], [Email Address Here]," or similar wording comprised of the required items.

23.8.8 *Declaration of Quantity—Topical:*

23.8.8.1 The declaration of quantity for topical consumer products containing cannabinoids shall be in the form of weight.

(1) Example:

Customary Format	Style Reference
Dual Unit	Net Weight 112 g (4 oz) Net Wt 28.4 g (1 oz) 454 g (1 lb) Net Mass
SI Only	Net Weight 112 g Net Wt 28.4 g 454 g Net Mass

23.8.9 *Declaration of Cannabinoids—Topical:*

23.8.9.1 The cannabinoid content declaration on the principal display panel for topical consumer products containing cannabinoids shall define:

(1) The total cannabinoids per package/container in the form of a weight in milligram measurements; and

(2) For discrete unit topicals: the total number of applications/uses/doses and total cannabinoids per application/use/dose in the form of a count and weight in milligram measurements.

(3) For non-discrete unit topicals: the total cannabinoids per gram in the form of a weight in milligram measurements.

23.8.9.2 *Example 1*—1000 mg per container | 100 – 10 mg applications

23.8.9.3 *Example 2*—1000 mg per package | 10 mg/g

23.8.10 *Declaration of Terpenes—Topical:*

23.8.10.1 All topical consumer products containing cannabinoids shall be labeled with a terpene information label that declares the total terpene content in the form of a weight in milligram measurements per package/container and per gram, if non-discrete, or per application/unit/dose, if discrete unit.

23.8.10.2 Any terpene classifiable as a dermal allergen exceeding 0.0001 % (1 ppm) of the formulation for leave-on products, or more than 0.001 % (10 ppm) of the formulation for rinse-off products, shall be included in the declaration of terpenes.

23.8.11 *Topical Consumer Products Containing Cannabinoids Label Specifications Table:*

Documents
Document Sharing Hub

Full document details: ASTM D8449-23

23.8.11.1 Appendix X7: Summary Table – Topical Consumer Products Containing Cannabinoids shall summarize all the required elements of a label for a package of adult-use and medicinal-use topical consumer product containing cannabinoids.

23.9 *Immature Plants and Seeds:*

23.9.1 Live clones (immature plants) and seeds of a cannabis plant shall be labeled with the following information:

23.9.1.1 Declaration of Identity;

23.9.1.2 Declaration of Responsibility;

23.9.1.3 Declaration of Quantity;

23.9.1.4 Declaration of Hazardous Chemicals Used During Cultivation;

23.9.1.5 Universal Symbol (based on the dominant cannabinoid);

23.9.1.6 Batch Number;

23.9.1.7 Packaging Date; and

23.9.1.8 Modified Warning Statements.

23.9.2 *Declaration of Identity:*

23.9.2.1 The declaration of identity for adult-use immature plants and seeds shall be in the form of:

(1) The common name of the product, for example Immature Plant, Clone, Cutting, Live Cannabis Seeds, etc., along with a description of the type of cannabis plant, and, if applicable, cannabinoid dominance or ratio, or both; or

(2) The strain/varietal name of the cannabis plant along with the common name of the product and a description of the type of cannabis plant, and, if applicable, cannabinoid dominance or ratio, or both.

23.9.2.2 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—Live Cannabis Seeds (Indica, CBD-Dominant)

(2) Example 2—SFV OG (hybrid)—(THC Dominant), Clones

NOTE 58—Strain/varietal lineage information may accompany the declaration of identity.

(3) Example 3—Sour Diesel (sativa)—Cuttings; NYC Diesel × Sour Kush

23.9.2.3 The declaration of identity for medicinal-use immature plants and seeds shall be in terms of:

[{Cannabinoid Dominance} and/or {Ratio}] [{Standardized Common Name (SCN)} or {Other Common Name (OCN)} or {Latin Binomial w/o Authority}] [Botanical Material(s)].

(1) Where the items in brackets, "[ ]," are mandatory and the items in braces, "{ }," are used as appropriate.

23.9.2.4 *Examples*—The references below are only examples and other ways of displaying this information may be used.

(1) Example 1—CBG-Dominant Cannabis Seeds

(2) Example 2—THC:CBD 1:1 Cannabis Immature Plant

(3) Example 3—THC-Dominant Cannabis Clone

23.9.3 *Declaration of Responsibility:*

23.9.3.1 The declaration of responsibility for immature plants and seeds shall be in the form of: "Cultivated By [Name Here], [Permit Number Here], [Address Here], [Telephone Number Here], [Email Address Here]," or similar wording comprised of the required items.

