DuPont™ Kalrez® 8900
For Semiconductor Thermal Processes

Product Description
DuPont™ Kalrez® 8900 perfluoroelastomer parts are a black product for all thermal processes, e.g., oxidation, diffusion furnace, metal CVD, ALD and LPCVD. It offers outstanding thermal stability, very low outgassing and excellent (low) compression set properties. Kalrez® 8900 parts exhibit excellent retention of physical properties at elevated temperatures, have excellent mechanical strength and are well-suited for both static and dynamic sealing applications. A maximum continuous service temperature of 325 °C is suggested. Short excursions to higher temperatures may also be possible. Ultrapure post-cleaning and packaging is standard for all Kalrez® 8900 parts.

Features/Benefits
• Outstanding thermal stability
• Excellent (low) compression set properties
• Very low outgassing properties
• Very low moisture content
• Excellent retention of physical properties at elevated temperatures
• Excellent resistance to fluorine gas

Suggested Applications
• Quartz Tube Seals
• Plenum Seals
• Chamber Seals
• Fittings
• Center Ring Seals

Typical Physical Properties

<table>
<thead>
<tr>
<th></th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Black</td>
</tr>
<tr>
<td>Hardness², Shore A (pellet)</td>
<td>73</td>
</tr>
<tr>
<td>Hardness³, Shore M (O-ring)</td>
<td>82</td>
</tr>
<tr>
<td>100% Modulus⁴, MPa</td>
<td>12.21</td>
</tr>
<tr>
<td>Tensile Strength at Break⁴, MPa</td>
<td>20.75</td>
</tr>
<tr>
<td>Elongation at Break⁴, %</td>
<td>137</td>
</tr>
<tr>
<td>Compression Set⁵, %</td>
<td></td>
</tr>
<tr>
<td>70 hr at 204 °C</td>
<td>9</td>
</tr>
<tr>
<td>70 hr at 300 °C</td>
<td>32</td>
</tr>
<tr>
<td>70 hr at 325 °C</td>
<td>59</td>
</tr>
<tr>
<td>Maximum Continuous Service, Temperature⁶, °C</td>
<td>325</td>
</tr>
</tbody>
</table>

¹ Not to be used for specification purposes
² ASTM D2240 (pellet test specimens)
³ ASTM D2240 and D1414 (AS568 K214 O-ring test specimens)
⁴ ASTM D412 (dumbbell test specimens)
⁵ ASTM D395B and D1414 (AS568 K214 O-ring test specimens)
⁶ DuPont proprietary test method

Fabs Choose Kalrez® 8900 for Improved Performance
Kalrez® 8900 has been reported to significantly improve wafer production in semiconductor thermal process applications where aggressive gases are used during the cleaning cycle.
Case Report #11069 — Exceeded 4 Month PM Target at Major AP Fabline

- Exhibited less degradation than incumbent seals after 5 months in service
- Equipment Platform — Major Japanese OEM
- Process — LPCVD Nitride
- Process Chemistry — Si₂Cl₆, NH₃
- Cleaning Chemistry — HF + F₂ at 150 °C
- Seal Locations — Complete seal kit

Case Report #11932 — Improved Performance vs Incumbent at Major AP Fab Line

- No evidence of degradation in aggressive seal locations after 6 months of service
- Equipment Platform — Major Japanese OEM
- Process — LPCVD Nitride
- Process Chemistry — SiH₂Cl₂, NH₃
- Cleaning Chemistry — HF + F₂
- Seal Location — Complete seal kit

Case Report #12007 — 3x Improvement in Seal Life @ Major US Fabline

- Eliminated excessive seal leakage and particle contamination versus incumbent seals
- Equipment Platform -- HKE Quikace Furnace
- Processes -- Diffusion Radical Oxide & Pyro
- Process Chemistry -- H₂, O₂, N₂, N₂O
- Cleaning Chemistry -- HCl
- Seal Locations -- G400 O-ring and upper quartz cap seal