# Hydrogen Fluoride

<table>
<thead>
<tr>
<th>Grade</th>
<th>Purity, %</th>
<th>Sulfuric acid</th>
<th>Sulfur Dioxide</th>
<th>Hexafluorosilicilic Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>SemiCon 4N5</td>
<td>99.995*</td>
<td>≤25 ppmv</td>
<td>≤15 ppmv</td>
<td>≤15 ppmv</td>
</tr>
</tbody>
</table>

* Inert gases may be found in considerable concentration, as it is used to package the product as sold: please inquire if this represents a concern.

- A lot analysis is provided for each order.
- Pneumatic valves available upon request.

<table>
<thead>
<tr>
<th>Internal Volume</th>
<th>Liters</th>
<th>43.8</th>
<th>17.1</th>
<th>7.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder Sizes &gt;&gt;</td>
<td>QF</td>
<td>GF</td>
<td>UF</td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>kg</td>
<td>22.7</td>
<td>11.36</td>
<td>1.82</td>
</tr>
<tr>
<td></td>
<td>lbs</td>
<td>50</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>Change Point*</td>
<td>lbs</td>
<td>0.1</td>
<td>0.035</td>
<td>0.015</td>
</tr>
</tbody>
</table>

*Recommended Cylinder Change Point @NTP, based on Phase Break, or the amount of product left in the cylinder when the liquid phase has completely evaporated and only gaseous product is left (estimate based on ideal gas behavior).

<table>
<thead>
<tr>
<th>DOT Shipping Name</th>
<th>Hydrogen Fluoride, Anhydrous</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Classification</td>
<td>8 Poison Gas Hazard Zone C (Gas Poisonous by Inhalation)</td>
</tr>
<tr>
<td>DOT Label</td>
<td>POISON GAS INHALATION HAZARD POISON CORROSIVE</td>
</tr>
<tr>
<td>UN Number</td>
<td>UN 1052</td>
</tr>
<tr>
<td>ECCN #</td>
<td>1C350</td>
</tr>
<tr>
<td>Shipped as</td>
<td>Liquefied Gas</td>
</tr>
</tbody>
</table>

| Cylinder Pressure | @NTP | 0.7 psig | 1.07 atm |
| Specific Volume | @NTP | 1.20 m³/kg | 19.3 ft³/lb |
| CAS No | 7664-39-3 |
| CGA/DISS | 660/638 |
| Molecular Weight | 20.01 |
| TLV | 3 ppm |

| Vapor Pressure | Temp, °C | 0.0 | 15.5 | 21.0 | 32.2 | 43.3 |
| Press, psig | -7.7 | -2.0 | 0.7 | 7.9 | 17.5 |
| Temp, °F | 32 | 60 | 70 | 90 | 110 |

| RFO Data | Size, mm | 0.254 | 0.3556 | 0.508 | 0.762 | 1.016 |
| Size, inches | 0.010 | 0.014 | 0.020 | 0.030 | 0.040 |
| Flow, sccm | 729 | 1391 | 2871 | 6405 | 11043 |
| Flow, scf/h | 2 | 3 | 6 | 14 | 23 |

NTP = 21°C or 70°F and 101.3 kPa or 1 atm

<table>
<thead>
<tr>
<th>Cylinder</th>
<th>Treatment</th>
<th>Nominal Diameter (OD)xHeight*</th>
</tr>
</thead>
<tbody>
<tr>
<td>QF</td>
<td>ULTRA-LINE®</td>
<td>23x130/134/143</td>
</tr>
<tr>
<td>GF</td>
<td>ULTRA-LINE®</td>
<td>23x66/70/79</td>
</tr>
<tr>
<td>UF</td>
<td>ULTRA-LINE®</td>
<td>15x51/55/64</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material of Construction</th>
<th>Cylinder</th>
<th>Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>SS</td>
<td></td>
</tr>
<tr>
<td>CS</td>
<td>SS</td>
<td></td>
</tr>
<tr>
<td>CS</td>
<td>SS</td>
<td></td>
</tr>
</tbody>
</table>

*Height is reported as the distance from the bottom of the cylinder to the cylinder neck/ center of the valve outlet/ top of the handwheel

CS: Carbon Steel  SS: Stainless Steel

⚠️ WARNING: This product can expose you to chemicals including Sulfur Dioxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

⚠️ WARNING: This product can expose you to chemicals including Strong inorganic acid mists containing sulfuric acid, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

www.mathesongas.com