AASHTO

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August 2024 ERRATA for *Standard Specifications for Transportation Materials and Methods of Sampling and Testing and Provisional Standards,* 43rd Edition (HM-43)

August 2024

Dear Customer:

AASHTO has issued an erratum, which includes two revisions to the list of technical changes, one to T 283, and one to the header of TP 128, for the *Standard Specifications for Transportation Materials and Methods of Sampling and Testing and AASHTO Provisional Standards,* 43rd Edition (HM-43). The corrections are detailed in the table below.

The changes are displayed in **bold** on the page within the text. In addition, the pages with the changes have a gray box in the page header reading as follows:

August 2024 Errata

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https://downloads.transportation.org/HM-43-Errata.pdf

AASHTO staff sincerely apologizes for any inconvenience.

Original Page	Section	Existing Text	Corrected Text
Part 3 xvi	List of Technical Changes	TP 120, Balloted Changes column, reads "Extended for one year for 2023 publication; Year 7 of 8 in Provisional life cycle."	TP 120, Balloted Changes column, should read "Extended for one year for 2023 publication; Year 8 of 8 in Provisional life cycle."
		TP 125, Balloted Changes column, reads "Extended for one year for 2023 publication; Year 7 of 8 in Provisional life cycle."	TP 125, Balloted Changes column, reads "Extended for one year for 2023 publication; Year 8 of 8 in Provisional life cycle."
		TP 128, Balloted Changes column, reads "2023 publication; Year 8 of 8 in Provisional life cycle."	TP 128, Balloted Changes column, should read "Extended for one year for 2023 publication; Year 8 of 8 in Provisional life cycle."
T 283-9	T 283	In Section 12.1, tensile strength Equations 5 and 6 are missing "π" in the denominator.	Equations should read as follows: $S_t = \frac{2000P}{\pi tD}$ *(5)* $S_t = \frac{2P}{\pi tD}$ *(6)*
TP 128-1	TP 128	The designation key (line below the AASHTO designation number) reads "Technically Revised: 2023"	The designation key should read "Technically Revised: 2022 Reviewed But Not Updated: 2023 Editorially Revised: 2022"

LIST OF TECHNICAL CHANGES—PART 3

The balloted technical changes listed below are also indicated in the specifications by a change bar in the left margin. Unballoted editorial changes do not receive the change bar; however, the subheader line below the designation number will indicate if the standard has been editorially revised.

