Extended Phenytoin Sodium Capsules

Type of Posting   Revision Bulletin
Posting Date   26-Feb-2021
Official Date   1-Mar-2021
Expert Committee   Small Molecules 4

In accordance with the Rules and Procedures of the Council of Experts, the Small Molecules 4 Expert Committee has revised the Extended Phenytoin Sodium Capsules monograph. The purpose for the revision is to add *Dissolution Test 6* to accommodate FDA-approved drug products with different dissolution conditions and/or tolerances than the existing dissolution test(s). The revision also necessitates a change in the table number in the test for *Organic Impurities*.

- *Dissolution Test 6* was validated using the Inertsil ODS-3V brand of L1 column. The typical retention time for phenytoin is about 2.3 min.

The Extended Phenytoin Sodium Capsules Revision Bulletin supersedes the currently official monograph.

Should you have any questions, please contact Claire Chisolm, Scientific Liaison (301-230-3215 or cnc@usp.org).
Extended Phenytoin Sodium Capsules

**DEFINITION**
Extended Phenytoin Sodium Capsules contain NLT 95.0% and NMT 105.0% of the labeled amount of phenytoin sodium (C_{15}H_{11}N_{2}NaO_{2}).

**IDENTIFICATION**
- **A. Spectroscopic Identification Tests (197), Infrared Spectroscopy**
  - **Sample**: 300 mg of phenytoin sodium from the contents of Capsules in 50 mL of water in a separator. Add 10 mL of 3 N hydrochloric acid, and extract with three successive portions, measuring 100, 60, and 30 mL, respectively, of ether and chloroform (1:2). Evaporate the combined extracts, and dry the residue of phenytoin at 105° for 4 h.
  - **Acceptance criteria**: The spectrum of the Sample corresponds to that of a similarly prepared USP Phenytoin RS.
- **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**
  - **Buffer**: 0.05 M monobasic potassium phosphate. Adjust with phosphoric acid to a pH of 3.5.
  - **Mobile phase**: Methanol and Buffer (55:45)
  - **Standard solution**: 0.6 mg/mL of USP Phenytoin RS in Mobile phase. [Note—Dissolve the required quantity of phenytoin in a small amount of methanol before diluting with Mobile phase.]
  - **Sample stock solution**: Transfer the contents of 10 Capsules to a 250-mL volumetric flask. Add 150 mL of methanol, and sonicate for 20 min. Cool to room temperature, and dilute with methanol to volume.
  - **Sample solution**: Nominally 0.6 mg/mL of phenytoin from the Sample stock solution in Mobile phase

**Chromatographic system**
(See Chromatography (621), System Suitability.)
- **Mode**: LC
- **Detector**: UV 229 nm
- **Column**: 4.6-mm × 25-cm; packing **L1**
- **Flow rate**: 1 mL/min
- **Injection volume**: 10 µL

**System suitability**
- **Sample**: Standard solution
- **Suitability requirements**
  - **Column efficiency**: NLT 3000 theoretical plates
  - **Tailing factor**: NMT 2.0
  - **Relative standard deviation**: NMT 2.0%

**Analysis**
- **Samples**: Standard solution and Sample solution
  - Calculate the percentage of the labeled amount of phenytoin sodium (C_{15}H_{11}N_{2}NaO_{2}) in the portion of Capsules taken:

\[
\text{Result} = \left( \frac{r_U}{r_S} \right) \times \left( \frac{C_S}{C_U} \right) \times \left( \frac{M_r}{M_r} \right) \times 100
\]

- \( r_U \) = peak response of phenytoin from the Sample solution
- \( r_S \) = peak response of phenytoin from the Standard solution
- \( C_S \) = concentration of USP Phenytoin RS in the Standard solution (mg/mL)
\( C_U \) = nominal concentration of phenytoin in the Sample solution (mg/mL)

\( M_{r1} \) = molecular weight of phenytoin sodium, 274.25

\( M_{r2} \) = molecular weight of phenytoin, 252.27

Acceptance criteria: 95.0%–105.0%

PERFORMANCE TESTS

Change to read:

• **Dissolution (711)**

Test 1

Medium: Water; 900 mL

Apparatus 1: 50 rpm

Times: 30, 60, and 120 min

Mobile phase: Methanol and water (70:30)

Standard solution: Dissolve USP Phenytoin RS in methanol, and dilute with water to obtain a concentration similar to that of the Sample solution.

