

# APPLICATIONS

## Chiral Separation of Paclobutrazol with a Lux<sup>®</sup> i-Amylose-3 Chiral Stationary Phase by HPLC under Reversed Phase Mobile Phase Conditions

James Hseu, J Preston, and Ryan Splitstone  
Phenomenex, Inc., 411 Madrid Ave., Torrance, CA 90501 USA

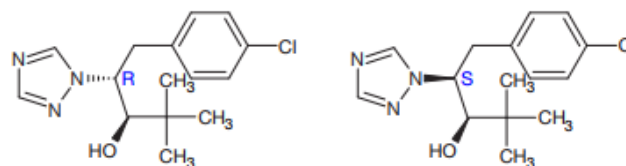
### Overview

In this application note, a chiral screening mobile phase conditions was used in conjunction with the Lux i-Amylose-3 immobilized polysaccharide-based chiral stationary phase, to separate the two enantiomers of Paclobutrazol. Paclobutrazol is a chiral fungicide and is a known antagonist of the plant hormone gibberellin. The agricultural use Paclobutrazol has driven the interest in the development of an efficient and fast HPLC method that is able to enantiomerically resolve the compound. A general screening reversed phase mobile phase conditions of Water with 5 mM Ammonium Acetate with 0.05 % Formic acid/Acetonitrile (47:53) was used. An Agilent<sup>®</sup> 1100 (Santa Clara, CA) HPLC system, with an injection volume of 10  $\mu$ L and a flow rate of 1.0 mL/min was used for this example and resulted in a selectivity factor of  $\alpha = 1.14$ . The Lux i-Amylose-3 chiral selector is a complementary but distinct chiral selectivity in comparison to i-Amylose-1 and i-Cellulose-5. It combines the 5-position methyl group of the i-Amylose-3 chiral selector with electron-withdrawing potential of the i-Cellulose-5, 3-position chlorine group. Combined with the strong solvent flexibility of the immobilization process the Lux i-Amylose-3 column's broad enantioselectivity promotes greater chiral separation success.

### LC Conditions

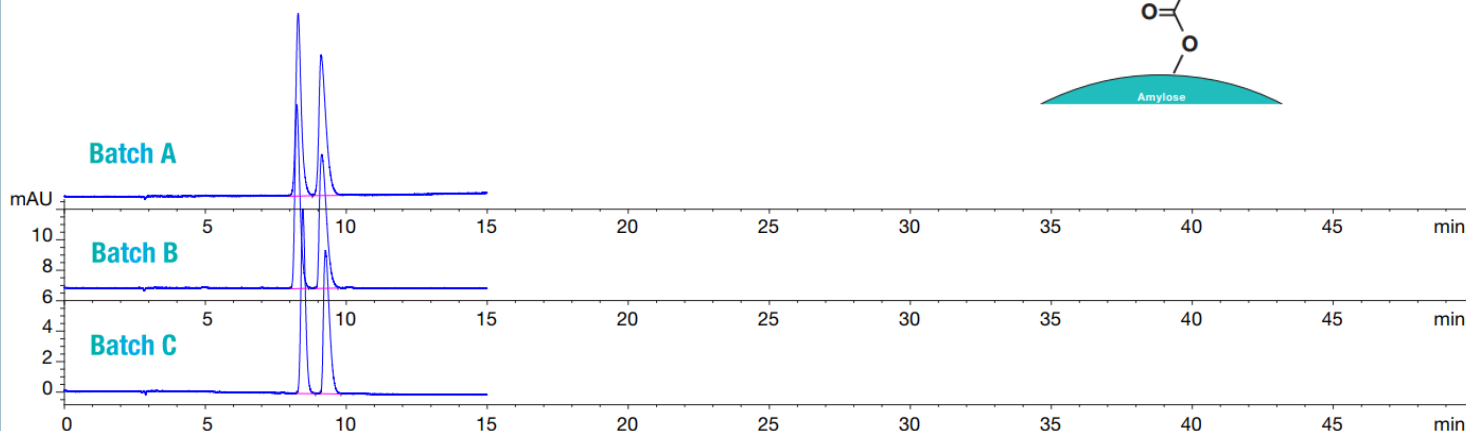
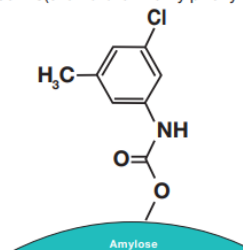
- Column:** Lux 5  $\mu$ m i-Amylose-3
- Dimensions:** 250 x 4.6 mm
- Part No.:** [00G-4779-E0](#)
- Recommended Guard:** SecurityGuard<sup>™</sup>
- Guard Holder Part No.:** [KJ0-4282](#)
- Guard Cartridge Part No.:** [AJ0-8650](#)
- Mobile Phase:** Water with 5 mM Ammonium Acetate + 0.05 % Formic Acid/Acetonitrile (47:53)
- Flow Rate:** 1.0 mL/min
- Injection Volume:** 10  $\mu$ L (2 mg/mL)
- Detection:** UV-Vis @ 254 nm
- Sample:** 1. Paclobutrazol  
2. Paclobutrazol