23.9.4 *Declaration of Quantity:*

23.9.4.1 The declaration of quantity for immature plants shall be in the form of a count of the number of plants contained in the package.

(1) Example:

Customary Format	Style Reference
Dual Unit	5 ct 10 live plants 6 cuttings 1 clone
SI Only	5 ct 10 live plants 6 cuttings 1 clone

23.9.4.2 The declaration of quantity for seeds shall be in the form of count and total weight of the contents in the package, unless sold individually, in which case the declaration of quantity for an individual cannabis seed may be in the form of weight only.

Multiunit Example:

Customary Format	Style Reference
Dual Unit	10 ct | Total Net Wt 1 g (.035 oz) 10 seeds, Total Net Weight 1 g (.035 oz) Or 10 ct | 100 mg (.004 oz) ea | Total Net Wt 1 g (.035 oz) 10 seeds 100 mg (.004 oz) each Total Net Weight 1 g (.035 oz)
SI Only	10 ct | Total Net Wt 1 g 10 seeds, Total Net Weight 1 g Or 10 ct | 100 mg ea | Total Net Wt 1 g 10 seeds, 100 mg each, Total Net Weight 1 g

Single Unit Example:

Customary Format	Style Reference
Dual Unit	100 mg (.004 oz) Net Weight Net Wt 100 mg (.004 oz)
SI Only	100 mg Net Weight Net Wt 100 mg

23.9.5 *Declaration of Hazardous Chemicals Used During Cultivation:*

23.9.5.1 Immature plants and seeds shall be labeled with all pesticides, herbicides, growth additives, nutrients, foliar sprays, inoculates, etc. used during cultivation.

23.9.6 *Universal Symbol:*

23.9.6.1 See specifications presented in the Universal Symbol section of this specification.

23.9.7 *Batch Number:*

23.9.7.1 See specifications presented in the Batch Number section of this specification.

23.9.8 *Packaging Date:*

23.9.8.1 Immature plants and seeds shall be labeled with the date the items or item were packaged.

23.9.9 *Modified Warning Statements*

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23

23.9.9.1 Immature plants and seeds do not need to be labeled with any other warning statements then those defined below:

(1) This is a plant, or grows a plant, that might not be legal in all authorities having jurisdiction, do not transport outside of jurisdictional boundaries.

(2) Keep away from children and pets.

(3) Additional warnings as required by the authority having jurisdiction.

24. Keywords

24.1 cannabinoids; cannabis; CBD; certification; content; contents; declaration; font requirements; font size; format; hemp; identity; industrial hemp; letters; marijuana; numbers; nutrition; quantity; responsibility; style; terpenes; text size; THC; type face; weight; volume

APPENDIXES

(Nonmandatory Information)

X1. SUMMARY TABLE AND EXAMPLE LABELS—CANNABIS INFLORESCENCE (FLOWERS)

X1.1 Table X1.1 shall provide a summary of the form specific label specifications for the inflorescence (flowers) of a cannabis plant intended to be sold into an adult-use or medicinal-use consumer marketplace. The requirements outlined in this table are only a summary. For a detailed explanation of the specifications for content, style, format, location, and prominence for the required elements/features, refer to the designated section of this specification.

Documents
Document Sharing Hub
Full document details: ASTM D8449-23

TABLE X1.1 Form Specific Requirements – Cannabis Inflorescence (Flowers)

