

Ammonia



| Grade | Semicon 5N | ULSI 5N5 | ULTIMA 6N4 |
|-----------------|----------------------------|-----------|------------------|
| Purity, % | 99.999 | 99.9995 | 99.99994 |
| Oxygen | | ≤0.5 ppmv | (+Ar): ≤100 ppbv |
| Nitrogen | ≤5 ppmv | ≤1.5 ppmv | |
| Carbon Dioxide | | ≤0.4 ppmv | ≤100 ppbv |
| Carbon Monoxide | ≤2 ppmv | ≤0.1 ppmv | ≤50 ppbv |
| Hydrogen | | | ≤100 ppbv |
| Methane | ≤2 ppmv | ≤0.1 ppmv | ≤50 ppbv |
| Water | (+O ₂): 5 ppmv | ≤2.0 ppmv | ≤200 ppbv* |

- *Water is measured by sampling the liquid phase, as this method has been found to produce more repeatable data. Using the partition coefficient of 200, a reported liquid phase value of 200 ppbv corresponds to 1 ppbv in the vapor phase of a full cylinder.
- A lot analysis is provided for each order – Individual analysis is provided for ULTIMA grade and available upon request for other grades.
 - Pneumatic valves, JIS connections available upon request

| CYLINDER | Internal Volume | Liters | 49.0 | 43.8 | 439 |
|----------|--------------------------------|--------|-----------|--------------|-----------|
| | Cylinder Sizes >> | | QK | QB/QF | QI |
| | Content | kg | 25.0 | 22.73 | 227.3 |
| | | lbs | 55.0 | 50.0 | 500 |
| | Change Point** | lbs | 0.74 | 0.67 | 6.67 |

**Recommended Cylinder Change Point at 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).

| SHIP | DOT Shipping Name | Ammonia, Anhydrous | UN Number | UN 1005 | Shipped as |
|------|--------------------|-------------------------|--------------|--------------|---------------|
| | DOT Classification | 2.2 (Non-Flammable Gas) | ECCN# | 1C980 | Liquefied Gas |
| | DOT Label | NON-FLAMMABLE GAS | Harmonized # | 2814.10.0000 | |

| TECHNICAL DATA | Cylinder Pressure @NTP | 113.9 psig 9.0 atm |
|----------------|------------------------|---|
| | Specific Volume @NTP | 1.41 m ³ /kg 22.6 ft ³ /lb |
| | CAS No | 7664-41-7 |
| | CGA/DISS/JIS | 660/720/W22-14R |
| | Molecular Weight | 17.03 g/mol |
| | TLV | 25 ppm |
| | LFL-UFL in Air | 16 - 25 % |

| Vapor Pressure | Temp, °C | 0.0 | 15.5 | 21.0 | 32.2 | 43.3 |
|----------------|-------------|------|------|-------|-------|-------|
| | Press, psig | 47.6 | 92.8 | 113.9 | 165.7 | 232.0 |
| | 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 | 6634 | 12665 | 26134 | 58298 | 100514 |
| | Flow, scf/h | 14.0 | 26.8 | 55.4 | 123.5 | 213.0 |

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

| Cylinder | Treatment | Nominal Diameter (OD)xHeight* | | Material of Construction | |
|----------|----------------|-------------------------------|---------------|--------------------------|-------|
| | | cm | Inches | Cylinder | Valve |
| QK | ULTRA-LINE® | 25x140/144/153 | 10x55/56.5/60 | CS | SS |
| QB | ULTRA-LINE II® | 23x130/134/143 | 9x51/52.5/56 | CS | SS |
| QF | ULTRA-LINE® | 23x130/134/143 | 9x51/52.5/56 | CS | SS |
| QI | ULTRA-LINE® | 61x211 | 24x83 | CS | SS |

*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
ASB: Aluminum Silicon Bronze CS: Carbon Steel SS: Stainless Steel

⚠WARNING: This product can expose you to chemicals including Carbon Monoxide, 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.



MATHESON
ask...The Gas Professionals™