retical plates; and the relative standard deviation for replicate injections is not more than 2.0%.

Procedure—Separately inject equal volumes (about 20 µL) of the *Standard preparation* and the *Assay preparation* into the chromatograph, record the chromatograms, and measure the responses for the major peaks. Calculate the quantity, in mg, of famotidine ($C_8H_{15}N_7O_2S_3$) in the portion of Famotidine for Oral Suspension taken by the formula:

$$CD(r_U / r_S)$$

in which C is the concentration, in mg per mL, of USP Famotidine RS in the *Standard preparation; D* is the dilution factor, in mL, for famotidine in the *Assay preparation;* and r_U and r_S are the peak responses obtained from the *Assay preparation* and the *Standard preparation,* respectively.

Famotidine Tablets

» Famotidine Tablets contain not less than 90.0 percent and not more than 110.0 per cent of the labeled amount of famotidine ($C_8H_{15}N_7O_2S_3$).

Packaging and storage—Preserve in well-closed, light-resistant containers. Store at controlled room temperature.

USP Reference standards ⟨11⟩**—**
USP Famotidine RS

Identification—

A: *Thin-Layer Chromatographic Identification Test* ⟨201⟩—

Developing solvent—Prepare a mixture of ethyl acetate, methanol, toluene, and ammonium hydroxide (40:25:20:2).

Standard solution—Dissolve USP Famotidine RS in glacial acetic acid to obtain a solution having a concentration of 4 mg per mL.

Test solution—Transfer a portion of finely powdered Tablets, equivalent to about 40 mg of famotidine, to a 10-mL volumetric flask. Dissolve in glacial acetic acid with the aid of sonication, dilute with glacial acetic acid to volume, and centrifuge to get a clear liquid.

Procedure—Apply separately 10 µL each of the *Standard solution* and the *Test solution* to a suitable thin-layer chromatographic plate coated with a 0.25-mm layer of chromatographic silica gel mixture, allow the spots to dry, and develop the plate in a paper-lined chromatographic chamber equilibrated with *Developing solvent* for about 1 hour prior to use. Allow the chromatogram to develop until the solvent front has moved about 15 cm. Remove the plate, air-dry, and examine the plate under short-wavelength UV light: the principal spot from the *Test solution* corresponds in appearance and R_F value to that of the *Standard solution.*

B: The retention time of the major peak in the chromatogram of the *Assay preparation* corresponds to that in the chromatogram of the *Standard preparation,* as obtained in the *Assay.*

Dissolution ⟨711⟩**—**

Medium: pH 4.5, 0.1 M phosphate buffer; prepared by dissolving 13.6 g of monobasic potassium phosphate in 1 L of water; 900 mL.

Apparatus 2: 50 rpm.

Time: 30 minutes.

Determine the amount of $C_8H_{15}N_7O_2S_3$ dissolved employing one of the following methods.

SPECTROPHOTOMETRIC METHOD—Determine the amount of $C_8H_{15}N_7O_2S_3$ dissolved from UV absorption at the wavelength of maximum absorbance at about 265 nm, using filtered portions of the solution under test, suitably diluted with *Medium* if necessary, in comparison with a Standard solution having a known concentration of USP Famotidine RS in the same *Medium.*

CHROMATOGRAPHIC METHOD—

Buffer solution and *Mobile phase*—Proceed as directed in the *Assay*.

Standard solution—Dissolve an accurately weighed quantity of USP Famotidine RS in *Medium* to obtain a solution having a known concentration of about 0.14 mg per mL. Dilute this solution with *Medium* to obtain a solution containing *L*/900 mg per mL, *L* being the Tablet label claim, in mg.

Test solution—Use filtered portions of the solution under test.

Chromatographic system—Proceed as directed in the *Assay*. Chromatograph the *Standard solution,* and record the peak responses as directed for *Procedure:* the capacity factor, k', is greater than 2.0; and the relative standard deviation for replicate injections is not more than 2.0%.

Procedure—Separately inject equal volumes (about 50 µL) of the *Standard solution* and the *Test solution* into the chromatograph, record the chromatograms, and measure the peak responses. Calculate the amount of $C_8H_{15}N_7O_2S_3$ dissolved by the formula:

$$\frac{r_U \times C_S \times 900 \times 100}{r_S \times LC}$$

in which r_U and r_S are the peak responses for the *Test solution* and the *Standard solution*, respectively; C_S is the concentration, in mg per mL, of the *Standard solution;* 900 is the volume, in mL, of *Medium;* 100 is the conversion factor to percentage; and *LC* is the Tablet label claim, in mg.

