Designation: D5211 – 16

Standard Specification for Xylenes for *p*-Xylene Feedstock[1]

This standard is issued under the fixed designation D5211; 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 specification covers xylenes for *p*-xylene feedstock. These xylenes typically are extracted from reformate.

1.2 The following applies to all specified limits in this specification: for purposes of determining conformance with this specification, an observed value or calculated value shall be rounded off "to the nearest unit" in the last right hand digit used in expressing the specification limit, in accordance with the rounding-off method of Practice E29.

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.4 Consult current OSHA regulations, suppliers' Safety Data Sheets (SDS), and local regulations for all materials used in this specification.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D850 Test Method for Distillation of Industrial Aromatic Hydrocarbons and Related Materials

D3437 Practice for Sampling and Handling Liquid Cyclic Products

D5194 Test Method for Trace Chloride in Liquid Aromatic Hydrocarbons

D5386 Test Method for Color of Liquids Using Tristimulus Colorimetry

D5808 Test Method for Determining Chloride in Aromatic Hydrocarbons and Related Chemicals by Microcoulometry

D6563 Test Method for Benzene, Toluene, Xylene (BTX) Concentrates Analysis by Gas Chromatography

D7183 Test Method for Determination of Total Sulfur in Aromatic Hydrocarbons and Related Chemicals by Ultraviolet Fluorescence

D7184 Test Method for Ultra Low Nitrogen in Aromatic Hydrocarbons by Oxidative Combustion and Reduced Pressure Chemiluminescence Detection

D7359 Test Method for Total Fluorine, Chlorine and Sulfur in Aromatic Hydrocarbons and Their Mixtures by Oxidative Pyrohydrolytic Combustion followed by Ion Chromatography Detection (Combustion Ion Chromatography-CIC)

D7457 Test Method for Determining Chloride in Aromatic Hydrocarbons and Related Chemicals by Microcoulometry

D7504 Test Method for Trace Impurities in Monocyclic Aromatic Hydrocarbons by Gas Chromatography and Effective Carbon Number

D7536 Test Method for Chlorine in Aromatics by Monochromatic Wavelength Dispersive X-ray Fluorescence Spectrometry

D8005 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

2.2 *Other Document:*

OSHA Regulations, 29 CFR paragraphs 1910.1000 and 1910.1200 [3]

3. Properties

3.1 Xylenes for *p*-xylene feedstock shall conform to the following requirements:

[1] This specification is under the jurisdiction of ASTM Committee D16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.01 on Benzene, Toluene, Xylenes, Cyclohexane and Their Derivatives.

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[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.

[3] Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, http://www.access.gpo.gov.

***A Summary of Changes section appears at the end of this standard**

Property	Specification	ASTM Test Method
p-xylene,[A] min, weight %	18	D6563 or D7504
Ethylbenzene,[A] max, weight %	20	D6563 or D7504
Toluene, max, weight %	0.5	D6563 or D7504
C9 and higher boiling aromatic hydrocarbons, max, weight %	1.0	D6563 or D7504
Nonaromatic hydrocarbons, max, weight %	0.3	D6563 or D7504
Sulfur, max, mg/kg	1.0	D7183
Appearance	[B]	...
Color, max, Pt/Co scale	20	D5386 or D8005
Distillation range, at 101.3 kPa (760 mm Hg) pressure, max, °C	5	D850
Initial distillation temperature, min, °C	137	...
Dry point, max, °C	143	...

[A] The *p*-xylene and ethylbenzene specifications represent the weight percentage of these components within the C_8 aromatics and not in the total sample.
[B] Clear liquid free of sediment and haze when observed at 18.3 to 25.6°C (65 to 78°F).

4. Sampling

4.1 The material shall be sampled in accordance with Practice D3437.

5. Calculation

5.1 Calculate the weight percent relative distribution of each C_8 aromatic hydrocarbon in the total C_8 aromatic hydrocarbon fraction as follows:

$$F_i = \frac{W_i}{\sum W_i} \times 100\,\% \quad (1)$$

where:

F_i = weight fraction of C_8 aromatic component i in the total C_8 aromatic hydrocarbon fraction,
W_i = weight fraction of C_8 aromatic component i reported by the method given in Table in 3.1, and
i = components: ethylbenzene, *para*-xylene, *meta*-xylene, and *ortho*-xylene.

6. Supplementary Requirements (Non-mandatory)

6.1 The following supplementary requirements shall apply when agreed upon by the supplier and purchaser:

Property	ASTM Test Methods[A]
Nitrogen, max, mg/kg	D7184
Chloride	D5194 or D5808 or D7359 or D7457 or D7536

[A] If more than one method is listed, the producer and user should agree on the referee method.

7. Keywords

7.1 feedstock; *p*-xylene; xylenes

SUMMARY OF CHANGES

Committee D16 has identified the location of selected changes to this standard since the last issue (D5211–12) that may impact the use of this standard. (Approved June 1, 2016.)

(1) Removed D1209 and added D8005 in Section 2.
(2) Modified table in 3.1 to replace D1209 with D8005.
(3) Removed D6069 from Section 2
(4) Modified table in 3.1 to remove D6069.