Req.	Specification	Adult-Use	Medicinal-Use
1	Declaration of Identity – Content	The declaration of identity for adult-use cannabis flower shall be in terms of: The name of the part of the plant from which it came, i.e. Cannabis Flower, along with a description of the type of cannabis plant, and, if applicable, cannabinoid dominance and/or ratio; or The strain/varietal name of the cannabis plant along with a description of the type of cannabis plant, and, if applicable, cannabinoid dominance and/or ratio. Examples: The references below are only examples and other ways of displaying this information may be used. Example 1: Cannabis Flower (Indica, CBD-Dominant) Example 2: SFV OG (hybrid) – [THC-Dominant] Example 3: Sour Diesel (sativa) Sour Diesel (sativa)	The declaration of identity for medicinal-use cannabis flower shall be in terms of: [{Cannabinoid Dominance} and/or {Ratio}] [{Standardized Common Name (SCN)} or {Other Common Name (OCN)} or {Latin Binomial w/o Authority}] [Botanical Material(s)]. Examples: The references below are only examples and other ways of displaying this information may be used. Example 1: CBG-Dominant Cannabis Inflorescence Example 2: THC:CBD 1:1 Cannabis Flower Example 3: THC-Dominant Cannabis Parthenocarpic Infructescence
	Declaration of Identity – Style, Format, Location, and Prominence	The declaration of identity shall appear, at a minimum, on the immediate container and each principal display panel and shall not be misleading or deceptive. The declaration of identity shall appear generally parallel to the base of the display panel in use and shall not exceed an angle of 22°. The declaration of identity shall stand out from other text using prominent bold print or type of a size that is reasonably related to the most prominent printed feature and should be one of the most important features on the label. Discussion—Generally, the declaration of identity should be at least half the size of the largest print on the label. The declaration of identity may appear on one or more lines of print or type.	
2	Declaration of Responsibility – Content	The declaration of responsibility for cannabis flowers shall be in the form of: "Cultivated By [Name Here], [Permit Number Here], [Address Here], [Telephone Number Here], [Email Address Here]," or similar wording comprised of the required items.	
	Declaration of Responsibility – Style, Format, Location, and Prominence	The declaration of responsibility shall appear, at a minimum, on the immediate container and each packaging layer, and may be located on any display panel. The declaration of responsibility may appear on one or more lines of print or type. Elements of the declaration of responsibility that are not required by the authority having jurisdiction where the product is to be distributed and/or sold may be omitted. It is the responsibility of the user of this specification to know which elements of the declaration of responsibility are applicable in the jurisdiction where the product is to be distributed and/or sold and to comply with those requirements.	
3	Declaration of Quantity – Content	The declaration of quantity for cannabis flowers shall be in the form of weight. Discussion—Common retail denominations of cannabis flower include grams, eighths of an ounce, quarters of an ounce, half ounces, and whole ounces.	
	Declaration of Quantity – Style, Format, Location, and Prominence	The declaration of quantity shall appear, at a minimum, on the immediate container and each principal display panel. The declaration of quantity shall appear generally parallel to the base of the display panel in use and shall not exceed an angle of 22°. The declaration of quantity shall appear on the lower 30 % of the display panel in use. Immediate containers meeting small container exemptions are exempt from this requirement. The declaration of quantity shall be of a text size no smaller than the minimum size requirements proportionate to the dimensions of the principal display panel in use but shall be no less than 1.6 mm (1⁄16 in.) in height and no more than three (3) times as high as they are wide. Note—The process for how to determine the minimum text size for the principal display panel in use is provided in Section 8.2 Calculation of Area of Principal Display Panel for Purposes of Type Size of NIST Handbook 130 (latest version), Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality, Section IV, Part A Uniform Packaging and Labeling Regulation. The declaration of quantity may appear on one or more lines of print or type. The declaration of quantity shall appear in the format customary to the country or geographical region in which the product is to be distributed and/or sold. Examples: The references below are only examples and other ways of displaying this information may be used.	
		Customary Format	Style Reference
		Dual Unit	1 g (.035 oz) Net Mass Net Wt 3.5 g (1/8 oz) Net Weight 7 g (1/4 oz) 14 g (1/2 oz) NET WT net wt 28 g (1 oz)
		SI Only	1 g Net Mass Net Wt 3.5 g Net Weight 7 g 14 g NET WT net wt 28 g

