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## Acclaim Explosives E1 and E2 Columns Quick Start

Acclaim Explosives E1, 5  $\mu$ m, Analytical Column, 4.6 x 250 mm (P/N 064305)  
 Acclaim Explosives E2, 5  $\mu$ m, Analytical Column, 4.6 x 250 mm (P/N 064309)  
 Acclaim Explosives E2, 3 $\mu$ m, Analytical Column, 3.0 x 250 mm (P/N 070081)  
 Acclaim Explosives E2, 3 $\mu$ m, Analytical Column, 3.0 x 150 mm (P/N 070082)  
 Acclaim Explosives E2, 3 $\mu$ m, Analytical Column, 2.1 x 150 mm (P/N 070083)  
 Acclaim Explosives E2 RSLC, 2.2 $\mu$ m, Analytical Column, 2.1 x 100mm (P/N 076225)  
 Acclaim Explosives E2 RSLC, 2.2 $\mu$ m, Analytical Column, 2.1 x 150 mm (P/N 076226)  
 Acclaim Explosives E2 RSLC, 2.2 $\mu$ m, Analytical Column, 3.0 x 100 mm (P/N 076227)  
 Acclaim Explosives Kit (E1 and E2 5  $\mu$ m, 4.6 x 250 mm Analytical Columns and Guards) (P/N 064312)

### 1. Overview

The Acclaim® Explosives E1 and E2 columns are silica-based reversed phase columns designed specifically for separating the 14 explosives compounds listed in EPA SW-846 Method 8330. Both columns exhibit superior resolution and robustness compared with other commercially available columns, with selectivity that is complementary to each other.

### 2. Main features

- Baseline resolution of all 14 compounds targeted by EPA Method 8330
- Mutually-complementary selectivity
- Simple, isocratic elution conditions
- Rugged columns with good lot-to-lot reproducibility
- Unique selectivities for separating other nitroaromatic molecules

### 3. Physical data

Column Chemistry: Proprietary  
 Substrate: High-purity, porous, spherical silica  
 Particle size: 2.2, 3, and 5  $\mu$ m  
 Surface area: 300 m<sup>2</sup>/g  
 Pore size: 120 Å

### 4. Specifications and Recommended Operational Parameters

Shipping solution: 70% acetonitrile in water  
 Long term storage solution: 100% acetonitrile or methanol  
 Aqueous compatibility: 100% aqueous compatibility

| Column Type | Particle Size | Column Dimensions | Maximum Pressure (bar) | Maximum Flow Rate (mL/min) | Typical Flow Rate (mL/min) | pH Range  | Typical Temperature (°C) | Maximum Temperature (°C) |
|-------------|---------------|-------------------|------------------------|----------------------------|----------------------------|-----------|--------------------------|--------------------------|
| Acclaim E1  | 5 $\mu$ m     | 4.6 x 250mm       | 400                    | 2.0                        | 0.8 – 1.5                  | 3.5 – 7.0 | 25 – 35                  | 50                       |
| Acclaim E2  | 5 $\mu$ m     | 4.6 x 250mm       | 400                    | 2.0                        | 0.8 – 1.5                  | 2.5 – 7.5 | 25 – 35                  | 50                       |
| Acclaim E2  | 3 $\mu$ m     | 3.0 x 250mm       | 800                    | 1.0                        | 0.4 – 0.6                  | 2.5 – 7.5 | 25 – 35                  | 50                       |
|             |               | 3.0 x 150mm       | 600                    | 1.3                        | 0.4 – 0.8                  | 2.5 – 7.5 | 25 – 35                  | 50                       |
|             |               | 2.1 x 150mm       | 600                    | 0.8                        | 0.2 – 0.5                  | 2.5 – 7.5 | 25 – 35                  | 50                       |
| Acclaim E2  | 2.2 $\mu$ m   | 3.0 x 100mm       | 600                    | 1.6                        | 0.4 – 1.4                  | 2.5 – 7.5 | 25 – 35                  | 50                       |
|             |               | 2.1 x 150mm       | 800                    | 1.0                        | 0.25 – 0.7                 | 2.5 – 7.5 | 25 – 35                  | 50                       |
|             |               | 2.1 x 100mm       | 700                    | 1.0                        | 0.25 – 0.7                 | 2.5 – 7.5 | 25 – 35                  | 50                       |

## 5. Operational Guidelines

- The direction of flow is marked on the column. While it is not harmful to the column, reverse flow should be avoided except to attempt removal of inlet blockage (see “Column Care” in the Manual).
- A new column is shipped in a solution of acetonitrile and water in 70:30 ratio. Initially, care should be taken to avoid any mobile phase that might cause a precipitate.
- The use of a guard column and/or a pre-column filter is highly recommended whenever possible to protect the analytical column and extend its useful lifetime.
- Recommended operating pressures are column format dependent (see Table above for details).
- Columns must not be exposed to a condition outside the recommended pH range or temperature range; permanent changes in selectivity may occur in such cases.

**Suggested conditions for EPA Method 8330.** Refer to the manual for further detail and advice on optimization.

| Column Type | Particle Size | Column Dimensions | Mobile phase | Temperature | Flow Rate   |
|-------------|---------------|-------------------|--------------|-------------|-------------|
| Acclaim E1  | 5 µm          | 4.6 x 250 mm      | 43% methanol | 31 °C       | 1.0 mL/min  |
| Acclaim E2  | 5 µm          | 4.6 x 250 mm      | 48% methanol | 30 °C       | 1.0 mL/min  |
| Acclaim E2  | 3 µm          | 3.0 x 250 mm      | 49% methanol | 27 °C       | 0.54 mL/min |
|             |               | 3.0 x 150 mm      | 48% methanol | 30 °C       | 0.54 mL/min |
|             |               | 2.1 x 150 mm      | 48% methanol | 30 °C       | 0.26 mL/min |
| Acclaim E2  | 2.2 µm        | 3.0 x 100 mm      | 48% methanol | 31 °C       | 0.70 mL/min |
|             |               | 2.1 x 150 mm      | 48% methanol | 31 °C       | 0.34 mL/min |
|             |               | 2.1 x 100 mm      | 48% methanol | 31 °C       | 0.34 mL/min |

Other applications for these columns may be found in the Manual or in the Acclaim Library.