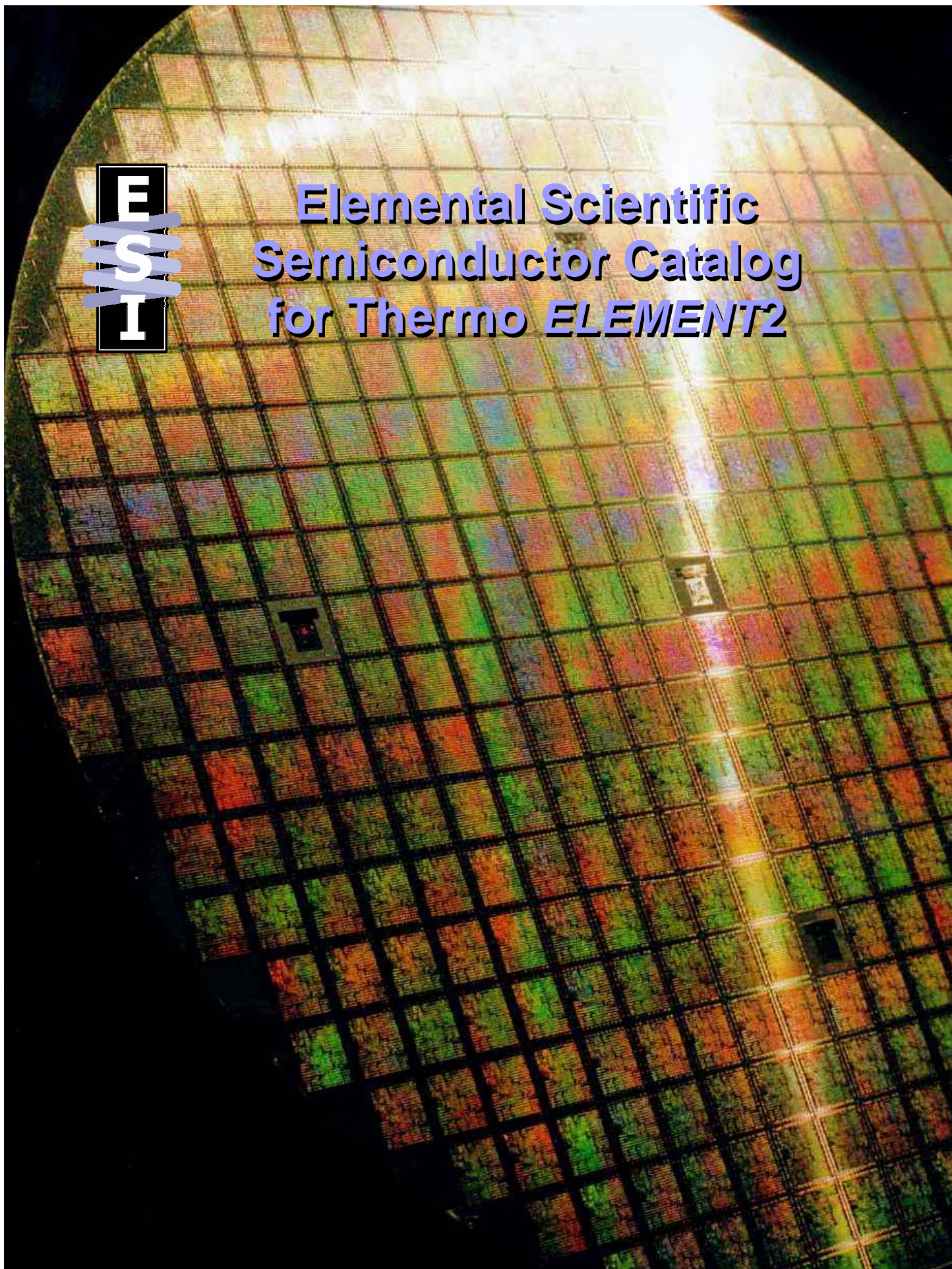




**Elemental Scientific  
Semiconductor Catalog  
for Thermo *ELEMENT2***



## Ordering Information

You may contact us via phone, fax, e-mail, or through our website.

