



Designation: D8400 – 21

## Standard Guide for Assessing Spoilage of Hemp Seed Intended for Human Consumption<sup>1</sup>

This standard is issued under the fixed designation D8400; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### INTRODUCTION

Hemp seed contains significant amounts of oil and omega fatty acids, and as a result is susceptible to spoilage and rancidity. High-rancidity levels create an unpalatable taste and odor and can result in unsaleable product. Once initiated, these conditions can quickly spread throughout a seed lot/batch and may render a load or stored lot unfit for human consumption. Other methods of testing include analysis of peroxide value and free fatty acid content, but the time needed for these results can hinder product movement and lead to more spoilage. A timely and visual method to assess spoilage is described to assist decision-making, product use, business transactions, and improved process flow.

### 1. Scope

1.1 This guide covers the recommended steps for a visual assessment of spoilage in hemp seed intended for human consumption. Additional recognized laboratory tests can be completed as necessary to augment this guide.

1.2 This guide applies to plant breeders, hemp seed producers, storage facilities, laboratories, and processors. This guide does not apply to hemp seed intended for planting.

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. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 *dehulled hemp seed, n*—internal seed material of the hemp seed.

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2.1.1.1 *Discussion*—The terms heart, nut, and hulled hemp seed are synonymous with dehulled hemp seed.

2.1.2 *free fatty acids, FFA, n*—amount of fatty acid in the sample that reacts with a chromogenous compound and decreases its color.

2.1.2.1 *Discussion*—The decreasing color is proportional to the acid concentration of the sample expressed as percent of oleic acid.

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

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

2.1.4 *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.

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

2.1.5 *organoleptic test, n*—a subjective assessment of flavor, odor, appearance, and texture of a food product using a trained panel of experienced persons.

2.1.5.1 *Discussion*—The exact method can vary depending on the product.

2.1.6 *peroxide value, PV, n*—a test capable of determining the milliequivalents of peroxide oxygen combined in a kilogram of oil, measuring the amount of peroxide oxygen in 1 kg of fat or oil.

2.1.7 *visual spoilage test, n*—the process of spreading whole hemp seed on a precise 100-count test surface, crushing the