Release: July 2023

Designation Number	Title	TS	Balloted Changes
MP 26-15 (2022)	Cotton Duck Fabric Bridge Bearings	4e	Adopted MP 26 as a full standard specification, M 351.
MP 31-22	Materials Used in Cold Recycled Mixtures with Emulsified Asphalt	2a	Adopted MP 31 as a full standard specification, M 352, without revisions.
MP 39-22 (2023)	File Format of Intelligent Compaction Data	5c	Reconfirmed for two years for 2023 publication; Year 5 of 8 in Provisional life cycle.
MP 40-19 (2023)	Steel-Reinforced Polyethylene (SRPE) Corrugated Pipe 1650- to 3000-mm (66- to 120-in.) Diameter	4b	Reconfirmed for two years for 2023 publication; Year 5 of 8 in Provisional life cycle.
MP 47-22 (2023)	File Format of Two-Dimensional and Three-Dimensional (2D/3D) Pavement Image Data	5a	Reconfirmed for two years for 2023 publication; Year 3 of 8 in Provisional life cycle.
MP 48-23	Equipment for Measuring Macrotexture of Pavements at Highway Speeds	5a	One of three new provisional standards addressing the measurement of pavement macrotexture at highway speeds.
PP 85-18 (2021)	Grading or Verifying the Sealant Grade (SG) of a Hot-Poured Asphalt Crack Sealant	4e	Adopted PP 85 as a full standard practice, R 116, without revisions.
PP 86-20 (2021)	Emulsified Asphalt Content of Cold Recycled Mixture Designs	2a	Adopted PP 86 as a full standard practice, R 117, with editorial revisions.
PP 97-19 (2023)	Determination of Constant Mass	5c	Reconfirmed for two years for 2023 publication; Year 5 of 8 in Provisional life cycle.
PP 98-20 (2023)	Asphalt Surface Dielectric Profiling System Using Ground Penetrating Radar	5c	Reconfirmed for two years for 2023 publication; Year 5 of 8 in Provisional life cycle.
PP 99-23	Preparation of Small Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC) or Field Cores	2d	Revised extensively.
PP 106-23	Assessment of Static Performance in Transverse Pavement Profiling Systems	5a	Minor revisions. One of five standards, all first published in 2021, addressing the assessments of different functions for transverse pavement profilers (TPP).
PP 107-23	Assessment of Body Motion Cancellation in Transverse Pavement Profiling Systems	5a	Minor revisions. One of five standards, all first published in 2021, addressing the assessments of different functions for transverse pavement profilers (TPP).
PP 108-23	Assessment of Navigation Drift Mitigation in Transverse Pavement Profiling Systems	5a	Minor revisions. One of five standards, all first published in 2021, addressing the assessments of different functions for transverse pavement profilers (TPP).
PP 109-23	Assessment of Highway Performance in Transverse Pavement Profiling Systems	5a	Minor revisions. One of five standards, all first published in 2021, addressing the assessments of different functions for transverse pavement profilers (TPP).
PP 110-23	Assessment of Ground Reference Data for Transverse Pavement Profiling System Assessment	5a	Minor revisions. One of five standards, all first published in 2021, addressing the assessments of different functions for transverse pavement profilers (TPP).
PP 111-23	Definition of Terms Related to Transverse Pavement Profiling Systems and Ground Reference Equipment	5a	Revised some definitions based on lessons learned from field work.
PP 112-21 (2023)	Recognizing Surrogate Test Methods	5c	Reconfirmed for two years for 2023 publication; Year 3 of 8 in Provisional life cycle.

Designation Number	Title	TS	Balloted Changes
PP 113-21	Characterizing the Relaxation Behavior of Asphalt Binders Using the Delta *Tc* (Δ*Tc*) Parameter	2b	Adopted PP 113 as a full standard practice, R 118, without revisions.
PP 115-23	Certification of High-Speed Macrotexture Measurement Equipment	5a	One of three new provisional standards addressing the measurement of pavement macrotexture at highway speeds.
PP 116-23	Operating Equipment for Measuring Macrotexture at Highway Speeds	5a	One of three new provisional standards addressing the measurement of pavement macrotexture at highway speeds.
PP 117-23	Durable Green Bike Lane Surface Treatments for Asphalt and Concrete Pavements	4c	New provisional practice.
TP 113-22	Determination of Asphalt Binder Resistance to Ductile Failure Using Double-Edge-Notched Tension (DENT) Test	2b	Adopted TP 113 as a full standard test, T 405, without revisions.
TP 114-18 (2022)	Determining the Interlayer Shear Strength (ISS) of Asphalt Pavement Layers	2c	Adopted TP 114 as a full standard test, T 407, without revisions.
TP 115-16 (2022)	Determining the Quality of Tack Coat Adhesion to the Surface of an Asphalt Pavement in the Field or Laboratory	2c	Adopted TP 115 as a full standard test, T 408, without revisions.
TP 116-22	Rutting and Fatigue Resistance of Asphalt Mixtures Using Incremental Repeated Load Permanent Deformation (iRLPD)	2d	Adopted TP 116 as a full standard test, T 410, without revisions.
TP 117-22	Determination of the Voids of Dry Compacted Filler	2c	Adopted TP 117 as a full standard test, T 409, without revisions.
TP 119-22	Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test	3c	Adopted TP 119 as a full standard test, T 402.
TP 120-22 (2023)	Pore Index for Carbonate Coarse Aggregate	1c	Extended for one year for 2023 publication; Year 8 of 8 in Provisional life cycle.
TP 122-22	Determination of Performance Grade of Physically Aged Asphalt Binder Using Extended Bending Beam Rheometer (BBR) Method	2b	Adopted TP 122 as a full standard test, T 406, without revisions.
TP 125-22 (2023)	Determining the Flexural Creep Stiffness of Asphalt Mixtures Using the Bending Beam Rheometer (BBR)	2d	Extended for one year for 2023 publication; Year 8 of 8 in Provisional life cycle.
TP 126-22	Evaluation of the Tracking Resistance of Hot-Poured Asphalt Crack Sealant by Dynamic Shear Rheometer (DSR)	4e	Adopted TP 126 as a full standard test, T 404, without revisions.
TP 128-22 (2023)	Evaluation of Oxidation Level of Asphalt Mixtures by a Portable Infrared Spectrometer	2c	**Extended for one year for** 2023 publication; Year 8 of 8 in Provisional life cycle.
TP 129-21 (2022)	Vibrating Kelly Ball (VKelly) Penetration in Fresh Portland Cement Concrete	3c	Adopted TP 129 as a full standard test, T 403.
TP 132-23	Determining the Dynamic Modulus for Asphalt Mixtures Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT)	2d	Revised significantly as follows: Updated Section 6.5. Added new Sections 9.4.9–9.4.11, including new Note 2 and Table 1. Updated section 9.5.2, including adding new Note 4. Updated Section 9.6.
TP 133-22	Determining the Damage Characteristic Curve and Failure Criterion Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT) Cyclic Fatigue Test	2d	Adopted TP 133 as a full standard test, T 411, with the following revisions: [pull from handoff form, ballot item 33; query if not provided]
TP 134-22 (2023)	Stress Sweep Rutting (SSR) Test Using Asphalt Mixture Performance Tester (AMPT)	2d	Reconfirmed for two years for 2023 publication; Year 5 of 8 in Provisional life cycle.

