

**CENTER FOR DRUG EVALUATION AND RESEARCH**

**Application Number** 21-472

**CHEMISTRY REVIEW(S)**

**NDA 21-472**

**Ibuprofen Capsules, 200mg**

**Banner Pharmacaps Inc.**

**Rao Puttagunta, Ph.D.**  
**Division of Anti-inflammatory, Analgesic and**  
**Ophthalmic Drug Products (HFD-550)**

**APPEARS THIS WAY  
ON ORIGINAL**

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**Chemistry Review Data Sheet**

1. NDA #: 21-472
2. REVIEW #: 1
3. REVIEW DATE: 13-AUG-2002
4. REVIEWER: Rao Puttagunta, Ph.D.
5. PREVIOUS DOCUMENTS: N/A
6. SUBMISSION(S) BEING REVIEWED:

| <u>Submission(s) Reviewed</u> | <u>Document Date</u> |
|-------------------------------|----------------------|
| Original                      | 14-DEC-2001          |
| Amendment (BC)                | 28-JAN-2002          |
| Amendment (BC)                | 19-MAR-2002          |
| Amendment (BC)                | 31-MAY-2002          |
| Amendment (BC)                | 01-AUG-2002          |
| Amendment (BC)                | 06-AUG-2002          |
| Amendment (BC)                | 22-AUG-2002          |
| Amendment (BC)                | 25-SEP-2002          |
| Amendment (BC)                | 01-OCT-2002          |
| Amendment (BC)                | 07-OCT-2002          |

**7. NAME & ADDRESS OF APPLICANT:**

Name: Banner Pharmacaps Inc.  
Address: 4125 Premier Drive, High Point, NC 27265  
Representative: Donna Lee, Director, Regulatory Affairs  
Telephone: 336-812-8700 x3312

**8. DRUG PRODUCT NAME/CODE/TYPE:**

- a) Proprietary Name: N/A
- b) Non-Proprietary Name (USAN): Ibuprofen Capsules, 200 mg
- c) Code Name/# (ONDC only): N/A
- d) Chem. Type/Submission Priority (ONDC only):
  - Chem. Type: 3
  - Submission Priority: S

## CHEMISTRY REVIEW

### Chemistry Review Data Sheet

9. LEGAL BASIS FOR SUBMISSION: 505 (b)(2)

RLD: 1. Advil Liqui-Gel capsules, 200 mg, White-Robins, NDA 20-402

2. Nuprin tablets, 200 mg, McNeil Consumer Healthcare, NDA 19-012

10. PHARMACOL. CATEGORY: Analgesic and Anti-inflammatory

11. DOSAGE FORM: Capsule, Liquid Filled

12. STRENGTH/POTENCY: 200 mg/capsule

13. ROUTE OF ADMINISTRATION: Oral

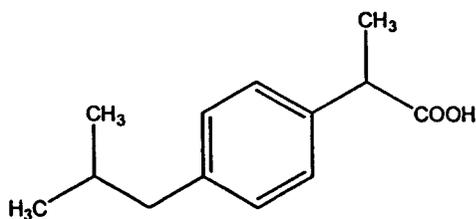
14. Rx/OTC DISPENSED:  Rx  OTC

15. SPOTS (SPECIAL PRODUCTS ON-LINE TRACKING SYSTEM):

SPOTS product – Form Completed

Not a SPOTS product

16. CHEMICAL NAME, STRUCTURAL FORMULA, MOLECULAR FORMULA, MOLECULAR WEIGHT:



(±)-2-(p-Isobutylphenyl)propionic acid, C<sub>13</sub>H<sub>18</sub>O<sub>2</sub>, Mol. Wt. 206.28

