SAFE GUARD™ III

Trace Metals Analyzer
with Meniscus Sensor Technology

SafeGuard III provides automated trace metal analysis.

SafeGuard III offers flexible, robust monitoring of a variety of trace metal contaminants through the use of Meniscus sensor technology. With just a push of a button after loading your sample, SafeGuard III’s fully automated operation returns your contaminant levels in an easy-to-read display. Generating data and process control reports for routine facility operations support is simple and straightforward.

With its compact design, SafeGuard III is an application-specific, independent monitoring station located at-line or in your own on-site quality assurance lab, wherever it may be needed. SafeGuard III’s comprehensive easy-to-use interface offers modes for advanced users, as well as routine maintenance. The software is flexible and powerful enough to support ongoing development of new water contaminant treatment programs, yet simple and direct enough to spot-check routine grab sample results. Save precious time and money by eliminating the need to send samples to an outside lab.

Online/offline water quality analysis is available through the SafeGuard Duo option.

SafeGuard III Features

- Configurable for Cu, Cd, Zn, Cr, Fe, Ni, Co, V, U, Se and other metals
- Fully automated operation with Chemist in the Box™ technology
  - Eliminates operator variability to insure accuracy to 1 ppb
  - Measurement time less than 30 minutes
  - Correlation with ICP-MS (± 10% typical)
  - Easily accessible grab sample port
  - Data logging records results, allows report generation and results archiving

SafeGuard III Application Examples

Wastewater & Effluent Analysis
- Pinpoint contaminant levels before effluent release
- Determine treatment or remediation requirements
- Eliminate costly fines

Food & Beverage Monitoring
- Establish cleanliness of incoming materials and confirm cleanliness of finished products
- Monitor product integrity throughout the entire process line

Semiconductor Process Control
- Check wafer & etching baths for trace metal contaminants
- Monitor rinse water for inorganic contaminants

Mine Runoff & Discharge Compliance
- Verify contaminant levels before release

Batch Sampling
- Increase throughput with batch sampling on integrated autosampler

Autosampler Optional

SAFEGUARD™ III

Trace Metals Analyzer
with Meniscus Sensor Technology

SafeGuard III provides automated trace metal analysis.

SafeGuard III offers flexible, robust monitoring of a variety of trace metal contaminants through the use of Meniscus sensor technology. With just a push of a button after loading your sample, SafeGuard III’s fully automated operation returns your contaminant levels in an easy-to-read display. Generating data and process control reports for routine facility operations support is simple and straightforward.

With its compact design, SafeGuard III is an application-specific, independent monitoring station located at-line or in your own on-site quality assurance lab, wherever it may be needed. SafeGuard III’s comprehensive easy-to-use interface offers modes for advanced users, as well as routine maintenance. The software is flexible and powerful enough to support ongoing development of new water contaminant treatment programs, yet simple and direct enough to spot-check routine grab sample results. Save precious time and money by eliminating the need to send samples to an outside lab.

Online/offline water quality analysis is available through the SafeGuard Duo option.

SafeGuard III Features

- Configurable for Cu, Cd, Zn, Cr, Fe, Ni, Co, V, U, Se and other metals
- Fully automated operation with Chemist in the Box™ technology
  - Eliminates operator variability to insure accuracy to 1 ppb
  - Measurement time less than 30 minutes
  - Correlation with ICP-MS (± 10% typical)
  - Easily accessible grab sample port
  - Data logging records results, allows report generation and results archiving

SafeGuard III Application Examples

Wastewater & Effluent Analysis
- Pinpoint contaminant levels before effluent release
- Determine treatment or remediation requirements
- Eliminate costly fines

Food & Beverage Monitoring
- Establish cleanliness of incoming materials and confirm cleanliness of finished products
- Monitor product integrity throughout the entire process line

Semiconductor Process Control
- Check wafer & etching baths for trace metal contaminants
- Monitor rinse water for inorganic contaminants

Mine Runoff & Discharge Compliance
- Verify contaminant levels before release

Batch Sampling
- Increase throughput with batch sampling on integrated autosampler

Autosampler Optional
## SAFEGUARD™ III Specifications

### PERFORMANCE

<table>
<thead>
<tr>
<th>Measurement Range</th>
<th>sub-ppb – 100 ppb; 100 ppb – 1 ppm; 1 ppm – 10 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Accuracy</td>
<td>1 ppb or ± 20%, whichever is larger</td>
</tr>
<tr>
<td>Measurement Time</td>
<td>Less than 30 minutes</td>
</tr>
<tr>
<td>Trace Metals Supported</td>
<td>Configurable for Cu, Cd, Zn, Cr, Fe, Ni, Co, V, U and other metals. Please call to discuss your application.</td>
</tr>
</tbody>
</table>
| Sample Requirements      | Temperature: 5°C to 45°C, room temp. is ideal  
                          | pH Range: 1.0 – 8.0      
                          | Minimum sample size: 15 mL  
                          | Samples which contain solids must be prefiltered  |
| Sampling Scheme          | Side port accepts standard screw-on sample  
                          | Configurable to perform automatic 50:1 dilutions with no additional hardware |

### SYSTEM

<table>
<thead>
<tr>
<th>User Interface</th>
<th>Windows-based SafeGuard software displays easy-to-read results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical</td>
<td>100 – 240V, 50/60 Hz, 1.5 A (Three grounded sources required)</td>
</tr>
</tbody>
</table>
| Operating Conditions     | Temperature: 20°C ± 10°C  
                          | Humidity: 5 – 95%, non-condensing                           |
| Other Requirements       | Nitrogen Gas: 25 – 50 psi  
                          | 300 cubic ft. gas cylinder provides 6 months operation (1 test/hr)  
                          | Deionized Water: 18 MOhm  
                          | (these requirements are configuration-dependent)               |
| Dimensions               | 24”W x 15.5”H x 13.5”D                                      |

### OPTIONS

| Autosampler               | CETAC ASX-260  
                          | Dual rack, 21 vials/rack  
                          | 50 mL vials (sample size can be much less)  
                          | CETAC service support  
                          | Dimensions: 13”W x 24”H x 20”D |
|---------------------------|---------------------------------------------------------------|
| Upon Request              | Additional CETAC autosamplers available (ASX-130, ASX-520)  
                          | Additional CETAC-compatible racks available  
                          | Additional CETAC-compatible vials available |

### DETERMINATION OF CHROMIUM (VI) USING AdSV

![Graph showing the relationship between chromium concentration (Cr VI) and AdSV](image)

\[
y = 1.0592x + 0.2871 \\
R^2 = 0.9977
\]

---

© 2015 Aqua Metrology Systems, Ltd. 3/15