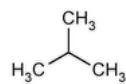


Status: Currently Official on 15-Feb-2025
Official Date: Official as of 01-Aug-2013
Document Type: NF Monographs
DocId: GUID-09ECD029-CB0D-4E0B-9919-1275D0AC4AA7_1_en-US
DOI: https://doi.org/10.31003/USPNF_M42630_01_01
DOI Ref: 9wqo2

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Isobutane



C₄H₁₀ 58.12

DEFINITION

Isobutane contains NLT 95.0% of isobutane (C₄H₁₀).

[**CAUTION**—Isobutane is highly flammable and explosive.]

IDENTIFICATION

- **A. IR Absorption:** Exhibits maxima, among others, at about the following wavelengths (μm): 3.4 (vs), 6.8 (s), 7.2 (m), 8.5 (m), and 10.9 (m).
- **B.** The vapor pressure of a test specimen obtained as directed for [Propellants \(602\)](#), and determined at 21° by means of a suitable pressure gauge, is between 303 and 331 kPa absolute (44 and 48 psia).

ASSAY

PROCEDURE

Chromatographic system

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

Mode: GC

Detector: Thermal conductivity

Column: 3-mm × 6-m aluminum; packed with 10 weight percent of liquid phase G30 on support S1D

Column temperature: 33°

Carrier gas: Helium

Flow rate: 50 mL/min

Injection volume: 2 μL

System suitability

Sample: Isobutane

Suitability requirements

Sample response comparison: Peak responses for isobutane from duplicate injections agree within 1%.

Analysis

Sample: Isobutane

Connect one Isobutane cylinder to the chromatograph through a suitable sampling valve and a flow control valve downstream from the sampling valve. Flush the liquid specimen through the sampling valve, taking care to avoid entrapment of gas or air in the sampling valve.

Calculate the percentage purity of Isobutane:

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

r_U = peak response of isobutane

r_T = sum of all the peak responses

Acceptance criteria: NLT 95.0%

SPECIFIC TESTS

- **WATER:** NMT 0.001%, determined as directed in [Propellants \(602\)](#).
- **HIGH-BOILING RESIDUES:** NMT 5 μg/mL, determined as directed in [Propellants \(602\)](#).
- **ACIDITY OF RESIDUE**
Sample: Residue from the test for *High-Boiling Residues*

Analysis: Add 10 mL of water to the *Sample*, mix by swirling for about 30 s, add 2 drops of methyl orange TS, insert the stopper in the tube, and shake vigorously.

Acceptance criteria: No pink or red color appears in the aqueous layer.

ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE:** Preserve in tight cylinders, and prevent exposure to excessive heat.

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

Topic/Question	Contact	Expert Committee
ISOBUTANE	Documentary Standards Support	SM52020 Small Molecules 5
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM52020 Small Molecules 5

Chromatographic Database Information: [Chromatographic Database](#)

Most Recently Appeared In:

Pharmacopeial Forum: Volume No. 46(2)

Current DocID: GUID-09ECD029-CB0D-4E0B-9919-1275D0AC4AA7_1_en-US

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