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

Chromatographic system

(See Chromatography (621), System Suitability.)

Mode: LC

Detector: UV 229 nm

Column: 4.6-mm × 25-cm; packing L1

Flow rate: 1 mL/min

Injection volume: 10 µL

System suitability

Sample: Standard solution

Suitability requirements

Column efficiency: NLT 3200 theoretical plates

Tailing factor: NMT 2.0

Relative standard deviation: NMT 2.0%

Analysis

Samples: Standard solution and Sample solution

Calculate the percentage of the labeled amount of phenytoin sodium (\( C_{15}H_{11}N_2NaO_2 \)) dissolved:

\[
\text{Result} = \left( \frac{r_U}{r_S} \right) \times C_S \times \left( \frac{M_{r1}}{M_{r2}} \right) \times V \times \left( \frac{100}{L} \right)
\]

\( r_U \) = peak response from the Sample solution

\( r_S \) = peak response from the Standard solution

\( C_S \) = concentration of USP Phenytoin RS in the Standard solution (mg/mL)

\( M_{r1} \) = molecular weight of phenytoin sodium, 274.25

\( M_{r2} \) = molecular weight of phenytoin, 252.27

\( V \) = volume of Medium, 900 mL

\( L \) = label claim (mg/Capsule)

Tolerances (for products labeled as 30-mg Capsules): The percentage of the labeled amount of phenytoin sodium (\( C_{15}H_{11}N_2NaO_2 \)) dissolved is NMT 40% (\( Q \)) in 30 min, 56% (\( Q' \)) in 60 min, and NLT 65% (\( Q'' \)) in 120 min. The requirements are met if the quantities dissolved from the Capsules tested conform to Table 1.

**Table 1**
<table>
<thead>
<tr>
<th>Stage</th>
<th>Number Tested</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>6</td>
<td>Each unit is within the range between Q − 15% and Q − 5%, is within the range Q′ + 10%, and is NLT Q″ + 5% at the stated Times.</td>
</tr>
<tr>
<td>S₂</td>
<td>6</td>
<td>Average of 12 units (S₁ + S₂) is within the range between Q − 10% and Q, is within the range Q′ ± 8%, and is NLT Q″; no unit is outside the range between Q − 20% and Q + 10%, no unit is outside the range Q′ ± 18%, and no unit is less than Q″ − 10% at the stated Times.</td>
</tr>
<tr>
<td>S₃</td>
<td>12</td>
<td>Average of 24 units (S₁ + S₂ + S₃) is within the range between Q − 10% and Q, is within the range Q′ ± 8%, and is NLT Q″; NMT 2 units are outside the range between Q − 20% and Q + 10%, and no unit is outside the range Q − 30% and Q + 20%; NMT 2 units are outside the range Q′ ± 18%, and no unit is outside the range Q″; no unit is outside the range Q′ ± 25%; NMT 2 units are less than Q″ − 10%, and no unit is less than Q″ − 20% at the stated Times.</td>
</tr>
</tbody>
</table>

**Tolerances** (for products labeled as 100-mg Capsules): The percentage of the labeled amount of phenytoin sodium (C₁₅H₁₁N₂NaO₂) dissolved is NMT 45% (Q) in 30 min, 65% (Q′) in 60 min, and NLT 70% (Q″) in 120 min. The requirements are met if the quantities dissolved from the Capsules tested conform to **Table 2**.

