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Standard Guide for Sampling of Hempseed Intended for Human Consumption¹

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INTRODUCTION

Sampling of bulk hempseed may be undertaken routinely for quality or food safety control, buyer specification, or to validate export or import standards for government regulatory bodies. Samples are required for routine testing to identify physical attributes, moisture level, rancidity, microbial load, potential disease, or variety verification. Testing may be a mandatory prerequisite for international trade or for purposes as determined by international seed certification agencies to identify purity and other traits. This guide describes procedures for field conditions to enable consistent, objective, and repeatable sampling results for business-to-business transactions.

1. Scope

1.1 This guide covers recommended steps used in collection of a representative field sample of bulk hempseed intended for human consumption.

1.2 This guide applies to plant breeders, hempseed producers/farmers, seed cleaners, storage facilities, laboratories, and processors who handle bulk hempseed.

1.3 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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.*

1.5 *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*:²

D8270 Terminology Relating to Cannabis

¹ This guide is under the jurisdiction of ASTM Committee D37 on Cannabis and is the direct responsibility of Subcommittee D37.07 on Industrial Hemp.

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² 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.

2.2 *Canadian Grain Commission Documents*:³
Official Grain Grading Guide

2.3 *Canadian Herb, Spice, Specialty Agriculture and Natural Health Products Coalition*:⁴

Good Agricultural and Collection Practices (GACP)

2.4 *Canadian Seed Institute Document*:⁵

Technical Manual on Sampling Appendix 3–1, 2021

3. Terminology

3.1 *Definitions*—For definitions for terms related to cannabis, refer to Terminology **D8270**.

3.2 *Definitions of Terms Specific to This Standard*:

3.2.1 *composite sample, n*—a sample formed by combining and mixing all primary sub-samples taken from the lot.

3.2.2 *hemp, n*—a *Cannabis sativa* L. plant, or any part of that plant, in which the concentration of total delta-9 tetrahydrocannabinol (THC) in the flowering tops is equal to or less than the regulated maximum level as established by authorities having jurisdiction (AHJ).

3.2.2.1 *Discussion*—The term hemp is synonymous with industrial hemp.

3.2.3 *hempseed, n*—intact achene (fruit) produced from a hemp plant that is capable of normal germination.

3.2.3.1 *Discussion*—Primarily used for sowing to grow a plant or for further processing, this is sometimes known as hemp grain or hemp seed.

³ Available from Canadian Grain Commission, <https://www.grainscanada.gc.ca>.

⁴ Available from Canadian Herb, Spice, Specialty Agriculture and Natural Health Products Coalition, <https://www.chsnc.ca/g-a-c-p-s>.

⁵ Available from Canadian Seed Institute, <https://csi-ics.com/canadian-seed-institute>.

3.2.4 *primary sample, n*—a sub-sample taken from a lot of grain during one single sampling action.

3.2.5 *representative field sample, n*—a subset of product that seeks to reflect accurately as much as possible the larger lot or batch taken under field conditions, according to characteristics or attribute(s) that are to be assessed.

3.2.5.1 *Discussion*—This facilitates objective and repeatable testing or assessment or both of qualitative attribute(s).

3.2.6 *static sample, n*—a sample(s) taken from product in storage and not moving or flowing from an auger or conveyor.

3.2.7 *stream sample, n*—a sample(s) taken during active transfer of the bulk product, for example, from the flow of hempseed off the end of an auger or conveyor at the time of transfer into or out of farm equipment/storage or a processor bin.

4. Significance and Use

4.1 Use of consistent procedures results in samples that reflect the quality or safety or both of the batch or lot from which samples were taken.

4.2 Sampling for periodic testing is an important component for maintaining the requisite quality and safety aspect(s), particularly for buyers of raw product or other circumstances in which a further pathogen reduction step is not possible. It may also facilitate identification of product to be assigned to other appropriate usage, storage, or transport options.

4.3 Consistent test results can enhance confidence of the buyer and credibility of the seller and allow for consistent product sourcing based on category of attribute or product specification.

5. Material

5.1 Clean and sanitized sampling container (for example, 1 L stainless steel bucket).

5.2 Plastic tote bin with poly liner, 10 L.

5.3 Sterile sample bags/containers and gloves.

5.4 Clean and sanitized scoop or sterile scoop for manual streaming sample, probe (sleeve trier) for manual static sampling, or pneumatic probe for static samples in very large storage bins.

5.5 Cleaner and sanitizer or alcohol swabs.

6. Sampling

6.1 A prerequisite for consistent results includes use of noncontaminated collection tools, storage containers, clean clothing/impervious gloves, and shipping materials. Hands should be clean and as free from physical contaminants as is possible given sample conditions. Do not sample with leather gloves or bare hands unless hand sanitizer is used before sampling.

6.2 Storage and transportation conditions of samples should be as close as possible to the same temperature and humidity levels of the crop represented. Use of airtight containers not easily adulterated by rodents, insects, chemicals, fecal material from birds, and other physical contaminants is important.

6.3 Care is taken to not introduce contamination of tools and containers when cleaning equipment and transporting sampled material.

6.4 Sample containers shall be identified in a manner that describes:

6.4.1 Location or storage bin where sample taken,

6.4.2 Date.

6.4.3 Weight or volume of sample,

6.4.4 Owner, and

6.4.5 Other information pertinent to the organization requesting the sample or test(s).

7. Procedure

7.1 Wash hands ahead of time, use disposable gloves, and ensure that clean sampling equipment is used.

7.2 Take a representative number of samples based on the volume of material and the total number of lots to be sampled. Obtaining a representative field sample is contingent on the uniformity of the seed lot, sampling intensity, sampling technique, equipment used, and maintaining sample integrity.

7.2.1 Determine the sampling frequency, minimum number of primary samples to be collected, and the composite sample size that will meet the needs of the testing body or customer. Collect the samples in a consistent and unbiased manner as possible.

7.2.2 Mix primary samples together thoroughly into a composite sample and then take three samples for submission to the testing agency.

7.2.3 A minimum of 1000 g sample is recommended for submission to a laboratory.

7.3 Static samples can be taken from transportation bags or bulk tote bags using a recognized collection tool(s) as per field conditions where the sampling will take place. If sampling conditions allow, the sample intensity in Table 1 is recommended for static lots/batches.

7.3.1 If sampling intensity in Table 1 is not feasible, for lots of ten bags or less, sample all bags. In larger lots, sample a

TABLE 1 Static Sampling Intensity for Hempseed Intended for Human Consumption

NOTE 1—Source: Official Grain Grading Guide.

NOTE 2—Sampling device with rigid handle has a collection scoop with a typical capacity of 50 to 200 g.

Item	Number of Units per Lot/Batch ^A	Minimum Number of Primary Samples
Bags ^B	1–20	All bags shall be sampled. Minimum of two primary samples per bag.
	21–1000	6 % of all bags shall be sampled but not less than 20 samples randomly selected throughout.
	>1000	3 % of all bags shall be sampled but not less than 60 samples randomly selected throughout.
Bulk Totes ^C	1–300	All totes shall be sampled. Minimum of two primary samples per tote.

^A Number of samples required per bag or tote is only accurate up to a maximum lot/batch size of 10 container loads (intermodal container used in freight transport) or 5000 bags per composite sample.

^B Bags are defined as weighing 100 kg or less.

^C Bulk totes weigh 100 kg or more.