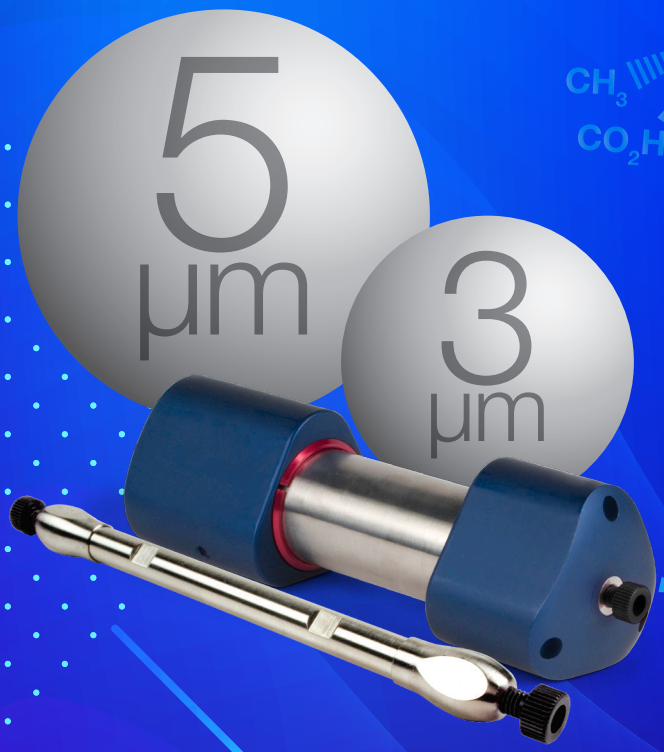
Lux
Chiral LC Columns

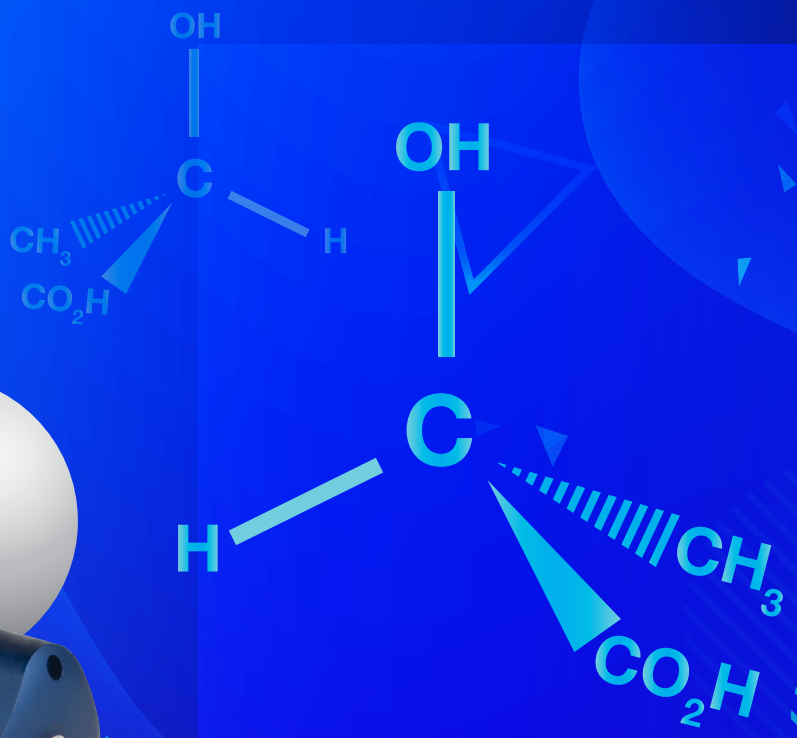
NEW Lux i-Amylose-3

Your New First Choice Chiral Column!

Screening Application Notebook - Demystifying Chirality

Reversed Phase Normal Phase Polar Organic Polar Ionic





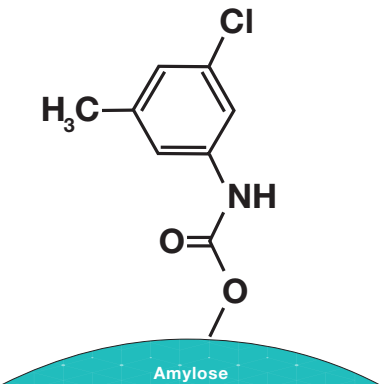
phenomenex®
...breaking with tradition℠

Visit at: www.phenomenex.com/Lux

Lux i-Amylose-3
Your New First Choice Chiral Column!

Chiral LC Columns

NEW **Lux i-Amylose-3**



Amylose tris(3-chloro-5-methylphenylcarbamate)

Demystify Chirality with:

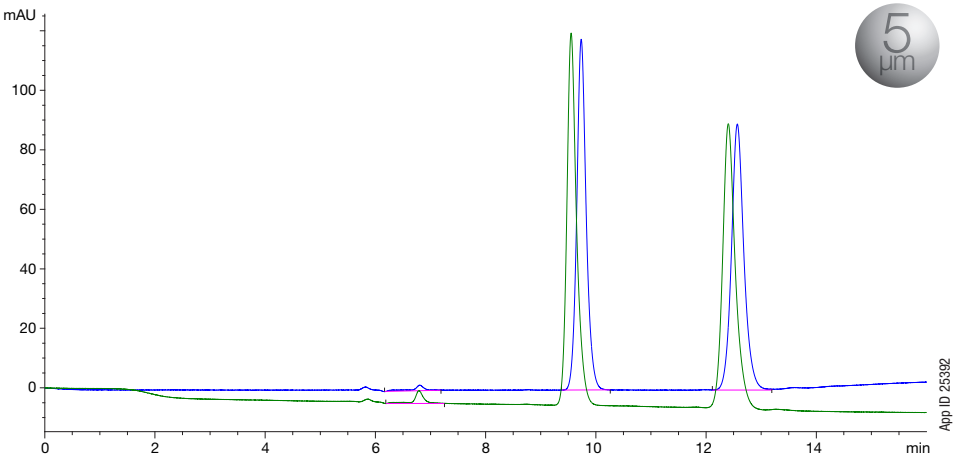
- Strong solvent stability
- Broad enantioselectivity
- Robust reproducibility

The 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-1 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 broad enantioselectivity promotes greater chiral separation success.

Immobilized Strong Solvent Stability and Robustness

Lux Chiral LC Columns

The immobilization and bonding technology used within the Lux® i-Amylose-3 promotes column stability in strong organic solvents, which affords you the ability to expand your chiral separation success with more solvent systems and separation modes. Below is an example of stable retention time, separation, and peak shape after exposure to strong solvents for both 5 and 3 µm particle sizes. The exposure to aggressive solvents DCM and THF did not affect the excellent performance of these Lux i-Amylose-3 columns. In addition, bonding technology that promotes robust reproducibility.



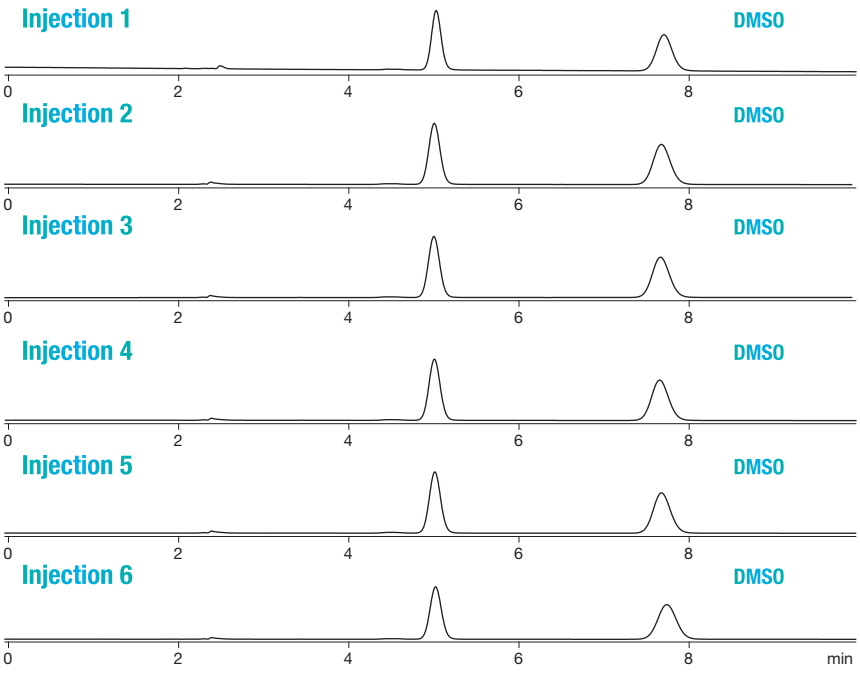
*Aggressive solvent stability was tested by flushing columns with DCM followed by THF before rerunning in mobile phase.

Columns: Lux 5 µm i-Amylose-3
Lux 3 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
00G-4778-E0
Mobile Phase: Hexane/Isopropanol with 0.1 % Diethylamine (80/20)
Flow Rate: 0.5 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 220 nm
Sample: 1. Trans-Stilbene Oxide
2. Trans-Stilbene Oxide

Before Exposure to Strong Solvents (DCM & THF)*
After Exposure

Load Samples in Desired Strong Solvents

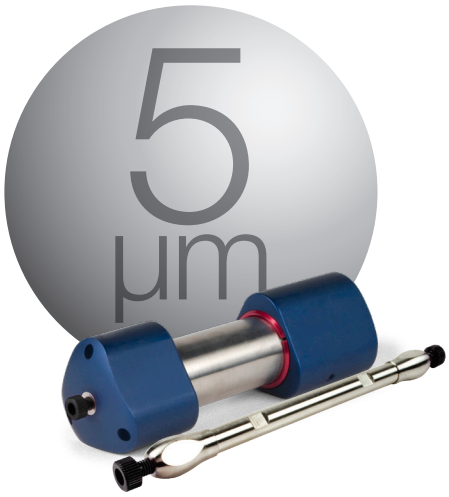
With the strong solvent stability of the Lux immobilized phases (i-Amylose-3, i-Cellulose-5 and i-Amylose-1) comes the ability to keep samples diluted in the strong organic solvents that are needed for sample solubility or are directly from a reaction mixture.



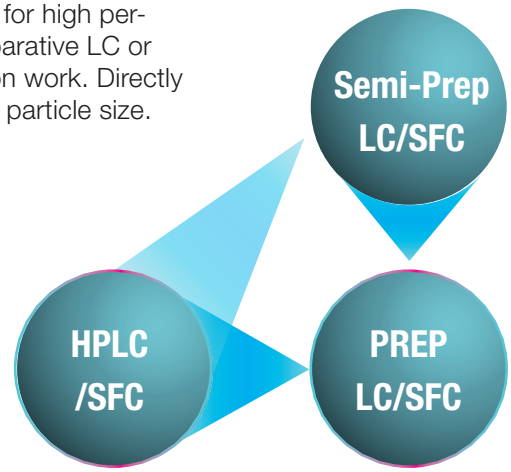
Conditions for all columns:
Column: Lux 5 µm i-Celluose-5
Dimensions: 250 x 4.6 mm
Part No.: 00G-4756-E0
Mobile Phase: Methanol/DEA (100:0.1)
Flow Rate: 1.5 mL/min
Detection: UV @ 280 nm
Temperature: 27 ˚C
Sample: Laudanosine
Dilution Solvent: Dimethyl Sulfoxide (DMSO)

Solve compound solubility issues by loading in strong organic solvents for preparative purifications on extremely robust Lux i-Amylose-3, i-Cellulose-5 and i-Amylose-1 AXIA™ packed columns.

Multiple Particles and Formats to Fit your Immobilized Chiral Column Needs!

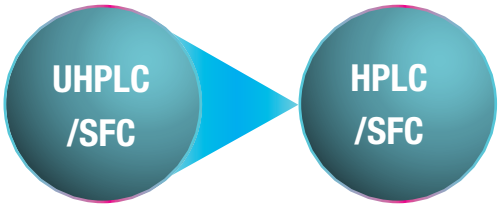


Lower pressure, all-purpose particle size for analytical LC (HPLC) or SFC methods and especially for high performance preparative LC or SFC purification work. Directly scales to 3 µm particle size.



Internal Diameters (ID) Available for LC and SFC					
Analytical		Semi-Prep	Preparative		
2.0 mm	4.6 mm	10 mm	21.2 mm	30 mm	50 mm

The perfect fit for analytical LC (UHPLC/HPLC) or SFC screening or analysis methods. Directly scales to 5 µm particle size.