### **EPOND S.A.**

CP 389  
CH-1800 Vevey  
Switzerland

### **Phone:**

+41 21 921 29 41

### **Fax:**

+41 21 921 44 08

### **Email:**

info@e-pond.biz

### **Website:**

<http://www.e-pond.biz>

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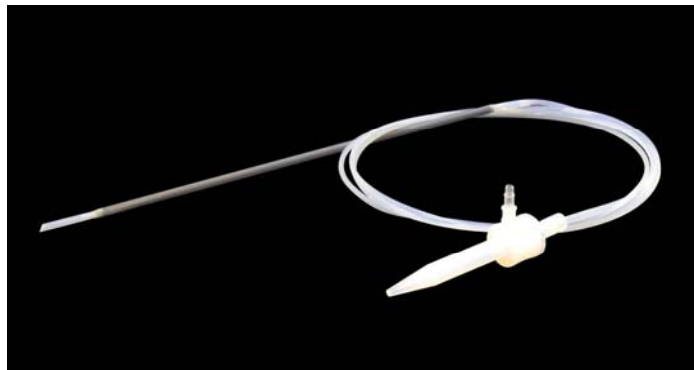




## High Efficiency PFA MicroFlow Nebulizers

### PFA Nebulizers with Integrated Sampling Probes

These nebulizers allow self-aspiration at low sample consumption rates with any autosampler while providing the same benefits of the PFA MicroFlow nebulizer. The integrated sampling probe is constructed by encapsulating a rigid support material between layers of Teflon to provide a chemically resistant probe that is mechanically stable and resilient.



**LLL** = distance from nebulizer to the probe support (cm). Standard lengths are 80 cm (-080), 100 cm (-100), 120 cm (-120), 150 cm (-150). Probes can be custom-made to your specifications of length and materials at no extra charge.

#### Carbon Fiber support

| Model   | ESI SC-series    | ASX-100          | ASX-500          | Manual probes    |
|---------|------------------|------------------|------------------|------------------|
| PFA-20  | ES-2020-3503-LLL | ES-2020-0103-LLL |                  | ES-2020-0203-LLL |
| PFA-50  | ES-2000-3503-LLL | ES-2000-0103-LLL |                  | ES-2000-0203-LLL |
| PFA-75  | ES-2001-3503-LLL | ES-2001-0103-LLL |                  | ES-2001-0203-LLL |
| PFA-100 | ES-2002-3503-LLL | ES-2002-0103-LLL | ES-2002-0503-LLL | ES-2002-0203-LLL |
| PFA-200 | ES-2003-3503-LLL |                  | ES-2003-0503-LLL | ES-2003-0203-LLL |
| PFA-400 | ES-2005-3503-LLL |                  | ES-2005-0503-LLL | ES-2005-0203-LLL |

#### PEEK support

| Model   | ESI SC-series    | ASX-100          | ASX-500          | Manual probes    |
|---------|------------------|------------------|------------------|------------------|
| PFA-20  | ES-2020-3500-LLL | ES-2020-0100-LLL |                  | ES-2020-0200-LLL |
| PFA-50  | ES-2000-3500-LLL | ES-2000-0100-LLL |                  | ES-2000-0200-LLL |
| PFA-75  | ES-2001-3500-LLL | ES-2001-0100-LLL |                  | ES-2001-0200-LLL |
| PFA-100 | ES-2002-3500-LLL | ES-2002-0100-LLL | ES-2002-0500-LLL | ES-2002-0200-LLL |
| PFA-200 | ES-2003-3500-LLL |                  | ES-2003-0500-LLL | ES-2003-0200-LLL |
| PFA-400 | ES-2005-3500-LLL |                  | ES-2005-0500-LLL | ES-2005-0200-LLL |