**Table 2**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Number Tested</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>6</td>
<td>Each unit is within the range between Q − 25% and Q − 5%, is equal to Q′ ± 20%, and is NLT Q″ + 5% at the stated Times.</td>
</tr>
<tr>
<td>S₂</td>
<td>6</td>
<td>Average of 12 units (S₁ + S₂) is within the range between Q − 20% and Q, is within the range Q′ ± 15%, and is NLT Q″; no unit is outside the range between Q − 30% and Q + 10%, no unit is outside the range Q′ ± 25%, and no unit is less than Q″ − 10% at the stated Times.</td>
</tr>
<tr>
<td>S₃</td>
<td>12</td>
<td>Average of 24 units (S₁ + S₂ + S₃) is within the range between Q − 20% and Q, is within the range Q′ ± 15%, and is NLT Q″; NMT 2 units are outside the range between Q − 30% and Q + 10%, and no unit is outside the range Q − 40% and Q + 20%; NMT 2 units are outside the range Q′ ± 25%, and no unit is outside the range Q′ ± 35%; NMT 2 units are less than Q″ − 10%, and no unit is less than Q″ − 20% at the stated Times.</td>
</tr>
</tbody>
</table>

**Test 2:** If the product complies with this test, the labeling indicates that it meets USP Dissolution Test 2. Proceed as directed in Test 1, except use **Apparatus 1** at 75 rpm and the following **Tolerances**.

**Tolerances** (for products labeled as 100-mg Capsules): The percentage of the labeled amount of phenytoin sodium (C₁₅H₁₁N₂NaO₂) dissolved is NMT 45% (Q) in 30 min, 65% (Q′) in 60 min, and NLT 70% (Q″) in 120 min. The requirements are met if the quantities dissolved from the Capsules tested conform to **Table 3**.
### Table 3

<table>
<thead>
<tr>
<th>Stage</th>
<th>Number Tested</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>6</td>
<td>Each unit is within the range between $Q - 25%$ and $Q - 5%$, is equal to $Q' \pm 20%$, and is NLT $Q'' + 5%$ at the stated Times.</td>
</tr>
<tr>
<td>S₂</td>
<td>6</td>
<td>Average of 12 units ($S₁ + S₂$) is within the range between $Q - 25%$ and $Q - 5%$, is within the range of $Q' - 20%$ and $Q' + 10%$, and is NLT $Q''$; no unit is outside the range between $Q - 30%$ and $Q + 5%$, no unit is outside the range $Q' - 25%$ and $Q' + 20%$, and no unit is less than $Q'' - 10%$ at the stated Times.</td>
</tr>
<tr>
<td>S₃</td>
<td>12</td>
<td>Average of 24 units ($S₁ + S₂ + S₃$) is within the range between $Q - 25%$ and $Q - 5%$, is within the range of $Q' - 20%$ and $Q' + 10%$, and is NLT $Q''$; NMT 2 units are outside the range between $Q - 30%$ and $Q + 5%$; and no unit is outside the range of $Q - 40%$ and $Q + 15%$; NMT 2 units are outside the range $Q' - 25%$ and $Q' + 20%$, and no unit is outside the range $Q' - 35%$ and $Q' + 25%$; NMT 2 units are less than $Q'' - 10%$; and no unit is less than $Q'' - 20%$ at the stated Times.</td>
</tr>
</tbody>
</table>

### Test 3: If the product complies with this test, the labeling indicates that it meets USP Dissolution Test 3.

**Medium:** Water; 900 mL  
**Apparatus 1:** 75 rpm  
**Times:** 30, 60, and 120 min  
Determine the amount of phenytoin sodium ($C_{21}H_{11}N_2NaO_2$) dissolved by using the method described in Test 1.

**Tolerances** (for products labeled as 200- and 300-mg Capsules): The percentage of the labeled amount of phenytoin sodium ($C_{21}H_{11}N_2NaO_2$) dissolved is NMT 30% ($Q$) in 30 min, 50% ($Q'$) in 60 min, and NLT 60% ($Q''$) in 120 min. The requirements are met if the quantities dissolved from the Capsules tested conform to Table 4.