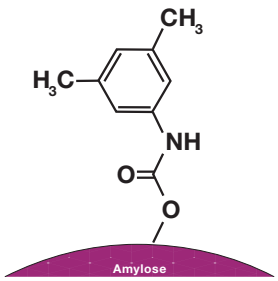
Internal Diameters (ID) Available for LC and SFC		
Analytical		
2.0 mm	3.0 mm	4.6 mm

Lux Polysaccharide LC/SFC Chiral Stationary Phases

Lux Chiral LC Columns

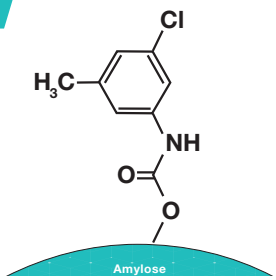
Lux coated and immobilized chiral columns offer a wide and complementary range of enantioselectivity for even the most difficult chiral separation projects under normal phase, reversed phase, polar organic, or SFC separation modes. While immobilized phases do offer additional strong solvent robustness, Lux coated phases are incredibly useful because their increased bonded surface area leads to greater overall levels of enantioselectivity.

NEW



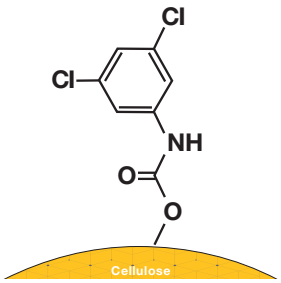
Lux i-Amylose-1

Amylose tris(3,5-dimethylphenylcarbamate)



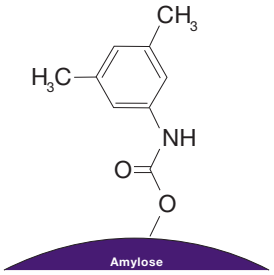
Lux i-Amylose-3

Amylose tris(3-chloro-5-methylphenylcarbamate)



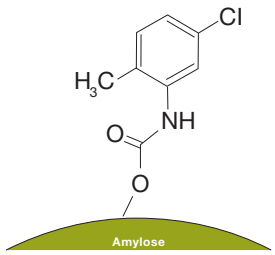
Lux i-Cellulose-5

Cellulose tris(3,5-dichlorophenylcarbamate)



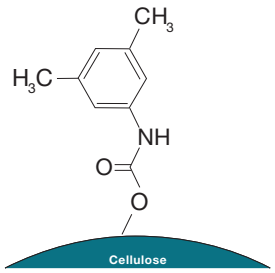
Lux Amylose-1

Amylose tris
(3,5-dimethylphenylcarbamate)



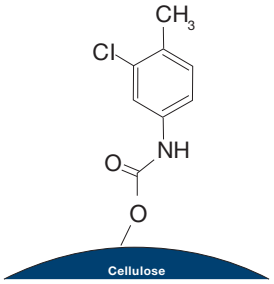
Lux Amylose-2

Amylose tris
(5-chloro-2-methylphenylcarbamate)



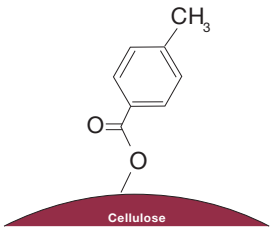
Lux Cellulose-1

Cellulose tris
(3,5-dimethylphenylcarbamate)



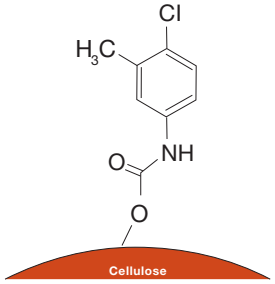
Lux Cellulose-2

Cellulose tris
(3-chloro-4-methylphenylcarbamate)



Lux Cellulose-3

Cellulose tris(4-methylbenzoate)



Lux Cellulose-4

Cellulose tris
(4-chloro-3-methylphenylcarbamate)

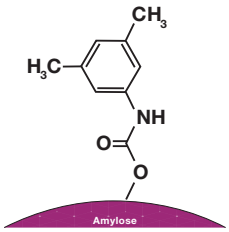
Easily upgrade from your existing chiral columns to Lux LC/SFC columns!

If you are using one of the DAICEL® columns below:	Guaranteed alternative:	Phase description:
CHIRALPAK® IA® and IA-3	Lux i-Amylose-1	Amylose tris(3,5-dimethylphenylcarbamate)
CHIRALPAK IG® and IG-3	Lux i-Amylose-3	Amylose tris(3-chloro-5-methylphenylcarbamate)
CHIRALPAK IC® and IC-3	Lux i-Cellulose-5	Cellulose tris(3,5-dichlorophenylcarbamate)
CHIRALPAK AD®, AD-H®, AD-3, AD-RH®, and AD-3R	Lux Amylose-1	Amylose tris(3,5-dimethylphenylcarbamate)
CHIRALPAK AY®, AY-H®, AY-3, AY-RH, and AY-3R	Lux Amylose-2	Amylose tris(5-chloro-2-methylphenylcarbamate)
CHIRALCEL® OD®, OD-H®, OD-3, OD-RH®, and OD-3R	Lux Cellulose-1	Cellulose tris(3,5-dimethylphenylcarbamate)
CHIRALCEL OZ, OZ-H®, OZ-3, OZ-RH, and OZ-3R	Lux Cellulose-2	Cellulose tris(3-chloro-4-methylphenylcarbamate)
CHIRALCEL OJ®, OJ-H®, OJ-3, OJ-RH®, and OJ-3R	Lux Cellulose-3	Cellulose tris(4-methylbenzoate)
CHIRALCEL OX-H, OX-3, OX-RH, and OX-3R	Lux Cellulose-4	Cellulose tris(4-chloro-3-methylphenylcarbamate)

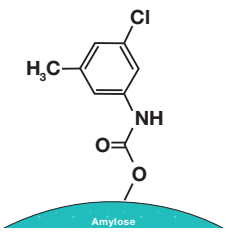
Simplified Chiral Column Screening Strategy

Lux® immobilized chiral stationary phases provide complementary but distinct enantioselectivity for a wide range of chirality. In addition, the immobilization process allows for the use of a wide range of mobile phases and strong solvents, making the Lux immobilized phases an ideal set of chiral phases to start screening with.

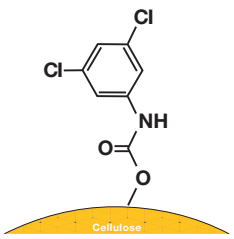
Lux i-Amylose-1
Amylose tris(3,5-dimethylphenylcarbamate)



Lux i-Amylose-3
Amylose tris(3-chloro-5-methylphenylcarbamate)



Lux i-Cellulose-5
Cellulose tris(3,5-dichlorophenylcarbamate)



HPLC Screen

Normal Phase (NP)

Hexane/IPA(80:20)* or Hexane/EtOH (90:10)*

- R_s < 1.5 or t_R > 20 min → Adjust % IPA or EtOH, t_R < 20 min
- R_s > 1.5 ✓
- R_s > 1.5 ✓
- R_s < 1.5 → Try Polar Organic or Reversed Phase conditions

Polar Organic (PO)

CH_3CN:IPA 95:5* → R_s > 1.5 ✓ / R_s < 1.5 → MeOH:IPA 90:10*◊ → R_s > 1.5 ✓ / R_s < 1.5

Reversed Phase (RP)

Acidic Compounds
1. CH_3CN:0.1 % Formic Acid or 0.1 % Acetic Acid
2. MeOH:0.1 % Formic Acid or 0.1 % Acetic Acid

Neutral Compounds
1. CH_3CN: Water
2. MeOH: Water

Basic Compounds
1. CH_3CN w/ 20 mM NH_4HCO_3 + 0.1 % DEA
2. MeOH w/ 20 mM NH_4HCO_3 + 0.1 % DEA

R_s > 1.5 ✓ / R_s < 1.5 → Please contact your local Phenomenex representative for additional support.

Tip

We suggest initially screening all three immobilized Lux phases because of greater solvent flexibility.

Notes: This screening strategy can be started at any step depending on the properties of the enantiomers. A common dimension used in chiral screening is 250 x 4.6 mm. For faster screening, use shorter columns.

* Use 0.1 % DEA with basic and neutral compounds and 0.1 % HCOOH with acidic and neutral compounds

◊ Changing % IPA in methanol can be occasionally beneficial

Key: IPA: Isopropanol; **DEA:** Diethylamine; **MeOH:** Methanol; **CH_3CN:** Acetonitrile; **EtOH:** Ethanol; **CH_3COONH_4:** Ammonium acetate; **HCOOH:** Formic acid; **NH_4HCO_3:** Ammonium bicarbonate; **CO_2:** Carbon Dioxide

SFC Screen

CO_2 : MeOH with 0.1 % DEA 75:25

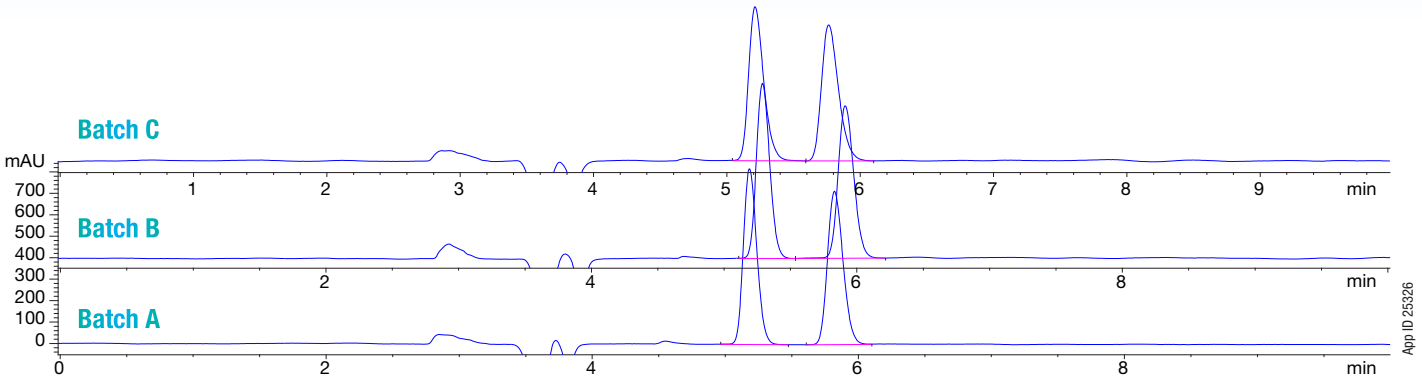
- (t_R < 20 min)
  - No separation (R_s = 0) → Try an alternative organic modifier → CO_2 : EtOH with 0.1 % DEA 75:25 → R_s > 1.5 ✓ / R_s < 1.5 ✓
  - R_s > 1.5 ✓
  - R_s < 1.5 → Decrease % modifier to increase R_s → R_s > 1.5 ✓ / R_s < 1.5 → If modifier is < 5 %, try a different modifier at above starting conditions → EtOH, IPA, CH_3CN, Hexane → R_s > 1.5 ✓ / R_s < 1.5
- (t_R > 20 min) → Increase organic modifier to decrease t_R
- If modifier is > 5 %, decrease % modifier → R_s < 1.5 / R_s > 1.5 ✓

Please contact your local Phenomenex representative for additional support.

Tip

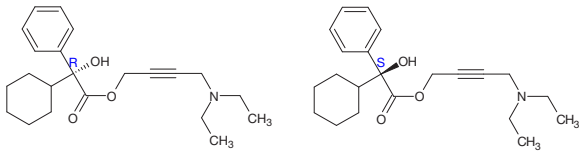
For basic or acidic chiral compounds, it may be necessary to use an appropriate mobile phase modifier for improved peak shape and resolution.

