How can you reduce helium consumption on the Thermo Scientific FlashSmart Elemental Analyzer?

Recently, laboratories have suffered from increasing analytical costs due to worldwide reduced availability and higher market prices of helium. Elemental analyzers, including the Thermo Scientific™ FlashSmart™ Analyzer (Figure 1), use helium as a carrier and reference gas during periods of sample analyses and instrument Stand-By Mode. There is therefore a demand for reduced helium consumption or the use of an alternative gas, such as argon, which is more readily available and at lower cost compared with helium.

The FlashSmart Analyzer allows the user to optimize helium consumption in a number of ways, as described in Table 1.

Figure 1. Thermo Scientific FlashSmart Elemental Analyzer.
Table 1. Optimization methods for lower helium consumption.

<table>
<thead>
<tr>
<th>Option</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
<th>Option 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical configuration</td>
<td>Typical Stand-By Mode</td>
<td>EV3 and EV4 closed and Stand-By Mode</td>
<td>Switch to Nitrogen Gas and Stand-By Mode</td>
<td>MultiValve Control (MVC) Module</td>
<td>Argon Carrier Gas</td>
</tr>
<tr>
<td>All</td>
<td>All</td>
<td>All</td>
<td>CHN/O, CHNS/O, CHN/CHN, CHNS/CHNS, CHN/S, NCS/O</td>
<td>N Org, N/Protein, NC Org, NC Soils, CHN</td>
<td></td>
</tr>
</tbody>
</table>

How do you use it?

Through the dedicated EagerSmart Data Handling Software. The Stand-By function can be selected before starting your sequence or activated manually after analyses have completed.

The status page provides real time information on the conditions of the Analyzer.

To return to analytical conditions, you can use the Auto-ready Function in the EagerSmart Data Handling Software.

Helium saving (Furnace temperatures are reduced by 50%)

You save greater than 90% of helium gas (Carrier and Reference).

100% helium saving because the system remains under pressure and there is no helium flow.

100% helium saving when using nitrogen gas during Stand-By Mode.

100% helium saving during Stand-By Mode, using nitrogen or argon as an alternative.

No helium is used. Argon flows (Carrier and Reference) are much lower than helium flows.

Stabilization time before you begin analysis

Less than 30 minutes from Stand-By Mode.

Less than 10 minutes after the Leak Test is stopped.

1 hour after switching from nitrogen to helium.

Less than 30 minutes from Stand-By Mode.

One hour after switching from nitrogen/argon to helium.

Less than 30 minutes from Stand-By Mode.

Suggested use

Overnight, weekend, short and long periods.

Overnight, weekend.

Weekend or short and long periods.

Overnight, weekend, short and long periods.

Used as carrier gas for reduced analysis cost.

Summary

The Thermo Scientific FlashSmart Elemental Analyzer is a valuable solution for the quantitative analysis of one to five elements (nitrogen, carbon, hydrogen, sulfur and oxygen) in terms of accuracy, reproducibility, sensitivity, automation, speed of analysis and cost per analysis.

The cost per analysis is significantly reduced in the FlashSmart Elemental Analyzer through its modularity and software driven optimization of helium consumption, which meets laboratories demands for low costs.

The Thermo Scientific™ EagerSmart™ Data Handling Software, with its automated functions (Auto Stand-By, Auto Ready, Automatic Leak Test, Auto OFF, and more), seamlessly manages the system, maximizing laboratory productivity.

For more information, see Technical Note 42270.

Find out more at thermofisher.com/OEA