### Table 4

<table>
<thead>
<tr>
<th>Stage</th>
<th>Number Tested</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>6</td>
<td>Each unit is within the range between $Q - 20%$ and $Q + 5%$, is equal to $Q' - 20%$ and $Q' + 25%$, and is NLT $Q'' + 5%$ at the stated Times.</td>
</tr>
<tr>
<td>S₂</td>
<td>6</td>
<td>Average of 12 units ($S₁ + S₂$) is within the range between $Q - 20%$ and $Q$, is within the range of $Q' \pm 20%$, and is NLT $Q''$; no unit is outside the range between $Q - 25%$ and $Q + 10%$, no unit is outside the range $Q' \pm 25%$, and no unit is less than $Q'' - 10%$ at the stated Times.</td>
</tr>
</tbody>
</table>
### Test 4: Dissolution Test 4

**Medium, Apparatus 1, Times, and Analysis:** Proceed as directed for Test 1.

**Tolerances** (for products labeled as 30-mg Capsules): The percentage of the labeled amount of phenytoin sodium \((\text{C}_{15}\text{H}_{11}\text{N}_{2}\text{NaO})\) dissolved is NMT 40% \((Q)\) in 30 min, 56% \((Q')\) in 60 min, and NLT 65% \((Q'')\) in 120 min. The requirements are met if the quantities dissolved from the Capsules tested conform to \(\text{Table 5}\).

### Table 5

<table>
<thead>
<tr>
<th>Stage</th>
<th>Number Tested</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>(S_1)</td>
<td>6</td>
<td>Each unit is within the range between (Q - 10%) and (Q), is within the range of (Q' - 9%) and (Q' + 7%), and is NLT (Q'' + 5%) at the stated (\text{Times}).</td>
</tr>
<tr>
<td>(S_2)</td>
<td>6</td>
<td>Average of 12 units ((S_1 + S_2)) is within the range between (Q - 8%) and (Q + 2%), is within the range (Q' - 9%) and (Q' + 7%), and is NLT (Q''); no unit is outside the range (Q - 20%) and (Q + 10%), no unit is outside the range (Q' - 19%) and (Q' + 17%), and no unit is less than (Q'' - 10%) at the stated (\text{Times}).</td>
</tr>
<tr>
<td>(S_3)</td>
<td>12</td>
<td>Average of 24 units ((S_1 + S_2 + S_3)) is within the range between (Q - 8%) and (Q + 2%), is within the range (Q' - 9%) and (Q' + 7%), and is NLT (Q''); NMT 2 units are outside the range between (Q - 20%) and (Q + 10%), and no unit is outside the range (Q' - 26%) and (Q' + 24%); NMT 2 units are less than (Q'' - 10%), and no unit is less than (Q'' - 20%) at the stated (\text{Times}).</td>
</tr>
</tbody>
</table>

### Test 5: Dissolution Test 5

**Medium, Apparatus 1, Times, and Analysis:** Proceed as directed for Test 1.

**Tolerances** (for products labeled as 100-mg Capsules): The percentage of the labeled amount of phenytoin sodium \((\text{C}_{15}\text{H}_{11}\text{N}_{2}\text{NaO})\) dissolved is NMT 45% \((Q)\) in 30 min, 65% \((Q')\) in 60 min, and NLT 80% \((Q'')\) in 120 min. The requirements are met if the quantities dissolved from the Capsules tested conform to \(\text{Table 6}\).

### Table 6

<table>
<thead>
<tr>
<th>Stage</th>
<th>Number Tested</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage</td>
<td>Number Tested</td>
<td>Acceptance Criteria</td>
</tr>
<tr>
<td>-------</td>
<td>---------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>S₁</td>
<td>6</td>
<td>Each unit is within the range between $Q - 25%$ and $Q - 5%$, is between $Q' + 20%$ and $Q' - 15%$, and is NLT $Q'' + 5%$ at the stated Times.</td>
</tr>
<tr>
<td>S₂</td>
<td>6</td>
<td>Average of 12 units ($S₁ + S₂$) is within the range between $Q - 25%$ and $Q - 5%$, is within the range $Q' ± 15%$, and is NLT $Q''$; no unit is outside the range between $Q - 30%$ and $Q + 10%$, no unit is outside the range $Q' + 25%$ and $Q' − 20%$, and no unit is less than $Q'' − 10%$ at the stated Times.</td>
</tr>
<tr>
<td>S₃</td>
<td>12</td>
<td>Average of 24 units ($S₁ + S₂ + S₃$) is within the range between $Q - 25%$ and $Q - 5%$, is within the range $Q' ± 15%$, and is NLT $Q''$; NMT 2 units are outside the range between $Q - 30%$ and $Q + 10%$, and no unit is outside the range $Q - 35%$ and $Q + 20%$; NMT 2 units are outside the range between $Q' + 25%$ and $Q' − 20%$, and no unit is outside the range $Q' + 30%$ and $Q' − 25%$; NMT 2 units are less than $Q'' − 10%$, and no unit is less than $Q'' − 20%$ at the stated Times.</td>
</tr>
</tbody>
</table>

