Napropamide is a selective systemic amide herbicide used to control a number of annual grasses and broad-leaved weeds.

**HPLC Procedure for Assay Determination of Napropamide and its R- & S-enantiomer**

**Step 1:**

External standard calibration technique is employed for quantitative determination of total enantiomers.

**HPLC Condition:**
- Column: Zorbax® SB-PHENYL, 3.5µm, 4.6 mm i.d. x 150 mm
- Column Heater: set at 30 °C
- Detector Wavelength set at 290 nm, RR 3nm
- Mobile Phase: Acetonitrile / Water
- Analytical Mode: Gradient Program

<table>
<thead>
<tr>
<th>Time(min)</th>
<th>% Acetonitrile</th>
<th>% Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>42</td>
<td>58</td>
</tr>
<tr>
<td>10</td>
<td>42</td>
<td>58</td>
</tr>
<tr>
<td>10.5</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>13.5</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>42</td>
<td>58</td>
</tr>
</tbody>
</table>

Flow Rate: 1.5 ml/min
Injection Size: 5 µl

**Step 2:**

The R- & S-enantiomers are determined with chiral stationary phase isocratic HPLC mode with a Chiralpak® AY-H column.

**HPLC Condition:**
- Column: Chiralpak® AY-H, 3.5µm, 4.6 mm i.d. x 250 mm
- Column Heater: set at 30 °C
- Detector Wavelength set at 290 nm, BW 8nm
- Mobile Phase: Hexane/IPA/DEA = 90/10/0.1 (v/v/v)
- Analytical Mode: Isocratic
- Flow Rate: 1.0 ml/min
- Injection Size: 5 µl

The wt% of R- and S-Napropamide in the sample is determined as follows:

\[
\text{R-Napropamide wt\%} = \frac{T \times A_R}{(A_R + A_S)}
\]

\[
\text{S-Napropamide wt\%} = \frac{T \times A_S}{(A_R + A_S)}
\]

Where,

- \(T\) = Weight percent of total enantiomers in Napropamide technical
- \(A_R\) = Peak area for R-enantiomer of Napropamide
- \(A_S\) = Peak area for S-enantiomer of Napropamide