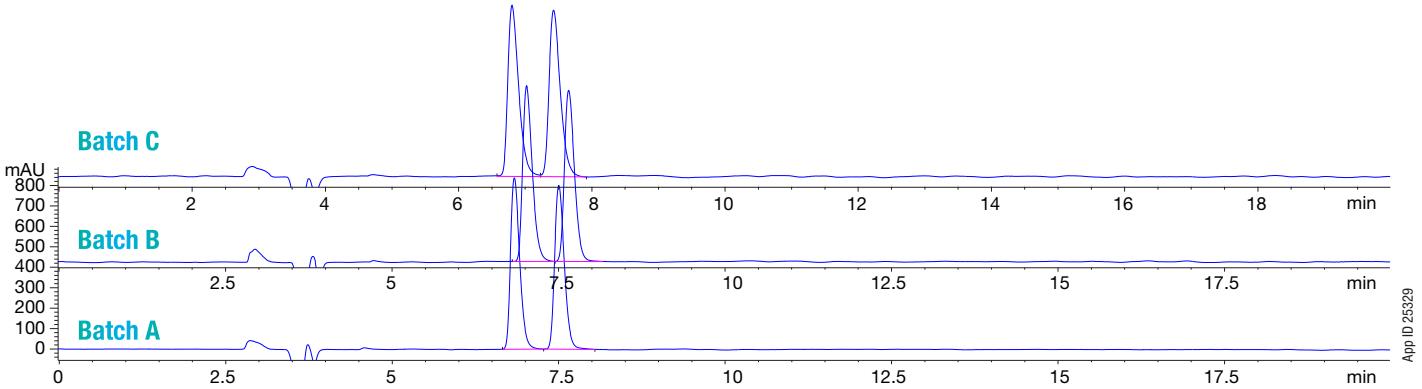
Lux i-Amylose-3
Normal Phase Selectivity



Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Hexane/Isopropanol with 0.1 % Diethylamine (80:20)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 220 nm
Sample: 1. Oxybutynin
2. Oxybutynin

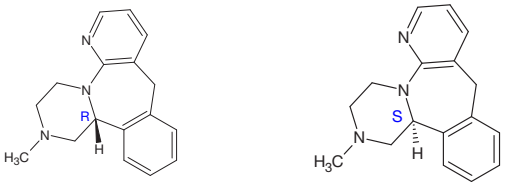
Enantiomers of Oxybutynin

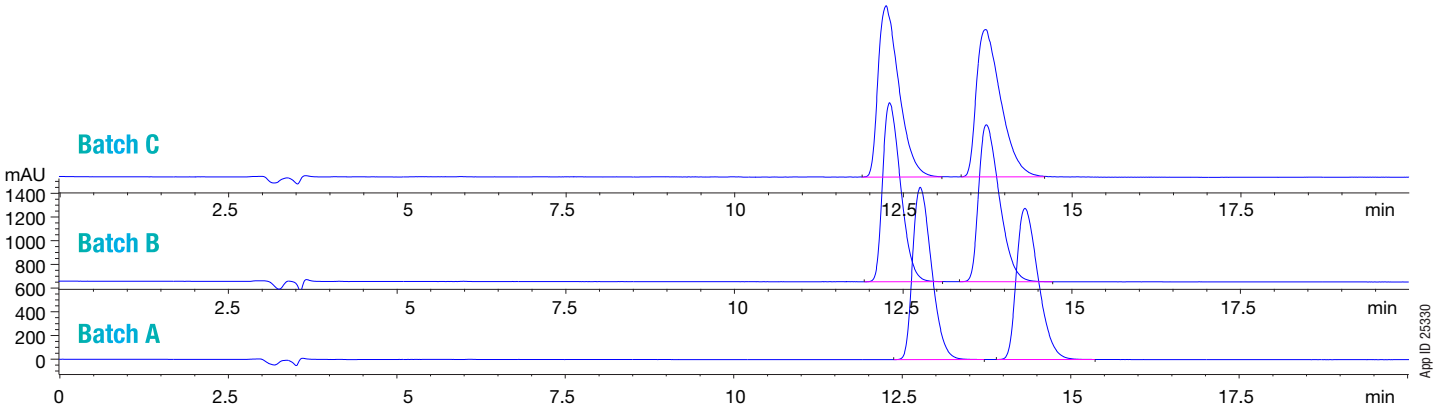




Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Hexane/Isopropanol with 0.1 % Diethylamine (80:20)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 220 nm
Sample: 1. Mirtazapine
2. Mirtazapine

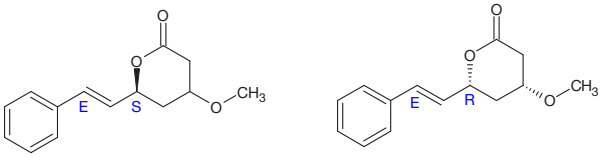
Enantiomers of Mirtazapine



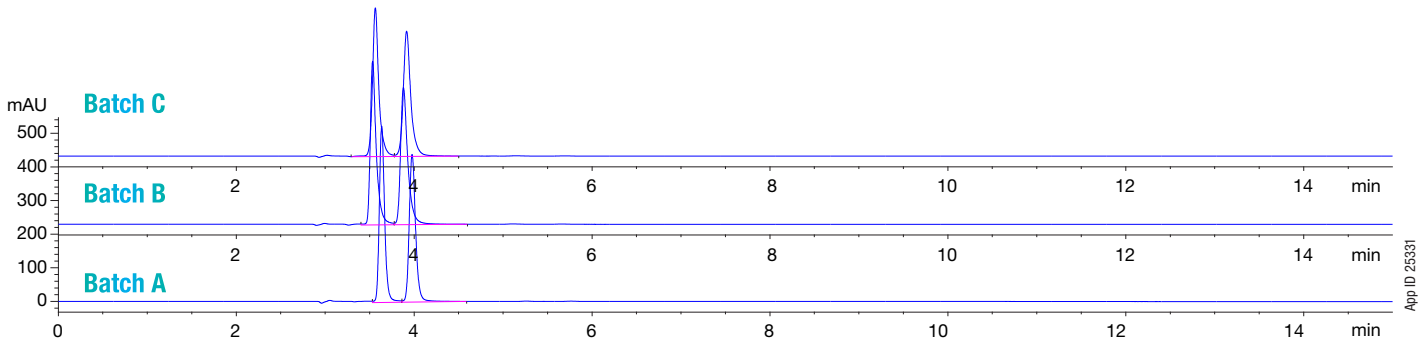


Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Hexane/Isopropanol with 0.1 % Diethylamine (80:20)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 220 nm
Sample: 1. Kavain
2. Kavain

Enantiomers of Kavain

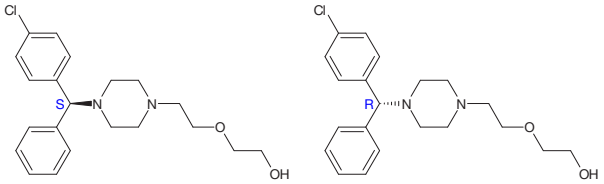


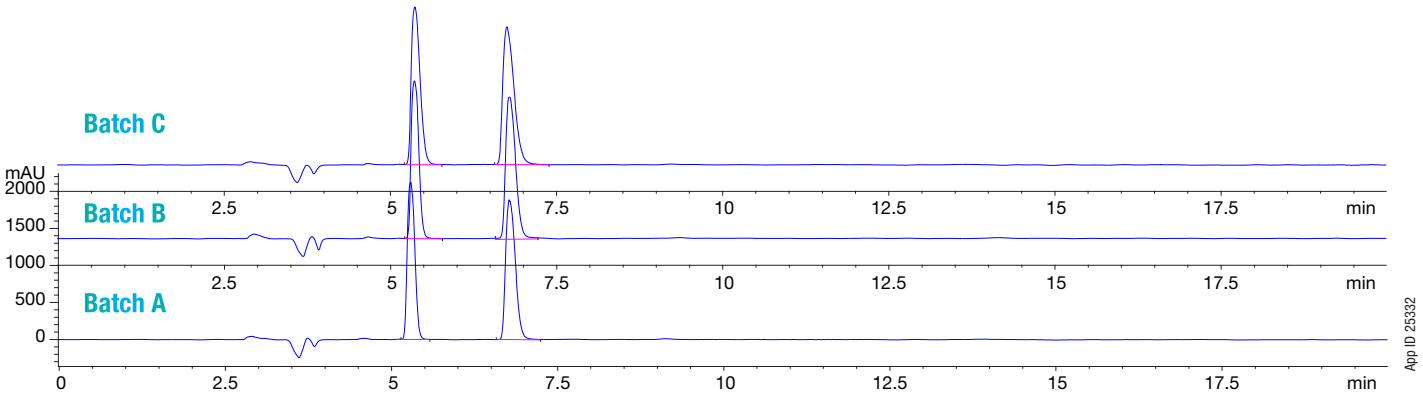
Lux i-Amylose-3
Normal Phase Selectivity (cont'd)



Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Hexane/Isopropanol with 0.1 % Diethylamine (80:20)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 220 nm
Sample: 1. Hydroxyzine
2. Hydroxyzine

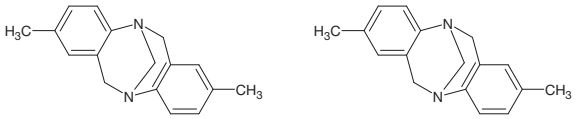
Enantiomers of Hydroxyzine

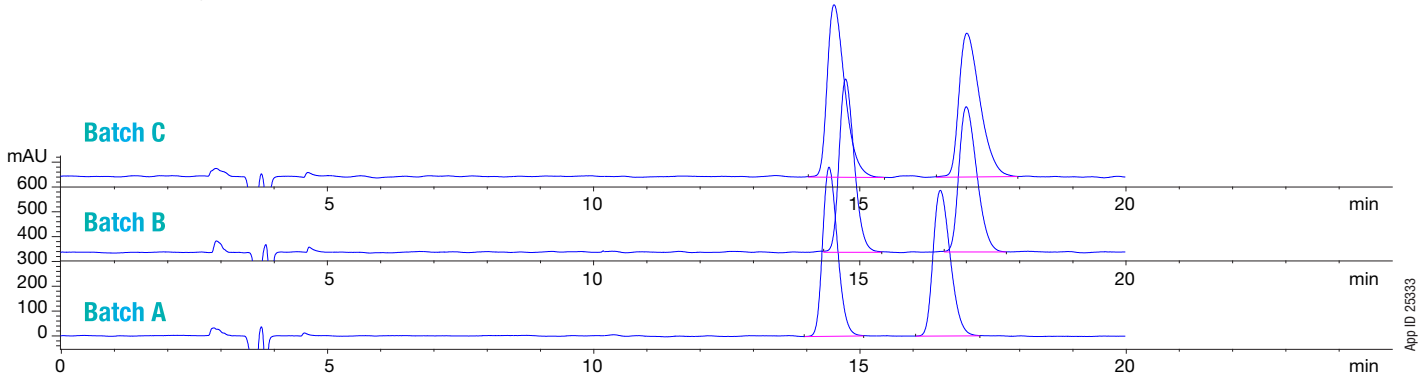




Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Hexane/Isopropanol with 0.1 % Diethylamine (80:20)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 220 nm
Sample: 1. Tröger's Base
2. Tröger's Base

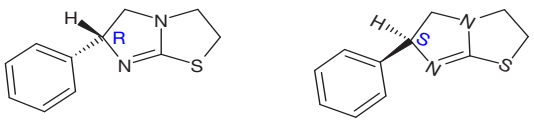
Enantiomers of Tröger's Base



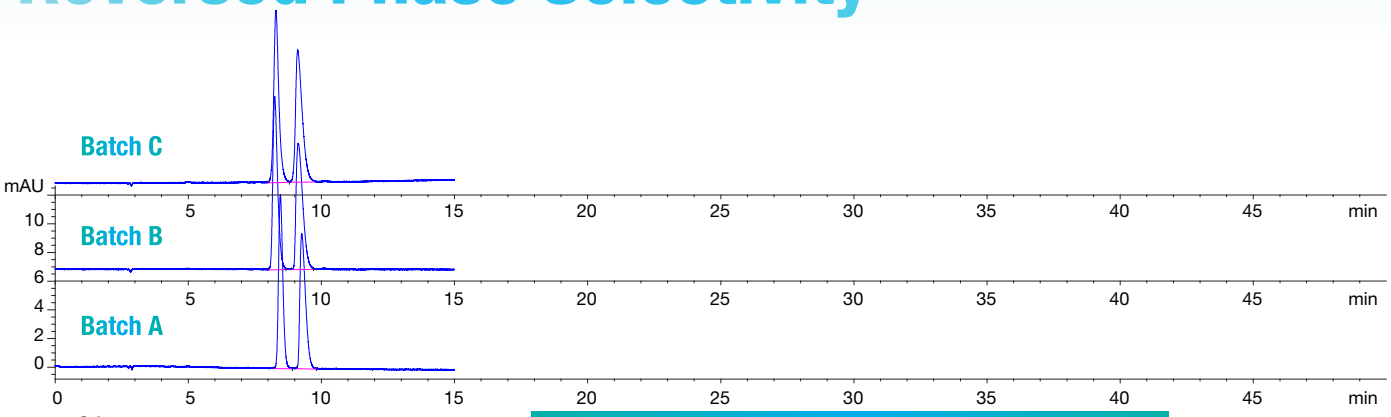


Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Hexane/Isopropanol with 0.1 % Diethylamine (80:20)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 220 nm
Sample: 1. Tetramisole
2. Tetramisole

