Celtec®-P membrane electrode assemblies for high-temperature PEM fuel cells

Celtec®-P membrane electrode assemblies
BASF offers a membrane electrode assembly (MEA) for high-temperature PEM fuel cells. This MEA operates at temperatures between 120 and 180 °C and can tolerate large concentrations of carbon monoxide as well as being able to run independently of humidification. This technology enables fuel cell systems to become simpler and more cost effective.

MEA designs
BASF offers standard MEA designs as well as tailored, customized MEAs:
- Celtec®-P MEA 45 cm²
- Celtec®-P MEA 165 cm²
- Celtec®-P MEA 300 cm²
- Celtec®-P MEA 605 cm²
### Applications and properties of Celtec®-P MEA

<table>
<thead>
<tr>
<th>Applications</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup power</td>
<td>Based on polybenzimidazole and phosphoric acid</td>
</tr>
<tr>
<td>Combined heat, power and</td>
<td>Operating temperature 120 to 180 °C</td>
</tr>
<tr>
<td>cooling</td>
<td></td>
</tr>
<tr>
<td>Auxiliary power units</td>
<td>High carbon monoxide tolerance</td>
</tr>
<tr>
<td>Battery range extender</td>
<td>No humidification necessary</td>
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<td></td>
<td>Long-term stability &gt; 20,000 h (in lab)</td>
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</tbody>
</table>

#### Performance

![Graph showing performance](image)

**Test conditions**
- Single cell 45 cm²
- No humidification
- Ambient pressure
- Steam reformate: 70% H₂, 29% CO₂, 1% CO

High CO tolerance enables simplified purification

Performance is robust against changes in humidification

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