Donepezil Hydrochloride Tablets

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Expert Committee: Chemical Medicines Monographs 4
Reason for Revision: Compliance

In accordance with the Rules and Procedures of the 2015–2020 Council of Experts, the Chemical Medicines Monographs 4 Expert Committee has revised the Donepezil Hydrochloride Tablets monograph. The purpose for the revision is to add Dissolution Test 5 to accommodate FDA-approved drug products with different dissolution conditions and/or tolerances than the existing dissolution test. The revision also necessitates a change in the table numbering in the tests for Organic Impurities, Procedure 1 and Organic Impurities, Procedure 2.

- Dissolution Test 5 was validated using an X Terra RP18 brand of column with L1 packing. The typical retention time for donepezil is about 6 min.

The Donepezil Hydrochloride Tablets Revision Bulletin supersedes the currently official monograph.

Should you have any questions, please contact Heather Joyce, Senior Scientific Liaison (301-998-6792 or hjr@usp.org).
**Donepezil Hydrochloride Tablets**

**DEFINITION**

Donepezil Hydrochloride Tablets contain NLT 90.0% and NMT 110.0% of the labeled amount of donepezil hydrochloride \((C_22H_{27}NO_3 \cdot HCl)\).

**IDENTIFICATION**

*Change to read:*  

- **A. Spectroscopic Identification Tests** (197), Ultraviolet-Visible Spectroscopy: 197U (C 1-Mar-2023)  
  Wavelength range: 220–360 nm  
  Sample solution: Crush a suitable number of Tablets, and transfer an amount of powder, equivalent to 10 mg of donepezil hydrochloride, to a 100-mL volumetric flask. Add 80 mL of 0.1 N hydrochloric acid VS, and sonicate for 5 min. Cool the solution to room temperature, and dilute with 0.1 N hydrochloric acid VS to volume. Transfer a portion of this solution to a centrifuge tube, and centrifuge for 15 min. Transfer 5 mL of the clear supernatant to a 25-mL volumetric flask, and dilute with 0.1 N hydrochloric acid VS to volume.  
  Analysis: Using a 1-cm cell, record the UV spectrum of the Sample solution.  
  Acceptance criteria: The solution exhibits absorption maxima at 230, 271, and 315 nm.

**ASSAY**

- **Procedure**  
  Diluent: Methanol and 0.1 N hydrochloric acid VS (75:25)  
  Mobile phase: Dissolve 2.5 g of sodium 1-decanesulfonate in 650 mL of water, and add 1.0 mL of perchloric acid and 350 mL of acetonitrile. If necessary, adjust with an additional 0.5 mL of perchloric acid to a pH of about 1.8.  
  System suitability solution: 0.2 mg/mL of USP Donepezil Hydrochloride RS and 0.008 mg/mL of USP Donepezil Related Compound A RS. [Note—Dissolve in 40% of the flask volume of methanol, swirl, and dilute with water to volume.]  
  Standard solution: 0.4 mg/mL of USP Donepezil Hydrochloride RS in Diluent. [Note—Dissolve in 60% of the flask volume of Diluent, swirl, and dilute with Diluent to volume.]  
  Sample solution: Nominally 0.4 mg/mL of donepezil hydrochloride prepared as follows. Dissolve a suitable number of Tablets in 75% of the flask volume of Diluent, and sonicate in an ultrasonic bath for 20 min. Swirl the mixture for 30 s, allow to cool to room temperature, and dilute with Diluent to volume. [Note—If necessary, add a magnetic stirring bar to the flask, and mix for 10 min on the magnetic stirrer, to aid in dissolution.] Allow a few min for the solids to settle. Pass through a suitable filter, discarding the first 2–3 mL of the filtrate.  
  Chromatographic system  
  (See Chromatography (621), System Suitability.)  
  Mode: LC  
  Detector: UV 271 nm  
  Column: 4.6-mm x 15-cm; 5-µm packing L1  
  Column temperature: 35°C  
  Flow rate: 1.4 mL/min  
  Injection volume: 20 µL  
  System suitability  
  Samples: System suitability solution and Standard solution

**NOTE**—The relative retention times for donepezil related compound A and donepezil are about 0.92 and 1.0, respectively.