Enantiomers of Tetramisole

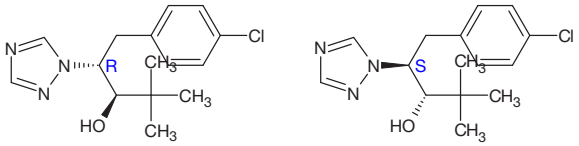


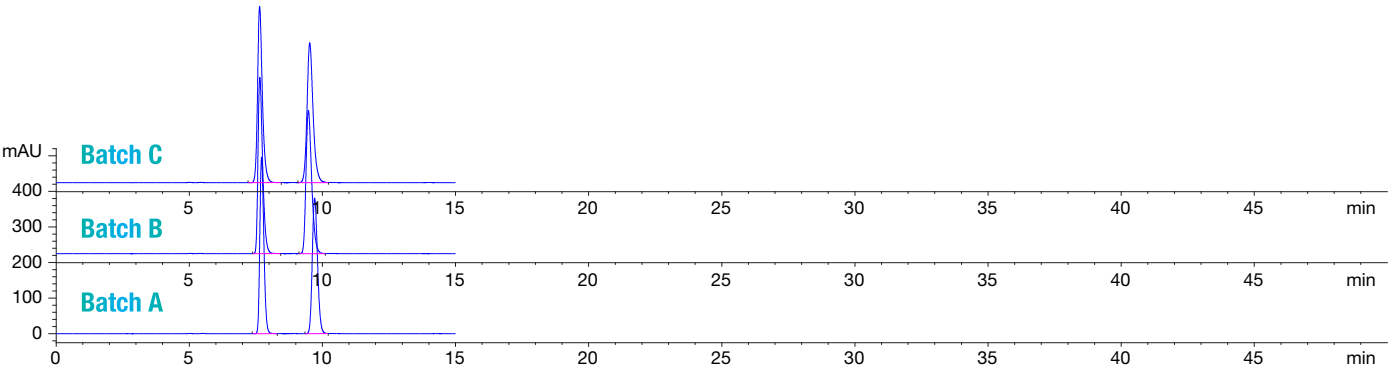
Lux i-Amylose-3
Reversed Phase Selectivity



Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Water with 5 mM Ammonium Acetate + 0.05 % Formic Acid/Acetonitrile (47:53)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Paclobutrazol
2. Paclobutrazol

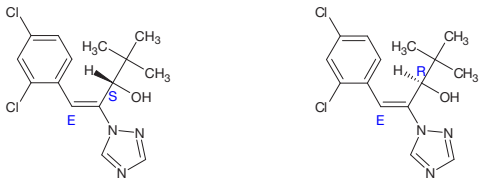
Enantiomers of Paclobutrazol

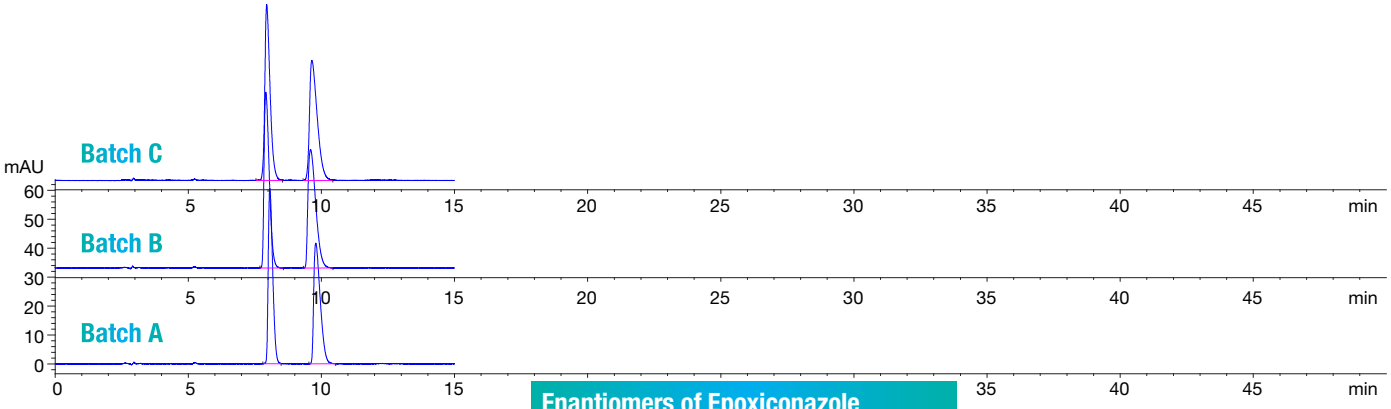




Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Water with 5 mM Ammonium Acetate + 0.05 % Formic Acid/Acetonitrile (35:65)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Diniconazole
2. Diniconazole

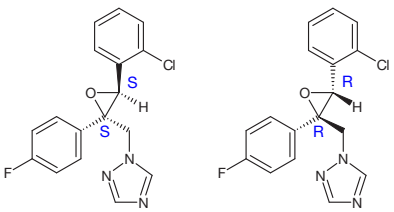
Enantiomers of Diniconazole



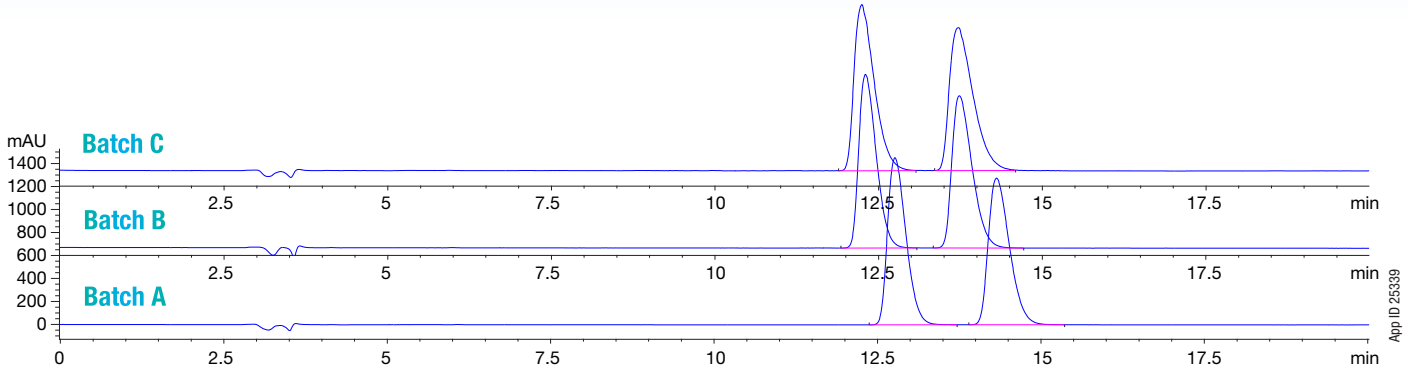


Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Water with 5 mM Ammonium Acetate + 0.05 % Formic Acid/Acetonitrile (35:65)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Epoxiconazole
2. Epoxiconazole

Enantiomers of Epoxiconazole

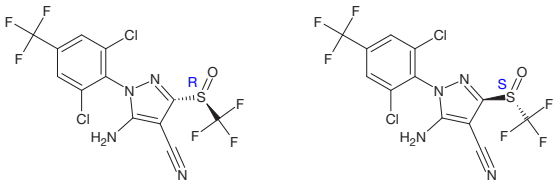


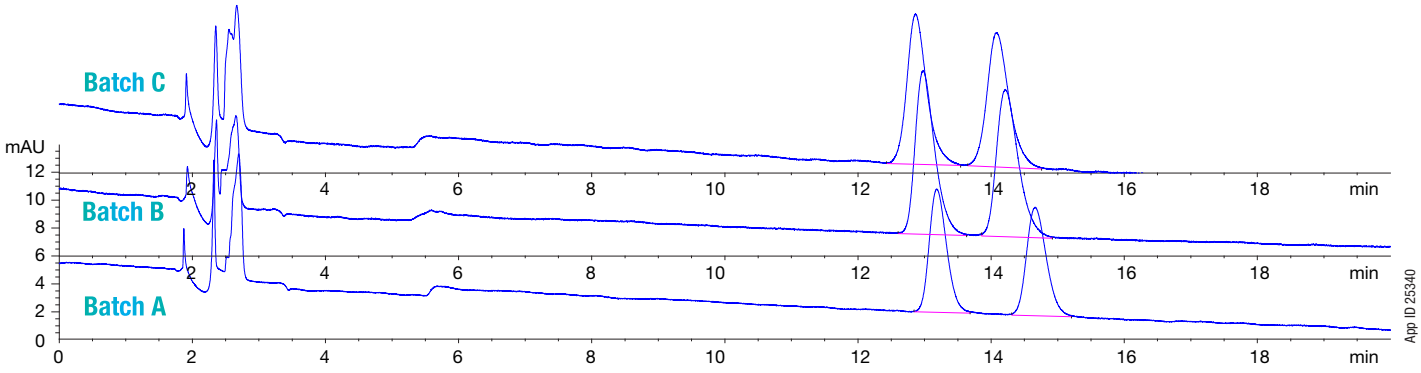
Lux i-Amylose-3
Reversed Phase Selectivity (cont'd.)



Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Water with 5 mM Ammonium Acetate + 0.05 % Formic Acid/Acetonitrile (47:53)
Flow Rate: 0.6 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ UV @ 254 nm
Sample: 1. Fipronil
2. Fipronil

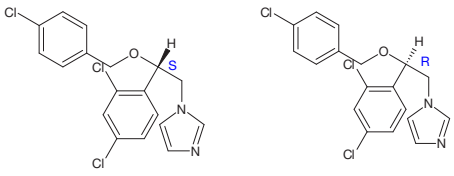
Enantiomers of Fipronil

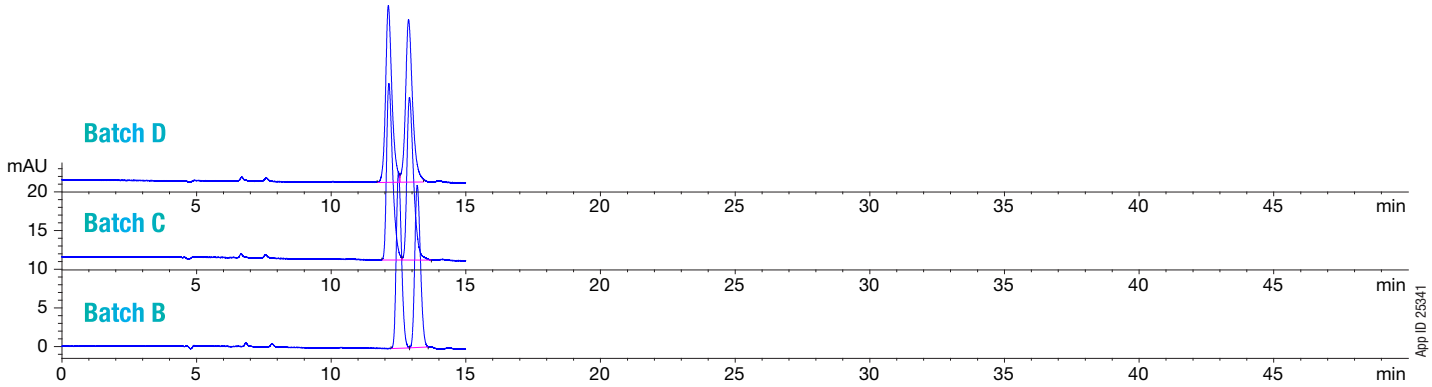




Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Water/Acetonitrile (35:65)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Econazole
2. Econazole

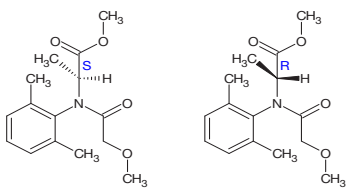
Enantiomers of Econazole



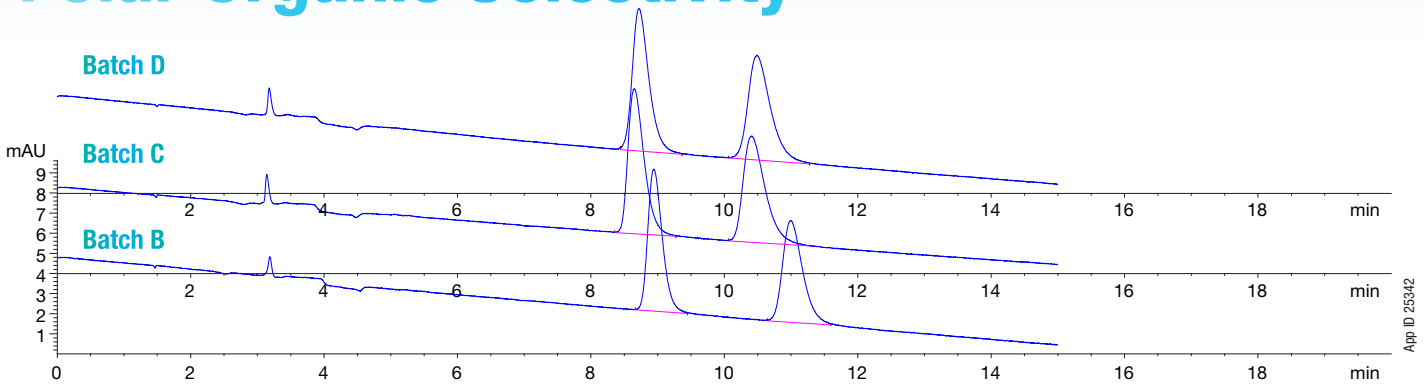


Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Water with 5 mM Ammonium Acetate + 0.05 % Formic Acid/Acetonitrile (55:45)
Flow Rate: 0.6 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Metalaxyl
2. Metalaxyl

