

## Extended Phenytoin Sodium Capsules

<b>Type of Posting</b>	Notice of Intent to Revise
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<b>Official Date</b>	To Be Determined, Revision Bulletin
<b>Expert Committee</b>	Chemical Medicines Monographs 4

In accordance with section 7.04 (c) of the 2015–2020 Rules and Procedures of the Council of Experts and the [Pending Monograph Guideline](#), this is to provide notice that the Chemical Medicines Monographs 4 Expert Committee intends to revise the Extended Phenytoin Sodium Capsules monograph.

Based on the supporting data received from a manufacturer awaiting FDA approval, the Expert Committee proposes to add *Dissolution Test 6* to accommodate FDA-approved drug products with different dissolution conditions and/or tolerances than the existing dissolution tests.

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

The revision also necessitates a change in the table numbering in the test for *Organic Impurities*.

Existing references to reagents also have been updated for consistency with the reagent entry names. For additional information about reagent cross references, please see the related [Compendial Notice](#).

The proposed revision is contingent on FDA approval of a product that meets the proposed monograph specifications. The proposed revision will be published as a Revision Bulletin and an official date will be assigned to coincide as closely as possible with the FDA approval of the associated product. See below for additional information about the proposed text.<sup>1</sup>

Should you have any questions, please contact Claire Chisolm, Scientific Liaison (301-230-3215 or [cnc@usp.org](mailto:cnc@usp.org)).

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<sup>1</sup> This text is not the official version of a *USP–NF* monograph and may not reflect the full and accurate contents of the currently official monograph. Please refer to the current edition of the *USP–NF* for official text.

USP provides this text to indicate changes that we anticipate will be made official once the product subject to this proposed revision under the Pending Monograph Program receives FDA approval. Once FDA approval is granted for the associated revision request, a Revision Bulletin will be posted that will include the changes indicated herein, as well as any changes indicated in the product's final approval, combined with the text of the monograph as effective on the date of approval. Any revisions made to a monograph under the Pending Monograph Program that are posted without prior publication for comment in the *Pharmacopeial Forum* must also meet the requirements outlined in the [USP Guideline on Use of Accelerated Processes for Revisions to the USP–NF](#).

## Extended Phenytoin Sodium Capsules

### DEFINITION

Extended Phenytoin Sodium Capsules contain NLT 95.0% and NMT 105.0% of the labeled amount of phenytoin sodium ( $C_{15}H_{11}N_2NaO_2$ ).

### IDENTIFICATION

#### Change to read:

#### A. INFRARED ABSORPTION—GENERAL (197)

**Sample:** 300 mg of phenytoin sodium from the contents of Capsules in 50 mL of water in a separator. Add 10 mL of  $\Delta$ 3 N hydrochloric acid TS,  $\Delta$ (TBD) and extract with three successive portions, measuring 100, 60, and 30 mL, respectively, of  $\Delta$ ethyl ether  $\Delta$ (TBD) 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  $\times$  25-cm; packing L1

**Flow rate:** 1 mL/min

**Injection volume:** 10  $\mu$ L

#### 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 ( $C_{15}H_{11}N_2NaO_2$ ) in the portion of Capsules taken:

$$\text{Result} = (r_U/r_S) \times (C_S/C_U) \times (M_{r1}/M_{r2}) \times 100$$

$r_U$  = 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  $\times$  25-cm; packing L1

**Flow rate:** 1 mL/min

**Injection volume:** 10  $\mu$ L

#### 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:

$$\text{Result} = (r_U/r_S) \times C_S \times (M_{r1}/M_{r2}) \times V \times (100/L)$$

$r_U$  = 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**

Stage	Number Tested	Acceptance Criteria
$S_1$	6	Each unit is within the range between $Q - 15\%$ and $Q - 5\%$ , is within the range $Q' \pm 10\%$ , and is NLT $Q'' + 5\%$ at the stated <i>Times</i> .
$S_2$	6	Average of 12 units ( $S_1 + S_2$ ) is within the range between $Q - 10\%$ and $Q$ , is within the range $Q' \pm 8\%$ , and is NLT $Q''$ ; no unit is outside the range between $Q - 20\%$ and $Q + 10\%$ , no unit is outside the range $Q' \pm 18\%$ , and no unit is less than $Q'' - 10\%$ at the stated <i>Times</i> .

**Table 1** (continued)

Stage	Number Tested	Acceptance Criteria
S <sub>3</sub>	12	Average of 24 units ( $S_1 + S_2 + S_3$ ) is within the range between $Q - 10\%$ and $Q$ , is within the range $Q' \pm 8\%$ , 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 $Q' \pm 18\%$ , and no unit is outside the range $Q' \pm 25\%$ ; NMT 2 units are less than $Q'' - 10\%$ , and no unit is less than $Q'' - 20\%$ at the stated <i>Times</i> .