#### Ultem support

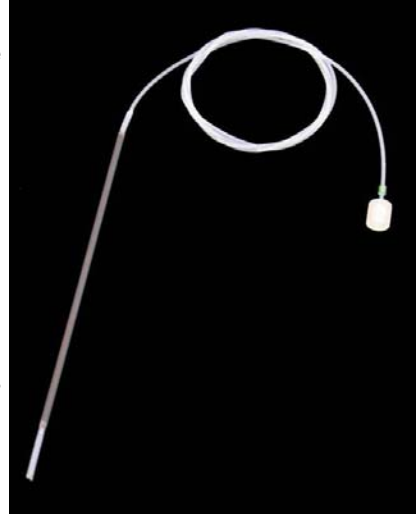
| Model   | ESI SC-series    | ASX-100          | ASX-500          | Manual probes    |
|---------|------------------|------------------|------------------|------------------|
| PFA-20  | ES-2020-3505-LLL | ES-2020-0105-LLL |                  | ES-2020-0205-LLL |
| PFA-50  | ES-2000-3505-LLL | ES-2000-0105-LLL |                  | ES-2000-0205-LLL |
| PFA-75  | ES-2001-3505-LLL | ES-2001-0105-LLL |                  | ES-2001-0205-LLL |
| PFA-100 | ES-2002-3505-LLL | ES-2002-0105-LLL | ES-2002-0505-LLL | ES-2002-0205-LLL |
| PFA-200 | ES-2003-3505-LLL |                  | ES-2003-0505-LLL | ES-2003-0205-LLL |
| PFA-400 | ES-2005-3505-LLL |                  | ES-2005-0505-LLL | ES-2005-0205-LLL |

#### Stainless Steel support

| Model   | ESI SC-series    | ASX-100          | ASX-500          | Manual probes    |
|---------|------------------|------------------|------------------|------------------|
| PFA-20  | ES-2020-3509-LLL | ES-2020-0109-LLL |                  | ES-2020-0209-LLL |
| PFA-50  | ES-2000-3509-LLL | ES-2000-0109-LLL |                  | ES-2000-0209-LLL |
| PFA-75  | ES-2001-3509-LLL | ES-2001-0109-LLL |                  | ES-2001-0209-LLL |
| PFA-100 | ES-2002-3509-LLL | ES-2002-0109-LLL | ES-2002-0509-LLL | ES-2002-0209-LLL |
| PFA-200 | ES-2003-3509-LLL |                  | ES-2003-0509-LLL | ES-2003-0209-LLL |
| PFA-400 | ES-2005-3509-LLL |                  | ES-2005-0509-LLL | ES-2005-0209-LLL |

## Autosampler Probes for ST Nebulizers

ST Nebulizer probes connect directly to any ST-type nebulizer. The 1/4-28 threaded fitting provides a secure, zero-dead-volume connection with no additional fittings required.



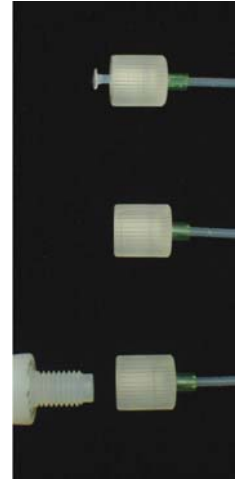
**LLL** = distance from flanged fitting to the probe support (cm).

- 80 cm (-080)
- 100 cm (-100)
- 120 cm (-120)
- 150 cm (-150)

Probes can be custom-made to your specifications of length and materials at no extra charge.

### Carbon Fiber Support

| Probe I.D. | ESI-SC           | ASX-100          | ASX-500          | Manual probes    |
|------------|------------------|------------------|------------------|------------------|
| 0.15mm     | ES-5037-3150-LLL | ES-5036-0150-LLL | ES-5037-0150-LLL | ES-5036-2150-LLL |
| 0.20mm     | ES-5037-3200-LLL | ES-5036-0200-LLL | ES-5037-0200-LLL | ES-5036-2200-LLL |
| 0.25mm     | ES-5037-3250-LLL | ES-5036-0250-LLL | ES-5037-0250-LLL | ES-5036-2250-LLL |
| 0.30mm     | ES-5037-3300-LLL | ES-5036-0300-LLL | ES-5037-0300-LLL | ES-5036-2300-LLL |
| 0.50mm     | ES-5037-3500-LLL |                  | ES-5037-0500-LLL | ES-5036-2500-LLL |
| 0.80mm     | ES-5037-3750-LLL |                  | ES-5037-0750-LLL | ES-5036-2750-LLL |