### Enantiomers of Paclobutrazol



### Lux i-Amylose-3


Amylose tris(3-chloro-5-methylphenylcarbamate)



# APPLICATIONS


## Need a different column size or sample preparation format?

No problem! We have a majority of our available dimensions up on [www.phenomenex.com](http://www.phenomenex.com), but if you can't find what you need right away, our super helpful Technical Specialists can guide you to the solution via our online chat portal [www.phenomenex.com/LiveChat](http://www.phenomenex.com/LiveChat).

<b>Australia</b> t: +61 (0)2-9428-6444 auiinfo@phenomenex.com	<b>India</b> t: +91 (0)40-3012 2400 indiainfo@phenomenex.com	<b>Singapore</b> t: +65 800-852-3944 sginfo@phenomenex.com
<b>Austria</b> t: +43 (0)1-319-1301 anfrage@phenomenex.com	<b>Ireland</b> t: +353 (0)1 247 5405 eirinfo@phenomenex.com	<b>Spain</b> t: +34 91-413-8613 espinfo@phenomenex.com
<b>Belgium</b> t: +32 (0)2 503 4015 (French) t: +32 (0)2 511 8666 (Dutch) beinfo@phenomenex.com	<b>Italy</b> t: +39 051 6327511 italiainfo@phenomenex.com	<b>Sweden</b> t: +46 (0)8 611 6950 nordicinfo@phenomenex.com
<b>Canada</b> t: +1 (800) 543-3681 info@phenomenex.com	<b>Luxembourg</b> t: +31 (0)30-2418700 nlinfo@phenomenex.com	<b>Switzerland</b> t: +41 (0)61 692 20 20 swissinfo@phenomenex.com
<b>China</b> t: +86 400-606-8099 cninfo@phenomenex.com	<b>Mexico</b> t: 01-800-844-5226 tecnicomx@phenomenex.com	<b>Taiwan</b> t: +886 (0) 0801-49-1246 twinfo@phenomenex.com
<b>Denmark</b> t: +45 4824 8048 nordicinfo@phenomenex.com	<b>The Netherlands</b> t: +31 (0)30-2418700 nlinfo@phenomenex.com	<b>United Kingdom</b> t: +44 (0)1625-501367 ukinfo@phenomenex.com
<b>Finland</b> t: +358 (0)9 4789 0063 nordicinfo@phenomenex.com	<b>New Zealand</b> t: +64 (0)9-4780951 nzinfo@phenomenex.com	<b>USA</b> t: +1 (310) 212-0555 info@phenomenex.com
<b>France</b> t: +33 (0)1 30 09 21 10 franceinfo@phenomenex.com	<b>Norway</b> t: +47 810 02 005 nordicinfo@phenomenex.com	<b>All other countries</b> <b>Corporate Office USA</b>  t: +1 (310) 212-0555 info@phenomenex.com
<b>Germany</b> t: +49 (0)6021-58830-0 anfrage@phenomenex.com	<b>Portugal</b> t: +351 221 450 488 ptinfo@phenomenex.com	

## [www.phenomenex.com](http://www.phenomenex.com)

Phenomenex products are available worldwide. For the distributor in your country, contact Phenomenex USA, International Department at [international@phenomenex.com](mailto:international@phenomenex.com)



**BE-HAPPY**<sup>™</sup>  
guarantee

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.  
[www.phenomenex.com/behappy](http://www.phenomenex.com/behappy)

### Terms and Conditions

Subject to Phenomenex Standard Terms and Conditions, which may be viewed at [www.phenomenex.com/TermsAndConditions](http://www.phenomenex.com/TermsAndConditions).

### Trademarks

Lux is a registered trademark SecurityGuard and BE-HAPPY are trademarks of Phenomenex. Agilent is a registered trademark of Agilent Technologies, Inc.

### Disclaimer

Comparative separation may not be representative of all applications.

Phenomenex is not affiliated with Agilent Technologies, Inc.

SecurityGuard is patented by Phenomenex. U.S. Patent No. 6,162,362

CAUTION: this patent only applies to the analytical-sized guard cartridge holder, and does not apply to SemiPrep, PREP or ULTRA holders, or to any cartridges.

FOR RESEARCH USE ONLY. Not for use in clinical diagnostic procedures.

© 2020 Phenomenex, Inc. All rights reserved.