

Airgas

an Air Liquide company

Ammonia Detection AEA 2024

November 2024

THIS DOCUMENT IS INTERNAL

Who is Airgas Specialty Products?

An expert in industrial ammonia distribution since 1891!



Ammonia Supply

- 27 Locations across US
- Anhydrous and Aqua Supply
- Dedicated Fleet
- Dedicated and Ammonia Specialized drivers
- Industry Leading Safety features



Equipment Solutions

- Tank Lease
- Delivery options
 - Cylinder to bulk
- Telemetry
- Pumps & Vaporizers
- RMP/PSM support



Field Service

- Liquid and vapor removal
- Scheduled (PM) and emergency service calls
- Interim liquid or vapor product supply
- Interim NH₃ or NH₄OH storage solutions



Training & Education

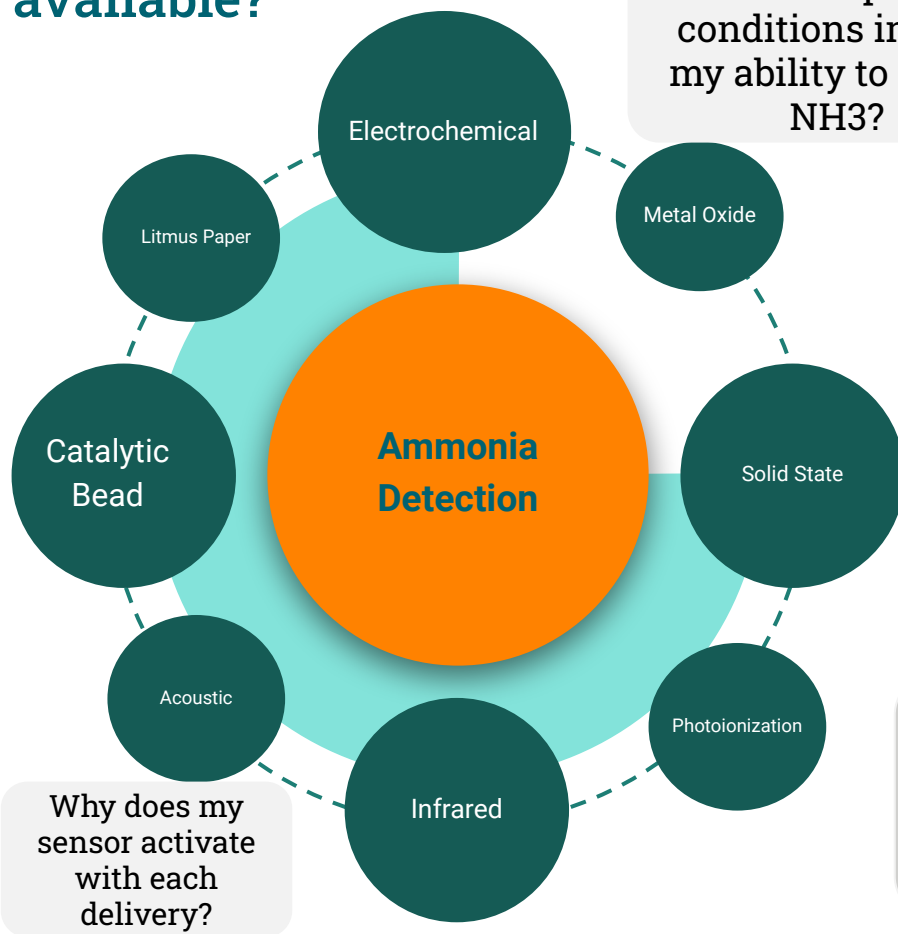
- On-site and remote training on ammonia and systems
- Safety compliance and education

Ammonia Detection Task Force - Why?

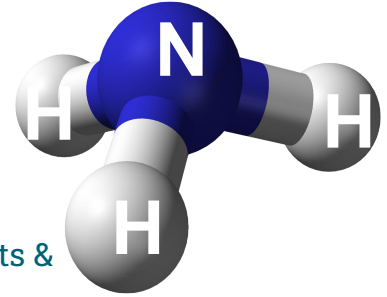
| Who started this project... | The project |
|---|--|
| <p>Initial ask - Joint Industry Working Group on Safe Decarbonisation (JIWG/SDEC) led by the International Association of Classification Societies (IACS), focused on safety risk analysis and regulatory gap analysis in efforts to align the industry on using ammonia as a maritime fuel.</p> | <p>IACS exploring the topics of accuracy, reliability, and standards of ammonia sensors. AEA working to develop an evidence-based document to support further discussions within IACS (and the IMO) & other forums, by providing the best available information on the topic of ammonia gas detection.</p> |

| Who else needs this? | Why? |
|------------------------------------|--|
| Ammonia Producers | <ul style="list-style-type: none"> ● Personal Protection ● Emergency Response ● Remote Site Monitoring ● Offsite consequence ● “Fencing” ● HazCom ● Risk Mitigation - active vs passive |
| Ammonia Storage | |
| Ammonia Transport | |
| Ammonia Users | |
| Entire Ammonia Supply Chain | |

What options are available?



Ammonia Detection - Expectations



Ammonia Gas Detection Task Force - Today

- Initiate the transfer of the current expertise in ammonia gas detection to new markets & applications
- Industry will rise together by ensuring best practices are followed and passed on
- Present a thorough understanding of the existing techs, practices and standards to a new audience

Ammonia Gas Detection Task Force - Next Steps

- Use the task force discussion and AEA annual meeting to outline gaps and assign research
 - **your participation today is essential!**
- Develop white paper basics
- Deliver white paper to AEA Members spring 2025

Ammonia Gas Detection Task Force - What are we not...

- Consumer reports for gas detectors
- Site specific ammonia gas detection guidance
- Legal or compliance consultants