Enantiomers of Metalaxyl

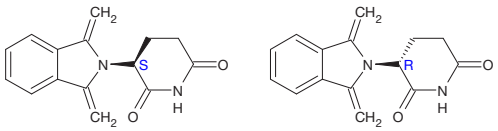


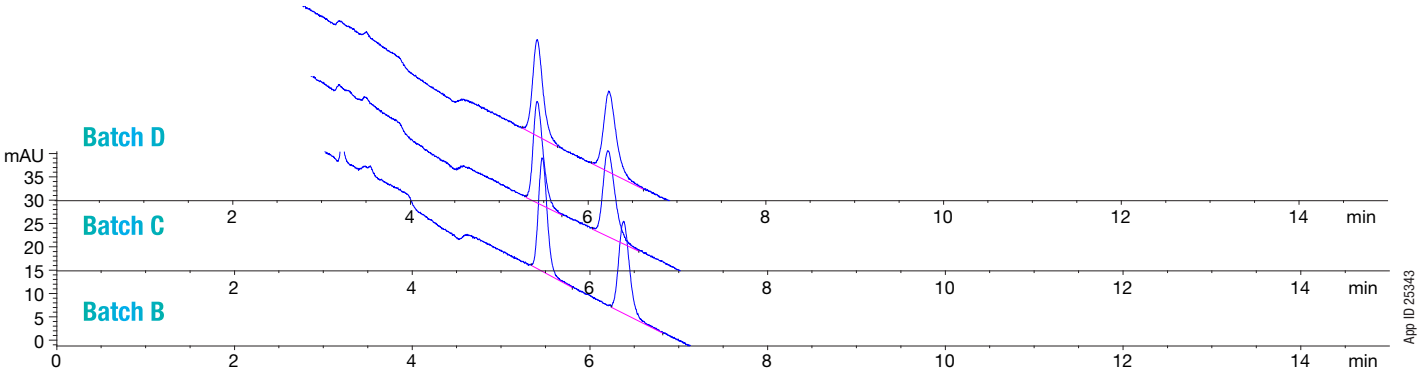
Lux i-Amylose-3
Polar Organic Selectivity



Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Acetonitrile with 0.1 % Diethylamine
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ UV @ 254 nm
Sample: 1. Thalidomide
2. Thalidomide

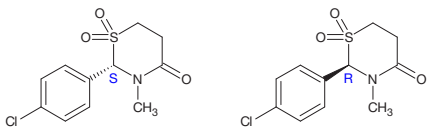
Enantiomers of Thalidomide

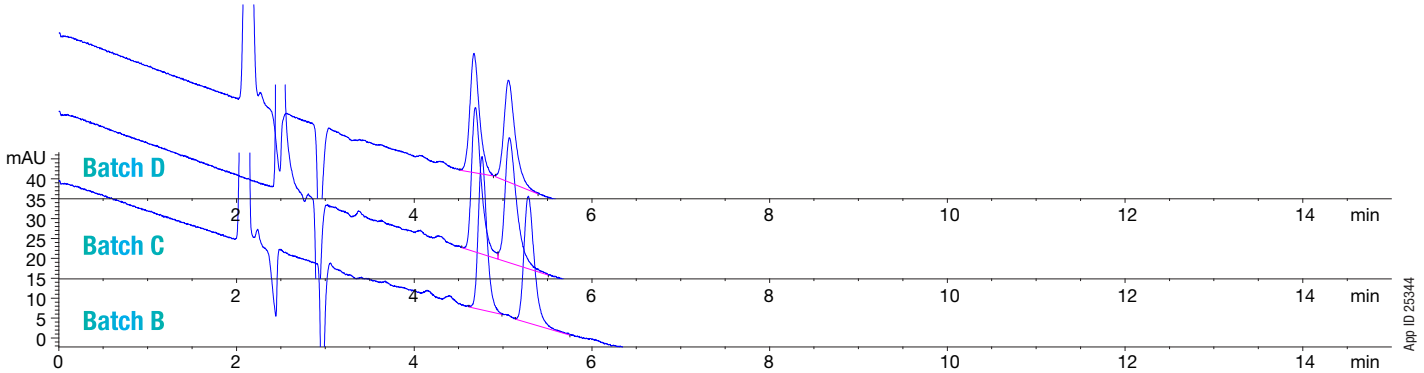




Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Acetonitrile with 0.1 % Diethylamine
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ UV @ 254 nm
Sample: 1. Chlormezanone
2. Chlormezanone

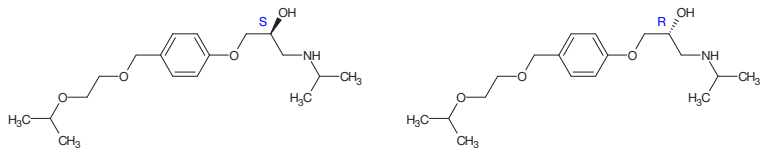
Enantiomers of Chlormezanone



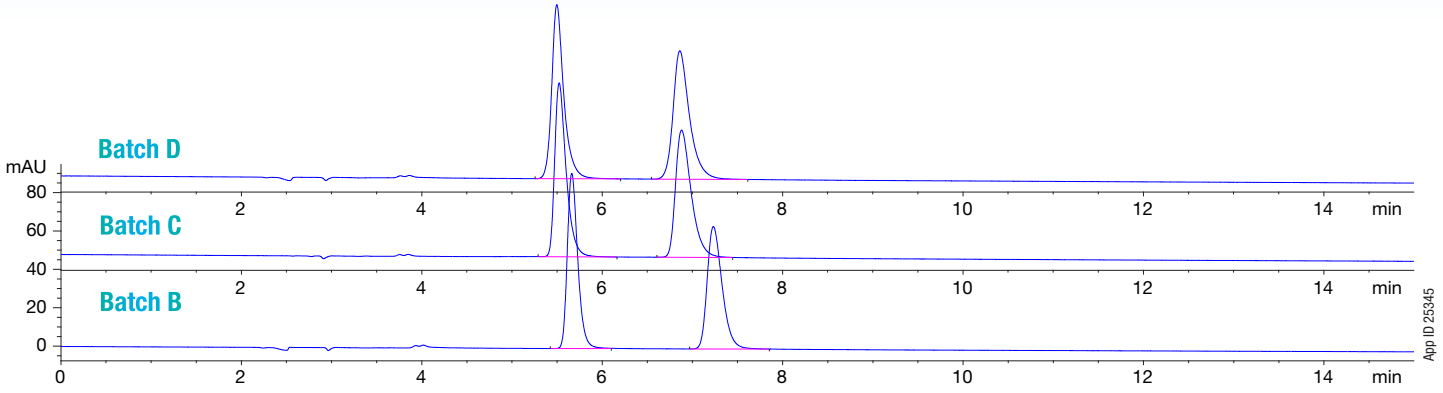


Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Methanol with 0.1 % Diethylamine
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Bisoprolol
2. Bisoprolol

Enantiomers of Bisoprolol

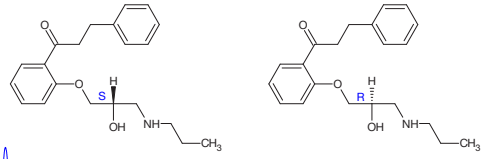


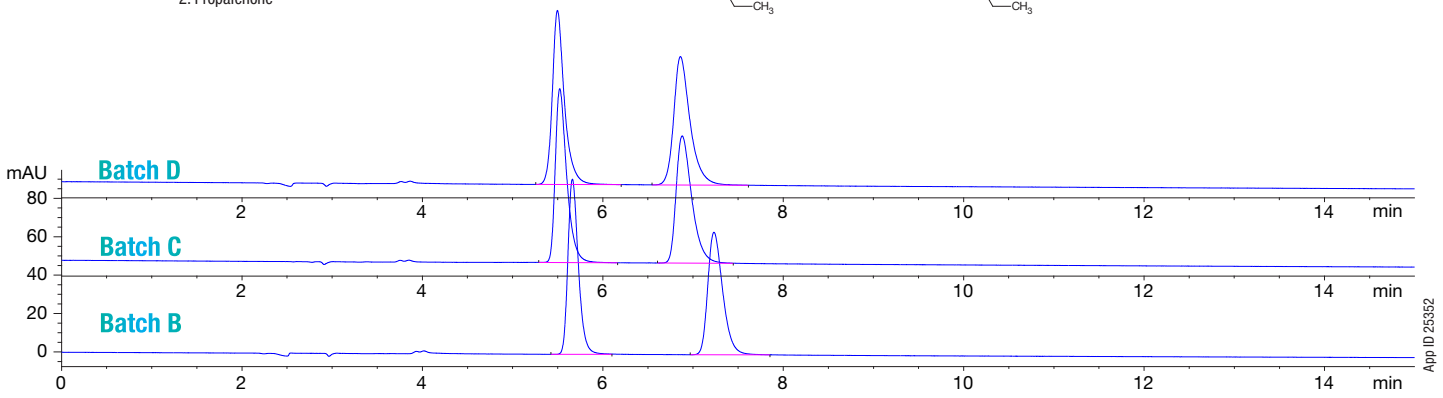
Lux i-Amylose-3
Polar Organic & Polar Ionic Selectivity



Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Methanol with 0.1 % Diethylamine
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Propafenone
2. Propafenone

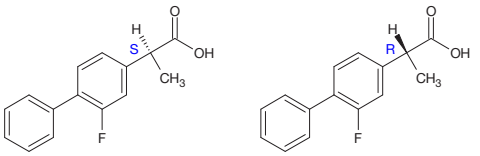
Enantiomers of Propafenone

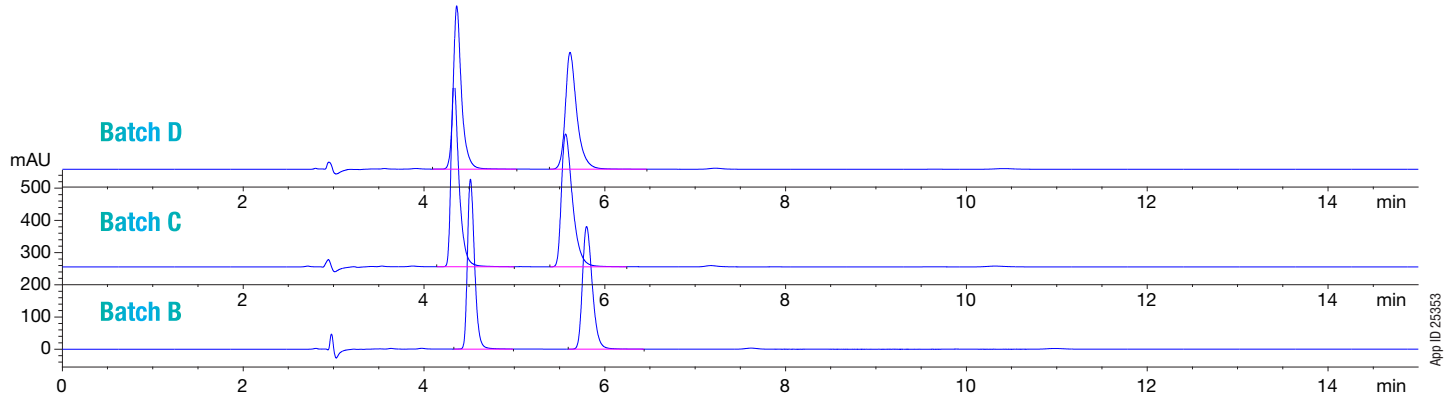




Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Methanol with 0.1 % Formic Acid
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Flurbiprofen
2. Flurbiprofen

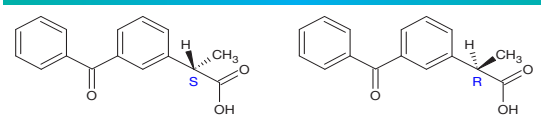
Enantiomers of Flurbiprofen





Columns: Lux 5 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
Mobile Phase: Methanol with 0.1 % Formic Acid
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Ketorolac
2. Ketorolac