Tolerances—Not less than 75% *(Q)* of the labeled amount of $C_8H_{15}N_7O_2S_3$ is dissolved in 30 minutes.

FOR TABLETS LABELED AS CHEWABLE—Proceed as directed for either of the methods specified above, except for the following:

Time: 45 minutes.

Tolerances—Not less than 80% *(Q)* of the labeled amount of $C_8H_{15}N_7O_2S_3$ is dissolved in 45 minutes.

FOR TABLETS LABELED AS FILM-COATED—Proceed as directed for either of the methods specified above, except for the following:

Time: 30 minutes.

Tolerances—Not less than 80% *(Q)* of the labeled amount of $C_8H_{15}N_7O_2S_3$ is dissolved in 30 minutes.

Related compounds—

Buffer solution, Mobile phase, Diluent, System suitability solution, and *Chromatographic system*—Proceed as directed in the *Assay*.

Standard solution—Use the *Standard preparation* as prepared in the *Assay*.

Test solution—Use the *Assay preparation* as prepared in the *Assay*.

Procedure—Separately inject equal volumes (about 50 µL) of the *Standard solution* and the *Test solution* into the chromatograph, record the chromatograms, and measure the responses for the major peaks. Calculate the percentage of each impurity in the portion of Tablets taken by the formula:

$$100(1/F)C(D/LN)(r_i / r_S)$$

in which F is the relative response factor for each impurity peak (see *Table 1* for values); C is the concentration, in mg per mL, of USP Famotidine RS in the *Standard solution; L* is the labeled amount, in mg, of famotidine in each Tablet; N is the number of Tablets taken to prepare the *Test solution; D* is the dilution factor used to prepare the *Test solution;* r_i is the peak area obtained for each individual impurity in the *Test solution;* and r_S is the peak area for famotidine in the *Standard solution. Table 1,* not more than 1.5% of total impurities is found.

Table 1

Approximate Relative Retention Time	Relative Response Factor (*F*)	Name	Limit (%)
0.4	1.0	Impurity A[1]	1.0
0.7	1.0	Impurity B[2]	0.5
0.8	1.0	Impurity C[3]	0.5
1.2	1.3	Impurity D[4]	0.5

[1]3-[2-(diaminomethyleneamino)-1,3-thiazol-4-ylmethylsulfinyl]-*N*-sulfamoyl-propanamidine

[2]3-[2-(diaminomethyleneamino)-1,3-thiazol-4-ylmethylthio]-propanoic acid

[3]3-[2-(diaminomethyleneamino)-1,3-thiazol-4-ylmethylthio]-*N*-sulfamoyl-propanamide

[4]3-[2-(diaminomethyleneamino)-1,3-thiazol-4-ylmethylthio]-propanamide

Uniformity of dosage units ⟨905⟩**:** meet the requirements.

Assay—

Buffer solution—Dissolve 13.6 g of sodium acetate trihydrate in 750 mL of water. Add 1 mL of triethylamine, adjust with glacial acetic acid to a pH of 6.0, and dilute with water to 1 L.

Mobile phase—Prepare a mixture of *Buffer solution* and acetonitrile (93:7), mix, and degas. Make adjustments if necessary (see *System Suitability* under *Chromatography* ⟨621⟩).

Diluent—Dissolve 6.8 g of monobasic potassium phosphate in 750 mL of water, adjust with 1 M potassium hydroxide to a pH of 6.0, and dilute with water to 1 L.

System suitability stock solution—Transfer 10 mg of famotidine to a 50-mL volumetric flask, add 1 mL of 0.1 N hydrochloric acid, heat at 80 ° for 30 minutes, and cool to room temperature. Add 2 mL of 0.1 N sodium hydroxide, heat at 80 ° for 30 minutes, cool to room temperature, and neutralize by adding 1 mL of 0.1 N hydrochloric acid. Dilute with *Diluent* to volume. Transfer 10 mL of this solution to a separate 50-mL volumetric flask containing 5 mg of famotidine dissolved in 8 mL of methanol. Dilute with *Diluent* to volume. Transfer 25 mL of this solution to a 50-mL volumetric flask, and dilute with *Diluent* to volume. [NOTE—This solution is stable for up to 1 month.]