**Suitability requirements**

- **Resolution:** NLT 1.5 between donepezil related compound A and donepezil, System suitability solution  
  Tailing factor: NMT 1.5 for the donepezil peak, System suitability solution  
  **Relative standard deviation:** NMT 2.0%, Standard solution  

**Analysis**

Samples: Standard solution and Sample solution  
Calculate the percentage of the labeled amount of donepezil hydrochloride \((C_{22}H_{27}NO_3 \cdot HCl)\) in the portion of Tablets taken:  

\[
\text{Result} = \left( \frac{r_0}{r_s} \right) \times \left( \frac{C_s}{C_0} \right) \times 100
\]

- **Acceptance criteria:** 90.0%–110.0%

**PERFORMANCE TESTS**

**Change to read:**

- **Dissolution** (711)  
  **Test 1**  
  Medium: 0.1 N hydrochloric acid VS; 900 mL  
  Apparatus 2: 50 rpm  
  Time: 30 min  
  Analytical procedure: Determine the amount of donepezil hydrochloride \((C_{22}H_{27}NO_3 \cdot HCl)\) dissolved, by using one of the following methods.  
  **Chromatographic method**  
  Diluent: Methanol and 0.1 N hydrochloric acid VS (75:25)  
  Mobile phase: Acetonitrile, water, and perchloric acid (35:65:0.1)  
  Standard stock solution A: 1.1 mg/mL of USP Donepezil Hydrochloride RS in Diluent  
  Standard stock solution B: 0.11 mg/mL of USP Donepezil Hydrochloride RS from Standard stock solution A in Medium  
  Standard solution: (L/1000) mg/mL of USP Donepezil Hydrochloride RS from Standard stock solution B in Medium, where L is the label claim in mg/Tablet  
  Sample solution: Pass a portion of the solution under test through a suitable filter of 0.45-µm pore size, discarding the first few mL of the filtrate.  
  **Chromatographic system**  
  (See Chromatography (621), System Suitability.)  
  Mode: LC  
  Detector: UV 271 nm  
  Column: 4.6-mm x 15-cm; 5-µm packing L1  
  Column temperature: 35°C  
  Flow rate: 1.0 mL/min  
  Injection volume: 50 µL  
  **System suitability**  
  Sample: Standard solution  
  **Suitability requirements**  
  Tailing factor: NMT 1.5  
  Column efficiency: NLT 5000 theoretical plates

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2 Donepezil

Relative standard deviation: NMT 2.0%

Analysis
Samples: Standard solution and Sample solution
Calculate the percentage of the labeled amount of donepezil hydrochloride \((C_{27}H_{33}NO_3 \cdot HCl)\) dissolved:

\[
\text{Result} = \left( \frac{r_0}{r_1} \right) \times \left( \frac{C_i}{L} \right) \times V \times 100
\]

- \(r_0\) = peak response from the Sample solution
- \(r_1\) = peak response from the Standard solution
- \(C_i\) = concentration of the Standard solution (mg/mL)
- \(L\) = label claim (mg/Tablet)
- \(V\) = volume of Medium, 900 mL

Spectrometric method
Standard stock solution: 0.11 mg/mL of USP Donepezil Hydrochloride RS in water
Standard solution: \((L/900)\) mg/mL of USP Donepezil Hydrochloride RS from the Standard stock solution in Medium, where \(L\) is the label claim in mg/Tablet
Sample solution: Pass a portion of the solution under test through a suitable filter of 0.45-μm pore size.

Instrumental conditions
(See Ultraviolet-Visible Spectroscopy (857).)
Mode: UV
Analytical wavelength: 230 nm
Blank: Medium
Calculate the percentage of the labeled amount of donepezil hydrochloride \((C_{27}H_{33}NO_3 \cdot HCl)\) dissolved:

\[
\text{Result} = \left( \frac{A_0}{A_i} \right) \times \left( \frac{C_i}{L} \right) \times V \times 100
\]

- \(A_0\) = absorbance of the Sample solution
- \(A_i\) = absorbance of the Standard solution
- \(C_i\) = concentration of the Standard solution (mg/mL)
- \(L\) = label claim (mg/Tablet)
- \(V\) = volume of Medium, 900 mL

Tolerances: NLT 80% (Q) of the labeled amount of donepezil hydrochloride is dissolved.

