

Application Note

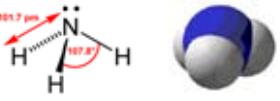
Ammonia

Potential industries and applications for gas detection products

- Chemical Industry
- Fertiliser manufacturing
- Explosives / fireworks production
- Pulp and paper
- Water and wastewater treatment

Ammonia is a compound with the formula NH_3 . It is normally encountered as a gas with a characteristic pungent odour. Although Ammonia contributes significantly to the nutritional needs of Earth, the gas itself is caustic and can cause serious health damage.

Ammonia used commercially is usually named Anhydrous Ammonia. This term emphasizes the absence of water. Because NH_3 boils at $-33^\circ C$, the liquid must be stored under pressure or at low temperature. Its heat of vaporisation is, however, sufficiently high that NH_3 can be readily handled in ordinary beakers in a fume hood.

Ammonia			
			
General			
Systematic Name	Ammonia, Azane		
Other Names	Hydrogen Nitride Spirit of Hartshorn Nitrosil Vaporole		
Molecular Formula	NH_3		
Appearance	Colourless gas with strong pungent odour		
CAS Number	7664-41-7		
Properties			
Vapour Density	0.59		
Melting Point	$-77.73^\circ C$ (195.42K)		
Boiling Point	$-33.34^\circ C$ (239.81K)		
Toxic Exposure Levels			
EH 40 Workplace Exposure Limit (WEL)			
Long-term exposure limit (8-hour TWA reference period)		Short-term exposure limit (15-minute TWA reference period)	
ppm	mg.m⁻³	ppm	mg.m⁻³
25	18	35	25
OSHA Permissible Exposure Limit (PEL)			
Long-term exposure limit (8-hour TWA reference period)			
ppm	mg.m⁻³		
50	35		
ACGIH Threshold Limit Value			
8-hour TWA workday and a 40-hour workweek		25ppm	

Industrial Applications

The main uses of Ammonia are in the production of fertilisers, explosives, and synthesis of organonitrogen compounds.

Because of its many uses, Ammonia is one of the most highly produced inorganic chemicals. Dozens of chemical plants Worldwide produce Ammonia. The Worldwide Ammonia production in 2004 was 109 million metric tonnes. The People's Republic of China produced 28.4% of the Worldwide production followed by India with 8.6%, Russia with 8.4%, and the United States with 8.2%. About 80% or more of the Ammonia produced is used for fertilising agricultural crops.

Ammonia is used in the manufacture of Nitric Acid; certain alkalies such as soda ash; dyes; pharmaceuticals such as sulph drugs, vitamins and cosmetics; synthetic textile fibres such as nylon, rayon and acrylics; and for the manufacture of certain plastics such as phenolics and polyurethanes.

The pulp and paper industry uses Ammonia for pulping wood and as a casein dispersant in the coating of paper. Ammonia is used in several areas of water and wastewater treatment, such as pH control, in solution form to regenerate weak anion exchange resins, in conjunction with Chlorine to produce potable water and as an Oxygen scavenger in boiler water treatment.

Honeywell Analytics' product offering



Our Product Range



Fixed Gas Monitoring

Honeywell Analytics offers a wide range of fixed gas detection solutions for a diverse array of industries and applications including: Commercial properties, industrial applications, semiconductor manufacturers, energy plants and petrochemical sites.

- » Detection of flammable, oxygen and toxic gases (including exotics)
- » Innovative use of 4 core sensing technologies – paper tape, electrochemical cell, catalytic bead and infrared
- » Capability to detect down to Parts Per Billion (ppb) or Percent by Volume (%v/v)
- » Cost effective regulatory compliance solutions

Portable Gas Monitoring

When it comes to personal protection from gas hazards, Honeywell Analytics has a wide range of reliable solutions ideally suited for use in confined or enclosed spaces.

These include:

- » Detection of flammable, oxygen and toxic gases
- » Single gas personal monitors – worn by the individual
- » Multi-gas portable gas monitors – used for confined space entry and regulatory compliance
- » Multi-gas transportable monitors – used for temporary protection of area during site construction and maintenance activities

Technical Services

At Honeywell Analytics, we believe in the value of great service and customer care. Our key commitment is providing complete and total customer satisfaction. Here are just a few of the services we can offer:

- » Full technical support
- » Expert team on hand to answer questions and queries
- » Fully equipped workshops to ensure quick turnaround on repairs
- » Comprehensive service engineer network
- » Training on product use and maintenance
- » Mobile calibration service
- » Customised programmes of preventative/corrective maintenance
- » Extended warranties on products

Find out more

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