**Tolerances** (for products labeled as 100-mg Capsules): The percentage of the labeled amount of phenytoin sodium ( $C_{15}H_{11}N_2NaO_2$ ) dissolved is NMT 45% (Q) in 30 min, 60% (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**

Stage	Number Tested	Acceptance Criteria
S <sub>1</sub>	6	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 <i>Times</i> .
S <sub>2</sub>	6	Average of 12 units ( $S_1 + S_2$ ) is within the range between $Q - 20\%$ and $Q$ , is within the range $Q' \pm 15\%$ , and is NLT $Q''$ ; no unit is outside the range between $Q - 30\%$ and $Q + 10\%$ , no unit is outside the range $Q' \pm 25\%$ , and no unit is less than $Q'' - 10\%$ at the stated <i>Times</i> .
S <sub>3</sub>	12	Average of 24 units ( $S_1 + S_2 + S_3$ ) is within the range between $Q - 20\%$ and $Q$ , is within the range $Q' \pm 15\%$ , and is NLT $Q''$ ; NMT 2 units are outside the range between $Q - 30\%$ and $Q + 10\%$ , and no unit is outside the range between $Q - 40\%$ and $Q + 20\%$ ; NMT 2 units are outside the range $Q' \pm 25\%$ , and no unit is outside the range $Q' \pm 35\%$ ; NMT 2 units are less than $Q'' - 10\%$ , and no unit is less than $Q'' - 20\%$ at the stated <i>Times</i> .

**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 ( $C_{15}H_{11}N_2NaO_2$ ) 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**

Stage	Number Tested	Acceptance Criteria
S <sub>1</sub>	6	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 <i>Times</i> .
S <sub>2</sub>	6	Average of 12 units ( $S_1 + S_2$ ) 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 <i>Times</i> .

**Table 3** (continued)

Stage	Number Tested	Acceptance Criteria
S <sub>3</sub>	12	Average of 24 units ( $S_1 + S_2 + S_3$ ) 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 <i>Times</i> .

**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 ( $C_{15}H_{11}N_2NaO_2$ ) 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 ( $C_{15}H_{11}N_2NaO_2$ ) 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**

Stage	Number Tested	Acceptance Criteria
S <sub>1</sub>	6	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 <i>Times</i> .
S <sub>2</sub>	6	Average of 12 units ( $S_1 + S_2$ ) 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 <i>Times</i> .
S <sub>3</sub>	12	Average of 24 units ( $S_1 + S_2 + S_3$ ) is within the range between $Q - 20\%$ and $Q$ , is within the range of $Q' \pm 20\%$ , and is NLT $Q''$ ; NMT 2 units are outside the range between $Q - 25\%$ and $Q + 10\%$ , and no unit is outside the range $Q - 25\%$ and $Q + 15\%$ ; NMT 2 units are outside the range $Q' \pm 25\%$ ; and no unit is outside the range $Q' \pm 30\%$ ; NMT 2 units are less than $Q'' - 10\%$ ; and no unit is less than $Q'' - 20\%$ at the stated <i>Times</i> .

**Test 4:** If the product complies with this test, the labeling indicates that it meets USP *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 ( $C_{15}H_{11}N_2NaO_2$ ) 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 5*.

**Table 5**

Stage	Number Tested	Acceptance Criteria
S <sub>1</sub>	6	Each unit is within the range between $Q - 10\%$ and $Q$ , is within the range $Q' - 9\%$ and $Q' + 7\%$ , and is NLT $Q'' + 5\%$ at the stated <i>Times</i> .

**Table 5** (continued)

Stage	Number Tested	Acceptance Criteria
S <sub>2</sub>	6	Average of 12 units (S <sub>1</sub> + S <sub>2</sub> ) 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 between 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 Times.
S <sub>3</sub>	12	Average of 24 units (S <sub>1</sub> + S <sub>2</sub> + S <sub>3</sub> ) 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 – 30% and Q + 20%; NMT 2 units are outside the range Q' – 19% and Q' + 17%, 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 Times.

**Test 5:** If the product complies with this test, the labeling indicates that it meets USP *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 (C<sub>15</sub>H<sub>11</sub>N<sub>2</sub>NaO<sub>2</sub>) 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 *Table 6*.

