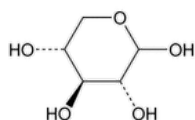


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Xylose



D-Xylopyranose

$C_5H_{10}O_5$ 150.13

D-Xylose;

D-Xylose [acyclic form] CAS RN®: 58-86-6.

D-Xylopyranose CAS RN®: 7261-26-9.

α -D-Xylopyranose CAS RN®: 6763-34-4.

β -D-Xylopyranose CAS RN®: 2460-44-8.

DEFINITION

Xylose contains NLT 98.0% and NMT 102.0% of xylose ($C_5H_{10}O_5$), calculated on the dried basis.

IDENTIFICATION

- **A.** [SPECTROSCOPIC IDENTIFICATION TESTS \(197\)](#), [Infrared Spectroscopy: 197A](#)
- **B.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the Assay.

ASSAY

PROCEDURE

Mobile phase: Acetonitrile and water (75:25)

System suitability solution: 10 mg/mL of [USP Xylose RS](#) and 0.2 mg/mL of [USP Fructose RS](#) in *Mobile phase*

Standard solution: 10 mg/mL of [USP Xylose RS](#) in *Mobile phase*

Sample solution: 10 mg/mL of Xylose in *Mobile phase*

Chromatographic system

(See [Chromatography \(621\)](#), [System Suitability](#).)

Mode: LC

Detector: UV 192 nm

Column: 4.6-mm × 15-cm; 5- μ m packing L8

Column temperature: 30°

Flow rate: 2 mL/min

Injection volume: 25 μ L

System suitability

Sample: *System suitability solution*

Suitability requirements

Resolution: NLT 2.0 between the xylose and fructose peaks

Relative standard deviation: NMT 2.0% for xylose

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the quantity of xylose ($C_5H_{10}O_5$) in the portion of Xylose taken:

$$\text{Result} = (r_U/r_S) \times (C_S/C_U) \times 100$$

r_U = peak response from the *Sample solution*

r_s = peak response from the *Standard solution*

C_s = concentration of [USP Xylose RS](#) in the *Standard solution* (mg/mL)

C_u = concentration of Xylose in the *Sample solution* (mg/mL)

Acceptance criteria: 98.0%–102.0% on the dried basis

PERFORMANCE TESTS

• COLOR OF SOLUTION

Sample: A freshly prepared 100 mg/mL solution

Acceptance criteria: The solution is clear and colorless.

IMPURITIES

- [RESIDUE ON IGNITION \(281\)](#): NMT 0.05%

Change to read:

- [▲IRON \(241\), Procedures, Procedure 1](#) ▲ (CN 1-JUN-2023)

Test preparation: Dissolve 2.0 g in 45 mL of water, and add 2 mL of hydrochloric acid.

Acceptance criteria: NMT 5 µg/g

• ORGANIC IMPURITIES

Use the chromatogram of the *Sample solution*, obtained as directed in the Assay.

Calculate the percentage of each individual impurity, excluding any solvent peaks, in the portion of Xylose taken:

$$\text{Result} = (r_u/r_T) \times 100$$

r_u = peak response of each individual impurity

r_T = sum of all of the responses in the chromatogram

Acceptance criteria

Individual impurities: NMT 1.0%

Total impurities: NMT 2.0%

SPECIFIC TESTS

- [OPTICAL ROTATION, Specific Rotation \(781S\)](#)

Sample solution: 100 mg/mL in 0.012 N ammonium hydroxide

Acceptance criteria: +18.2° to +19.4°

- [LOSS ON DRYING \(731\)](#)

Sample: 2–5 g

Analysis: Dry the *Sample* at a pressure not exceeding 50 mm of mercury at 60° to constant weight, a current of dried air being passed through the oven during the drying period to remove water vapor.

Acceptance criteria: NMT 0.1%

ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE:** Preserve in tight containers, and store at controlled room temperature.

- [USP REFERENCE STANDARDS \(11\)](#)

[USP Fructose RS](#)

[USP Xylose RS](#)

Auxiliary Information - Please [check for your question in the FAQs](#) before contacting USP.

We apologize for the inconvenience. The exact auxiliary information for this Documentary Standard is currently unavailable. Please contact Documentary Standards Support (stdsmonographs@usp.org) for assistance during this time.

Chromatographic Database Information: [Chromatographic Database](#)

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