Documents
Document Sharing Hub
Full document details: ASTM D8449-23

4	Declaration of Cannabinoids – Content	Adult-use cannabis flowers shall be labeled with a declaration identifying, at a minimum, total cannabinoids, total THC, and total CBD by weight contained within the product.	Medicinal-use cannabis flowers shall be labeled with a declaration identifying all quantifiable cannabinoids above 1 % (10 mg/g) by weight contained within the product.
		Cannabinoid content declarations shall be no less than (NLT) 85 % and no more than (NMT) 115 % of the labeled amount (i.e. ±15 %), or NLT and NMT three times the limit of quantitation (LOQ) of the labeled amount (i.e. ±3 × LOQ), or whichever is least restrictive.	
	Declaration of Cannabinoids – Style, Format, Location, and Prominence	The cannabinoid content declaration for cannabis flowers shall be in the form of a percentage of the net weight, or weight measurement in milligrams per gram [e.g. "10 mg/g"]. The declaration of cannabinoids for cannabis flowers shall be displayed in a box with a border no less than 1.5 mm (.059 in.) thick. The declaration of cannabinoids may appear on one or more lines of print or type. The declaration of cannabinoids for cannabis flowers shall be located, at a minimum, on the immediate container and each layer of product packaging.	
5	Declaration of Terpenes – Content	Optional – Follow Medicinal-Use Cannabis Flowers Rules	Medicinal-use cannabis flowers shall be labeled with a declaration of terpenes clearly defining the net quantity of terpenes contained within the package. Medicinal-use cannabis flowers shall be labeled with a declaration identifying, at a minimum, the total terpenes. For further clarity, the top five terpenes in descending order should be included with the declaration of terpenes but shall not need to be quantified.
		Terpene content declarations shall be no less than (NLT) 85% and no more than (NMT) 115 % of the labeled amount (i.e. ±15 %), or NLT and NMT three times the limit of quantitation (LOQ) of the labeled amount (i.e. ±3 × LOQ), or whichever is least restrictive.	
	Declaration of Terpenes – Style, Format, Location, and Prominence	The declaration of terpenes for medicinal-use cannabis flowers shall be in the form of a weight measurement in milligrams per gram [e.g. "1 mg/g"]. The declaration of terpenes for cannabis flowers shall be displayed in a box with a border no less than 1.5 mm (.059 in.) thick. The declaration of terpenes for cannabis flowers shall be located, at a minimum, on the immediate container and each layer of product packaging. The declaration of terpenes may appear on one or more lines of print or type. The declaration of terpenes for adult-use cannabis flowers may be in the form of a percentage of the net weight, or weight measurement in milligrams per gram.	
6	Universal Symbol – Content	Adult-use and medicinal-use cannabis flowers shall be labeled with a universal symbol.	
	Universal Symbol – Style, Format, Location, and Prominence	The universal symbol shall have dimensions no less than 12.7 mm by 12.7 mm (½ in. by ½ in.) and be prominently displayed on the immediate container and each principal display panel. Universal symbol specifications shall be defined by the authority having jurisdiction.	
7	Batch Number – Content	Adult-use and medicinal-use cannabis flowers shall be labeled with a batch number that corresponds to the entire life cycle of the product from start to finish, i.e. from seed to sale. Only one (1) batch number associated with the product shall appear on the package. Discussion—This is to avoid confusion, increase accountability, and eliminate multiple batch numbers from being associated with the same finished product.	
	Batch Number – Style, Format, Location, and Prominence	The batch number associated with the packaged good shall be in the form of: The alphanumerical code generated by the electronic tracking system employed by the authority having jurisdiction; A scannable, 2-D or 3-D barcode/QR-code programmed with the corresponding product's batch number and integrated with the electronic tracking system employed by the authority having jurisdiction; or Preferably, both. The batch number shall be displayed on the immediate container and each layer of product packaging.	
8	Beyond Use/Best Before/Use By/Durable Life Dates and Expiration Dates – Content	Beyond Use Date A "Beyond Use Date" shall be used ONLY when cannabis flowers have been taken out of their original packaging or manipulated. Appropriate "Beyond Use Date" declarations shall be made using an internationally recognized pharmacopoeia guideline, such as the US Pharmacopeia. Best Before Date A "Best Before Date" shall be used when cannabis flowers can reasonably be assured to have a shelf-life more than ninety (90) days. Use By Date or Durable Life Date A "Use By Date" or "Durable Life Date" shall be used when cannabis flowers have a shelf-life of ninety (90) days or less. Expiration Date An "Expiration Date" shall be used ONLY when cannabis flowers have analytical data verifying the manufacturer's shelf-life determination. Cannabis flowers without analytical data verifying the shelf-life shall not be labeled or marketed in such a way as to reasonably lead an individual to believe that the product has a defined expiration date. Packaging Date Cannabis flowers without a defined "Beyond Use Date," "Best Before Date," "Use By Date," "Durable Life Date," or "Expiration Date" shall be labeled with the "Packaging Date" and a statement informing the consumer that no shelf-life determination has been performed. Example: The statement: "The shelf life of this product has not been determined.", may suffice.	
	Beyond Use/Best Before/Use By/Durable Life Dates and Expiration Dates – Style, Format, Location, and Prominence	A "Beyond Use Date," "Best Before Date," "Use By Date," "Durable Life Date," "Expiration Date," or "Packaging Date" shall be prominently displayed on the package and shall be in the format customary to the country or geographical region in which the product is to be sold. A "Beyond Use Date," "Best Before Date," "Use By Date," "Durable Life Date," "Expiration Date," or "Packaging Date" shall be located, at a minimum, on the immediate container and each packaging layer.	

AVA Documents
Document Sharing Hub

Full document details: ASTM D8449-23