12. CALCULATIONS

12.1. *Calculate the tensile strength as follows*:

SI units:

$$S_t = \frac{2000P}{\pi t D} \qquad \textbf{(5)}$$

where:

S_t = tensile strength, kPa;
P = maximum load, N;
t = specimen thickness, mm; and
D = specimen diameter, mm.

U.S. Customary units:

$$S_t = \frac{2P}{\pi t D} \qquad \textbf{(6)}$$

where:

S_t = tensile strength, psi;
P = maximum load, lbf;
t = specimen thickness, in.; and
D = specimen diameter, in.

12.2. Express the numerical index of resistance of asphalt mixtures to the detrimental effect of water as the ratio of the original strength that is retained after the moisture and freeze–thaw conditioning. Calculate the tensile strength ratio to two decimal places as follows:

$$\text{tensile strength ratio (TSR)} = \frac{S_2}{S_1} \qquad (7)$$

where:

S_1 = average tensile strength of the dry subset, kPa (psi); and
S_2 = average tensile strength of the conditioned subset, kPa (psi).

13. REPORT

13.1. *Report the following information*:

13.1.1. Number of specimens in each subset;

13.1.2. Average air voids of each subset;

13.1.3. Tensile strength of each specimen in each subset;

13.1.4. Tensile strength ratio;

13.1.5. Results of visually estimated moisture damage observed when the specimen fractures; and

13.1.6. Results of observations of cracked or broken aggregate.

14. KEYWORDS

14.1. Accelerated water conditioning; diametral tensile strength; freeze–thaw cycle; liquid antistripping additives; long-term stripping; portland cement; pulverulent solids; water saturation.

15. REFERENCE

15.1. ASTM. D979/D979M, Standard Practice for Sampling Asphalt Mixtures.

Standard Method of Test for

Evaluation of Oxidation Level of Asphalt Mixtures by a Portable Infrared Spectrometer

AASHTO Designation: TP 128-22 (2023)[1]

Technically Revised: 2022 **Reviewed but Not Updated: 2023** **Editorially Revised: 2022**

Technical Subcommittee: 2c, Asphalt–Aggregate Mixtures

1. SCOPE

1.1. This method covers the measurement of the oxidation signal in an asphalt mixture by a portable infrared spectrometer (PIRS) equipped with a diffuse reflectance accessory. Three oxidation signals are compared: (1) the in-place pavement, (2) asphalt mixture production sample, and (3) the approved job mixture formula specimen. The oxidation signals are determined from a specified peak value from the absorbance spectrum of the asphalt samples.

