Analysis
Samples: *Standard solution* and *Sample solution*
Calculate the percentage of each impurity in the portion of Alprazolam taken:

$$\text{Result} = (r_U/r_S) \times (C_S/C_U) \times (1/F) \times 100$$

r_U = peak response for each impurity in the *Sample solution*
r_S = peak response for alprazolam from the *Standard solution*
C_S = concentration of USP Alprazolam RS in the *Standard solution* (µg/mL)
C_U = concentration of Alprazolam in the *Sample solution* (µg/mL)
F = relative response factor (see *Table 1*)
Acceptance criteria: See *Table 1*.

Table 1

Name	Relative Retention Time	Relative Response Factor	Acceptance Criteria, NMT (%)
Alprazolam related compound A	0.8	0.76	0.15
Alprazolam	1.0	1.0	—
2-Amino-5-chloro-benzophenone	4.0	1.0	0.15
Individual unspecified impurity	—	1.0	0.10
Total impurities	—	—	1.0

SPECIFIC TESTS
• **Loss on Drying** ⟨731⟩**:** Dry a sample at 105° for 1 h: it loses NMT 0.5% of its weight.

ADDITIONAL REQUIREMENTS
• **Packaging and Storage:** Preserve in tight containers, and store at controlled room temperature.
• **USP Reference Standards** ⟨11⟩
USP Alprazolam RS
USP Alprazolam Related Compound A RS
2-(2-Acetylhydrazino)-7-chloro-5-phenyl-3*H*-1,4-benzodiazepine.
USP 2-Amino-5-chlorobenzophenone RS
2-Amino-5-chlorobenzophenone.
$C_{13}H_{10}ClNO$ 231.68

Alprazolam Compounded Oral Suspension

DEFINITION
Alprazolam Compounded Oral Suspension contains NLT 90.0% and NMT 110.0% of the labeled amount of alprazolam ($C_{17}H_{13}ClN_4$).
Prepare Alprazolam Compounded Oral Suspension 1 mg/mL as follows (see *Pharmaceutical Compounding—Nonsterile Preparations* ⟨795⟩).

Alprazolam	100 mg
Vehicle: a 1:1 mixture of Vehicle for Oral Solution (regular or sugar-free), *NF*, and Vehicle for Oral Suspension, *NF*, a sufficient quantity to make	100 mL

Comminute tablets in a suitable mortar to a fine powder, or add *Alprazolam* powder. Add about 20 mL of the *Vehicle*, and mix to a uniform paste. Add the *Vehicle* in small portions almost to volume, and mix thoroughly after each addition. Transfer the contents of the mortar, stepwise and quantitatively, to a calibrated bottle. Add sufficient *Vehicle* to bring to final volume, and mix well.

ASSAY
• **Procedure**
Buffer: 0.04 M sodium acetate solution. Adjust with glacial acetic acid to a pH of 2.4.
Mobile phase: Methanol, acetonitrile, and *Buffer* (45:8:47)
Standard solution: 20 µg/mL of USP Alprazolam RS in *Mobile phase*
Sample solution: Agitate the container of Oral Suspension for 30 min on a rotating mixer, remove a 5-mL sample, and store in a clear glass vial at –70° until analyzed. At the time of analysis, remove the sample from the freezer, allow it to reach room temperature, and mix with a vortex mixer for 30 s. Dilute a suitable volume of the Oral Suspension in *Mobile phase* to obtain a nominal concentration of 20 µg/mL.
Chromatographic system
(See *Chromatography* ⟨621⟩, *System Suitability*.)
Mode: LC
Detector: *UV 230 nm*
Column: 4.6-mm × 25-cm; 5-µm packing L1
Flow rate: 0.6 mL/min
Injection volume: 20 µL
System suitability
Sample: *Standard solution*
[NOTE—The retention time of alprazolam is about 10 min.]
Suitability requirements
Relative standard deviation: NMT 1.4% for replicate injections
Analysis
Samples: *Standard solution* and *Sample solution*
Calculate the percentage of the labeled amount of alprazolam ($C_{17}H_{13}ClN_4$) in the portion of Oral Suspension 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 Alprazolam RS in the *Standard solution* (µg/mL)
C_U = nominal concentration of alprazolam in the *Sample solution* (µg/mL)
Acceptance criteria: 90.0%–110.0%

SPECIFIC TESTS
• **pH** ⟨791⟩**:** 4.0–5.0

ADDITIONAL REQUIREMENTS
• **Packaging and Storage:** Package in tight, light-resistant containers. Store at controlled room temperature, or in a refrigerator.
• **Beyond-Use Date:** NMT 60 days after the day on which it was compounded when stored at controlled room temperature or in a refrigerator
• **Labeling:** Label it to state that it is to be well-shaken before use, and to state the *Beyond-Use Date*.
• **USP Reference Standards** ⟨11⟩
USP Alprazolam RS

Alprazolam Tablets

DEFINITION
Alprazolam Tablets contain NLT 90.0% and NMT 110.0% of the labeled amount of alprazolam ($C_{17}H_{13}ClN_4$).