For Tablets which contain 23 mg of donepezil hydrochloride
Test 2: If the product complies with this test, the labeling indicates that it meets USP Dissolution Test 2.
Medium: pH 6.8 phosphate buffer; 900 mL
Apparatus 2: 50 rpm
Times: 1, 3, and 8 h
Buffer: 5.0 g/L of monobasic ammonium phosphate in water adjusted with phosphoric acid to a pH of 2.3
Mobile phase: Acetonitrile and Buffer (25:75)
Standard stock solution: 0.26 mg/mL of USP Donepezil Hydrochloride RS prepared as follows. Transfer a suitable quantity of USP Donepezil Hydrochloride RS to an appropriate volumetric flask. Add 70% of the flask volume of Medium. Sonicate to dissolve and dilute with Medium to volume.
Standard solution: \((L/900)\) mg/mL of USP Donepezil Hydrochloride RS from Standard stock solution in Medium, where \(L\) is the label claim in mg/Tablet. Pass the solution through a suitable filter, discarding the first 3 mL of the filtrate.
Sample solution: Pass a portion of the solution under test through a suitable filter, discarding the first 3 mL of the filtrate.
Chromatographic system
(See Chromatography (621), System Suitability.)
Mode: LC
Detector: UV 210 nm
Column: 4.6-mm × 15-cm; 5-μm packing L1

Column temperature: 35°C
Flow rate: 1.5 mL/min
Injection volume: 50 μL
Run time: NLT 1.7 times the retention time of donepezil

System suitability
Sample: Standard solution
Suitability requirements
Tailing factor: NMT 1.5
Relative standard deviation: NMT 2.0%

Analysis
Samples: Standard solution and Sample solution
Calculate the percentage of donepezil hydrochloride \((C_{27}H_{33}NO_3 \cdot HCl)\) in the sample withdrawn from the vessel at each time point (i):

\[
\text{Result} = \left( \frac{r_0}{r_1} \right) \times C_i
\]

- \(r_0\) = peak response of donepezil from the Sample solution
- \(r_1\) = peak response of donepezil from the Standard solution
- \(C_i\) = concentration of USP Donepezil Hydrochloride RS in the Standard solution (mg/mL)

Calculate the percentage of the labeled amount of donepezil hydrochloride \((C_{27}H_{33}NO_3 \cdot HCl)\) dissolved at each time point (i):

\[
\text{Result} = C_i \times \frac{V}{L} \times 100
\]

\[
\text{Result}_1 = \left[ \left( C_i \times \frac{V}{L} \right) - \left( C_i \times \frac{V_i}{L} \right) \right] \times \frac{1}{L} \times 100
\]

\[
\text{Result}_2 = \left[ \left( C_i \times \frac{V}{L} \right) \times \left( C_i \times \frac{V_i}{L} \right) \right] \times \frac{1}{L} \times 100
\]

- \(C_i\) = concentration of donepezil hydrochloride in the portion of the sample withdrawn at the specified time point (mg/mL)
- \(V\) = volume of Medium, 900 mL
- \(L\) = label claim (mg/Tablet)
- \(V_i\) = volume of the Sample solution withdrawn at each time point (mL)

Tolerances: See Table 1.

<table>
<thead>
<tr>
<th>Time Point (h)</th>
<th>Amount Dissolved (mg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

The percentages of the labeled amount of donepezil hydrochloride \((C_{27}H_{33}NO_3 \cdot HCl)\) dissolved at the times specified confirm to Dissolution (711), Acceptance Table 2.

Test 3: If the product complies with this test, the labeling indicates that it meets USP Dissolution Test 3.
Medium: pH 6.8 phosphate buffer, 900 mL
Apparatus 2: 50 rpm
Times: 1, 3, and 10 h
Standard stock solution: 0.25 mg/mL of USP Donepezil Hydrochloride RS prepared as follows. Transfer a suitable quantity of USP Donepezil Hydrochloride RS to an appropriate volumetric flask. Add 70% of the flask volume of water. Sonicate to dissolve and allow to cool to room temperature. Dilute with water to volume.

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Standard solution: (L/900) mg/mL of USP Donepezil Hydrochloride RS from Standard stock solution in Medium, where L is the label claim in mg/Tablet

Sample solution: Pass a portion of the solution under test through a suitable filter.

