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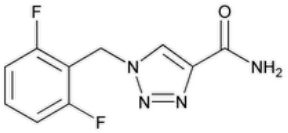
Rufinamide



$C_{10}H_8F_2N_4O$ 238.19

1*H*-1,2,3-Triazole-4-carboxamide, 1-[(2,6-difluorophenyl)methyl]-;

1-(2,6-Difluorobenzyl)-1*H*-1,2,3-triazole-4-carboxamide CAS RN®: 106308-44-5; UNII: WFW942PR79.

DEFINITION

Rufinamide contains NLT 98.0% and NMT 102.0% of $C_{10}H_8F_2N_4O$, calculated on the as-is basis.

IDENTIFICATION

Change to read:

• **A.** ▲**Spectroscopic Identification Tests ⟨197⟩, *Infrared Spectroscopy*: 197K**▲ (CN 1-May-2020)

• **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**

Use amber glassware for all volumetric solutions.

Diluent: Methanol and tetrahydrofuran (50:50)

Mobile phase: Methanol, tetrahydrofuran, and water (12:5:83)

System suitability stock solution: 0.8 mg/mL of USP Rufinamide RS and 4 µg/mL each of USP Rufinamide Related Compound A RS and USP Rufinamide Related Compound B RS in *Diluent*. [Note—USP Rufinamide Related Compound B RS is used for peak identification purposes only.]

System suitability solution: 0.2 mg/mL of USP Rufinamide RS and 0.8 µg/mL each of USP Rufinamide Related Compound A RS and USP Rufinamide Related Compound B RS in water from the *System suitability stock solution*

Standard stock solution: 0.8 mg/mL of USP Rufinamide RS in *Diluent*

Standard solution: 0.2 mg/mL of USP Rufinamide RS in water from the *Standard stock solution*

Sample stock solution: 0.8 mg/mL of Rufinamide in *Diluent*

Sample solution: 0.2 mg/mL of Rufinamide in water from the *Sample stock solution*

Chromatographic system

(See *Chromatography ⟨621⟩, System Suitability*.)

Mode: LC

Detector: UV 220 nm

Column: 4.6-mm × 12.5-cm; 5-µm packing L1

Flow rate: 1 mL/min

Injection volume: 20 µL

Run time: 2.6 times the retention time of the rufinamide peak

System suitability

[Note—For relative retention times refer to *Table 1* in *Organic Impurities*.]

Sample: *System suitability solution*

Suitability requirements

Tailing factor: NMT 1.2 for rufinamide

Resolution: NLT 2.5 between rufinamide and rufinamide related compound A

Relative standard deviation: NMT 1.0% for rufinamide and NMT 5.0% for rufinamide related compound A

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of rufinamide ($C_{10}H_8F_2N_4O$) in the portion of the sample 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 Rufinamide RS in the *Standard solution* (mg/mL)

C_U = concentration of Rufinamide in the *Sample solution* (mg/mL)

Acceptance criteria: 98.0%–102.0% on the as-is basis

IMPURITIES

• **Residue on Ignition ⟨281⟩:** NMT 0.1%

• **Organic Impurities**

Use amber glassware for all volumetric solutions.

Diluent, Mobile phase, System suitability stock solution, System suitability solution, Standard stock solution, Sample stock solution, Sample solution, Chromatographic system, and **System suitability:** Proceed as directed in the *Assay*.

Standard solution: 0.8 µg/mL of USP Rufinamide RS in water from the *Standard stock solution*

Analysis

Samples: *Sample solution* and *Standard solution*

Calculate the percentage of any individual impurity in the portion of Rufinamide taken:

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

r_U = peak response of each individual impurity from the *Sample solution*

r_S = peak response of rufinamide from the *Standard solution*

C_S = concentration of USP Rufinamide RS in the *Standard solution* (mg/mL)

C_U = concentration of Rufinamide in the *Sample solution* (mg/mL)

Acceptance criteria: See *Table 1*.

Table 1

Name	Relative Retention Time	Acceptance Criteria, NMT (%)
Rufinamide	1.0	—
Rufinamide related compound A[a]	1.2	0.30
Rufinamide related compound B[b]	1.9	0.10
Any other individual impurity	—	0.05
Total impurities	—	0.50

[a] 1-(2-Fluorobenzyl)-1*H*-1,2,3-triazole-4-carboxamide.

[b] Methyl 1-(2,6-difluorobenzyl)-1*H*-1,2,3-triazole-4-carboxylate.

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Preserve in tight containers. Store at controlled room temperature.

• **USP Reference Standards** ⟨11⟩

USP Rufinamide RS

USP Rufinamide Related Compound A RS

1-(2-Fluorobenzyl)-1*H*-1,2,3-triazole-4-carboxamide.

$C_{10}H_9FN_4O$ 220.20

USP Rufinamide Related Compound B RS

Methyl 1-(2,6-difluorobenzyl)-1*H*-1,2,3-triazole-4-carboxylate.

$C_{11}H_9F_2N_3O_2$ 253.20

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
RUFINAMIDE	Documentary Standards Support	SM42020 Small Molecules 4
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM42020 Small Molecules 4

Chromatographic Database Information: Chromatographic Database

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