**Test 6:** If the product complies with this test, the labeling indicates that it meets USP *Dissolution Test 6.*

**Medium:** Water; 900 mL, deaerated

**Apparatus 1:** 50 rpm

**Times:** 30, 60, and 180 min

**Buffer:** 2.72 g/L of monobasic potassium phosphate in water. Adjust with phosphoric acid to a pH of 3.5.

**Mobile phase:** Acetonitrile and Buffer (50:50)

**Standard stock solution:** 2.0 mg/mL of USP Phenytoin RS in methanol. Sonicate if necessary.

**Standard solution:** 0.1 mg/mL of USP Phenytoin RS from Standard stock solution, in Medium

**Sample solution:** Pass a portion of the solution under test through a suitable filter of 0.45-μm pore size, and discard the first 2 mL of filtrate. Replace the portion of solution removed from the vessel with an equivalent volume of Medium equilibrated to $37 ± 0.5°$.

**Chromatographic system**
(See *Chromatography (621), System Suitability.*)

**Mode:** LC

**Detector:** UV 229 nm

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

**Column temperature:** 35°

**Flow rate:** 1.5 mL/min

**Injection volume:** 10 μL

**Run time:** NLT 1.7 times the retention time of phenytoin

**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

Determine the concentration ($C_i$) of phenytoin sodium ($C_{15}H_{11}N_2NaO_2$) in the sample withdrawn from the vessel at each time point ($i$):
Result = \left( \frac{r_U}{r_S} \right) \times C_S \times \left( \frac{M_{r1}}{M_{r2}} \right)

\text{Result} = \text{peak response of phenytoin from the Sample solution}

\text{Result} = \text{peak response of phenytoin from the Standard solution}

C_S = \text{concentration of USP Phenytoin RS in the Standard solution (mg/mL)}

M_{r1} = \text{molecular weight of phenytoin sodium, 274.25}

M_{r2} = \text{molecular weight of phenytoin, 252.27}

Calculate the percentage of the labeled amount of phenytoin sodium \( (C_{15}H_{11}N_2NaO_2) \) dissolved at each time point \((i)\):

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

\text{Result}_2 = \left( (C_2 \times V) \times (C_1 \times V_S) \right) \times \left( \frac{1}{L} \right) \times 100

\text{Result}_3 = \left( (C_3 \times V) \times (C_2 + C_1) \times V_S \right) \times \left( \frac{1}{L} \right) \times 100

C_i = \text{concentration of phenytoin sodium in the portion of sample withdrawn at each time point (mg/mL)}

V = \text{volume of Medium, 900 mL}

L = \text{label claim (mg/Capsule)}

V_S = \text{volume of the Sample solution withdrawn from the vessel and replaced with Medium at each time point (mL)}

\text{Tolerances (for products labeled as 100-mg Capsules): See Table 7.}

<table>
<thead>
<tr>
<th>Time Point ((i))</th>
<th>Time ((\text{min}))</th>
<th>Amount Dissolved ((%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30</td>
<td>NMT 52 ((Q))</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>65 ((Q'))</td>
</tr>
<tr>
<td>3</td>
<td>180</td>
<td>NLT 80 ((Q''))</td>
</tr>
</tbody>
</table>