Enantiomers of Ketorolac



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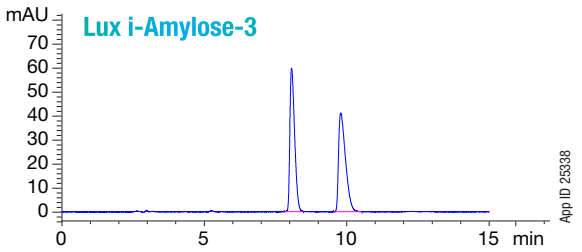
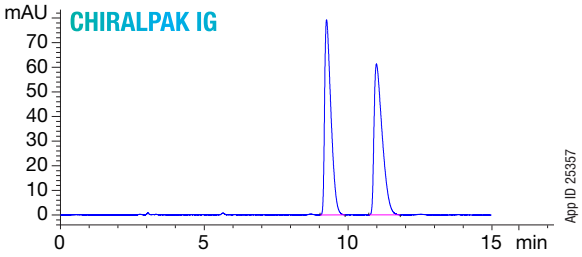
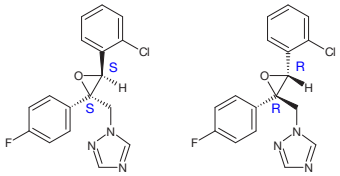
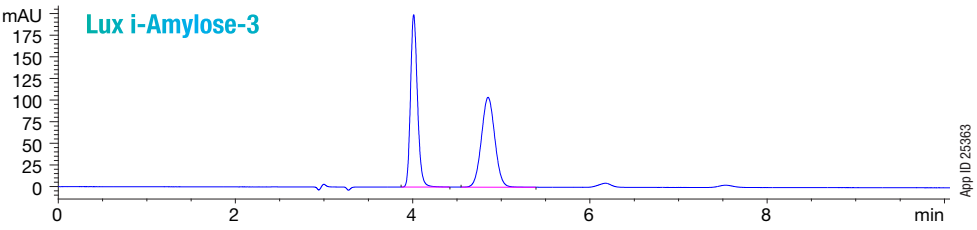


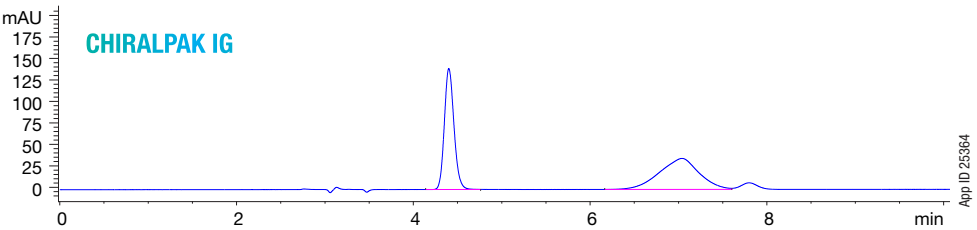


Columns: Lux 5 µm i-Amylose-3
CHIRALPAK IG
Dimensions: 250 x 4.6 mm
Mobile Phase: Water with 5 mM Ammonium Acetate + 0.05 % Formic Acid/Acetonitrile (35:65)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Epoxiconazole
2. Epoxiconazole

Enantiomers of Epoxiconazole

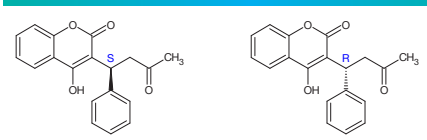






Columns: Lux 5 µm i-Amylose-3
CHIRALPAK IG
Dimensions: 250 x 4.6 mm
Mobile Phase: Methanol with 0.1 % Formic Acid
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Warfarin
2. Warfarin

Enantiomers of Warfarin



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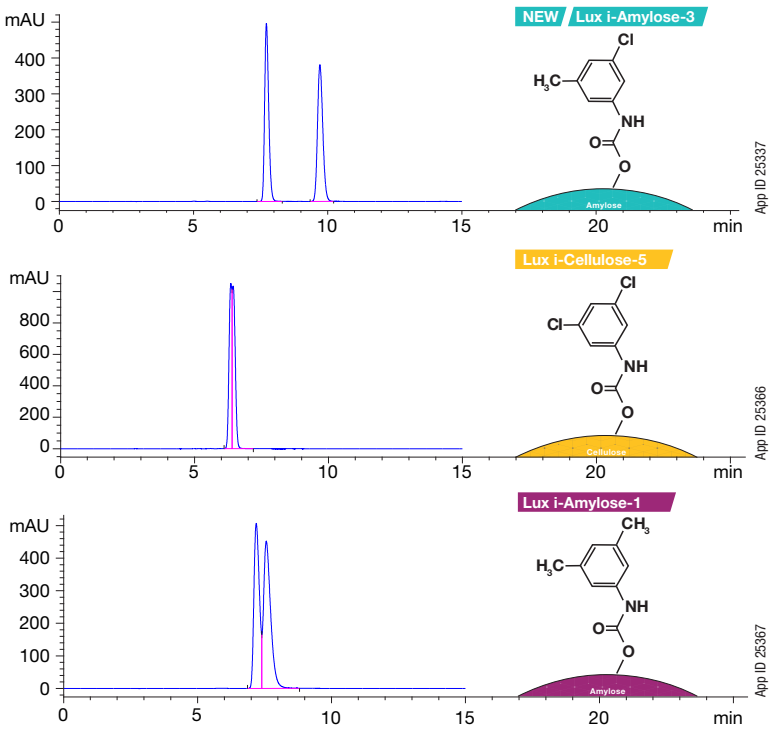
Immobilized Selectivity Comparison

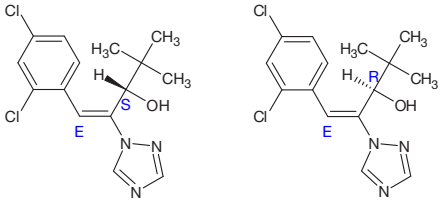
Lux immobilized chiral columns offer a wide and complementary range of enantioselectivity for chiral separation projects under normal phase, reversed phase, polar ionic, or SFC separation modes. Below are examples of chiral screening using i-Amylose-3, i-Cellulose-5, and i-Amylose-1 under a variety of screening conditions.

Reversed Phase

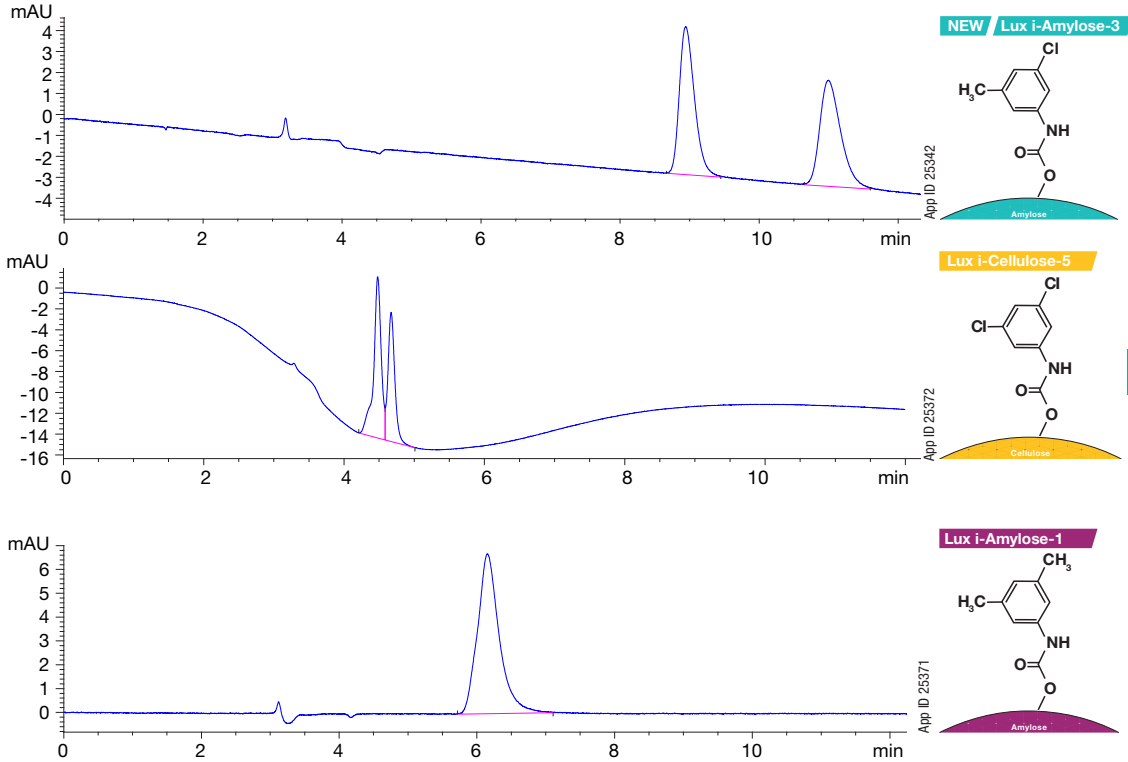


Columns: Lux 5 µm i-Amylose-3
Lux 5 µm i-Cellulose-5
Lux 5 µm i-Amylose-1
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
00G-4756-E0
00G-4762-E0
Mobile Phase: Water with 0.1 % Diethylamine/Acetonitrile (35:65)
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Diniconazole
2. Diniconazole

Enantiomers of Diniconazole

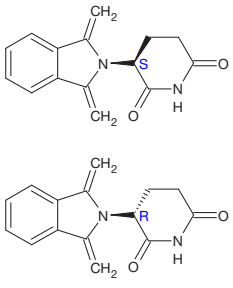


Polar Organic



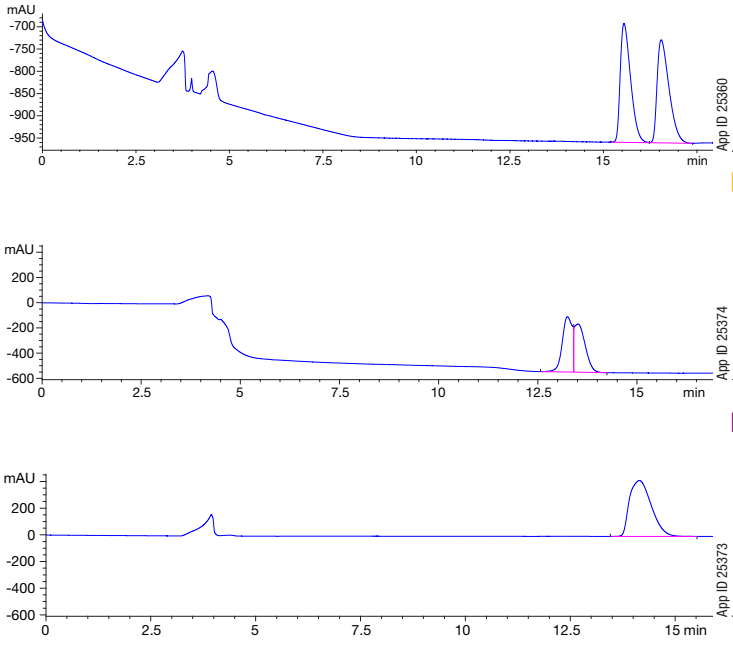
Columns: Lux 5 µm i-Amylose-3
Lux 5 µm i-Cellulose-5
Lux 5 µm i-Amylose-1
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
00G-4756-E0
00G-4762-E0
Mobile Phase: Acetonitrile with 0.1 % Diethylamine
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Thalidomide
2. Thalidomide

Enantiomers of Thalidomide

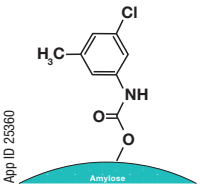


Immobilized Selectivity Comparison

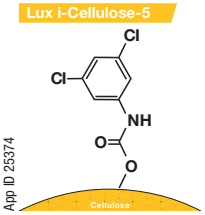
Polar Organic



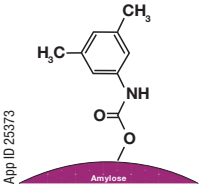
NEW Lux i-Amylose-3



Lux i-Cellulose-5

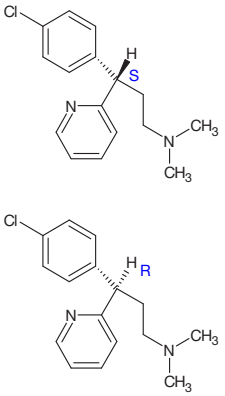


Lux i-Amylose-1

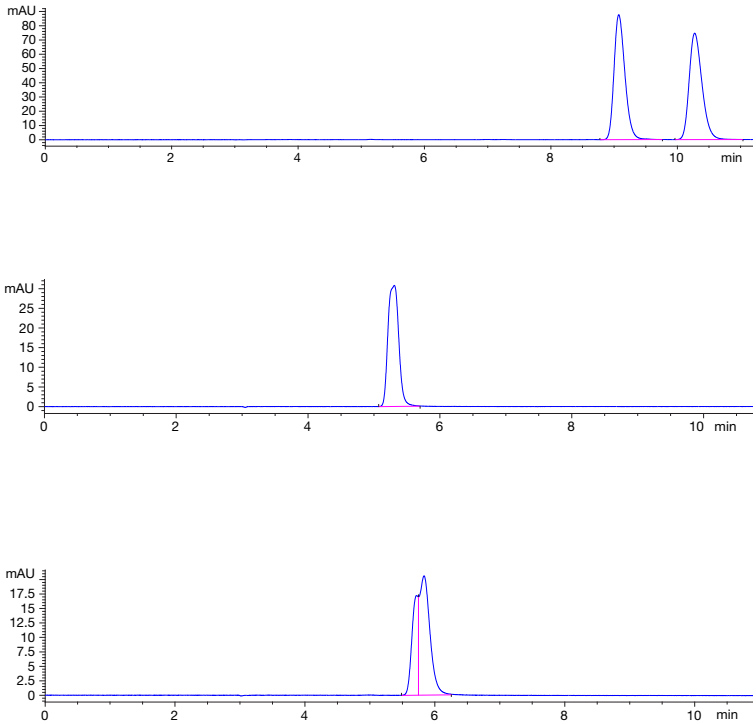


Columns: Lux 5 µm i-Amylose-3
Lux 5 µm i-Cellulose-5
Lux 5 µm i-Amylose-1
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
00G-4756-E0
00G-4762-E0
Mobile Phase: Water/Acetonitrile with 0.1 % Diethylamine (50:50)
Flow Rate: 0.6 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Chlorpheniramine
2. Chlorpheniramine

