Kalrez® Sahara™ 8475

Compound Description
This white perfluoroelastomer material is rated for maximum continuous service at 300°C. It was specifically developed to meet the challenging performance requirements associated with sealing applications in semiconductor “thermal” processes (i.e., diffusion furnaces, LPCVD, RTP, lamp anneal, etc.). This product has significantly reduced outgassing and better compression set resistance compared to other high temperature sealing materials, including Kalrez 4079.

### Typical Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Unit of Measure</th>
<th>Typical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durometer/Hardness²</td>
<td>Shore A</td>
<td>72</td>
</tr>
<tr>
<td>100 % Modulus³</td>
<td>psi/Mpa</td>
<td>320/2.2</td>
</tr>
<tr>
<td>Tensile Strength at Break³</td>
<td>psi/Mpa</td>
<td>1650/11.4</td>
</tr>
<tr>
<td>Elongation at Break³</td>
<td>%</td>
<td>225</td>
</tr>
</tbody>
</table>

1 Not to be used for specification purposes
2 ASTM D 2240, D1414 (214 O-rings)
3 ASTM D 412, (dumbell specimens @ 20 in/min)

Product Features Contribute to Extended Seal Life
- Very low outgassing
- Excellent resistance to “dry” gas process environments
- White color reduces IR absorption and reduces seal temperature
- Improved (lower) compression set
- Excellent long-term seal force retention

Suggested Applications
Kalrez Sahara 8475 is an excellent choice for:
- Quartz tube seals
- Ball joint seals
- Gas feedthrough seals
- Bell jar seals
- Plenum seals
- Other thermal applications

Kalrez® Sahara™ 8475—Minimal Outgassing at Elevated Service Temperatures

<table>
<thead>
<tr>
<th>Gas Evolved</th>
<th>R.T. to 100°C (ppm)</th>
<th>R.T. to 200°C (ppm)</th>
<th>R.T. to 300°C (ppm)</th>
<th>R.T. to 400°C (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₂O</td>
<td>2</td>
<td>255</td>
<td>324</td>
<td>345</td>
</tr>
<tr>
<td>HF+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>CF+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>CO₂</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>103</td>
</tr>
<tr>
<td>CF₂</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>CHF+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>CF₃+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>119</td>
</tr>
<tr>
<td>C₂F₃⁺</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>CF₂O⁺</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>C₂F₄⁺</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>C₂F₅⁺</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>C₃F₅⁺</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>31</td>
</tr>
</tbody>
</table>

| Total Outgas, % | 0.00 | 0.03 | 0.03 | 0.07 |
| Weight Loss, %  | 0.00 | 0.00 | 0.01 | 0.07 |

* Data provided by independent testing laboratory.
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### CAUTION:

Do not use in medical applications involving permanent implantation in the human body. For other medical applications, discuss with your DuPont Dow Elastomers customer service representative, and read Medical Caution Statement, H69237.

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**Typical O-ring Compression Set Performance (70 hrs data)**

<table>
<thead>
<tr>
<th>Material Tested</th>
<th>% C/S at 204°C</th>
<th>% C/S at 250°C</th>
<th>% C/S at 300°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalrez® Sahara™ 8475</td>
<td>23</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>Kalrez® Sahara™ 8375</td>
<td>25</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>Kalrez® 4079</td>
<td>37</td>
<td>41</td>
<td>45</td>
</tr>
<tr>
<td>Competitive Perfluoroelastomer</td>
<td>43</td>
<td>100</td>
<td>Sample Failed</td>
</tr>
</tbody>
</table>

* ASTM D 395B & D 1414 (214 O-rings)

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**Typical Long-Term Seal Force Retention at 204°C**

![Chart showing sealing force retention over time for different materials.](chart.png)

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