### PEEK Support

| Probe I.D. | ESI-SC           | ASX-100          | ASX-500          | Manual probes    |
|------------|------------------|------------------|------------------|------------------|
| 0.15mm     | ES-5017-3150-LLL | ES-5036-0150-LLL | ES-5017-0150-LLL | ES-5016-2150-LLL |
| 0.20mm     | ES-5017-3200-LLL | ES-5036-0200-LLL | ES-5017-0200-LLL | ES-5016-2200-LLL |
| 0.25mm     | ES-5017-3250-LLL | ES-5036-0250-LLL | ES-5017-0250-LLL | ES-5016-2250-LLL |
| 0.30mm     | ES-5017-3300-LLL | ES-5036-0300-LLL | ES-5017-0300-LLL | ES-5016-2300-LLL |
| 0.50mm     | ES-5017-3500-LLL |                  | ES-5017-0500-LLL | ES-5016-2500-LLL |
| 0.80mm     | ES-5017-3750-LLL |                  | ES-5017-0750-LLL | ES-5016-2750-LLL |

### Ultem Support

| Probe I.D. | ESI-SC           | ASX-100          | ASX-500          | Manual probes    |
|------------|------------------|------------------|------------------|------------------|
| 0.15mm     | ES-5057-3150-LLL | ES-5056-0150-LLL | ES-5057-0150-LLL | ES-5056-2150-LLL |
| 0.20mm     | ES-5057-3200-LLL | ES-5056-0200-LLL | ES-5057-0200-LLL | ES-5056-2200-LLL |
| 0.25mm     | ES-5057-3250-LLL | ES-5056-0250-LLL | ES-5057-0250-LLL | ES-5056-2250-LLL |
| 0.30mm     | ES-5057-3300-LLL | ES-5056-0300-LLL | ES-5057-0300-LLL | ES-5056-2300-LLL |
| 0.50mm     | ES-5057-3500-LLL |                  | ES-5057-0500-LLL | ES-5056-2500-LLL |
| 0.80mm     | ES-5057-3750-LLL |                  | ES-5057-0750-LLL | ES-5056-2750-LLL |

### Stainless Steel Support

| Probe I.D. | ESI-SC           | ASX-100          | ASX-500          | Manual probes    |
|------------|------------------|------------------|------------------|------------------|
| 0.15mm     | ES-5097-3150-LLL | ES-5096-0150-LLL | ES-5097-9150-LLL | ES-5096-2150-LLL |
| 0.20mm     | ES-5097-3200-LLL | ES-5096-0200-LLL | ES-5097-9200-LLL | ES-5096-2200-LLL |
| 0.25mm     | ES-5097-3250-LLL | ES-5096-0250-LLL | ES-5097-9250-LLL | ES-5096-2250-LLL |
| 0.30mm     | ES-5097-3300-LLL | ES-5096-0300-LLL | ES-5097-9300-LLL | ES-5096-2300-LLL |
| 0.50mm     | ES-5097-3500-LLL |                  | ES-5097-9500-LLL | ES-5096-2500-LLL |
| 0.80mm     | ES-5097-3750-LLL |                  | ES-5097-9750-LLL | ES-5096-2750-LLL |

## Apex High Sensitivity Inlet System

Fully integrated, high sensitivity inlet system sample introduction systems for ICP spectroscopy. Designed to increase signal intensity while reducing relative background contamination for ICPMS and ICPAES analyses. When combined with a self-aspirating MicroFlow PFA nebulizer even aggressive and concentrated chemicals may be analyzed at very high sensitivity and very low contamination.

### Apex Q for Element2

High-sensitivity, low-flow sample introduction system for ICPMS. Improves sample transport efficiency while maintaining low blanks. Recommended to be used with either the E2-3 sample tray or SC-E2 autosampler. Includes PFA-100 and PFA-ST nebulizers, integrated peristaltic drain pump, and connectors to adapt to the ELEMENT2.

Part Number: **ES-4352**



### Apex HF for Element2

All PFA sample flow path. High-sensitivity, low-flow HF-resistant sample introduction system for ICPMS. Recommended to be used with either the E2-3 sample tray or the SC-E2 autosampler. Includes PFA-100 and PFA-ST nebulizers, integrated peristaltic drain pump, and connectors to adapt to the ELEMENT2.

