RESTEK Pure Chromatography

Improve Your Linear Alpha Olefins (LAO) Impurity Analysis with Restek's New Rxi-LAO GC Columns

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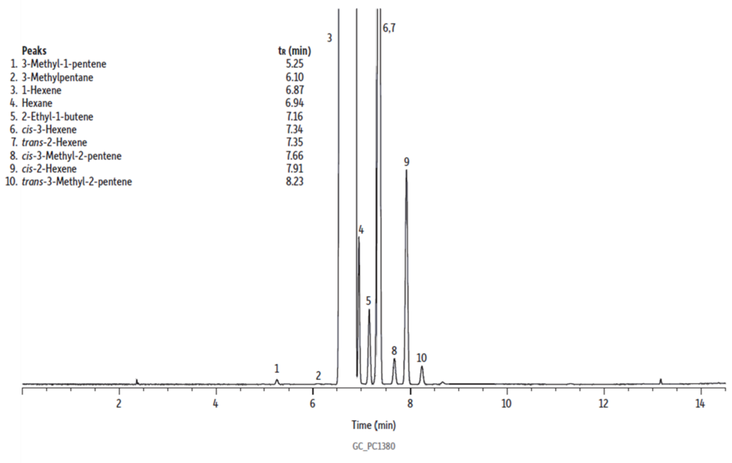
1-Hexene Rxi-Lao (40m x 0.18mm x 1.0µm)



1-Octene Rxi-Lao (40m x 0.18mm x 1.0µm)

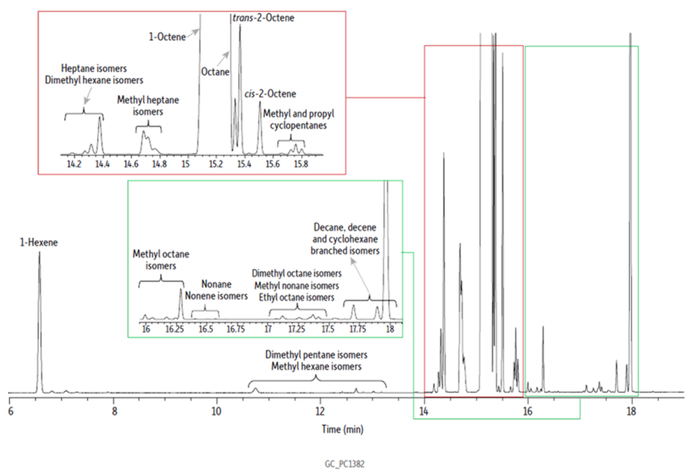


Figure 1: For labs using a single-column method, we recommend our shorter, narrow-bore Rxi-LAO 40 m, 0.18 mm ID, 1.0 µm column (cat.# 40815). The smaller dimensions of this column enables fast analysis times while maintaining the separation power needed for LAO impurity analysis.

Abstract:

As worldwide demand for polyethylene increases, so does the pressure on labs performing linear alpha olefins (LAO) impurity analysis. Restek's Rxi-LAO columns are the first GC columns specifically applicated for the impurity analysis of LAOs. The unique selectivity provides high resolution, separating impurities from peaks of interest such as 1-hexene and 1-octene. Herein the Rxi-LAO column was evaluated for selectivity and resolution of peaks of interest. A stringent quality control test was also developed to ensure column robustness and column-to-column reproducibility. As a result, the Rxi-LAO demonstrates high selectivity, resolution and robustness to meet the high throughput needs of labs running the LAO analysis. Two column dimensions are available, with options for one-column and two-column configurations. The one-column method provides substantial benefits compared to two-column methods including a simpler setup, increased instrument uptime, and higher sample throughput.

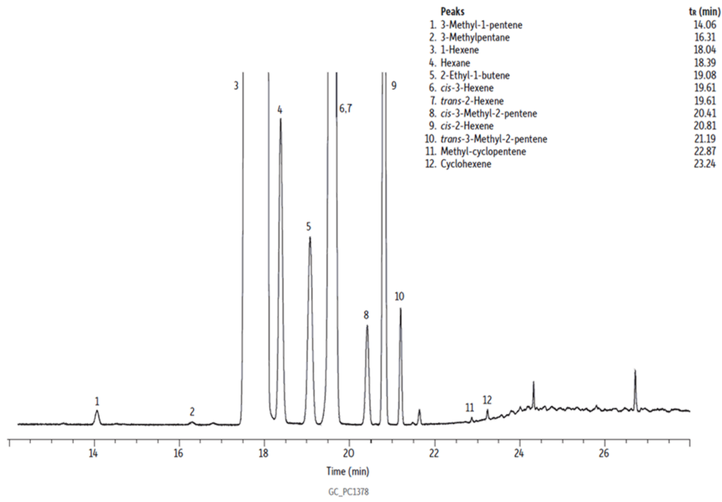
Rxi-LAO columns are defined by four key features:

