Pickering Laboratories columns and guards are intended for specific applications that require post-column derivatization. This technology guarantees detection of certain classes of compounds at very low concentrations—amino acids, carbamate pesticides and polyamines, for example.

Each column is packed and tested to separate the target compounds according to Pickering's chromatographic quality control standards and published analytical method. The following acceptance criteria apply to all of Pickering's columns:

- With guard column installed, produce a specified chromatogram of the compounds in a standard test mixture.
- Separate the compounds in the established order, with specified resolution of critical pairs.
- Operate within the specified range of back pressure.
- Be free of contaminating material which can cause baseline artifacts.

Only after all criteria have been met can the column's serial number and label be applied.

Quite simply, the column is guaranteed to produce a chromatogram for its intended application if it is operated according to the conditions and methods prescribed by Pickering Laboratories.

About Guard Columns

While it is true that any of our columns may be run without a guard, the practical consequence is a shorter column lifetime. Pickering sells a variety of appropriate guard columns to protect our analytical columns. Additionally, GARD™ provides protection against contamination for cation-exchange applications without affecting column efficiency and it is far less expensive to replace than an analytical column. See page 14 for more information about our GARD™ column protection system.

CHROMATOGRAMS, COLUMNS & GUARDS

CATION-EXCHANGE COLUMNS & GUARDS CATALOG INFORMATION

CATALOG NO.	DESCRIPTION
LITHIUM AMINO ACID ANALYSIS COLUMNS	
0354100T	High-efficiency Lithium Cation-exchange Column 4.0 x 100 mm &1700-0070 amino acid test mixture
0354675T	70 min High-efficiency Lithium Ion-exchange Column, 4.6 x 75 mm &1700-0070 amino acid test mixture
0393250	Standard Lithium Cation-exchange Column 3.0 x 250 mm &1700-0070 amino acid test mixture
SODIUM AMINO ACID ANALYSIS COLUMNS	
1154150	High-efficiency Sodium Cation-exchange for protein and collagen hydrolysates Column 4.0 × 150 mm & 1700-0070 amino acid test mixture
1154150T	High-efficiency Sodium Cation-exchange for protein, collagen and oxidized feed hydrolysates Column 4.0 × 150 mm & 1700-0070 amino acid test mixture
1154110T	30-minute High-efficiency Sodium Cation-exchange Column 4.6 × 110 mm & 1700-0070 amino acid test mixture
1193250	Standard Sodium Cation-exchange Column 3.0 × 250 mm & 1700-0070 amino acid test mixture
GLYPHOSATE COLUMNS	
1954150	Cation-exchange Column for Glyphosate analysis, 4 × 150 mm & 1700-0080 Glyphosate test mixture
GARD™ COLUMN PROTECTION SYSTEM (FOR USE WITH ANY CATION-EXCHANGE COLUMN)	
1700-3102	Cation-exchange GARD™ Assembly: Includes holder and 2 replaceable GARDs™
1700-3101	Replacement Cation-exchange GARDs™ (2/PK)
1700-3100	GARD™ Holder
ALKION™ COLUMN	
9410917	ALKION™ Cation-exchange column, K^+ form, 4.0 × 150 mm
9493020	ALKION™ Guard column, K^+ form, 3.0 × 20 mm

REVERSED-PHASE COLUMNS & GUARDS CATALOG INFORMATION

CATALOG NO.	DESCRIPTION
CARBAMATE PESTICIDE COLUMNS	
0840250	Carbamate Column C_8, expanded resolution, 4.0 × 250 mm & 1700-0063 Carbamate Test Mixture
0846250	Carbamate Column C_8, high resolution/capacity, 4.6 × 250 mm & 1700-0063 Carbamate Test Mixture
1846150	Carbamate Column C_{18}, rapid analysis, 4.6 × 150 mm & 1700-0063 Carbamate Test Mixture
POLYETHER ANTIBIOTICS	
2381750	Polyether reversed-phase column, 4.6 × 250 mm
MYCOTOX™ COLUMN	
1612124	MYCOTOX™ reversed-phase column, 4.6 × 250 mm
GUARDS FOR STANDARD REVERSED-PHASE COLUMNS	
18ECG001	Guard Cartridge Holder with 3 cartridges
18ECG002	Guard Cartridges, 2/pk

CATION-EXCHANGE GARD™ COLUMN PROTECTION SYSTEM

Cation-exchange GARD™ uses a proprietary material to prevent matrix compounds from passing through (and thereby protecting the analytical column), but allows the analytes of interest to pass unimpeded through the GARD™ and onto the analytical column.

The GARD™ significantly prolongs column life without band spreading or added pressure. We demonstrated, by means of a performance comparison for Amino Acid Analysis, that the use of a GARD™ will effectively protect the analytical column, will be more cost-effective for the laboratory, is easy to change, is universal to cation-exchange applications, and most importantly has zero band spreading.

Wth GARD™ Column protection system from Pickering Laboratories the same cation-exchange GARD™ can be used for nearly all cation-exchange applications.

GARD™ COLUMN PROTECTION SYSTEM (FOR USE WITH ANY CATION-EXCHANGE COLUMN)	
CATALOG NO.	DESCRIPTION
1700-3102	Cation-exchange GARD™ Assembly: Includes holder and 2 replaceable GARDs™
1700-3101	Replacement Cation-exchange GARDs™ (2/PK)
1700-3100	GARD™ Holder

LITHIUM AMINO ACID ANALYSIS COLUMNS

Pickering Laboratories specialize in manufacturing of cation-exchange columns for amino acid analysis. No other techniques, including reversed-phase chromatography, have been shown to match post-column ion-exchange methods in quantitation and reproducibility. Advantages of this method, such as absence of matrix interferences, are especially important in the analysis of native samples.

Lithium columns and buffers systems have high selectivity and are perfect for physiological fluids and food analysis.

Post-column Conditions For Amino Acids Analysis:
Reagent: Trione®

Reactor: 130 °C, 0.5 mL

Reagent Flow Rate: 0.3 mL/min

Detection:
UV-Vis Detector: λ=570 nm for primary amino acids
λ=440 nm for secondary amino acids

or
Reagent: 300 mg of OPA, 2 g Thiofluor™, 3 mL of 30 % Brij® 35 solution in 950 mL of OD104

Reactor: 45 °C, 0.15 mL

Reagent Flow Rate: 0.3 mL/min

Detection:
Fluorometer: λ_{ex} 330 nm, λ_{em} 465 nm

The recommended gradient conditions are subject to change without notice. This may happen because of lot-specific changes in the columns, or improvements in the overall method.

The recommended gradient for the column will always be included in the column package, and it supersedes the information in this catalog. Use the program recommended on the column data sheet for the initial testing.

The column oven temperature programming gives additional flexibility when optimizing methods. Using a temperature gradient allows the user to improve separation, shorten analysis time and fine-tune the method for detecting compounds of interest.