



Standard Practices for Uniformity of Traffic Paint Vehicle Solids by Spectroscopy and Gas Chromatography¹

This standard is issued under the fixed designation D 2743; 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 These practices provide general information on the instrumental techniques available for detecting adulteration or nonuniformity of the chemical nature of the vehicle solids in purchased lots of traffic paints by means of the individual or combined use of infrared and ultraviolet spectroscopy and gas chromatography. The procedures given are applicable when traffic paint is selected and purchased on the basis of prequalification laboratory or road performance tests, or both, and a *reference sample* of the original paint so evaluated and selected is retained and compared with test samples representative of subsequent purchased and delivered lots of such paint and which are required to be the same as the original reference sample.

1.2 Although not specifically provided for in these practices, the methods given may also be applied, with appropriate modification, to evaluating the acceptability of traffic paints that have been purchased on the basis of composition specifications. In such cases, application is limited to the vehicle solids as before, as well as the availability of a suitable standard or range of standards representative of the vehicle solids that are acceptable and with which samples of subsequent delivered lots will be compared.

1.3 The techniques provided are wholly adequate for detecting gross adulteration of the vehicle solids where completely different drying oils, resins, or polymers, or combinations of these have been substituted for those originally contained in the reference sample. In cases of lesser adulteration or modification, these methods have been found adequate for detecting vehicle solids, adulterations, or modifications as low as 5 weight % of the vehicle solids.

1.4 These techniques have been developed on the basis of cooperative work with alkyd, chlorinated rubber-alkyd, and poly(vinyl toluene) type paints involving the detection of nonuniformity when such extraneous materials as rosin, fish oil, hydrocarbon resin, and chlorinated paraffin have been added. The procedures given may be, but are not necessarily completely applicable to all other types of vehicle solids or extraneous additions, or both.

1.5 The methods provided appear in the following order:

	Section
Method A—Infrared Spectral Analysis of Total Vehicle Solids	10-12
Method B—Infrared Spectral Analysis of Unsaponifiable Matter from Vehicle Solids	13-15
Method C—Gas Chromatographic Analysis of Oils and Oil Acids Separated from Vehicle Solids	16-18
Method D—Ultraviolet Spectral Analysis of Total Vehicle Solids	19,20, and 21

1.6 *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. Referenced Documents

2.1 ASTM Standards:

- D 1259 Test Methods for Nonvolatile Content of Resin Solutions²
- D 1397 Test Method for Unsaponifiable Matter in Alkyd Resins and Resin Solutions³
- D 2245 Test Method for Identification of Oils and Oil Acids in Solvent-Reducible Paints²
- D 2372 Practice for Separation of Vehicle from Solvent-Reducible Paints²
- D 2621 Test Method for Infrared Identification of Vehicle Solids from Solvent-Reducible Paints²
- E 105 Practice for Probability Sampling of Materials⁴
- E 131 Terminology Relating to Molecular Spectroscopy⁵

3. Terminology

3.1 For definitions of terms and symbols, refer to Terminology E 131.

4. Summary of Methods

4.1 Each of the methods given requires both a reference and a test sample of traffic paint and a preliminary separation and removal of the pigment component in each.

4.2 *Method A* involves infrared spectral analysis of cast films of the total vehicle solids to detect spectral differences between the reference and test samples caused by gross or

¹ These practices are under jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and are the direct responsibility of Subcommittee D01.44 on Traffic Coatings.

Current edition approved Aug. 15, 1968. Published October 1968.

² *Annual Book of ASTM Standards*, Vol 06.01.

³ *Annual Book of ASTM Standards*, Vol 06.03.

⁴ *Annual Book of ASTM Standards*, Vol 14.02.

⁵ *Annual Book of ASTM Standards*, Vol 03.06.