- Unique selectivity enables high resolution of impurities from peaks of interest for excellent data quality.
- One-column method reduces instrument setup and analysis time, resulting in fast, accurate, and complete analysis.
- Application-specific column dimensions increase sample throughput.
- Pro *EZ*GC chromatogram modeler libraries simplify analysis optimization.

Table I: Switching to a one-column method using Rxi-LAO columns can offer labs substantial benefits over current methods.

Current Method	Rxi-LAO Column Dimension for One-Column Method	Rxi-LAO Column Advantage	Benefits vs. Current Method
2 GC/2 Column	60 m, 0.25 mm ID, 1.4 µm (cat.# 13876)	• One-column method reduces setup time. • Optimal stationary phase selectivity reduces analysis time and yields good resolution of impurities.	• Increased instrument uptime. • Increased sample throughput. • Accurate, complete results.
1 GC/1 Column	40 m, 0.18 mm ID, 1.0 µm (cat.# 40815)	• Shorter, small ID column produces faster analysis times while maintaining impurity resolutions.	• Increased sample throughput. • Good data quality.

1-Hexene Rxi-Lao (60m x 0.25mm x 1.4µm)



1-Octene Rxi-Lao (60m x 0.25mm x 1.4µm)

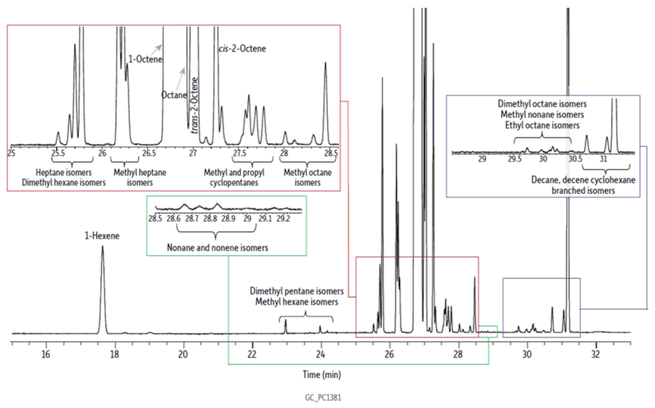


Figure 2: For labs using a two-column/two-GC method, we recommend our Rxi-LAO 60 m, 0.25 mm ID, 1.4 µm column (cat.# 13876). Compared to a two-column method, this single-column option halves the number of columns needed, resulting in reduced setup time, column costs, and analysis time while maintaining data quality.

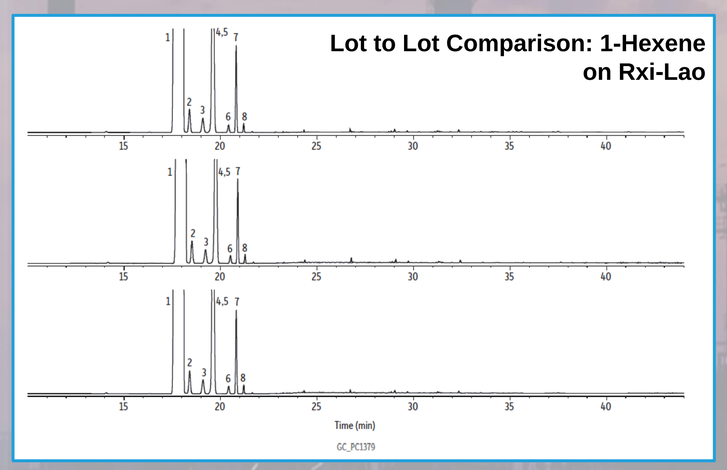


Figure 3: Rxi-LAO columns are manufactured with precision and stringent quality control to deliver high column-to-column reproducibility. This ensures the Rxi-LAO column performs to the same high standard with every analysis, even after changing the column.

Figure 4: Rxi-LAO columns are also fully supported by our Pro *EZ*GC chromatogram modeler, allowing labs to quickly and easily optimize their LAO analysis.