Instrumental conditions
(See Ultraviolet-Visible Spectroscopy (857).)
Mode: UV-Vis
Analytical wavelength: 315 nm
Blank: Medium
System suitability
Sample: Standard solution
Suitability requirements
Relative standard deviation: NMT 2.0%

Analysis
Samples: Standard solution and Sample solution
Calculate the concentration (C) of donepezil hydrochloride (C26H32NO14·HCl) in the sample withdrawn from the vessel at each time point (i):

\[ \text{Result}_i = (A_i/A_0) \times C_i \]

\( A_i \) = absorbance of donepezil from the Sample solution
\( A_0 \) = absorbance of donepezil from the Standard solution
\( C_i \) = concentration of USP Donepezil Hydrochloride RS in the Standard solution (mg/mL)

Calculate the percentage of the labeled amount of donepezil hydrochloride (C26H32NO14·HCl) dissolved at each time point (i):

\[ \text{Result}_i = C_i \times V \times (1/L) \times 100 \]

\[ \text{Result}_2 = [(C_i \times V \times (2/L)] + [(C_i \times V_2)] \times (1/L) \times 100 \]

\[ \text{Result}_3 = [(C_i \times V \times (2/L)] + [(C_i + C_i) \times V_3)] \times (1/L) \times 100 \]

\( C_i \) = concentration of donepezil hydrochloride in the portion of the sample withdrawn at the specified time point (mg/mL)
\( V \) = volume of Medium, 900 mL
\( L \) = label claim (mg/Tablet)
\( V_i \) = volume of the Sample solution withdrawn at each time point (mL)

Tolerances: See Table 2.

<table>
<thead>
<tr>
<th>Time Point (i)</th>
<th>Time (h)</th>
<th>Amount Dissolved (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>10-30</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>33-53</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>NLT 80</td>
</tr>
</tbody>
</table>

The percentages of the labeled amount of donepezil hydrochloride (C26H32NO14·HCl) dissolved at the times specified conform to Dissolution (711), Acceptance Table 2.

Test 4: If the product complies with this test, the labeling indicates that it meets USP Dissolution Test 4.

Medium: 0.05 M sodium phosphate buffer, pH 6.8 [0.1 N hydrochloric acid VS and 76 g/L of tribasic sodium phosphate (25:75) adjusted with 2 N hydrochloric acid TS or 2 N sodium hydroxide TS to a pH of 6.8]; 900 mL, degassed

Apparatus 2: 50 rpm, with sinkers; see Dissolution (711), Figure 2a.

Times: 1, 3, and 8 h
Buffer: 1.36 g/L of monobasic potassium phosphate prepared as follows. To each 1 L of 1.36 g/L of monobasic potassium phosphate in water, add 3 mL of triethylamine and adjust with phosphoric acid to a pH of 2.8.

Mobile phase: Methanol and Buffer (47:53)
Diluent: Methanol and water (50:50)
Standard stock solution: 0.53 mg/mL of USP Donepezil Hydrochloride RS in Diluent
Standard solution: 0.027 mg/mL of USP Donepezil Hydrochloride RS from Standard stock solution in Medium
Sample solution: Pass a portion of the solution under test through a suitable filter. Replace the portion removed with the same volume of Medium.

Chromatographic system
(See Chromatography (621), System Suitability.)
Mode: LC
Detector: UV 268 nm
Column: 4.6-mm × 15-cm; 5-μm packing L7
Flow rate: 1.3 mL/min
Injection volume: 20 μL
Run time: NLT 1.7 times the retention time of donepezil

System suitability
Sample: Standard solution
Suitability requirements
Tailing factor: NMT 1.5
Relative standard deviation: NMT 1.0%

Analysis
Samples: Standard solution and Sample solution
Calculate the concentration (C) of donepezil hydrochloride (C26H32NO14·HCl) in the sample withdrawn from the vessel at each time point (i):

\[ \text{Result}_i = (r_i/r_s) \times C_i \]

\( r_i \) = peak response of donepezil from the Sample solution
\( r_s \) = peak response of donepezil from the Standard solution
\( C_i \) = concentration of USP Donepezil Hydrochloride RS in the Standard solution (mg/mL)

