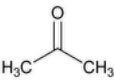


Status: Currently Official on 13-Feb-2025
Official Date: Official as of 01-May-2020
Document Type: NF Monographs
DocId: GUID-6DBB0D9B-0E6A-41FE-91A1-9F6D73BE2568_4_en-US
DOI: https://doi.org/10.31003/USPNF_M570_04_01
DOI Ref: n652p

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Acetone


C₃H₆O 58.08
2-Propanone;
Acetone CAS RN®: 67-64-1.

DEFINITION
Acetone contains NLT 99.0% of C₃H₆O, calculated on the anhydrous basis.
[CAUTION—Acetone is very flammable. Do not use where it may be ignited.]

IDENTIFICATION
Change to read:
• **A.** ▲ [SPECTROSCOPIC IDENTIFICATION TESTS \(197\)](#), [Infrared Spectroscopy: 197F](#) ▲ (CN 1-MAY-2020)
• **B.** The retention time of the *Sample* corresponds to that of [USP Acetone RS](#), as obtained in the Assay.

ASSAY
• **PROCEDURE**
Sample: Acetone
System suitability solution: Dilute 1.0 mL of [USP Methyl Alcohol RS](#) and 1.0 mL of [USP Acetone RS](#) with tetrahydrofuran to 50 mL.
Chromatographic system
(See [Chromatography \(621\), System Suitability](#).)
Mode: GC
Detector: Flame ionization
Column: 0.32-mm × 30-m fused-silica capillary; 1.8-µm of phase G43
Temperature
Column: See [Table 1](#).

Table 1

Initial Temperature (°)	Temperature Ramp (°/min)	Final Temperature (°)	Hold Time at Final Temperature (min)
40	0	40	5
40	20	240	—

Injector: 200°
Detector: 280°
Carrier gas: Helium
Flow rate: 35 cm/s (linear velocity)
Split ratio: 400:1
Injection volume: 1 µL
System suitability
Sample: *System suitability solution*
[NOTE—The relative retention times for methyl alcohol, acetone, and tetrahydrofuran are about 0.6, 1.0, and 1.9, respectively.]
Suitability requirements
Resolution: NLT 15 between the methyl alcohol and acetone peaks
Analysis

Sample: Sample

Calculate the percentage of acetone (C_3H_6O) in the portion of Acetone taken:

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

r_U = peak area due to the acetone peak in the Sample

r_T = sum of the areas of all the peaks in the Sample

[NOTE—No separate correction is applied for water content, because water does not respond to the flame-ionization detector.]

Acceptance criteria: NLT 99.0% on the anhydrous basis

SPECIFIC TESTS

- SPECIFIC GRAVITY (841):** NMT 0.789
- NONVOLATILE RESIDUE:** Evaporate 50 mL in a tared porcelain dish on a steam bath, and dry at 105° for 1 h.
Acceptance criteria: The weight of the residue does not exceed 2 mg (0.004%).
- WATER**
Sample: Acetone
Standard solution: Transfer 0.50 mL of water to a dry 100-mL volumetric flask, dilute with dehydrated isopropyl alcohol to volume, and mix.
Blank: Dehydrated isopropyl alcohol
Chromatographic system
(See [Chromatography \(621\), System Suitability.](#))
Mode: GC
Detector: Thermal conductivity
Column: 0.32-mm × 50-m capillary; 5.0-μm layer of support S2
Temperature
Column: See [Table 2.](#)

Table 2

Initial Temperature (°)	Temperature Ramp (°/min)	Final Temperature (°)	Hold Time at Final Temperature (min)
100	25	190	—

Injector: 250°

Detector: 250°

Carrier gas: Helium

Flow rate: 11 mL/min

Split ratio: 4.5:1

Injection size: 1.0 μL

Analysis

Samples: Acetone, *Standard solution*, and *Blank*

[NOTE—Identify the peaks based on their relative retention times, which are 1.0 for water and about 1.9 for isopropyl alcohol.]

Acceptance criteria: The area of the water peak for Acetone is NMT that from the *Standard solution*, corrected for the area of the water peak from the *Blank* (0.5%).

READILY OXIDIZABLE SUBSTANCES

Analysis: Mix 20 mL with 0.10 mL of 0.10 N potassium permanganate in a glass-stoppered bottle.

Acceptance criteria: The permanganate color of the mixture does not completely disappear within 15 min.

ADDITIONAL REQUIREMENTS

PACKAGING AND STORAGE: Preserve in tight containers, remote from fire.

USP REFERENCE STANDARDS (11)

[USP Acetone RS](#)

[USP Methyl Alcohol RS](#)

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

Topic/Question	Contact	Expert Committee
ACETONE	Documentary Standards Support	SE2020 Simple Excipients

Chromatographic Database Information: [Chromatographic Database](#)

Most Recently Appeared In:

Pharmacopeial Forum: Volume No. PF 34(1)

Current DocID: GUID-6DBB0D9B-0E6A-41FE-91A1-9F6D73BE2568_4_en-US

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