

Industries Where Ammonia Detection Is Recommended:

- Fertilizer Manufacture
- Pharmaceutical Manufacture
- Food Processing Plants
- Chemical Manufacture
- Ice Rinks
- Breweries
- Wineries
- Geothermal Power Plants
- Municipal Water Treatment
- Industrial Water Treatment Plants

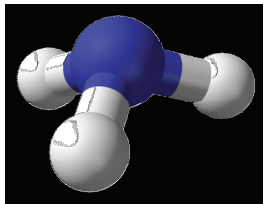
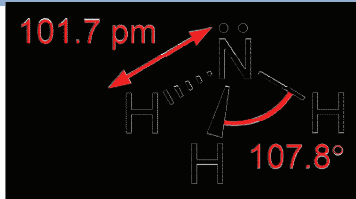
Ammonia (NH₃) is pungent, colorless compound. Anhydrous (water-free) ammonia is easily liquefied under pressure and is extremely soluble in water.

Ammonia is the precursor to most nitrogen-containing compounds. Virtually all synthetic nitrogen compounds are derived from ammonia, including nitric acid, which is used in the production of fertilizers, explosives, and many organo-nitrogen compounds. It is easily liquefied by compression or cooling for use in refrigeration and air-conditioning equipment.

Because of its many applications, ammonia is one of the most highly produced inorganic chemicals, yet it is both caustic and hazardous. OSHA has set a limit of 25 ppm during an eight-hour shift. EPA regulations (40 CFR 68) require facilities with more than 10,000 pounds of ammonia to submit a risk management plan, including a hazard assessment, a prevention program, and emergency response program.

Liquefied ammonia is stored in tanks, but if leaked into the ambient air, will expand up to 850 times.

Ammonia (NH₃)



General	
Systematic Name	Ammonia
Other Names	Hydrogen Nitride Nitro-Sil Spirit of hartshorn Trihydrogen Nitride Vaporole
Molecular Formula	NH ₃
Appearance	Colourless gas with strong pungeant odour
CAS Number	7664-41-7
Properties	
Molar Mass	17.031g/mol
Vapour Density	
Melting Point	-77.73°C, -108°F
Boiling Point	-33.34°C, -28°F
Hazards	
ACGIH-TLV	
Time Weighted Value (TWV)	Short Term Exposure Limit (STLV)
25ppm	35ppm
OSHA-PEL	
Permissible Exposure Limit- Time Weighted Average (TWA)	Permissible Exposure Limit (PEL)
50ppm	NE
NIOSH	
Permissible Exposure Limit- Time Weighted Average	Immediately Dangerous to Life or Health
25ppm	300ppm

Industrial Applications

Fertilizers

About 80% or more of the ammonia produced, either as ammonia salts or solutions, is used as fertilizer.

Refrigerants

Ammonia is an excellent refrigerant due to its favorable vaporization properties. Anhydrous ammonia is widely used in industrial refrigeration applications and skating rinks because of its low cost and high energy efficiency. Due to its toxicity, however, it is used less frequently in commercial applications, such as in grocery store freezer cases.

Geothermal power plants

The Kalina cycle, which is of growing importance to geothermal power plants, depends on the wide boiling range of the ammonia-water mixture.

Remediation of gaseous emissions

Ammonia is used in the scrubbing of SO₂ that is created from the burning of fossil fuels. The resulting product, ammonium sulfate, can then be used as fertilizer. Ammonia similarly can be used to neutralize the nitrogen oxide (NO_x) pollutants emitted by diesel engines.

Anti-microbial agent for food products

Anhydrous ammonia has been shown effective as an antimicrobial agent for animal feed and is currently used commercially to reduce or eliminate microbial contamination of beef.

Textiles

Liquid ammonia is used for treatment of cotton materials and gives properties like mercerization using alkalis. In particular, it is used for pre-washing of wool.

Pharmaceuticals and cosmetics

Either directly or indirectly, ammonia is a building block for the synthesis of many pharmaceuticals and cosmetics.