Calculate the percentage of the labeled amount of donepezil hydrochloride (C26H32NO14·HCl) dissolved at each time point (i):

\[ \text{Result}_i = C_i \times V \times (1/L) \times 100 \]

\[ \text{Result}_2 = [(C_i \times V) + (C_i \times V_2)] \times (1/L) \times 100 \]

\[ \text{Result}_3 = [(C_i \times V) + [(C_i + C_i) \times V_3)] \times (1/L) \times 100 \]

\( C_i \) = concentration of donepezil hydrochloride in the portion of the sample withdrawn at time point i (mg/mL)
\( V \) = volume of Medium, 900 mL
\( L \) = label claim (mg/Tablet)
\( V_i \) = volume of Sample solution withdrawn at each time point and replaced with Medium (mL)

Tolerances: See Table 3.

<table>
<thead>
<tr>
<th>Time Point (i)</th>
<th>Time (h)</th>
<th>Amount Dissolved (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>10-30</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>40-60</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>NLT 80</td>
</tr>
</tbody>
</table>
4 Donepezil

The percentages of the labeled amount of donepezil hydrochloride \((C_{24}H_{32}NO_3 \cdot HCl)\) dissolved at the times specified conform to Dissolution (711), Acceptance Table 2.

**Test 5:** If the product complies with this test, the labeling indicates that it meets USP Dissolution Test 5.

**Medium:** 0.05 M potassium phosphate buffer \((6.8 \text{ g/L of monobasic potassium phosphate and 0.9 g/L of sodium hydroxide in water adjusted with dilute phosphoric acid in water or dilute sodium hydroxide in water to a pH of 6.80})\); 900 mL

**Apparatus:** 2: 50 rpm, with suitable sinkers

**Buffer:** 6.8 g/L of monobasic potassium phosphate in water, adjusted with phosphoric acid to a pH of 3.0

**Mobile phase:** Methanol and Buffer (40:60)

**Diluent:** Methanol and water (50:50)

**Standard stock solution:** 0.5 mg/mL of USP Donepezil Hydrochloride RS prepared as follows. Transfer a suitable amount of USP Donepezil Hydrochloride RS to an appropriate volumetric flask and dissolve in 50% of the flask volume of Diluent. Sonicate for NLT 1 min to promote dissolution then dilute with Diluent to volume.

**Standard solution:** 0.025 mg/mL of USP Donepezil Hydrochloride RS from Standard stock solution in Medium

**Sample solution:** Pass a portion of the solution under test through a suitable filter discarding the first NLT 3 mL of filtrate.

**Chromatographic system**

(See Chromatography (621), System Suitability.)

**Mode:** LC

**Detector:** UV 271 nm

**Column:** 4.6-mm × 15-cm; 5-μm packing L1

**Column temperature:** 30°C

**Flow rate:** 1 mL/min

**Injection volume:** 50 μL

**Run time:** NLT 1.5 times the retention time of donepezil

**System suitability**

**Sample:** Standard solution

**Suitability requirements**

**Tailing factor:** NMT 2.0

**Relative standard deviation:** NMT 2.0%

**Analysis**

**Samples:** Standard solution and Sample solution

Calculate the concentration \((C)\) of donepezil hydrochloride \((C_{24}H_{32}NO_3 \cdot HCl)\) in the sample withdrawn from the vessel at each time point \((t)\):

\[
R = \frac{r_0}{r_S} \times C
\]

where:

- \(r_0\): peak response of donepezil from the Sample solution
- \(r_S\): peak response of donepezil from the Standard solution
- \(C\): concentration of USP Donepezil Hydrochloride RS in the Standard solution (mg/mL)

Calculate the percentage of the labeled amount of donepezil hydrochloride \((C_{24}H_{32}NO_3 \cdot HCl)\) dissolved at each time point \((t)\):

\[
\text{Result}_t = C \times V \times (1/L) \times 100
\]

<table>
<thead>
<tr>
<th>Time Point (h)</th>
<th>Time (h)</th>
<th>Amount Dissolved (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>15-35</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>40-60</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>NLT 80</td>
</tr>
</tbody>
</table>

The percentages of the labeled amount of donepezil hydrochloride \((C_{24}H_{32}NO_3 \cdot HCl)\) dissolved at the times specified conform to Dissolution (711), Acceptance Table 2.

