Q10P PRESSURE DSC MODULE

The Q10P Pressure Differential Scanning Calorimeter is a dedicated system for materials characterization studies at elevated gas pressure or under vacuum. Developed from experience gained over thirty-five years in DSC design, the Q10P is a strong addition to our Q Series™ DSC product line and a valuable acquisition for any research or quality control laboratory where the analysis of pressure sensitive materials is required.

The Q10P system permits special studies on a) heterogeneous chemical reactions with a gaseous reactant; b) decompositions that produce volatile products; c) curing reactions; and d) adsorption / desorption analysis. Measurements made include heats of reaction, oxidative stability, degree of cure, reaction kinetics, vapor pressure, and boiling point.

The system consists of the Q10P module and the Pressure DSC Cell. It performs heat flow measurements from ambient (or sub ambient) temperatures to 725°C while under controlled gas pressure that is settable over a seven-decade dynamic range. Inert, oxidizing and reducing gases can be used as the pressurizing gas. The Q10P can also operate as a standard DSC system from –180 to 725°C. The PDSC Cell is itself also available as a substitute for the standard cell in our top-of-the-line Q1000 DSC system.

The PDSC Cell contains pressure control valving, a pressure gauge, and over-pressure protection. The operating pressure is a saved signal in software. Since the control thermocouple is Chromel / Constantan, the cell is suitable for studies involving hydrogen as the pressurizing gas. The PDSC cell uses standard DSC technology and the single-term heat flow expression.

Powered by Thermal Advantage, the most comprehensive software system commercially available, the Q10P is ideal for applications where a robust, cost-effective instrument with excellent DSC / PDSC performance is required.
### Q10P / PDSC Technical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range – standard</td>
<td>Ambient to 725°C</td>
</tr>
<tr>
<td>Temperature Range – with QCA Cooling</td>
<td>-130 TO 725°C</td>
</tr>
<tr>
<td>Temperature Accuracy</td>
<td>+/- 0.1°C</td>
</tr>
<tr>
<td>Temperature Precision</td>
<td>+/- 0.05°C</td>
</tr>
<tr>
<td>Calorimetric Precision (metal stds)</td>
<td>+/- 1%</td>
</tr>
<tr>
<td>Pressure Range</td>
<td>1 Pa to 7 MPa (0.01 torr to 1,000psig)</td>
</tr>
<tr>
<td>Commonly Used Gases</td>
<td>Nitrogen, air, oxygen, helium, hydrogen, carbon monoxide, carbon dioxide</td>
</tr>
<tr>
<td>Dynamic Gas Purge (cell flow rate)</td>
<td>200 ml / min</td>
</tr>
<tr>
<td>User Replaceable Cell</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Q10P / PDSC Technical Specifications – in standard DSC mode

<table>
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<tr>
<td>Temperature Range – standard</td>
<td>Ambient to 725°C</td>
</tr>
<tr>
<td>Temperature Range – QCA Cooling</td>
<td>-180 TO 725°C</td>
</tr>
<tr>
<td>DSC sensitivity</td>
<td>1.0 µW</td>
</tr>
<tr>
<td>Temperature Precision</td>
<td>+/- 0.05°C</td>
</tr>
<tr>
<td>Calorimetric Precision (metal stds)</td>
<td>+/- 1%</td>
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