System suitability solution—Transfer approximately 1 to 1.5 mL of the *System suitability stock solution* to a suitable container, add 1 drop of hydrogen peroxide solution, and mix well. [NOTE—Prepare fresh daily.]

Standard preparation—Transfer about 10 mg of USP Famotidine RS, accurately weighed, into a 100-mL volumetric flask, add 20 mL of methanol, and sonicate for 5 minutes. Dilute with *Diluent* to volume, and mix.

Assay preparation—Transfer not fewer than 10 Tablets to a 1-L volumetric flask. Add 200 mL of *Diluent,* and swirl to erode the Tablets. Add 200 mL of methanol, and stir by mechanical means at 300 rpm for 1 hour. Dilute with *Diluent* to volume, mix, and filter. Quantitatively dilute a portion of the clear filtrate with *Diluent* to obtain a solution containing about 0.1 mg of famotidine per mL.

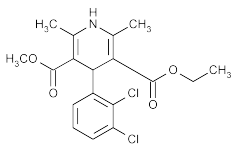
Chromatographic system (see *Chromatography* ⟨621⟩)—The liquid chromatograph is equipped with a 275-nm detector and a 4.6-mm × 15-cm column that contains packing L1. The column temperature is maintained at 40 °. The flow rate is about 1.4 mL per minute. Chromatograph the *System suitability solution,* and identify the famotidine peak and the peaks due to impurities listed in *Table 1*. Record the peak responses as directed for *Procedure:* the resolution, *R,* between the impurity C and famotidine peaks is not less than 1.3; the resolution, *R,* between the famotidine and impurity D peaks is not less than 1.3; and the capacity factor, *k′,* for the famotidine peak is not less than 2.0. Chromatograph the *Standard preparation,* and record the peak responses as directed for *Procedure:* the relative standard deviation for replicate injections is less than 2.0%.

Procedure—Separately inject equal volumes (about 50 µL) of the *Standard preparation* and the *Assay preparation* into the chromatograph, record the chromatograms, and measure the responses for the major peaks. Calculate the quantity, in mg, of famotidine ($C_8H_{15}N_7O_2S_3$) in each Tablet taken by the formula:

$$C(D/N)(r_U / r_S)$$

in which *C* is the concentration, in mg per mL, of USP Famotidine RS in the *Standard preparation; D* is the dilution factor used to prepare the *Assay preparation; N* is the number of Tablets taken to prepare the *Assay preparation;* and r_U and r_S are the peak areas obtained from the *Assay preparation* and the *Standard preparation,* respectively.

Felodipine



$C_{18}H_{19}Cl_2NO_4$ 384.26

3,5-Pyridinedicarboxylic acid 4-(2,3-dichlorophenyl)-1,4-dihydro-2,6-dimethyl-, ethyl methyl ester, (±)-.

(±)-Ethyl methyl 4-(2,3-dichlorophenyl)-1,4-dihydro-2,6-dimethyl-3,5-pyridinedicarboxylate [72509-76-3; 86189-69-7].

» Felodipine contains not less than 98.0 per cent and not more than 101.0 per cent of $C_{18}H_{19}Cl_2NO_4$, calculated on the dried basis.

Packaging and storage—Preserve in tight, light-resistant containers, and store at controlled room temperature.

USP Reference standards ⟨11⟩**—**
USP Felodipine RS

Color of solution—Prepare a solution in methanol having a concentration of 20 mg per mL: the absorbance, determined in a 5-cm cell at the wavelength of 440 nm in a suitable spectrophotometer, methanol being used as the blank, is not greater than 0.2.

Identification—

A: *Infrared Absorption* ⟨197K⟩.

B: The retention time of the major peak in the chromatogram of the *Assay preparation* corresponds to that in the chromatogram of the *Standard preparation,* as obtained in the *Assay*.

Loss on drying ⟨731⟩**—**Dry it at 105 ° for 3 hours: it loses not more than 0.5% of its weight.

Residue on ignition ⟨281⟩: not more than 0.1%.

Heavy metals, *Method II* ⟨231⟩: 0.002%.

Chromatographic purity—

Mobile phase, Standard preparation, Resolution solution, and *Chromatographic system*—Proceed as directed in the *Assay*.