### CHROMTECH PAL-Options

#### PAL SPDE-Opt-20
**SPDE Option for PAL System, includes a Single Magnet Mixer**

- Solid Phase Dynamic Extraction Kit consisting of:
  1. 1 pc SPDE Syringe 2.5mL for screw-on needles
  2. 1 pc SPDE Needle, PST5, coated with 56mm x 50µm PDMIS
  3. 1 pc SPDE Needle, PST5, coated with 56mm x 50µm PDMIS + 10%AC
  4. 1 pc Purge and Conditioning Station (SP300)
  5. 1 pc Single Magnet Mixer for 20ml headspace vials
  6. 2 pc AUX cable, 76 cm
  7. 1 pc SPDE software cycle (macro) and SPDE Objects
  8. 1 pc 1/8” T-connector
  9. 1 pc 1/8” metal tubing, 100cm

Requires small sized mixing bars

Requires Cycle Composer 1.5 or higher

Requirements:
- Requires PAL TraySet20ml, 114mm legs (included in PAL LHS2 version)
- For upgrading a PAL LHS0 in combination with the SPDE Option, the PAL LHS2 Upgrade is needed: (PAL CT-LHSUpgrd).

#### PAL SPDE-Opt-P
**SPDE Option for PAL System with Peltier Single Magnet Mixer**

- Solid Phase Dynamic Extraction Kit consisting of:
  1. 1 pc SPDE Syringe 2.5mL for screw-on needles
  2. 1 pc SPDE Needle, PST5, coated with 56mm x 50µm PDMIS
  3. 1 pc SPDE Needle, PST5, coated with 56mm x 50µm PDMIS + 10%AC
  4. 1 pc Purge and Conditioning Station (SP300)
  5. 1 pc Single Magnet Mixer with Peltier cooler for 20ml headspace vials.
  6. Operates from 250 to 750 RPM. Temperature range: 4°C to 70°C.
  7. 1 pc AUX cable, 76 cm
  8. 1 pc SPDE software cycle (macro) and SPDE Objects
  9. 1 pc 1/8” T-connector
  10. 1 pc 1/8” metal tubing, 100cm

Requires Cycle Composer 1.5 or higher

Requires small sized mixing bars

Requirements:
- Requires PAL TraySet20ml
- For upgrading a PAL LHS0 in combination with the SPDE Option, the PAL LHS2 Upgrade is needed: (PAL CT-LHSUpgrd).

#### PAL SPDE-Opt-00
**SPDE Option for PAL LHS2 (without SMM)**

- Solid Phase Dynamic Extraction Kit consisting of:
  1. 1 pc SPDE Syringe 2.5mL for screw-on needles
  2. 1 pc SPDE Needle, PST5, coated with 56mm x 50µm PDMIS
  3. 1 pc SPDE Needle, PST5, coated with 56mm x 50µm PDMIS + 10%AC
  4. 1 pc Purge and Conditioning Station (SP300)
  5. 1 pc AUX cable, 76 cm
  6. 1 pc SPDE software cycle (macro) and SPDE Objects
  7. 1 pc 1/8” T-connector
  8. 1 pc 1/8” metal tubing, 100cm

Requires Cycle Composer 1.5 or higher

Requires PAL TraySet20ml

Requirements:
- Requires PAL TraySet20ml
- For upgrading a PAL LHS0 for use with SPDE Option, the PAL LHS2 Upgrade is needed (PAL CT-LHSUpgrd).

#### PAL CT-LHSUpgrd
**PAL LHS2 Upgrade for LHS0, headspace, SPDE & SPME applications**

- For PAL LHS0 or for use with Headspace, SPDE or SPME modes, consisting of:
  1. 1 pc Pressure regulator (MM03-00)
  2. 1 pc Magnetic transport ring (MS2.01-00)
  3. 1 pc TraySet20ml for 32x 20 ml vials including Trayholder 114 mm
  4. 1 pc 1/8” metal tubing, 100cm
  5. 1 pc Syringe adapter kit 2.5 mL, 2.5ml (MSH.02-00)
  6. 1 pc Plunger holder
  7. 2 pc Headspace Syringes, 2.5 mL, LT N, G22, 64mm, PST5

Requirements:
- Requires Cycle Composer 1.5 or higher
- Requires small sized mixing bars
- Requires PAL TraySet20ml
- PAL LHS2 Upgrade is needed (PAL CT-LHSUpgrd)
SINGLE MAGNET MIXER (SMM) OPTION & SPDE EXTRACTION COOLER

PAL Mix20
Single Magnet Mixer (SMM) incubator for single HS, SPME or SPDE applications.
Consisting of:
1 pc. Single Magnet Mixer for 20 ml headspace vials
Spaced selection from 250 to 750 RPM
Controlled by PAL Sampler
Temperature range up to 150°C
> Requires small mixing bars
> Requires Cycle Composer 1.5. or higher

PAL Mix-Pelt
Single Magnet Mixer (SMM) with Peltier Cooler incubator for single HS, SPME or SPDE applications.
Cools or heats samples. Consisting of:
1 pc. Single Magnet Mixer for 20 ml headspace vials
Spaced selection from 250 to 750 RPM
Controlled by PAL Sampler
Temperature range from as low as 4°C up to 70°C
> Requires small mixing bars
> Requires Cycle Composer 1.5. or higher

CT-Extr Cooler
SPDE Extraction Cooling Option
for use with a Single Magnet Mixer (SMM)
> Requires SPDE needles with 74 mm length.
> Temperatur range up to 40° below ambient temperature
Consisting of:
1 pc. Extraction Cooler
1 pc. Temperatur regulator and power supply unit

B-CT-RS
Stir bars, magnetic for SMM, 10 each

SPDE Syringe 2.5 mL for replaceable SPDE needles
Notice:
Syringe and needle are now 2 part numbers. Replaces former one-piece syringe. First time order - Must order 1 syringe with 1 or more screw-on needle(s), depending on how many different phases you need. You only need to order just the coated needle.