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# CHEMISTRY REVIEW

## Chemistry Review Data Sheet

### 17. RELATED/SUPPORTING DOCUMENTS:

#### A. DMFs:

| DMF #         | TYPE | HOLDER | ITEM REFERENCED | CODE <sup>1</sup> | STATUS <sup>2</sup> | DATE REVIEW COMPLETED | COMMENTS  |
|---------------|------|--------|-----------------|-------------------|---------------------|-----------------------|---|
| ---           | II   | ---    | ---             | 3                 | Adequate            | 11/08/01              | ---   |
| <b>Bottle</b> |      |        |                 |                   |                     |                       |   |
| ---           | III  | ---    | ---             | 7                 | ---                 | ---                   | Complies with 21 CFR §170 - 189                     |
| ---           | III  | ---    | ---             | 3                 | Adequate            | 2/09/01               | ---   |
| ---           | III  | ---    | ---             | 7                 | ---                 | ---                   | Complies with 21 CFR §177.1520 & 178.2010           |
| ---           | III  | ---    | ---             | 3                 | Adequate            | 2/09/01               | ---   |
| ---           | III  | ---    | ---             | 1                 | Adequate            | 10/07/02              | ---   |
| <b>Cap</b>    |      |        |                 |                   |                     |                       |   |
| ---           | III  | ---    | ---             | 1                 | Adequate            | 10/07/02              | ---   |
| ---           | III  | ---    | ---             | 3                 | Adequate            | 5/17/00               | ---   |
| ---           | III  | ---    | ---             | 3                 | Adequate            | 9/18/00               | ---   |
| ---           | III  | ---    | ---             | 7                 | ---                 | ---                   | Complies with 21 CFR §177.1520, 177.3297 & 178.2010 |
| ---           | III  | ---    | ---             | 3                 | Adequate            | 11/12/96              | ---   |

<sup>1</sup> Action codes for DMF Table:  
1 - DMF Reviewed.

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**CHEMISTRY REVIEW**

## Chemistry Review Data Sheet

Other codes indicate why the DMF was not reviewed, as follows:

- 2 – Type 1 DMF
- 3 – Reviewed previously and no revision since last review
- 4 – Sufficient information in application
- 5 – Authority to reference not granted
- 6 – DMF not available
- 7 – Other (explain under "Comments")

<sup>2</sup> Adequate, Inadequate, or N/A (There is enough data in the application, therefore the DMF did not need to be reviewed)

**B. Other Documents:**

| DOCUMENT | APPLICATION NUMBER | DESCRIPTION                |
|----------|--------------------|----------------------------|
| IND      | 62,553             | Ibuprofen Capsules, 200 mg |

**18. STATUS:**

| CONSULTS/ CMC RELATED REVIEWS | RECOMMENDATION                           | DATE        | REVIEWER      |
|-------------------------------|--|-------------|---------------|
| Biometrics                    | N/A                                      |             |               |
| EES                           | Acceptable                               | 10-JUL-2002 | J.D' Ambrogio |
| Pharm/Tox                     | N/A                                      |             |               |
| Biopharm                      | N/A                                      |             |               |
| LNC                           | N/A                                      |             |               |
| Methods Validation            | Sent to Philadelphia District laboratory | 10/08/02    |               |
| OPDRA                         | N/A                                      |             |               |
| EA                            | Categorical Exclusion                    |             |               |
| Microbiology                  | N/A                                      |             |               |

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## The Chemistry Review for NDA 21-472

### The Executive Summary

#### I. Recommendations

##### A. Recommendation and Conclusion on Approvability

From the chemistry standpoint this NDA is recommended for approval.

##### B. Recommendation on Phase 4 (Post-Marketing) Commitments, Agreements, and/or Risk Management Steps, if Approvable

N/A

#### II. Summary of Chemistry Assessments

##### A. Description of the Drug Product(s) and Drug Substance(s)

###### 1. Drug Substance

Ibuprofen is  
for ibuprofen is referenced to

The CMC information

###### 2. Drug Product:

The Ibuprofen Capsules contain 200 mg of ibuprofen per capsule. These liquid filled soft gelatin capsules contain solubilized ibuprofen free acid. Currently marketed liquid filled soft gelatin capsules of ibuprofen contain ibuprofen potassium salt.

A description of the drug product manufacturing process is included. In-process acceptance criteria such as moisture content, fill-weight, ribbon thickness, and seam thickness are established to insure consistency in product quality.

The drug product is packaged in \_\_\_\_\_ with a child-resistant cap.