Part Number: **ES-4452**



### Spiro Teflon Membrane Desolvator

Designed for use with or without the Apex system. Innovative design allows for direct analysis of a variety of samples, including high concentration Si samples and volatile organic solvents. The Spiro is an extremely stable membrane desolvator compatible with many types of high dissolved solids samples. The Spiro removes Si on-line as SiF<sub>6</sub> after addition of HF to the sample, allowing the determination of trace metal impurities in Si matrices without ICPMS cone clogging or off-line sample preparation. The Spiro combined with the Apex system is useful for direct analysis of neat organic chemicals, such as methanol, acetone and other solvents. Since the Spiro removes volatile species from the sample aerosol stream, it is not recommended for the determination of volatile analytes, including boron.

Part Number: **4599-3000**



The Spiro attaches directly to the Apex.



## **SC-E2 Integrated Optically Encoded Autosampler for Element 2**

Integrated directly to the Element2 HR-ICP-MS. Facilitates cone and ICPMS interface maintenance. Improved control of self-aspiration, reducing "vapor-locks" and particularly useful for low flow applications and organic solvents analysis. Demonstrably improves rinse-out and background over any other autosampler available for the Element2. Recently improved for chemical resistance to high acid concentrations in enclosed environments.

Part Number: **SC-8103**



### **SC-FAST high purity sample injection**

The SC-FAST integrates fully with the SC-E2 autosampler to ensure the fastest sample throughput of any commercial sample introduction system. Through use of an injection valve system, most of the uptake and rinse time can be eliminated, increasing throughput up to 2—3 fold without loss of analytical performance.

Part Number: **SC-0500-03**



SC-FAST can be integrated to the bottom of the SC-E2 for *ELEMENT2* ICPMS.

### **Semiconductor rinse station and delivery**

Semiconductor PFA rinse station upgrade and dual PFA rinse delivery system for SC autosampler. Completely eliminates contact between peristaltic pump tubing and the rinse solutions.

Rinse Station : **SC-0301-03**

Rinse Delivery System: **SC-0304**





### Sample enclosure for SC-E2 autosampler

Controls evaporation and environmental contamination. Only the sample area is enclosed allowing free access to the rest of the instrument.

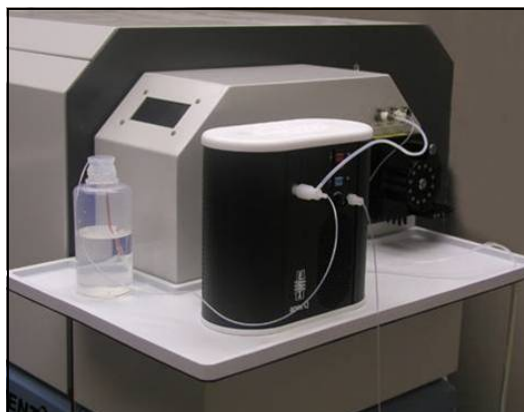
Part Number: **SC-1307**



### E2-3 Sample Tray for Element2

Increase the front end work area and make the use of sample introduction systems more convenient with these add-on shelves for ICP units. Directly and easily replaces standard Element2 tray to increase the sample inlet work area by nearly 3x. Ideal for use with the Apex inlet system.

Part Number: **ES-2999-5223**



## Sample Racks for SC-E2

| Part Number | Description  |
|-------------|--|
| MR-21-14    | 21 position 3x7 mini rack. For "GFAA" style vials. |



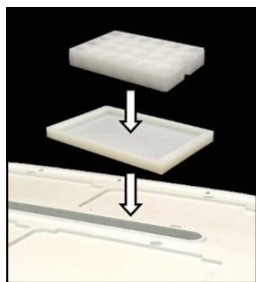
|          |                        |
|----------|------------------------|
| MR-00-01 | Cover for Micro Racks. |
|----------|------------------------|



|        |   |
|--------|---|
| MT-24G | 24 position 4x6 GeMeTec rack. Compatible with GeMeTec automated VPD system. |
|--------|---|



|           |  |
|-----------|--|
| MT-24G-AP | GeMeTec adapter plate. Adapts GeMeTec rack to microtiter plate locations on the SC-E2 autosampler. |
|-----------|--|



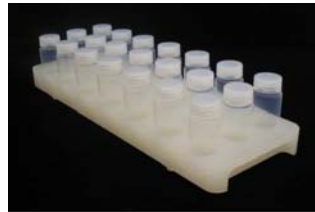
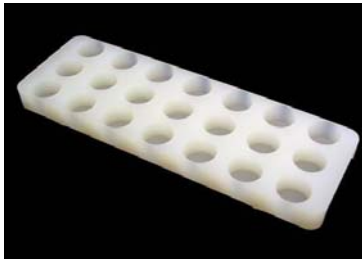
The SC autosampler readily accommodates a wide variety of sample racks for both small and large volume sample analysis. Many other sizes and types of racks are available. Please contact ESI for racks compatible with vials that you prefer to use.