1.2. The in-place pavement PIRS oxidation signal can be used to assess its aging rate. The pavement aging rate is determined by comparing its initial PIRS oxidation signal with successive PIRS oxidation signals obtained at some defined frequency.

1.3. *This standard does not purport to address all the safety concerns 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*. See Section 12 for more details.

1.4. *The quality of the results produced by this standard are dependent on the competence of the personnel performing the procedure and the capability, calibration, and maintenance of the equipment used. Agencies that meet the criteria of R 18 are generally considered capable of competent and objective testing/sampling/inspection/etc. Users of this standard are cautioned that compliance with R 18 alone does not completely assure reliable results. Reliable results depend on many factors; following the suggestions of R 18 or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.*

2. REFERENCED DOCUMENT

2.1. *AASHTO Standards*:

- R 18, Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
- R 97, Sampling Asphalt Mixtures

3. TERMINOLOGY

3.1. *Definitions*:

3.1.1. *asphalt oxidative aging rate*—the change of asphalt chemical properties with time where chemical properties are related to the concentration of oxidized functional groups.

3.1.2. *diffuse reflectance Fourier transform infrared spectroscopy (DRIFTS)*—an infrared technique used on rough surfaces where the infrared light is reflected and transmitted at different amounts depending on the bulk properties of the material.

3.1.3. *Fourier transform infrared (FTIR) spectrometer*—the most common type of spectrometer used to obtain infrared spectra.

3.1.4. *infrared spectroscopy*—the study of the interaction of infrared light with matter.

3.1.5. *infrared spectrum*—a plot of the measured infrared intensity versus wavelength.

3.1.6. *oxidation signal*—*OxS*, the calculated value of the infrared absorbance at two specific wavenumbers.

4. SIGNIFICANCE AND USE

4.1. The test method described is useful as a rapid, nondestructive technique to monitor and detect differences in the oxidation signal of the preproduction laboratory asphalt mixture, its production at the plant, and the newly placed pavement.

4.2. The oxidation values obtained from an asphalt pavement by this test method can be used to determine its aging rate by measuring the pavement oxidation values every six months or at another suitable frequency. Over time, the oxidation values will increase and a pavement aging rate can be obtained.

4.3. The test method is useful to measure the oxidation values for monitoring the consistency of asphalt mixtures containing reclaimed asphalt pavement (RAP), recycled asphalt shingles (RAS), or a combination of RAP and RAS.

5. APPARATUS

5.1. *Portable Fourier Transform Infrared (FTIR) Spectrometer Equipped with a Diffuse Reflection Accessory*:

5.1.1. The spectrometer should be equipped with a portable battery to ensure a reliable power supply during testing.

5.2. *Laboratory Sampling Equipment*:

5.2.1. Suitable metal scoop and containers to obtain asphalt mixture samples as described by R 97.

5.2.2. Stainless steel pipes for filling and compacting the asphalt mixture samples. Suitable dimensions are a minimum diameter of 25 mm (1 in.) and a height of 51 mm (2 in.). These tubes can accommodate nominal-maximum aggregate sizes (NMAS) of 19 mm or less. Larger-diameter tubes may be used for other NMAS.

5.2.3. Ordinary hammer with a steel head, or any other suitable device, to compact the asphalt mixture specimen in the stainless steel pipe to obtain a flat surface.

5.2.4. Standard sieves No. 4 (4.75 mm), No. 8 (2.36 mm), and No. 30 (0.6 mm) for sieving the test specimen material from a sample of the loose asphalt mixture.

5.2.5. Soft cloth or tissue for cleaning the PIRS device.