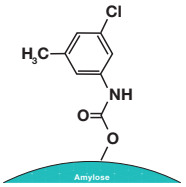
Enantiomers of Chlorpheniramine



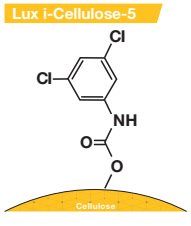
Polar Ionic



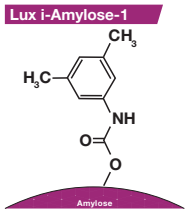
NEW Lux i-Amylose-3



Lux i-Cellulose-5

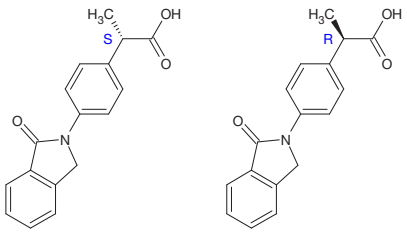


Lux i-Amylose-1



Columns: Lux 5 µm i-Amylose-3
Lux 5 µm i-Cellulose-5
Lux 5 µm i-Amylose-1
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
00G-4756-E0
00G-4762-E0
Mobile Phase: Acetonitrile with 0.1 % Formic Acid
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 254 nm
Sample: 1. Indoprofen
2. Indoprofen

Enantiomers of Indoprofen



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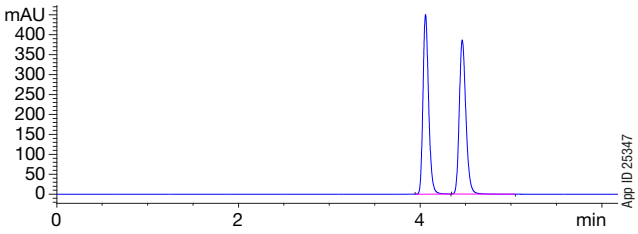
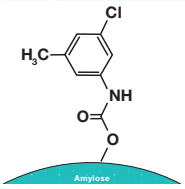
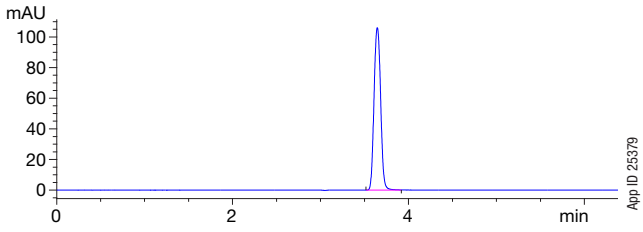
Immobilized Selectivity Comparison (cont'd)

Polar Ionic

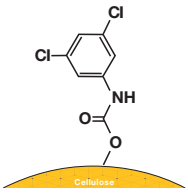


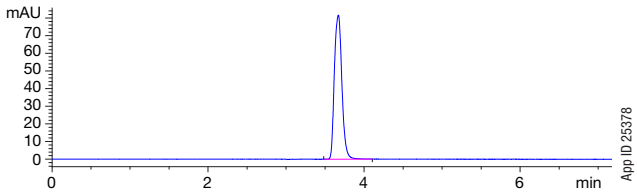
NEW Lux i-Amylose-3



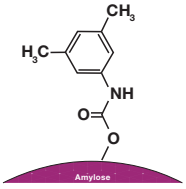


Lux i-Cellulose-5



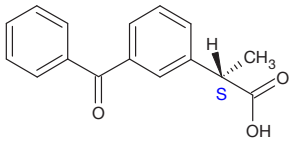


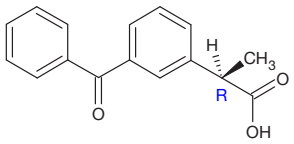
Lux i-Amylose-1



Columns:	Lux 5 µm i-Amylose-3 Lux 5 µm i-Cellulose-5 Lux 5 µm i-Amylose-1
Dimensions:	250 x 4.6 mm
Part No.:	00G-4779-E0 00G-4756-E0 00G-4762-E0
Mobile Phase:	Acetonitrile with 0.1 % Formic Acid
Flow Rate:	1.0 mL/min
Injection Volume:	10 µL (2 mg/mL)
Detection:	UV @ 254 nm
Sample:	1. Ketoprofen 2. Ketoprofen

Enantiomers of Ketoprofen





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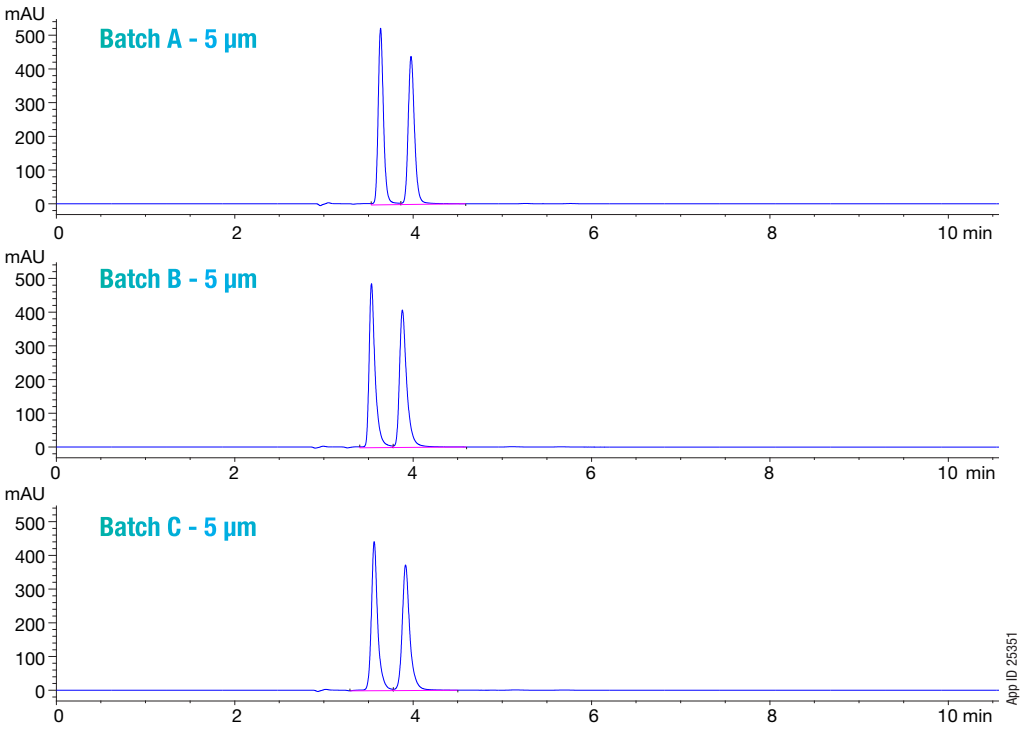
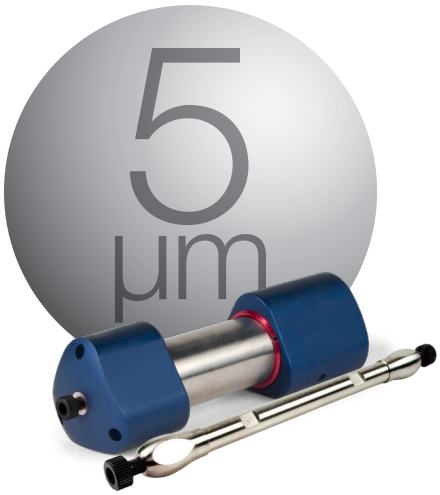
Phenomenex's quality management system is ISO 9001:2015 certified. This certification validates that all our processes are fully established, functional and meet international standards. Phenomenex's employees believe that the implementation of our quality system is everyone's responsibility. From the manufacturing of our products to their timely delivery and continued customer support, we are dedicated to continually improve our processes to consistently meet or exceed our customers' expectations.

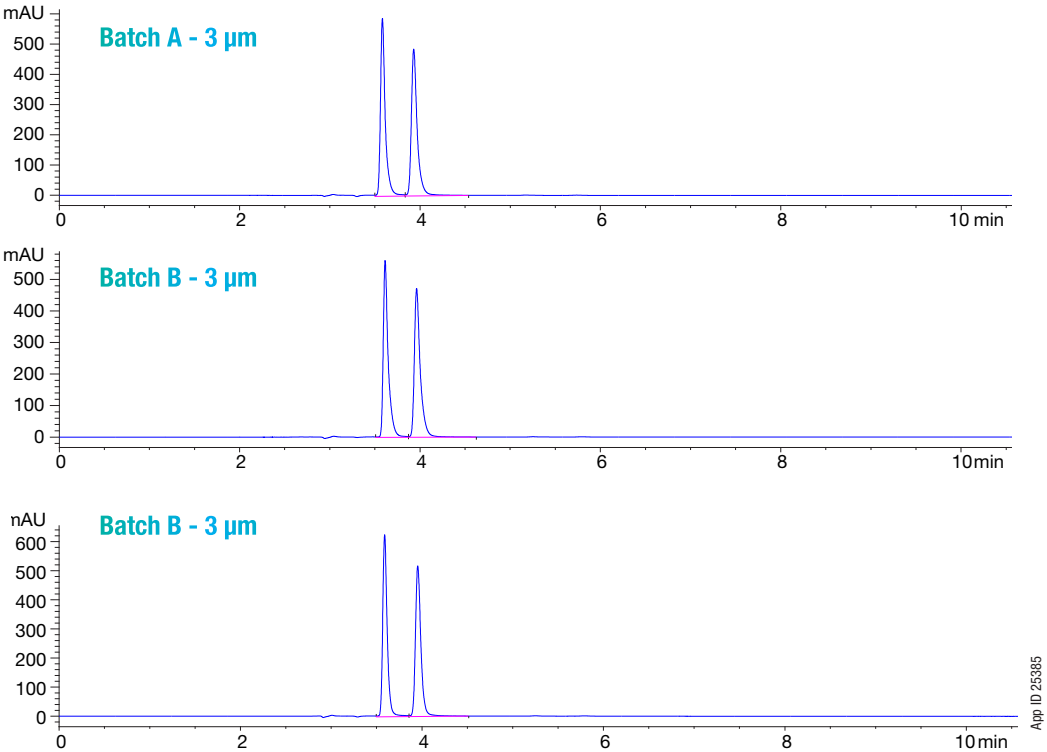
QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Dependability and Seamless Scalability

Our highest standards of quality will ensure that you are fully satisfied with each and every Lux chiral column as consistent quantitation and results come with every Lux batch and column that we manufacture. With matching selectivity, the 3 µm and 5 µm i-Amylose-3 particle sizes allow you to scale down to increase resolution or easily scale up for preparative purification work.