##### B. Description of How the Drug Product is Intended to be Used

The Ibuprofen Capsules are orally administered for temporary relief of minor aches and pains due to: headache, backache, muscular aches, common cold, minor pain - arthritis, toothache, menstrual cramps and \_\_\_\_\_ The Ibuprofen capsules are supplied in bottles of 40 and 200 counts. Each capsule contains ibuprofen 200 mg. Dosing schedule is 1 capsule every 4 to 6 hours and the maximum daily dose is 6 capsules.

Recommended storage conditions: 20-25°C (68-77°F).

(A)

**THIS SECTION  
WAS  
DETERMINED  
NOT  
TO BE  
RELEASABLE**

(28)

# CHEMISTRY REVIEW

Chemistry Assessment Section

12-AUG-2002

## FDA CDER EES ESTABLISHMENT EVALUATION REQUEST SUMMARY REPORT

Page 1 of 2

Application: NDA 21472/000  
Stamp: 18-DEC-2001 Regulatory Due: 18-OCT-2002  
Applicant: BANNER PHARMACAPS  
4125 PREMIER DR  
HIGH POINT, NC 27265

Priority: 3S Org Code: 550  
Action Goal: District Goal: 19-AUG-2002  
Brand Name: IBUPROFEN CAPSULES, 200 MG  
Established Name:  
Generic Name: IBUPROFEN CAPSULES, 200 MG  
Dosage Form: CAP (CAPSULE)  
Strength: 200 MG

FDA Contacts: B. GOULD (HFD-550) 301-827-2090 , Project Manager  
R. PUTTAGUNTA (HFD-550) 301-827-2296 , Review Chemist  
J. SMITH (HFD-550) 301-827-2529 , Team Leader

**Overall Recommendation:**

ACCEPTABLE on 10-JUL-2002 by J. D AMBROGIO (HFD-324) 301-827-0062  
WITHHOLD on 15-APR-2002 by J. D AMBROGIO (HFD-324) 301-827-0062

Establishment: 1063522  
BANNER PHARMACAPS INC  
4125 PREMIER DR  
HIGH POINT, NC 27265

DMF No:  
AADA No:

Profile: CSG OAI Status: NONE  
Last Milestone: OC RECOMMENDATION  
Milestone Date: 19-FEB-2002  
Decision: ACCEPTABLE  
Reason: DISTRICT RECOMMENDATION

Responsibilities: FINISHED DOSAGE MANUFACTURER  
FINISHED DOSAGE RELEASE TESTER  
FINISHED DOSAGE STABILITY TESTER

Establishment: \_\_\_\_\_

DMF No: \_\_\_\_\_ AADA No: \_\_\_\_\_

Profile: CSN OAI Status: NONE  
Last Milestone: OC RECOMMENDATION  
Milestone Date: 15-APR-2002  
Decision: ACCEPTABLE  
Reason: DISTRICT RECOMMENDATION

Responsibilities: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Establishment: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DMF No:  
AADA No:

Profile: CTL OAI Status: NONE  
Last Milestone: OC RECOMMENDATION  
Milestone Date: 15-FEB-2002  
Decision: ACCEPTABLE  
Reason: BASED ON PROFILE

Responsibilities: \_\_\_\_\_

**CHEMISTRY REVIEW**

Chemistry Assessment Section

12-AUG-2002

**FDA CDER EES  
ESTABLISHMENT EVALUATION REQUEST  
SUMMARY REPORT**

Page 2 of 2

Establishment: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DMF No:  
AADA No:

Profile: **CSG**      OAI Status: **NONE**  
Last Milestone: **OC RECOMMENDATION**  
Milestone Date: **15-FEB-2002**  
Decision: **ACCEPTABLE**  
Reason: **BASED ON PROFILE**

Responsibilities: \_\_\_\_\_  
\_\_\_\_\_

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**This is a representation of an electronic record that was signed electronically and  
this page is the manifestation of the electronic signature.**  
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/s/  
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10/8/02 05:21:12 PM  
CHEMIST

John Smith  
10/8/02 05:26:47 PM  
CHEMIST

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