

TELEPHONE: 514-905-5096 FAX: 514-905-5097 technicalservices@medisca.net

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| Suggested Formula | Ursodiol 150 mg Oral Capsules (Powder blend, 100 x Size # 3 Capsules) | FIN | F 000 414v2 |
|----------------------|---|-----|-------------|
|----------------------|---|-----|-------------|

SUGGESTED FORMULATION

| Ingredient Listing | Qty. | Unit | NDC# | Supplier | Lot Number | Expiry Date |
|----------------------------------|------------------|------|------|----------|---------------|----------------|
| Ursodiol | 15.000 | g | | | | |
| Cellulose (Microcrystalline), NF | to be calculated | | | | | |
| Sodium Chloride, USP | As required | | | ® | | |

SPECIAL PREPARATORY CONSIDERATIONS

| Ingredient-Specific Information | |
|--|--|
| Hygroscopic (protect from moisture whenever possible): Cellulose (Microcrystalline) | |
| Suggested Preparatory Guidelines | |
| Non-Sterile Preparation Sterile Preparation | |
| <u>Processing Error / </u> <u>Testing Considerations</u> : To account for processing error considerations during preparation, it is suggested to measure an additional 10 to 12% of the required quantities of ingredients. | |
| Special Instruction: Protective apparel, such as a lab coat, disposable gloves, eyewear and face-masks should always be worn. | |
| All calculations and preparation techniques must be verified before dispensing the final product. | |



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SUGGESTED PREPARATION (for 100 Size #3 Capsules)

Weigh and / or measure the following ingredients when appropriate:

| Ingredient Listing | Qty. | Unit | Multiplication factor (*): | Processing Error | Qty. to measure |
|--------------------------------------|------------------|------|----------------------------|---------------------|-----------------|
| Ursodiol | 15.000 | g | | | |
| Cellulose (Microcrystalline), NF (§) | to be calculated | | © | | |
| Sodium Chloride, USP | As required | | 777 | | |

- * Takes into account increased batch size conversions and density conversions, if required.
- § Weigh / measure just prior to use.

| | | Preparatory Instruction | | |
|----|-----------|--|---------|--|
| 1. | Ingredie | nt quantification (API requirements per capsule): | | |
| | Calculate | the quantity (in mL) of Ursodiol required for one, size #3 capsule: | | |
| | A. Ca | lculate the Ursodiol bulk density. Refer to the attached Appendix for details: | | |
| | B. De | etermine the quantity (in mL) of the Ursodiol required for each capsule: | | |
| | | Required quantity (in g) of Ursodiol per capsule: | 0.150 g | |
| | | DIVIDED BY | | |
| | | Ursodiol bulk density (from Appendix): | g / mL | |
| | | EQUALS | | |
| | | Quantity of Ursodiol (in mL) required for 1 capsule | mL | |
| | | | | |



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| <u>Ingr</u> | redient quantification (excipient requirements for 100 x size #3 capsules): | |
|-------------|--|---------------|
| A. | Calculate the bulk density of Cellulose (Microcrystalline). Refer to the attached Append | lix for detai |
| B. | Calculate the quantity (in mL) of Cellulose (Microcrystalline) required for each capsule | : |
| | Volume of Size #3 capsule: | 0.30 mL |
| | MINUS | |
| | Quantity (in mL) of Ursodiol powder required for 1 capsule (Step 1B): | mL |
| | EQUALS | |
| | Quantity (in mL) of Cellulose (Microcrystalline) required for 1 capsule | mL |
| C. | Calculate the total quantity (g) of Cellulose (Microcrystalline) required: | |
| | Bulk Density of Cellulose (Microcrystalline) (from Appendix) | g/mL |
| | MULTIPLIED BY Quantity (in mL) of Cellulose (Microcrystalline) required for 1 capsule (Step 2B) | ıT |
| | EQUALS | IIIL |
| | i. Quantity (in g) of Cellulose (Microcrystalline) required for 1 capsule | Œ |
| | MULTIPLIED BY | g |
| | Conversion factor – 1 to 100 capsules | 100 |
| | EQUALS | 100 |
| | ii. Quantity of Cellulose (Microcrystalline) required for 100 capsules | g |
| | MULTIPLIED BY | |
| | MOLTIPLIED BY | |
| | | 0 to 1.12 |
| | | 0 to 1.12 |



