



# Care and Use Notes for SFC (Supercritical Fluid Chromatography)

Thank you for purchasing Lux columns for your chiral work. Below are recommended instructions for the care and use of your Lux analytical column under SFC conditions (ID ≤ 4.6 mm).

## General Information

### Column Description

Column Name	Phase Description
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)

### Shipping Solvent

n-Hexane/2-propanol (9:1, v/v)

### Test Certificate

Each column is individually tested before shipment. A test certificate showing the separation parameters for trans-stilbene oxide is enclosed with each column. A test certificate can also be found on our website using column part number and serial number.

### Operating Backpressure

The mobile phase flow rate should be set such that the column backpressure stays below 300 bar (4300 psi).

### Operating Temperatures

With standard co-solvent/modifier (such as alcohol and acetonitrile) the column can be used in the temperature range 0-50 °C.

### Mobile Phase Restrictions

Lux chiral stationary phases are prepared by coating silica with various polysaccharide derivatives. Therefore, any solvent dissolving the polysaccharide derivative (such as tetrahydrofuran, acetone, chlorinated hydrocarbons, ethylacetate, dimethylsulfoxide, dimethylformamide, N-methylformamide, toluene, methylethyl ketone and methyl tert-butyl ether, etc...) must be avoided even in trace amounts (e.g. even as sample solvent). Co-solvent such as methanol (MeOH), ethanol (EtOH), isopropanol (IPA) as well as acetonitrile are compatible and typically used under SFC conditions.

## Column Setup and Use under SFC

### Column Setup and Mobile Phase Co-solvent

Install the column in the SFC instrument oven compartment, set SFC instrument backpressure regulator around 80-100 bars and equilibrate the column with a minimum of ten column volumes of the SFC mobile phase prior to use. A good starting choice for SFC mobile phase are CO<sub>2</sub>/MeOH or CO<sub>2</sub>/EtOH (80:20, v/v) with or without additives. Optimal flow rate for 4.6 mm ID columns is between 3 and 6 mL/min. We recommend increasing flow rate gradually to 3 mL/min to prevent backpressure to go above 300 bar (4300 psi).

### Mobile Phase Additives

For some basic or acidic chiral compounds, it may be necessary to use an appropriate mobile phase additive to achieve chiral resolution and to insure proper peak shapes. Ammonia (NH<sub>3</sub>OH), diethylamine, ethanolamine, isopropyl amine (iPA) and butyl amine in the concentration range 0.1-0.5 % can be used with basic analytes, while trifluoroacetic acid (TFA) or acetic acid (0.1-0.5 %; typically 0.1-0.2 %) can be used with acidic analytes. Mixtures of basic and acidic mobile phase additives are acceptable (for example iPA with TFA). Lux columns will deliver consistent results when operated with mobile phases containing additives at the concentration levels specified above. However, a decrease in column efficiency may occur when a column is used in combination with these additives. Therefore, we advise to dedicate columns to mobile phases containing basic or acidic additives.

### Screening Strategies for Successful Separation

See Phenomenex Technote TN-9003 and references cited therein.

## Column Care, Maintenance, and Storage

### Extending Lifetime and Removal of Contaminants

Phenomenex recommends the use of SecurityGuard™ guard cartridges to extend the lifetime of your column. Ideally, samples must be completely dissolved in the mobile phase modifier and filtered through a syringe filter of approximately 0.45 µm porosity. To remove potential contaminants after extended use of your Lux column, we recommend flushing the column with 100 % methanol or with ethanol for for 2-3 hours at the appropriate flow rate. Back flush can also be used to clean the column.

### Column Storage

Columns used in SFC conditions should be flushed with 10 column volumes of methanol or ethanol prior to long term storage. The column can be stored in methanol or ethanol.

### Trademarks

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