Conspec's CN Series is an economical choice for ammonia gas monitoring. The CN Series is a simple and "smart" gas detector. An industry standard 4-20 mA analog output signal. Can be connected to any existing PLC, DCS, or EMS system.

Specifications:

Mechanical

Enclosure	NEMA 4x
Dimensions	4.5"x5"x4"
Weight	1 ¼ lbs.
Mounting	4 holes
Conduit Entry	One (3/4" cable grip)

Environmental

Operating Temperature	-4°F - 120°F (-20°C - 50°C)
Temperature Compensation	Full Temperature Range
Operating Humidity	10% - 90% RH Non-condensing

Electrical

Operating Voltage	12-24VDC
Cable Requirements	3 Conductor 18 AWG Suggested
Current Consumption	50mA full scale
Output Signal	Linear 4-20mA, RS-485 (optional)

System

Sensor Ranges for Ammonia	0-100ppm, 0-200ppm, 0-300ppm, 0-500ppm
Sensor Type	Electrochemical
Keypad	9-Button Infrared Remote Control
Modes	2 (Normal & Calibration)
Display	Two-Line, 8-Character Alpha-numeric LCD Display
Status LEDs	3 LEDs, 4 Status
Alarms	2 User-Defined



Conspec's CX Series is an economical choice for ammonia gas monitoring. The CX Series is a simple and "smart" gas detector designed for use in hazardous or classified locations. An industry standard 4-20 mA analog output signal. Can be connected to any existing PLC, DCS, or EMS system.

Specifications:

Mechanical

Enclosure	Explosion-Proof UL Listed Class 1 Div. 1 or 2 Groups B, C & D
Dimensions	4.5" x 5" x 4"
Weight	4 lbs.
Mounting	Conduit Mounted
Conduit Entry	One (3/4" cable grip)

Environmental

Operating Temperature	-4°F - 120°F (-20°C - 50°C)
Temperature Compensation	Full Temperature Range
Operating Humidity	10% - 90% RH Non-condensing

Electrical

Operating Voltage	12-24VDC
Cable Requirements	3 Conductor 18 AWG Suggested
Current Consumption	50mA full scale
Output Signal	Linear 4-20mA, RS-485 (optional)

System

Sensor Ranges for Ammonia	0-100ppm, 0-200ppm, 0-300ppm, 0-500ppm
Sensor Type	Electrochemical
Keypad	9-Button Infrared Remote Control
Modes	2 (Normal & Calibration)
Display	Two-Line, 8-Character Alpha-numeric LCD Display
Status LEDs	3 LEDs, 4 Status
Alarms	2 User-Defined



Conspec's new Smart Head Gas Monitoring System monitors, records, remembers, warns and advises if it needs replacement.

Conspec's Smart Head Single-Channel Monitor and Smart Head Multi-Channel Controller are smarter than your average monitors, because they are digital, yet simpler and more reliable.

Specifications:

Mechanical

Enclosure	NEMA 4x
Dimensions	7.5"x5"x3"
Weight	3 ½ lbs.
Mounting	Plate-Mounted; 6 holes for suspension; grooves for slot mounting
Conduit Entry	One (3/4" cable grip)

Environmental

Operating Temperature	-4°F - 120°F (-20°C - 50°C)
Temperature Compensation	Full Temperature Range
Operating Humidity	10% - 90% RH Non-condensing

Electrical

Operating Voltage	12-24VDC
Cable Requirements	4 Conductor 18 AWG Suggested
Current Consumption	50mA full scale RS-485; Conspec Legacy, 4 Open Collector Digital Output, Linear 4-20mA (single-channel only); HART (Optional).
Output Signal	

System

Sensor Ranges for Ammonia	0-100ppm, 0-200ppm, 0-300ppm, 0-500ppm
Sensor Type	Electrochemical
Keypad	4-Button Keypad or Infrared Remote Control
Modes	2 (Normal & Calibration)
Display	3.5" LCD Display
Status LEDs	4 LEDs, 4 Status
Alarms	3 User-Defined