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Suggested Ursodiol 150 mg Oral Capsules (Powder blend, 100 x Size # 3 Capsules) FIN F 000 414v2 Formula 2. D. Calculate the theoretical weight of powder per capsule: 0.150 gRequired quantity (in g) of Ursodiol per capsule: PLUS Quantity (in g) of Cellulose (Microcrystalline) required for 1 capsule (Step 2Ci) Theoretical weight of powder (in g) per capsule 3. Powder preparation: A. By geometric addition, combine and mix the following ingredients together: - Cellulose (Microcrystalline) – (quantity determined from Step 2Ciii) - Ursodiol – (15.000 g *plus* processing error adjustments) End result: Homogeneous powder blend. 4. **Product transfer (powder-to-capsule filling):** Fill each of 100 Size #3 capsules with the homogeneous powder blend (Step 3A). Close each capsule tightly. Clean each capsule by placing the capsules in a container filled with Sodium chloride, and then gently rolling the container. Pour the container contents into a 10-mesh sieve, and allow the Sodium chloride to pass through. Finally, roll the capsules on a cloth-covered surface. 5. Validation technique (average capsule weight): The final weight of each capsule (not including capsule shell) should fall between 90 and 110% of the theoretically calculated weight (Step 2D), in accordance to USP 795 guidelines. 6. **Product transfer (solid-to-dispensing container filling):** Transfer the final product into the specified dispensing container (see "Packaging Requirements").



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SUGGESTED PRESENTATION

| IGGESTED PRI | | MIAHON | - | | |
|----------------------------|--|--------------------------------------|--------------|-------------------------------------|--|
| | Estimated Beyond-Use Date 6 months Packagin Requirement | | | Pill bottle or wide-mouth container | |
| | 1 | Use as directed. Do not exceed dose. | d prescribed | 4 | Cap tightly after use. |
| Auxiliary Labels | 2 | Keep out of reach of children. | | 5 | Consult your health care practitioner if any prescription or over-the-counter medications are currently being used or are prescribed for future use. |
| | 3 | Keep in a dry place. | | 6 | |
| Pharmacist Instructions | Add any auxiliary labels specific to the API to the dispensing container as deemed necessary. Contact your pharmacist in the event of adverse reactions | | | | pensing container as deemed necessary. |
| Patient Instructions | | | | | |



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REFERENCES

| 1. | Capsules. In: Allen, LV, Jr. <i>The Art, Science and Technology of Pharmaceutical Compounding</i> . American Pharmaceutical Association; 1998: 91. |
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| 2. | USP <795>. <i>United States Pharmacopeia XXVIII / National Formulary 23</i> . Rockville, MD. US Pharmacopeial Convention, Inc. 2004: 2457. |
| 3. | Urso. In: Canadian Pharmacists Association. Compendium of Pharmacists and Specialties, 2003. p. 1797. |
| 4. | Cellulose, Microcrystalline. In: Rowe RC. <i>Handbook of Pharmaceutical Excipients</i> , 4 th Edition. American Pharmaceutical Association; 2003:108. |
| 5. | Ursodiol (Monograph). In: O'Neil MJ. <i>The Merck Index 13th Edition</i> . Whitehouse Station, NJ: Merck & Co, Inc.; 2001: 1761. |
| 6. | Gennaro AR, ed. <i>Remington: The Science and Practice of Pharmacy, 20th Edition.</i> Baltimore, MD: Lippincott Williams & Wilkins; 2000. |



Appendix

Bulk Density Calculation for Capsules

Discard the capsules and any remaining powder.

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| | Bulk Density Calculation | |
|----|--|------|
| 1. | Powder preparation: a. Measure a sufficient quantity of the specified ingredient. | |
| 2. | Bulk density calculation: a. Weigh five empty capsules. Record the total weight here: b. Fill the five capsules with the Ingredient powder and weigh. Record the total weight here: c. Calculate the bulk density: Weight of the ingredient (Step b – Step a) DIVIDED BY Fill volume of five, Size #3 capsules (5 x 0.3 mL) EQUALS Ingredient bulk density g/mL | - gg |
| | ingredient bulk density g/inc | |