## Sample Racks for SC-E2

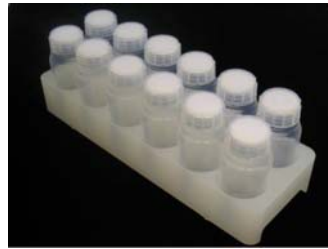
| Part Number | Description  |
|-------------|--|
| ST10-28     | 10 position standards rack. For 25 mL PFA bottles. |



|           |   |
|-----------|---|
| SR2-21-22 | 21 position 3x7 super rack. For 25 ml PFA bottles |
|-----------|---|



|           |  |
|-----------|--|
| SR2-12-50 | 12 position 2x6 super rack. For 125 ml PFA bottles |
|-----------|--|



The SC autosampler readily accommodates a wide variety of sample racks for both small and large volume sample analysis. Many other sizes and types of racks are available. Please contact ESI for racks compatible with vials that you prefer to use.

## Sample Vials and Bottles for SC-E2



V-14-0311C 1.5mL PFA "GFAA" style vial  
(press-on cap not included)



V-14-0312C 2mL PFA "GFAA" style vial  
(press-on cap not included)



V-14-0314C 4mL PFA "GFAA" style vial,  
(press-on cap not included)



V-14-0310 PFA push on cap for "GFAA" style vials.



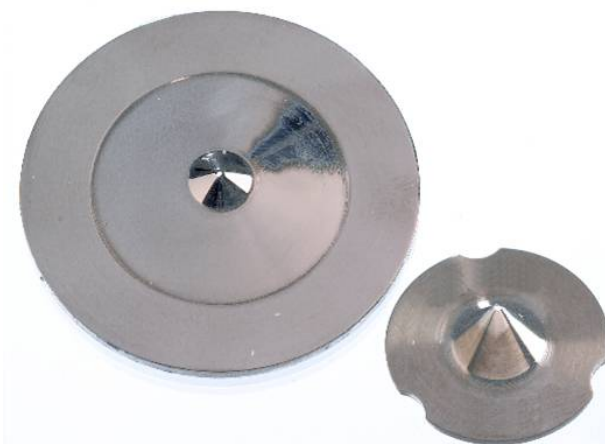
V-28-0360 25mL PFA bottle with PFA seal and PFA screw cap



V-50-0360 125mL high purity PFA bottle with seal and screw cap.  
Recommended for DI water and high purity semiconductor-grade chemicals due to favorable sample volume to surface area ratio.

## ICPMS Cones for ThermoFinnigan

| Part Number  | Description   |
|--------------|---|
| ES-3000-1806 | Platinum Sampler<br>Cu base 15.2mm Pt/10% Rh insert     |
| ES-3000-1808 | Platinum Sampler<br>Ni base 15.2mm Pt/10% Rh insert     |
| ES-3000-1807 | Platinum Sampler<br>Cu core 6.35mm Pt insert            |
| ES-3000-1810 | Platinum Skimmer Cone<br>Cu base 7.6mm Pt/10%Rh insert  |
| ES-3000-1811 | Platinum Skimmer Cone<br>Ni base 7.62mm Pt/10%Rh insert |
| ES-3000-1809 | Platinum Skimmer Cone<br>Ni base 6mm Pt insert          |



## PFA Pipette Tips for Eppendorf type Pipettors

### 100 µl PFA Pipette Tips

Quantity of 10, pre-cleaned: **ES-7000-0101**  
 Quantity of 96, pre-cleaned: **ES-7000-0111**



### 1000 µl PFA Pipette Tips

Quantity of 10, pre-cleaned: **ES-7000-1001**  
 Quantity of 60, pre-cleaned: **ES-7000-1011**