**Uniformity of Dosage Units (905):** Meet the requirements

**Impurities**

**Change to read:**

**Organic Impurities, Procedure 1**

[Note—On the basis of the synthetic route, perform either Procedure 1 or Procedure 2. Procedure 2 is recommended if any of the impurities included in Table 7A are potential degradation products.]

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

**Standard solution:** 0.0008 mg/mL of USP Donepezil Hydrochloride RS in Diluent

**System suitability**

**Samples:** System suitability solution and Standard solution

[Note—The relative retention times for donepezil related compound A and donepezil are about 0.92 and 1.0, respectively.]

**Suitability requirements**

**Resolution:** NLT 1.5 between donepezil related compound A and donepezil, System suitability solution

**Relative standard deviation:** NMT 8.0%, Standard solution

**Analysis**

**Samples:** Standard solution and Sample solution

[Note—Identify the impurities using the relative retention times given in Table 5A.]

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

\[
\text{Result} = \frac{r_0}{r_S} \times (C/C_0) \times (1/F) \times 100
\]

where:

- \(r_0\): peak response of each individual impurity from the Sample solution
- \(r_S\): peak response of donepezil hydrochloride from the Standard solution
- \(C\): concentration of USP Donepezil Hydrochloride RS in the Standard solution (mg/mL)
- \(C_0\): nominal concentration of donepezil hydrochloride in the Sample solution (mg/mL)
- \(F\): relative response factor (see Table 5A)

**Acceptance criteria:** See Table 5.

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Donepezil 5

Calculate the percentage of each specified impurity or any individual degradation product in the portion of Tablets taken:

\[
\text{Result} = \left( \frac{r_i}{r_s} \right) \times \left( \frac{C_i}{C_s} \right) \times (1/F) \times 100
\]

- \( r_i \) = peak response of each individual impurity from the Sample solution
- \( r_s \) = peak response of donepezil hydrochloride from the Standard solution
- \( C_s \) = concentration of USP Donepezil Hydrochloride RS in the Standard solution (mg/mL)
- \( C_i \) = nominal concentration of donepezil hydrochloride in the Sample solution (mg/mL)
- \( F \) = relative response factor for the corresponding impurity peak from *Table 7*

Acceptance criteria: See *Table 7.*

**Change to read:**

**Organic Impurities, Procedure 2**

Diluent: Acetonitrile and water (25:75)

Solution A: Add 1 mL of phosphoric acid in 1 L of water. Adjust with triethylamine to a pH of 6.5. Pass through a filter of 0.45-µm or finer pore size.

Solution B: Acetonitrile

Mobile phase: See *Table 6.*

### Table 6

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>Solution A (%)</th>
<th>Solution B (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>10</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>41</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>50</td>
<td>75</td>
<td>25</td>
</tr>
</tbody>
</table>

**Standard solution:** 0.01 mg/mL of USP Donepezil Hydrochloride RS in Diluent. Sonication may be used to aid dissolution.

**Sample solution:** Nominally 1.0 mg/mL of donepezil hydrochloride in Diluent. Sonication may be used to aid dissolution.

**Chromatographic system**

(See Chromatography (621), System Suitability.)

Mode: LC

Detector: UV 286 nm

Column: 4.6-mm x 25-cm; 5-µm packing L1

Column temperature: 50°

Flow rate: 1.5 mL/min

Injection volume: 20 µL

**System suitability**

**Sample:** Standard solution

**Suitability requirements**

- Tailing factor: NMT 1.5
- Relative standard deviation: NMT 2.0%, for five replicate injections

**Analysis**

**Samples:** Standard solution and Sample solution

**Additional requirements**

- **Packaging and Storage:** Preserve in well-closed containers. Store at controlled room temperature.

- **Labeling:** If a test for Organic Impurities other than Procedure 1 is used, the labeling states the test with which the article complies. If a test for Dissolution other than Test 1 is used, the labeling states the test with which the article complies.

- **USP Reference Standards** (11)
  
  USP Donepezil Hydrochloride RS
  USP Donepezil Related Compound A RS
  
  (E)-2-[(1-Benzyl)piperidin-4-yl]methylen]-5,6-dimethoxyindan-1-one
  
  \( C_{31}H_{32}NO_3 \) 377.48

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