25-mL volumetric flask, dilute with *Mobile phase* to volume, and mix.

Chromatographic system (see *Chromatography* ⟨621⟩)—The liquid chromatograph is equipped with a 276-nm detector and a 3.9-mm × 30-cm column that contains packing L1. The flow rate is about 1.0 mL per minute. Chromatograph the *Standard preparation,* and record the peak responses as directed for *Procedure:* the column efficiency is not less than 2000 theoretical plates; the tailing factor is not greater than 1.7; and the relative standard deviation for replicate injections is not greater than 2.0%.

Procedure—Separately inject equal volumes (about 10 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 dipyridamole ($C_{24}H_{40}N_8O_4$) in the portion of Injection taken by the formula:

$$25C(r_U / r_S)$$

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

Dipyridamole Oral Suspension

» Dipyridamole Oral Suspension contains not less than 90.0 percent and not more than 110.0 percent of the labeled amount of dipyridamole ($C_{24}H_{40}N_8O_4$). Prepare Dipyridamole Oral Suspension 10 mg per mL as follows (see *Pharmaceutical Compounding—Nonsterile Preparations* ⟨795⟩):

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

If using Tablets, place the Dipyridamole Tablets in a suitable mortar, and comminute to a fine powder, or add Dipyridamole powder to the mortar. Add about 20 mL of Vehicle, and mix to a uniform paste. Add the Vehicle in small portions, and mix well after each addition. Transfer, stepwise and quantitatively, to a graduated or calibrated bottle. Add the Vehicle in portions to rinse the mortar, add sufficient Vehicle to bring to final volume, and mix well.

Packaging and storage—Preserve in tight, light-resistant containers. Store at controlled room temperature, or in a cold place.

Labeling—Label it to state that it is to be well shaken, and to state the beyond-use date.

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

pH ⟨791⟩**:** between 3.8 and 4.8.

Beyond-use date: 60 days after the day on which it was compounded.

Assay—

Mobile phase—Dissolve 250 mg of dibasic sodium phosphate in 250 mL of water, and adjust with dilute phosphoric acid (1 in 3) to a pH of 4.6. Add 750 mL of methanol, mix, pass through a 0.5-µm membrane filter, and degas. Make adjustments if necessary (see *System Suitability* under *Chromatography* ⟨621⟩).

Standard preparation—Dissolve USP Dipyridamole RS in *Mobile phase* to obtain a suspension having a known concentration of 100 µg per mL.

Assay preparation—Agitate the container of Oral Suspension for 30 minutes 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 seconds. Pipet 1.0 mL of the sample into a 100-mL volumetric flask, and dilute with *Mobile phase* to volume.

Chromatographic system (see *Chromatography* ⟨621⟩)—The liquid chromatograph is equipped with a 288-nm detector and a 4.6-mm × 25-cm analytical column that contains 5- µm packing L1. The flow rate is about 1.3 mL per minute. Chromatograph the *Standard preparation,* and record the peak responses as directed for *Procedure:* the retention time is about 7.3 minutes, and the relative standard deviation for replicate injections is not more than 2.3%.

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 dipyridamole ($C_{24}H_{40}N_8O_4$) in the volume of Oral Suspension taken by the formula:

$$100(C / V)(r_U / r_S)$$

in which C is the concentration, in µg per mL, of USP Dipyridamole RS in the *Standard preparation; V* is the volume, in mL, of Oral Suspension taken; and r_U and r_S are the peak responses obtained from the *Assay preparation* and the *Standard preparation,* respectively.

Dipyridamole Tablets

» Dipyridamole Tablets contain not less than 90.0 percent and not more than 110.0 per cent of the labeled amount of $C_{24}H_{40}N_8O_4$.

Packaging and storage—Preserve in tight, light-resistant containers.

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

Identification—Triturate a quantity of finely powdered Tablets, equivalent to about 100 mg of dipyridamole, with 10 mL of 0.1 N hydrochloric acid, and filter, collecting the filtrate in a beaker. Add 0.1 N sodium hydroxide until the solution is basic and a precipitate forms. Heat the mixture on a steam bath for 1 minute, cool, and filter. Dry the residue at 105 ° for 1 hour: the residue so obtained responds to the *Identification* test under *Dipyridamole.*

Dissolution ⟨711⟩**—**

Medium: 0.1 N hydrochloric acid; 900 mL.

Apparatus 2: 50 rpm.

Time: 30 minutes.

Procedure—Determine the amount of $C_{24}H_{40}N_8O_4$ dissolved by employing UV absorption at the wavelength of maximum absorbance at about 282 nm on 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 Dipyridamole RS in the same *Medium.*

Tolerances—Not less than 70% *(Q)* of the labeled amount of $C_{24}H_{40}N_8O_4$ is dissolved in 30 minutes.

