



## Join our Ammonia & Fertilizer Joint Industry Program

BakerRisk and twelve ammonia-fertilizer production companies are collaborating in a Joint Industry Program (JIP) to improve the reliability and safety of ammonia and fertilizer production facilities. The JIP, initiated in 2020, examines how to identify and to mitigate damage mechanisms that affect process units and major equipment specific to ammonia, fertilizer and related industries. The JIP welcomes new members for the Program, who are able to purchase previous JIP reports.



**Interact with industry representatives through quarterly meetings**



**Discover solutions for mitigating equipment damage and failure, improving site safety**



**Utilize detailed JIP reports for damage mechanism solutions and staff training**



**Learn from comprehensive research focused on current plant issues**

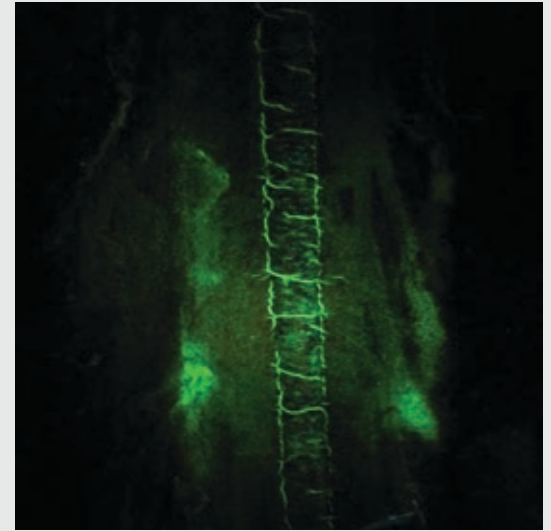
### The JIP studies include:

#### 2020–2022 Studies:

- Study #1: Ammonia Process Damage Mechanisms and Mitigation Options
- Study #2: Ammonia Storage and Loading Facilities Damage Mechanisms and Mitigation Options
- Study # 3: Urea Process Damage Mechanisms and Mitigation Options

#### 2023 Studies:

- Study #4: Nitric Acid Plant Damage Mechanisms and Mitigation Options
- Study #5: Selected Ammonium Nitrate Damage Mechanisms and Mitigation Options
- Study #6: Latest Development of HTHA Inspection Methods
- Study #7: Selected Utilities (cooling water and steam) Damage Mechanisms and Mitigation Options



Ammonia Stress Corrosion Cracking (SCC) found in a Storage Tank

Quarterly meetings include study updates, shared lessons learned

Study topics are proposed and voted on by participants and BakerRisk

Benefits include proprietary reports, with searchable databases for improved plant reliability

At the conclusion of each Program, a comprehensive and proprietary JIP Report is prepared for the member companies with complete results in a format that can be used for Fitness for Service, Risk-Based Inspection Plans, improved HAZOPs, maintenance programs and training operations and technical personnel. The Report and Appendices include descriptions of specific damage mechanisms, mitigation options, and searchable databases for each process or operating unit.

The reports provide a narrative of the process by unit that places damage mechanism causes and mitigation in the context of conditions and pieces of equipment, based on industry experience. The searchable databases provide an effective tool for JIP members to find specific information that can be used to improve the reliability and safety of their facilities.

**The members of the JIP actively participate in the Program, and are very pleased with the results and value provided by the JIP. Below are comments from some of the members:**

*"The JIP Report is a great information source for new people coming on board. I would have appreciated this when I entered the industry 30 years ago."*

*"We expected a document specific to ammonia plant damage mechanisms and the opportunity to learn from the wider ammonia industry. The JIP and the Report definitely ticked both these boxes."*

*"With the JIP, much has been gained for the staff to begin the fixed equipment Risk Based Inspection Program."*

*"The JIP has reached an excellent result, especially with regards to the way we created awareness in the industry and triggered the discussions about the importance of understanding damage mechanisms."*

*"The JIP Report spreadsheet for identifying probable damage mechanisms with filters for material, temperature range, fluid handles, area of the plant, etc. is very useful to easily identify the relevant damage mechanisms."*

*"The Report will be distributed within the Company to stakeholders: Plant Manager, Asset and Maintenance Manager, Process Managers, Material Scientists, and others. It will be used as a resources for RBI, preventative maintenance, and new engineers coming on board."*

*"The JIP Round Table discussions highlighted that we have an opportunity to update our hydrogen embrittlement strategy, and we are currently progressing with this via contacts made within the JIP."*



## About BakerRisk

BakerRisk, formed in 1984, is a global engineering and consulting firm with extensive experience in many industries, including the fertilizer and ammonia industry. We specialize in predicting, preventing and mitigating hazards from explosions, fires, toxic releases, equipment failures, and other hazards.

**To join the Ammonia & Fertilizer JIP and to purchase reports,  
please contact our experts at BakerRisk:**

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