Application Note
Pharmaceutical Industry

SCHMIDT HAENSCH

Reliable Determination of Dexibuprofen Content

Understanding the Composition and Therapeutic Differences of Ibuprofen and Dexibuprofen

Challenge, Applications & Method

CHALLENGE

- **Differences in pharmacokinetics and pharmacodynamics**
- **Varying patient response and tolerability**
- **Need for accurate, real time data to support clinical decisions**
- **Compliance with pharmaceutical regulations and safety guidelines**

APPLICATIONS

- **Comparison of efficacy in managing pain and inflammation**
- **Evaluation in treatment of musculoskeletal disorders and postoperative pain**
- **Use in developing personalized medication plans based on drug profile**

METHOD

- **No sample extraction or preparation required**
- **Fast onset analysis for immediate therapeutic feedback**
- **Continuous data integration with electronic health systems through standard interfaces**

Ibuprofen is a widely used non-steroidal anti-inflammatory drug (NSAID), known for its analgesic, antipyretic, and anti-inflammatory properties.

It is commonly used in the treatment of viral or bacterial infections, as well as in the management of chronic conditions.

Chemically, Ibuprofen is a racemic mixture consisting of two enantiomers in equal parts, Dexibuprofen (the S-enantiomer) and Levibuprofen (the R-enantiomer). Only Dexibuprofen is pharmacologically active, while Levibuprofen is considered largely inactive in clinical settings.

Dexibuprofen's pharmacological profile includes:

- Increased potency through exclusive use of the active enantiomer
- Lower required dosage compared to racemic Ibuprofen
- Potential for reduced gastrointestinal and renal side effects
- Faster onset of therapeutic action in some patients

Accurate and reliable analytical methods are essential for monitoring purity, ensuring correct dosage formulation, and maintaining consistent drug quality in pharmaceutical production settings.

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Solution From SCHMIDT + HAENSCH

To distinguish between Ibuprofen and its active enantiomer Dexibuprofen, polarimetric analysis offers a reliable and efficient method. Using a polarimeter, the optical rotation of the sample is measured at the standard wavelength of 589 nm, allowing for precise determination of Dexibuprofen content or the enantiomeric composition of Ibuprofen. Our laboratory polarimeters require no complex sample preparation and integrate seamlessly into your analytical workflow. Whether used for precise offline measurements or routine quality control, our VariPol polarimeter enables fast and non-destructive assessment of chiral purity. This ensures high product quality, process reliability, and compliance with pharmaceutical standards.

VariPol
Modular Polarimeter

Product family	Product	ID-N°
Laboratory	VariPol I Modular Polarimeter	**10800**

ADVANTAGES

- Polarimetric measurement enables immediate detection of an incorrect enantiomeric composition
- Improved product consistency and chiral purity through monitoring
- Fast return on investment by reducing waste, downtime, and failed batch releases
- Non-destructive and reagent-free method suitable for offline analysis

TYPICAL INDUSTRIES

- Pharmaceutical production
- Chemical industry (API synthesis and formulation)
- Quality control laboratories
- Research and development in drug manufacturing

RECOMMENDED ACCESSORIES

- Certified calibration standards for optical rotation (e.g. quartz control plates)
- 13885 VariPol tube flow through 100 mm