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

Procedure for content uniformity—Transfer 1 Tablet to a 100-mL volumetric flask, add 50 mL of 1 N hydrochloric acid, heat in a steam bath for 5 minutes, and shake by mechanical means for 30 minutes. Cool to room temperature, dilute with 1 N hydrochloric acid to volume, and mix. Filter, discarding the first 25 mL of the filtrate. Dilute an accurately measured portion of the subsequent filtrate with 1 N hydrochloric acid to provide a solution containing about 10 µg of dipyridamole per mL. Concomitantly determine the absorbances of this solution and of a solution of USP Dipyridamole RS in the same medium having a known concentration of about 10 µg per mL, in 1-cm cells at the wavelength of maximum absorbance at about 282 nm using 1 N hydrochloric acid as the blank. Calculate the quantity, in mg, of $C_{24}H_{40}N_8O_4$ in the Tablet taken by the formula:

$$(TC / D)(A_U / A_S)$$

in which T is the labeled quantity, in mg, of dipyridamole in the Tablet; C is the concentration, in µg per mL, of USP Dipyridamole RS in the *Standard solution; D* is the concentration, in µg per mL, of dipyridamole in the solution from the Tablet based upon the labeled quantity per Tablet and the extent of dilution; and A_U and A_S are the absorbances of the solution from the Tablet and the *Standard solution*, respectively.

Assay—

Mobile phase—Dissolve 250 mg of dibasic sodium phosphate in 250 mL of water, and adjust with dilute phosphoric acid (1 in 3) to a pH of 4.6. Add 750 mL of methanol, mix, filter through a 0.5-µm membrane filter, and degas. Make adjustments if necessary (see *System Suitability* under *Chromatography* ⟨621⟩).

Standard preparation—Using an accurately weighed quantity of USP Dipyridamole RS, prepare a solution in *Mobile phase* having a known concentration of about 15 µg per mL.

Assay preparation—Transfer not less than 20 Tablets to a 1000-mL volumetric flask, add 100 mL of water, and sonicate for 15 minutes. Add about 750 mL of methanol, and shake by mechanical means for 30 minutes. Dilute with methanol to volume, mix, and centrifuge. Dilute an accurately measured volume (V_S mL) of the clear supernatant quantitatively with *Mobile phase* to obtain a solution (V_A mL) containing about 15 µg of dipyridamole per mL.

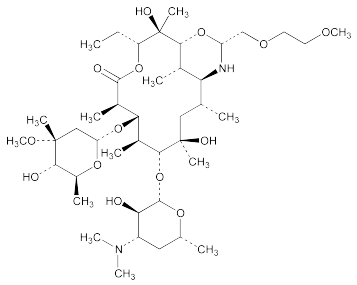
Chromatographic system (see *Chromatography* ⟨621⟩)—The liquid chromatograph is equipped with a 288-nm detector and a 3.9-mm × 30-cm column that contains packing L1. The flow rate is about 1.5 mL per minute. Chromatograph the *Standard preparation,* and record the peak responses as directed for *Procedure:* the column efficiency determined from the analyte peak is not less than 1000 theoretical plates, the tailing factor for the analyte peak is not more 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 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 $C_{24}H_{40}N_8O_4$ in the Tablets taken by the formula:

$$C(V_A / V_S)(r_U / r_S)$$

in which C is the concentration, in µg per mL, of USP Dipyridamole RS in the *Standard preparation; V_A* is the volume, in mL, of the *Assay preparation; V_S* is the volume, in mL, of supernatant taken for the *Assay preparation;* and r_U and r_S are the peak responses obtained from the *Assay preparation* and the *Standard preparation,* respectively.

Dirithromycin



$C_{42}H_{78}N_2O_{14}$ 835.09

Erythromycin, 9-deoxo-11-deoxy-9,11-[imino[2-(2-methoxyethoxy)ethylidene]oxy]-, 9*S*(*R*)-.

(9*S*)-9-Deoxo-11-deoxy-9,11-[imino[(1*R*)-2-(2-methoxyethoxy)ethylidene]oxy]erythromycin [62013-04-1].

» Dirithromycin contains not less than 96.0 percent and not more than 102.0 per cent of $C_{42}H_{78}N_2O_{14}$, consisting of the 16 *R*- and 16 *S*-epimers, calculated on the anhydrous basis.

Packaging and storage—Preserve in well-closed containers.

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

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*.

Water, *Method I* ⟨921⟩: not more than 1.0%.

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

Limit of dirithromycin 16*S*-epimer—Using the chromatogram obtained in the test for *Chromatographic purity*, calculate the percentage of dirithromycin 16 *S*-epimer in the portion of Dirithromycin taken by the formula:

$$1000(C / W)(r_E / r_S)$$

in which r_E is the response for dirithromycin 16 *S*-epimer found in the chromatogram of the *Test solution;* and the other terms are as defined therein: not more than 1.5% of dirithromycin 16*S*-epimer is found.

Chromatographic purity—

Potassium phosphate buffer, *Mobile phase*, *System suitability solution*, *Solvent*, and *Chromatographic system*—Proceed as directed in the *Assay*.

Standard solution—Quantitatively dissolve an accurately weighed quantity of USP Dirithromycin RS in *Solvent* to obtain a solution having a known concentration of about 0.2 mg per mL.

Test solution—Transfer about 100 mg of Dirithromycin, accurately weighed, to a 10-mL volumetric flask, dissolve in and dilute with *Solvent* to volume, and mix.

Procedure—[NOTE—Use peak areas where peak responses are indicated.] Separately inject equal volumes (about 10 µL) of the *Standard solution* and the *Test solution* into the chromatograph, and record the chromatograms for a period of time that is not less than three times the retention time of dirithromycin (16 *R*-epimer). Calculate the percentage of each impurity found in the portion of Dirithromycin taken by the formula:

$$1000(C / W)(r_i / r_S)$$

in which C is the concentration, in mg per mL, of USP Dirithromycin RS in the *Standard solution; W* is the quantity, in mg, of Dirithromycin taken to prepare the *Test solution; r_i* is the re-