



Designation: D7076 – 10 (Reapproved 2021)^{ε1}

Standard Test Method for Measurement of Shives in Retted Flax¹

This standard is issued under the fixed designation D7076; 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.

^{ε1} NOTE—Research report information was added to Section 14 editorially in August 2021.

1. Scope

1.1 This test method covers the measurement of shives in retted flax.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *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.*

1.4 *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

D123 Terminology Relating to Textiles

D6798 Terminology Relating to Flax and Linen

3. Summary of Test Method

3.1 The sample to be evaluated is to be ground and the resulting mixture placed in the appropriate NIR cell and the spectra taken.

3.2 The data will then be compared to a reference file and the value of shive reported as weight percent.

4. Terminology

4.1 For all terminology related to Flax, see Terminology **D6798**.

¹ This test method is under the jurisdiction of ASTM Committee **D13** on Textiles and is the direct responsibility of Subcommittee **D13.17** on Bast Fibers and Plants. Current edition approved July 1, 2021. Published August 2021. Originally approved in 2005. Last previous edition approved in 2015 as D7076–10 (2015)^{ε1}. DOI: 10.1520/D7076-10R21E01.

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.

4.2 For definitions of all other textile terminology, see Terminology **D123**.

5. Significance and Use

5.1 Few standards exist to objectively determine flax quality. Shive is the woody core of the stem and has an important effect on quality determination. Shive content will vary depending on the stage of processing and can determine in what products the fiber can be used. Spectroscopic data provide an accurate, precise and rapid determination of the amount of shive in flax fiber.

5.1.1 If there are differences of practical significance between reported test results for two or more laboratories, comparative tests should be performed by those laboratories to determine if there is a statistical bias between them, using competent statistical assistance. As a minimum, test samples that are as homogeneous as possible are drawn from the material from which the disputed test results were obtained, and are randomly assigned in equal numbers to each laboratory. These results from the two laboratories should be compared using a statistical test for unpaired data, a possibility level chosen prior to the testing series. If a bias is found, either its cause must be found and corrected, or future test results for that fiber sample type must be adjusted in consideration of the known bias.

5.2 This test method gives data on shive content of retted flax fiber which can be used as a basis for: (1) estimating the net amount of manufacturing fiber obtainable from retted flax fiber; (2) along with other measurements, predicting the quality of flax products, particularly their aesthetic properties; (3) adjusting processing machinery for maximum efficiency in cleaning; and (4) relating shive content to end-product quality and processing efficiency.

6. Apparatus

6.1 *Grinder*—SPEX 8000 mixer mill or equivalent instrument for the initial grinding.

6.2 *NIRSystems Model 6500 Monochrometer* or equivalent instrument—Reference spectra scanned over the range 400 nm to 2498 nm at 2 nm intervals and stored as log (1/R), where R is reflectance. Standard 50 mm diameter black minicup with a