SPDE-Syr2.5ml
SPDE Syringe 2.5 ml, gastight, for screw-on needles for use with replaceable SPDE needles, 56 mm or 74 mm

SPDE-2630022
Teflon seals for SPDE Syringe Plunger, 5 per pack

Replaceable SPDE needles, coated, 56 mm long

SPNdl-50-56
SPDE Syringe needle, coated with PDMS, 50 µm, 56 mm

SPNdl-01/AC-50-56
SPDE Syringe needle, coated with PDMS+10% active charcoal, 50 µm, 56 mm

SPNdl-50-56
SPDE Syringe needle, coated with CT-5, 50 µm, 56 mm, coated with 5% Diphenyl / 95% Dimethylpolysiloxane, 50 µm

SPNdl-WAX-50-56
SPDE Syringe needle, coated with Polyethylenglycol Carbowax, 50 µm, 56 mm

SPNdl-1701-50-56
SPDE Syringe needle, coated with CT-1701, 50 µm, 56 mm, coated with 14% Cyanopropyl / 86% Dimethylpolysiloxane

SPNdl-225-50-56
SPDE Syringe needle, coated with CT-225, 50 µm, 56 mm, coated with 25% Cyanopropyl / 25% Phenylpolysiloxane / 50% Methylpolysiloxane

SPNdl-Cust-56
SPDE Syringe needle, coated with custom phase, 50 µm, 56 mm (Please specify phase coating)

Replaceable SPDE needles, coated, 74 mm long

SPNdl-01-74
SPDE Syringe needle, coated with PDMS, 50 µm, 74 mm

SPNdl-01/AC-50-74
SPDE Syringe needle, coated with PDMS+10% active charcoal, 50 µm, 74 mm

SPNdl-50-74
SPDE Syringe needle, coated with CT-5, 50 µm, 74 mm, coated with 5% Diphenyl / 95% Dimethylpolysiloxane, 50 µm

SPNdl-WAX-50-74
SPDE Syringe needle, coated with Polyethylenglycol Carbowax, 50 µm, 74 mm

SPNdl-1701-50-74
SPDE Syringe needle, coated with CT-1701, 50 µm, 74 mm, coated with 14% Cyanopropyl / 86% Dimethylpolysiloxane

SPNdl-225-50-74
SPDE Syringe needle, coated with CT-225, 50 µm, 74 mm, coated with 25% Cyanopropyl / 25% Phenylpolysiloxane / 50% Methylpolysiloxane

SPNdl-Cust-74
SPDE Syringe needle, coated with custom phase, 50 µm, 74 mm (Please specify phase coating)
### IceStar - Universal Peltier Cooler

**ThermoTray and Tray Upgrades**

<table>
<thead>
<tr>
<th>Part Code</th>
<th>Description</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>CT-IceStar</td>
<td>IceStar Universal Peltier-Cooler for Trays, Cold Trap and PTV</td>
<td>For use with ThermoTrays, GC Cold-Traps and PTVs.</td>
</tr>
<tr>
<td>CT-IceStarSet</td>
<td>IceStar Peltier Cooler Set with ThermoTray</td>
<td>Includes IceStar-Cooler and ThermoTray Cooler, but without sample tray. Requires CTC PAL Tray VT98, VT78 or VT21.</td>
</tr>
<tr>
<td>CT-IceStarSet-Up</td>
<td>IceStar Peltier Cooler Set with ThermoTray Upgrade</td>
<td>For CTC PAL samplers. Includes 1 IceStar Cooler and upgrade kit for a ThermoTray. Requires CTC PAL Tray and TrayHolder, VT98, VT78 or VT21.</td>
</tr>
<tr>
<td>CT-ThermoTray</td>
<td>Chromtech ThermoTray Set</td>
<td>For use with IceStar Universal Peltier-Cooler and VT98 Tray. Includes Trayholder 114mm. Requires CTC PAL VT98 sample tray.</td>
</tr>
<tr>
<td>CT-ThermoTray-Up</td>
<td>Chromtech Upgrade to ThermoTray</td>
<td>For CTC PAL samplers and for use with IceStar Cooler. Requires a CTC PAL Tray and TrayHolder.</td>
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### PREPBASE OPTION

**PrepBase/PressMate Option**

### Large Volume Headspace - BAKER OPTION

**BAKER Option**
consisting of:
- 1 pc Baker heating oven for max. temperature up to 180°C
- 2 pc Metal beakers 500 ml
- 1 pc Software macro
- 1 pc Extra long-sized standalone support

**CT APP-HTS001**
Macro development / engineering
Development of complex sample prep runs
Test running of Macro

MARKED RED = new product, text or price changed