



Designation: D7772 – 11

Standard Test Method for Carbon Black Extractables – Absorbance of Cyclohexane Extract¹

This standard is issued under the fixed designation D7772; 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 method covers the determination of extinction (absorbance) of carbon black cyclohexane extract at 386 nm using a UV spectrophotometer.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Summary of Test Method

2.1 A carbon black sample is gently agitated in cyclohexane at room temperature to remove any extractable material. The mixture is left standing in the dark for 24 h at room temperature. The carbon black is separated from the cyclohexane by filtration, with subsequent determination of the extinction of the filtrate at 386 nm using a 50-mm cuvette.

3. Significance and Use

3.1 This procedure serves as a screening process for carbon blacks used in the manufacturing of products that are to come into contact with food. The cyclohexane extract absorbance at 386 nm must be less than 0.10 for a 50 mm cuvette in order to fulfill various regulatory requirements.

4. Apparatus

4.1 *Spectrophotometer*, 20 nm maximum spectral bandpass, capable of measuring absorbance at 386 nm.

4.2 *Cuvettes*, with an optical light path of 50 mm.

4.3 *Balance*, analytical, sensitivity 0.01 g.

4.4 *Filter Paper*, with a particle retention in liquid less than 2 μm .

4.5 *Glass Filtering Funnels*, 75 mm diameter at top.

4.6 *Volumetric Flask*, 100 cm^3 .

4.7 *Lens Cleaning Tissue*, lint free.

4.8 *Timer*, with 1 s divisions.

4.9 *Oven*, gravity-convection type, capable of temperature regulation of $125 \pm 5^\circ\text{C}$.

4.10 *Desiccator*.

4.11 As a good laboratory practice, it could be suggested the use of a Neutral Density Filter with a spectral absorbance calibrated at 386 nm to ensure the spectrophotometer is correctly calibrated.

5. Reagents and Materials

5.1 *Cyclohexane*, analytical reagent grade.

6. Hazards

6.1 This test involves hazardous materials, operations and equipment. This procedure does not attempt to address the safety problems associated with this test. A hazards review must be conducted by all personnel performing the test. It is the responsibility of the user to review all MSDS, manuals and hazards procedures and establish the appropriate safety measures.

7. Calibration, Standardization, and Environmental Conditions

7.1 *Standard Laboratory Test Conditions*:

7.1.1 Unless stated elsewhere, all testing, calibration and standardization should be carried out in the ambient temperature range of $23 \pm 3^\circ\text{C}$.

7.1.2 The date of calibration or testing should also be recorded with any relevant data.

7.1.3 All calibration data should be recorded on a dedicated file.

7.2 *Instrument Set-Up Frequency – Day of Test*:

7.2.1 Turn on the spectrophotometer and allow it to warm up for 30 min.

7.2.2 Set the wavelength to 386 nm and zero the instrument.

7.2.3 Place the Neutral Density Filter inside the sample compartment of the instrument and verify the absorbance value

¹ This test method is under the jurisdiction of ASTM Committee D24 on Carbon Black and is the direct responsibility of Subcommittee D24.66 on Environment, Health, and Safety.

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