**Table 6**

Stage	Number Tested	Acceptance Criteria
S <sub>1</sub>	6	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.
S <sub>2</sub>	6	Average of 12 units (S <sub>1</sub> + S <sub>2</sub> ) 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.
S <sub>3</sub>	12	Average of 24 units (S <sub>1</sub> + S <sub>2</sub> + S <sub>3</sub> ) 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.

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

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

**Apparatus 1:** 50 rpm

**Times:** 30, 60, and 120 min

**Buffer:** 2.72 g/L of monobasic potassium phosphate in water. Adjust with phosphoric acid to a pH of 3.5 ± 0.05.

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

**Standard stock solution:** 2.0 mg/mL of USP Phenytoin RS in methanol. Sonication may be used, if needed.

**Standard solution:** (L/900) mg/mL of USP Phenytoin RS from *Standard stock solution* in *Medium*, where L is the label claim in mg/Capsule

**Sample solution:** Pass a portion of the solution under test through a suitable filter. Replace the portion of solution removed from the vessel with an equivalent volume of warmed *Medium*.

**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*

Calculate the concentration (C<sub>i</sub>) of phenytoin sodium (C<sub>15</sub>H<sub>11</sub>N<sub>2</sub>NaO<sub>2</sub>) in *Medium* after each time point (i):

$$C_i = (r_U/r_S) \times C_S \times (M_{r1}/M_{r2})$$

- r<sub>U</sub> = peak response from the *Sample solution*
- r<sub>S</sub> = peak response from the *Standard solution*
- C<sub>S</sub> = concentration of USP Phenytoin RS in the *Standard solution* (mg/mL)
- M<sub>r1</sub> = molecular weight of phenytoin sodium, 274.25
- M<sub>r2</sub> = molecular weight of phenytoin, 252.27

Calculate the percentage of the labeled amount of phenytoin sodium (C<sub>15</sub>H<sub>11</sub>N<sub>2</sub>NaO<sub>2</sub>) dissolved at each time point (i):

$$\text{Result}_1 = C_1 \times V \times (1/L) \times 100$$

$$\text{Result}_2 = [(C_2 \times V) + (C_1 \times V_S)] \times (1/L) \times 100$$

$$\text{Result}_3 = \{(C_3 \times V) + [(C_2 + C_1) \times V_S]\} \times (1/L) \times 100$$

- C<sub>i</sub> = concentration of phenytoin sodium in *Medium* in the portion of sample withdrawn at each time point (mg/mL)
- V = volume of *Medium*, 900 mL
- L = label claim (mg/Capsule)
- V<sub>S</sub> = volume of the *Sample solution* withdrawn from the vessel and replaced with *Medium* (mL)

**Tolerances** (for products labeled as 100-mg Capsules):

The percentage of the labeled amount of phenytoin sodium (C<sub>15</sub>H<sub>11</sub>N<sub>2</sub>NaO<sub>2</sub>) dissolved is NMT 52% (Q) in 30 min, 60% (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 7*.

**Table 7**

Stage	Number Tested	Acceptance Criteria
S <sub>1</sub>	12	Average of 12 units 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.

## 4 Phenytoin

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Official: To Be Determined

**Table 7** (continued)

Stage	Number Tested	Acceptance Criteria
S <sub>2</sub>	12	Average of 24 units (S <sub>1</sub> + S <sub>2</sub> ) 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.▲ (TBD)

- **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:

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

r<sub>U</sub> = peak response of phenytoin related compound A or phenytoin related compound B from the *Sample solution*

r<sub>S</sub> = peak response of phenytoin related compound A or phenytoin related compound B from the *Standard solution*

C<sub>S</sub> = concentration of the corresponding analyte in the *Standard solution* (µg/mL)

C<sub>U</sub> = 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:

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

r<sub>U</sub> = peak response of each unspecified degradation product from the *Sample solution*

r<sub>S</sub> = peak response of phenytoin from the *Standard solution*

C<sub>S</sub> = concentration of USP Phenytoin RS in the *Standard solution* (µg/mL)

C<sub>U</sub> = nominal concentration of phenytoin in the *Sample solution* (µg/mL)

**Acceptance criteria:** See ▲Table 8.

**Table 8**▲ (TBD)

Name	Relative Retention Time	Acceptance Criteria, NMT (%)
Phenytoin related compound A	0.38	0.5
Phenytoin related compound B	0.45	1.0
Phenytoin	1.0	—
Any individual, unspecified degradation product	—	0.2

### 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<sub>14</sub>H<sub>13</sub>NO<sub>2</sub> 227.26

USP Phenytoin Related Compound B RS  
Diphenylhydantoic acid.  
C<sub>15</sub>H<sub>14</sub>N<sub>2</sub>O<sub>3</sub> 270.29