Columns: Lux 5 µm i-Amylose-3
Lux 3 µm i-Amylose-3
Dimensions: 250 x 4.6 mm
Part No.: 00G-4779-E0
00G-4778-E0
Mobile Phase: Methanol with 0.1 % Formic Acid
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL (2 mg/mL)
Detection: UV @ 220 nm
Sample: 1. Carprofen
2. Carprofen

Maximize Chiral Purification Performance with Axia Packed Columns

AXIA™ Preparative Columns

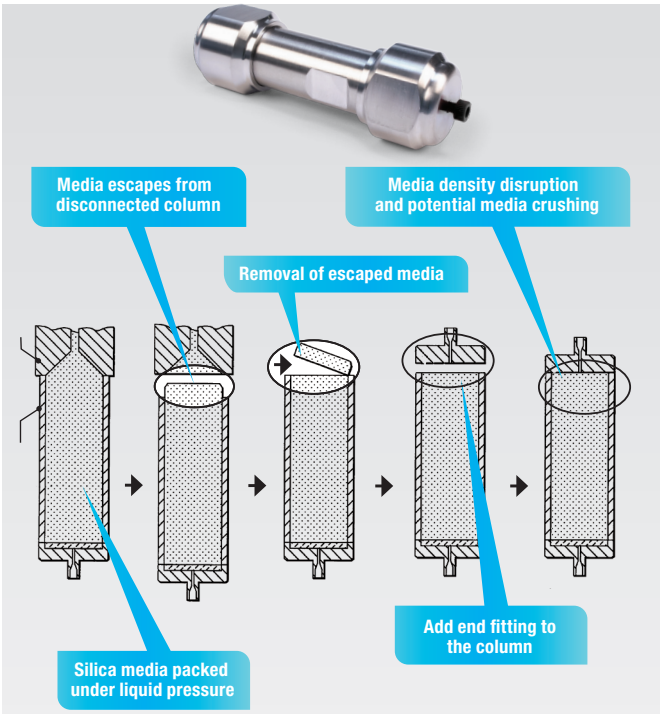
Axia packed preparative columns involve a single axial compression step unlike conventional packed preparative columns like DAICEL® CHIRALCEL® and CHIRALPAK® prep columns. During the Axia packing process, the packing piston is locked in place, eliminating any decompression and then re-compression of the media sorbent, thus maintaining media and column bed integrity.

AXIA Advantages:

- Longer Column Lifetimes
- Improved Column-to-Column Reproducibility
- Recover Higher Compound Purity

Conventional Packing Process Involves:

Compression → Decompression → Re-compression → Final Column



Traditional packed preparative columns produce non-uniform media beds with sheared and crushed particles

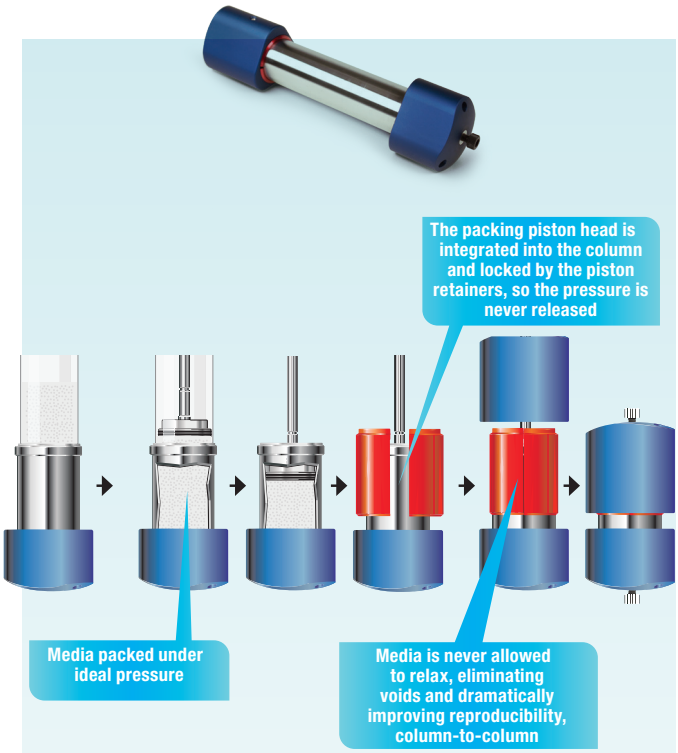
Decompression and then recompression during packing can damage the media and lead to increased column-to-column variability, flow disturbances, and decreased column lifetimes.

*SEM of Waters® OBD™ inlet frit

*The images are believed to be representative, but individual columns may vary.

Axia Packing Process Involves:

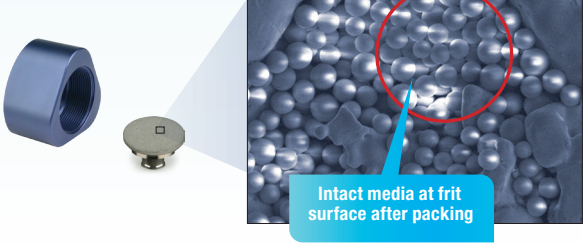
Compression → Final Column



Axia packed columns produce uniform media bed with intact particles

The highly tuned patented process and hardware eliminates potential decompression ensuring bed stability and optimal packing density. The media found on the inlet frit of the Axia packed column shows no signs of damage unlike the media found on inlet frit of traditionally packed prep columns.

*SEM of Axia inlet frit



Ordering Information

3 µm Minibore, MidBore™, and Analytical Columns (mm)									SecurityGuard™ Cartridges (mm)	
Phases	**50 x 2.0**	**150 x 2.0**	**100 x 3.0**	**150 x 3.0**	**50 x 4.6**	**100 x 4.6**	**150 x 4.6**	**250 x 4.6**	**4 x 2.0***	**4 x 3.0***
i-Amylose-3	00B-4778-B0	00F-4778-B0	—	—	00B-4778-E0	00D-4778-E0	00D-4778-E0	00G-4778-E0	AJ0-8651	AJ0-8650
i-Cellulose-5	00B-4755-B0	00F-4755-B0	00D-4755-Y0	00F-4755-Y0	00B-4755-E0	00D-4755-E0	00F-4755-E0	00G-4755-E0	AJ0-8631	AJ0-8632
Cellulose-1	00B-4458-B0	00F-4458-B0	00D-4458-Y0	00F-4458-Y0	00B-4458-E0	00D-4458-E0	00F-4458-E0	00G-4458-E0	AJ0-8402	AJ0-8403
Cellulose-2	00B-4456-B0	00F-4456-B0	00D-4456-Y0	00F-4456-Y0	00B-4456-E0	00D-4456-E0	00F-4456-E0	00G-4456-E0	AJ0-8398	AJ0-8366
Cellulose-3	00B-4492-B0	00F-4492-B0	00D-4492-Y0	00F-4492-Y0	00B-4492-E0	00D-4492-E0	00F-4492-E0	00G-4492-E0	AJ0-8621	AJ0-8622
Cellulose-4	00B-4490-B0	00F-4490-B0	00D-4490-Y0	00F-4490-Y0	00B-4490-E0	00D-4490-E0	00F-4490-E0	00G-4490-E0	AJ0-8626	AJ0-8627
Amylose-1	00B-4729-B0	00F-4729-B0	00D-4729-Y0	00F-4729-Y0	00B-4729-E0	00D-4729-E0	00F-4729-E0	00G-4729-E0	AJ0-9337	AJ0-9336
Amylose-2	00B-4471-B0	00F-4471-B0	00D-4471-Y0	00F-4471-Y0	00B-4471-E0	00D-4471-E0	00F-4471-E0	00G-4471-E0	AJ0-8471	AJ0-8470
								for ID:	2.0–3.0 mm	3.2–8.0 mm

5 µm Minibore, Analytical and SemiPrep Columns (mm)							SecurityGuard Cartridges (mm)		
Phases	**50 x 2.0**	**50 x 4.6**	**100 x 4.6**	**150 x 4.6**	**250 x 4.6**	**250 x 10**	**4 x 2.0***	**4 x 3.0***	**10 x 10‡**
i-Amylose-1	—	00B-4762-E0	00D-4762-E0	00F-4762-E0	00G-4762-E0	00G-4762-N0	AJ0-8640	AJ0-8641	AJ0-8642
i-Amylose-3	—	00B-4779-E0	00D-4779-E0	00F-4779-E0	00G-4779-E0	00G-4779-N0	AJ0-8651	AJ0-8650	AJ0-8652
i-Cellulose-5	—	00B-4756-E0	00D-4756-E0	00F-4756-E0	00G-4756-E0	00G-4756-N0	AJ0-8631	AJ0-8632	AJ0-8633
Cellulose-1	00B-4459-B0	00B-4459-E0	00D-4459-E0	00F-4459-E0	00G-4459-E0	00G-4459-N0	AJ0-8402	AJ0-8403	AJ0-8404
Cellulose-2	00B-4457-B0	00B-4457-E0	00D-4457-E0	00F-4457-E0	00G-4457-E0	00G-4457-N0	AJ0-8398	AJ0-8366	AJ0-8399
Cellulose-3	00B-4493-B0	00B-4493-E0	00D-4493-E0	00F-4493-E0	00G-4493-E0	00G-4493-N0	AJ0-8621	AJ0-8622	AJ0-8623
Cellulose-4	00B-4491-B0	00B-4491-E0	00D-4491-E0	00F-4491-E0	00G-4491-E0	00G-4491-N0	AJ0-8626	AJ0-8627	AJ0-8628
Amylose-1	00B-4732-B0	00B-4732-E0	00D-4732-E0	00F-4732-E0	00G-4732-E0	00G-4732-N0	AJ0-9337	AJ0-9336	AJ0-9344
Amylose-2	00B-4472-B0	00B-4472-E0	00D-4472-E0	00F-4472-E0	00G-4472-E0	00G-4472-N0	AJ0-8471	AJ0-8470	AJ0-8472
						for ID:	2.0–3.0 mm	3.2–8.0 mm	9–16 mm

5 µm Axia™ Packed Preparative Columns (mm)					SecurityGuard Cartridges (mm)	
Phases	**150 x 21.2**	**250 x 21.2**	**250 x 30**	**250 x 50**	**15 x 21.2****	**15 x 30.0♦**
i-Amylose-1	00F-4762-P0-AX	00G-4762-P0-AX	00G-4762-U0-AX	00G-4762-V0-AX	AJ0-8643	AJ0-8644
i-Amylose-3	00F-4779-P0-AX	00G-4779-P0-AX	00F-4779-U0-AX	00G-4779-V0-AX	AJ0-8653	AJ0-8654
i-Cellulose-5	00F-4756-P0-AX	00G-4756-P0-AX	00G-4756-U0-AX	00G-4756-V0-AX	AJ0-8634	AJ0-8635
Cellulose-1†	00F-4459-P0-AX	00G-4459-P0-AX	00G-4459-U0-AX	00G-4459-V0-AX	AJ0-8405	AJ0-8406
Cellulose-2†	00F-4457-P0-AX	00G-4457-P0-AX	00G-4457-U0-AX	00G-4457-V0-AX	AJ0-8400	AJ0-8401
Cellulose-3	00F-4493-P0-AX	00G-4493-P0-AX	00G-4493-U0-AX	00G-4493-V0-AX	AJ0-8624	AJ0-8625
Cellulose-4	00F-4491-P0-AX	00G-4491-P0-AX	00G-4491-U0-AX	00G-4491-V0-AX	AJ0-8629	AJ0-8630
Amylose-1	00F-4732-P0-AX	00G-4732-P0-AX	00G-4732-U0-AX	00G-4732-V0-AX	AJ0-9338	AJ0-9339
Amylose-2	00F-4472-P0-AX	00G-4472-P0-AX	00G-4472-U0-AX	–	AJ0-8473	AJ0-8474
				for ID:	18–29 mm	30–49 mm

* SecurityGuard Analytical Cartridges require holder, Part No. : KJ0-4282

‡ SemiPrep SecurityGuard™ Cartridges require holder, Part No.: AJ0-9281

**HPLC PREP SecurityGuard Cartridges require holder, Part No. : AJ0-8223
SFC PREP SecurityGuard Cartridges require holder, Part No. : AJ0-8617

♦ HPLC PREP SecurityGuard Cartridges require holder, Part No. : AJ0-8277
SFC PREP SecurityGuard Cartridges require holder, Part No. : AJ0-8618

Bulk Media		
Phases	**100 g**	**1 kg**
10 µm	Inquire	Inquire
Cellulose-1	04G-4501	04K-4501
Cellulose-2	04G-4502	04K-4502
Cellulose-3	04G-4624	04K-4624
Cellulose-4	04G-4625	04K-4625
20 µm	Inquire	Inquire
Cellulose-1	04G-4473	04K-4473
Cellulose-2	04G-4464	04K-4464
Cellulose-3	04G-4504	04K-4504
Cellulose-4	04G-4503	04K-4503

Please inquire for 20 µm Lux Amylose-2 media.

Prep Guard Cartridge Holder		
Part No.	**Description**	**Unit**
AJ0-8223	HPLC Holder Kit for 21.2 mm ID cartridges, includes column coupler	ea
AJ0-8617	SFC Holder Kit for 21.2 mm ID cartridges, includes column coupler	ea

Prep Guard Cartridge Holder		
Part No.	**Description**	**Unit**
AJ0-8277	HPLC Holder Kit for 30.0 mm ID cartridges, includes column coupler	ea
AJ0-8618	SFC Holder Kit for 30.0 mm ID cartridges, includes column coupler	ea

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Screening Application Notebook - Demystifying Chirality

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Axia column and packing technology is patented by Phenomenex. U.S. Patent No. 7, 674, 383.
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.
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