Low particle generation:

In applications where the volume and size of particles matter, not just any material will do. Parker has developed two new Parofluor ULTRA materials, FF374-60 and FF376-80, to provide minimal particle generation and extractable levels while maintaining a low erosion rate even in the most aggressive plasma chemistries. As the newest materials released in the Parofluor ULTRA family, FF374-60 and FF376-80 have the lowest extractables in their class. Neither material contains inorganic filler systems, ensuring low levels of metal ions. They are recommended for applications in deposition processes such as CVD, HDPCVD, SACVD, PECVD, and etching/ashing. For further information on these ground breaking technologies please contact Parker O-ring Division.

Contact Information:

Parker Hannifin Corporation
O-Ring Division
2360 Palumbo Dr.
Lexington, KY 40509

phone 859 269 2351
fax 859 335 5128

www.parker.com

FF374-60 features:
- Deep purple color
- Maximum operating temperature 600°F (315° C)
- Lowest extractable levels in its class
- Minimal metallic ion content
- Contains no phosphorus
- Lowest particle generation in its class
- No inorganic filler systems
- Excellent resistance to oxygen and fluorine plasmas

FF376-80 features:
- Deep purple color
- Maximum operating temperature 600°F (315° C)
- Lowest extractable levels in its class
- Minimal metallic ion content
- Contains no phosphorus
- Minimal particle generation
- No inorganic filler systems
- Low erosion rate with excellent resistance to oxygen and fluorine plasmas
**FF374-60 & FF376-80 Material Data (Test samples: 2-214 O-rings)**

<table>
<thead>
<tr>
<th>Original physical properties</th>
<th>Test Method</th>
<th>FF374-60</th>
<th>FF376-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardness, Shore A, pts.</td>
<td>ASTM D2240</td>
<td>65</td>
<td>78</td>
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<tr>
<td>Tensile strength, psi</td>
<td>ASTM D412</td>
<td>1262</td>
<td>1948</td>
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<td>Elongation, %, min.</td>
<td>ASTM D412</td>
<td>365</td>
<td>364</td>
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<tr>
<td>Modulus @ 100% elongation, psi</td>
<td>ASTM D412</td>
<td>186</td>
<td>409</td>
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<tr>
<td>Specific Gravity</td>
<td>ASTM D297</td>
<td>2.05</td>
<td>2.07</td>
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<tr>
<td>Compression set, 70 hrs @ 480° F</td>
<td>ASTM D395</td>
<td>20</td>
<td>22</td>
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<tr>
<td>% of original deflection, max</td>
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<td></td>
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</tr>
<tr>
<td>Compression set, 70 hrs @ 600° F</td>
<td>ASTM D395</td>
<td>43</td>
<td>69.2</td>
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<tr>
<td>% of original deflection, max</td>
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</tbody>
</table>

**Compression Set Comparison (ASTM D395 Method B)**

<table>
<thead>
<tr>
<th>Compression set, 70 hrs @ 480° F</th>
<th>FF370-75</th>
<th>FF350-75</th>
<th>FF352-75</th>
<th>Competitor A</th>
<th>FF374-60</th>
<th>FF376-80</th>
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</thead>
<tbody>
<tr>
<td>% of original deflection, max</td>
<td>28</td>
<td>26</td>
<td>14</td>
<td>16</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Compression set, 70 hrs @ 600° F</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of original deflection, max</td>
<td>51</td>
<td>46</td>
<td>24</td>
<td>54</td>
<td>43</td>
<td>69</td>
</tr>
</tbody>
</table>

**Applications:**

- O-rings
- Molded shapes
- Target lids
- Slit valve doors
- Wafer pads
- ISO valves
- Chamber seals
- Heater/lamps
- Quartz windows
- Gate valve doors

**WARNING:**

For use in enhanced downhole production applications only. Not designed for downhole or subsea service. For further details, refer to Parker technical data sheets. This material should be used in accordance with Parker’s application guide. Parker is not responsible for any injury or damage caused by misuse or improper use of the product. Parker assumes no responsibility for damage caused by the use of substitute materials. Parker recommends the use of qualified technical consultants for any application or installation involving this product. Parker reserves the right to make changes at any time without notice.