The requirements are met if the percentages of the labeled amount of phenytoin sodium \( (C_{15}H_{11}N_2NaO_2) \) dissolved from the Capsules at the times specified conform to Table 8.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Number Tested</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>L_2</td>
<td>12</td>
<td>Average of 12 units is within the range between Q – 20% and Q, is within the range Q’ ± 10%, and is NLT Q’’; no unit is outside the range between Q – 30% and Q + 10%, no unit is outside the range Q’ ± 20%, and no unit is less than Q” – 10% at the stated Times.</td>
</tr>
<tr>
<td>Stage</td>
<td>Number Tested</td>
<td>Acceptance Criteria</td>
</tr>
<tr>
<td>-------</td>
<td>--------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>L₃</td>
<td>12</td>
<td>Average of 24 units ((L₂ + L₃)) is within the range between (Q − 20%) and (Q), is within the range (Q′ ± 10%), and is NLT (Q″); NMT 2 units are outside the range between (Q − 30%) and (Q + 10%,) and no unit is outside the range (Q − 40%) and (Q + 20%); NMT 2 units are outside the range (Q′ ± 20%), and no unit is outside the range (Q′ ± 30%); NMT 2 units are less than (Q″ − 10%), and no unit is less than (Q″ − 20%) at the stated Times. ▲ (RB 1-Mar-2021)</td>
</tr>
</tbody>
</table>

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

**Impurities**

**Change to read:**

**Organic Impurities**

Buffer, Mobile phase, Sample solution, and Chromatographic system: Proceed as directed in the Assay.

Standard solution: 600 µg/mL of USP Phenytoin RS, 3 µg/mL of USP Phenytoin Related Compound A RS, and 3 µg/mL of USP Phenytoin Related Compound B RS in methanol

System suitability

Sample: Standard solution

[Note—The relative retention times for phenytoin related compound A, phenytoin related compound B, and phenytoin are 0.38, 0.45, and 1.0, respectively.]

Suitability requirements

Resolution: NLT 8 between phenytoin related compound B and phenytoin; NLT 1.5 between phenytoin related compound A and phenytoin related compound B

Tailing factor: NMT 2.0 for the phenytoin peak

Relative standard deviation: NMT 2.0% for phenytoin; NMT 5.0% for phenytoin related compound A or phenytoin related compound B

Analysis

Samples: Standard solution and Sample solution

Calculate the percentage of each phenytoin related compound in the portion of Capsules taken:

\[
\text{Result} = \left(\frac{r_U}{r_S}\right) \times \left(\frac{C_S}{C_U}\right) \times 100
\]

\(r_U\) = peak response of phenytoin related compound A or phenytoin related compound B from the Sample solution

\(r_S\) = peak response of phenytoin related compound A or phenytoin related compound B from the Standard solution

\(C_S\) = concentration of the corresponding analyte in the Standard solution (µg/mL)

\(C_U\) = nominal concentration of phenytoin in the Sample solution (µg/mL)

Calculate the percentage of any individual unspecified degradation product in the portion of Capsules taken:

\[
\text{Result} = \left(\frac{r_U}{r_S}\right) \times \left(\frac{C_S}{C_U}\right) \times 100
\]

\(r_U\) = peak response of each unspecified degradation product from the Sample solution

\(r_S\) = peak response of phenytoin from the Standard solution

\(C_S\) = concentration of USP Phenytoin RS in the Standard solution (µg/mL)

\(C_U\) = nominal concentration of phenytoin in the Sample solution (µg/mL)
Acceptance criteria: See Table 9.

**Table 9** (RB 1-Mar-2021)

<table>
<thead>
<tr>
<th>Name</th>
<th>Relative Retention Time</th>
<th>Acceptance Criteria, NMT (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenytoin related compound A</td>
<td>0.38</td>
<td>0.5</td>
</tr>
<tr>
<td>Phenytoin related compound B</td>
<td>0.45</td>
<td>1.0</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>1.0</td>
<td>—</td>
</tr>
<tr>
<td>Any individual, unspecified degradation product</td>
<td>—</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**ADDITIONAL REQUIREMENTS**

- **Packaging and Storage:** Preserve in tight, light-resistant containers. Protect from moisture. Store at controlled room temperature.
- **Labeling:** When more than one Dissolution test is given, the labeling states the Dissolution test used only if Test 1 is not used.
- **USP Reference Standards (11)**
  - USP Phenytoin RS
  - USP Phenytoin Related Compound A RS
  - Diphenylglycine.  
    \[ C_{14}H_{13}NO_2 \] 227.26
  - USP Phenytoin Related Compound B RS
  - Diphenylhydantoic acid.  
    \[ C_{15}H_{14}N_2O_3 \] 270.29

Page Information:

Not Applicable

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