

Exhibit A

Primary Responses

Success: All data is valid!

						Numeric	
Status	Bid/No Bid Decision	#	Item	Quantity Required	Unit of Measure	Unit Price	Total Cost
Success: All values provided	Bid	#0-1	Anhydrous Ammonia	20	TON	\$ 2,640.00	\$ 52,800.00
Basket Total							\$ 52,800.00
Grand Total							\$ 52,800.00



Lewisville 2025 - Sustainability

Lewisville City Council unanimously adopted the Lewisville 2025 plan on July 14, 2014. The plan was developed after more than a year of public input and discussion that garnered hundreds of ideas and suggestions. That input was studied extensively by the Lewisville 2025 Steering Committee, City staff and professional consultants and formulated into the Lewisville 2025 plan. The plan provides a clear shared vision for the kind of community Lewisville wants to be when it turns 100 years old in 2025: a place that people choose to live, work and visit.

Lewisville 2025 identifies nine “Big Moves” to guide the community’s efforts toward being a thriving, desirable community. One of these Big Moves is sustainability. Lewisville defines sustainability in this way:

Limited resources, such as land, water, energy, clean air, natural assets, and public funds are used efficiently to provide a desirable quality of life and business climate today without reducing Lewisville’s ability to provide the desired quality of life and business climate for success of future generations.

The Purchasing Division’s goal is to support and encourage sustainable management practices through the purchase and use of materials, products and services that demonstrate environmental stewardship as well as fiscal and social responsibility. To that end, Lewisville will consider environmental factors such as but not limited to, recycled content, product life cycle, waste reduction, energy efficiency, toxicity, water consumption, and human health impacts when making purchasing recommendations. To assist City staff with evaluating these factors, prospective vendors may be required to provide specific information about their products and services that addresses environmental impacts.

Does Product or Service?	Yes	No	Details
Reduce energy consumption	X		The energy used in distribution is limited to pumps and compressors required to transfer the product.
Reduce toxicity, including emissions	X		Anhydrous ammonia is handled in a closed-loop system that prevents atmospheric emissions during transfer.
Reduce waste	X		Bulk delivery eliminates all packaging waste.
Contain recyclable materials			N/A: Product is consumed in its end-use application and is not applicable to this category.
Reduce water consumption			N/A: No water usage for anhydrous ammonia distribution.
List other environmental impacts	X		Our operations generate no hazardous waste

Attach supporting documentation if needed

VENDOR REFERENCES

Please list at least three (3) references of **current** customers who can verify the quality of service your company provides. The City prefers local customers of similar size and scope of work to this bid. **THIS FORM MUST BE RETURNED WITH YOUR BID.** Attach additional sheets as needed.

REFERENCE ONE:

Government/Company Name: City of Longview
Address: Longview, TX
Contact Name and Title: Charles Sullivan
Contact Phone: 903-237-2783 Contact Email: csullivan@longviewtexas.gov
Contract Period: Ongoing Contract Amount:

REFERENCE TWO:

Government/Company Name: City of Monroe
Address: Monroe, LA
Contact Name and Title: Nathan Morris
Contact Phone: 318-366-5283 Contact Email: Nathan.morris@ci.monroe.la.us
Contract Period: Ongoing Contract Amount:

REFERENCE THREE:

Government/Company Name: City of Port Arthur
Address: Port Arthur, TX
Contact Name and Title: Jeff Wyble
Contact Phone: 409-548-1076 Contact Email: jeff.wyble@portarthurtx.gov
Contract Period: Ongoing Contract Amount:

**CITY OF LEWISVILLE
PURCHASING DIVISION**

ADDITIONAL TERMS

ANTI-LOBBYING PROVISION

During the period between proposal / sealed bid submission date and the contract award, proposers, including their agents and representatives, shall not directly discuss or promote their proposal with any member of the City of Lewisville City Council or City staff except during City-Sponsored inquiries, briefings, interviews, or presentations, unless requested by the City.

This provision is not meant to preclude offerors from discussing other matters with City Council members or City staff. This policy is intended to create a level playing field for all potential offerors, assure that contract decisions are made in public, and to protect the integrity of the RFP / Bid Evaluation process. Violation of this provision may result in rejection of the offeror's proposal.

LAWS AND ORDINANCES

Laws and Ordinances: The Contractor shall always observe and comply with all Federal, State and local laws, ordinances and regulations which in any manner affect the Contract or the work and shall indemnify and save harmless the City against any claim arising from the violation of any such laws, ordinances and regulations whether by the Contractor or his employees.

PROTECTION OF RESIDENT WORKERS

Protection of Resident Workers: The City of Lewisville actively supports the Immigration and Nationality Act (INA) which includes provisions addressing employment eligibility, employment verification, and nondiscrimination. Under the INA, employers may hire only persons who may legally work in the United States (i.e., citizens and nationals of the U.S.) and aliens authorized to work in the U.S. The employer must verify the identity and employment eligibility of anyone to be hired, which includes completing the Employment Eligibility Verification Form (I-9). The Contractor and its Subcontractors shall establish appropriate procedures and controls so no services or products under the Contract Documents will be performed or manufactured by any worker who is not legally eligible to perform such services or employment. The City reserves the right to audit Contractor's or Subcontractor's employment records to verify the existence of a completed Employment Eligibility Verification Form (I-9) for every worker performing services or manufacturing products under the Contract Documents. The audit will be at the City's expense.

IMMIGRATION REFORM AND CONTROL ACT

Immigration Reform and Control Act (8 U.S.C. §1324a): The City of Lewisville supports the Immigration Reform and Control Act (IRCA) which is a comprehensive scheme prohibiting the employment of unauthorized aliens in the United States. The Contractor shall submit a declaration signed under penalty of perjury of the laws of the State of Texas stating that it has not been found in violation of IRCA by the United States Attorney General or Secretary of Homeland Security in the preceding five (5) years. The Contractor shall ensure that its Subcontractors submit a declaration signed under penalty of perjury of the laws of the State of

Texas stating that they have not been found in violation of IRCA by the United States Attorney General or Secretary of Homeland Security in the preceding five (5) years. The Contractor and its Subcontractors shall at all times during the term of the contract with the City comply with the requirements of IRCA and shall notify the City within fifteen (15) working days of receiving notice of a violation of IRCA. The City may terminate a contract with the Contractor if the City determines that (a) the Contractor or its Subcontractors have been untruthful regarding IRCA violations in the preceding five (5) years; (b) if the Contractor fails to ensure that its Subcontractors submit the aforementioned declaration; or (c) the Contractor or its Subcontractors fail to timely notify the City of an IRCA violation.

Tanner Industries, Inc.
Contractor Name


Authorized Signature

6/11/26
Date

**CITY OF LEWISVILLE
PURCHASING DIVISION**

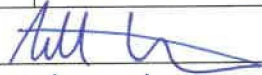
STATE RECIPROCAL REQUIREMENT

The City of Lewisville, as a governmental agency of the State of Texas, may not award a contract for general construction, improvements, services or public works projects or purchases of supplies, materials, or equipment to a non-resident bidder unless the non-resident's bid is lower than the lowest bid submitted by a responsible Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid a non-resident bidder to obtain a comparable contract in the state in which the non-resident's principal place of business is located (Section 2252.002 of the Government Code). Bidder shall answer all the following questions by encircling the appropriate response or completing the blank provided.

1. Where is your principal place of business? Southampton, PA
2. Only if your principal place of business is not in the state of Texas, please indicate:
 - A. In which state is your principal place of business located? Pennsylvania
 - B. Does that state favor resident bidders (bidders in your state) by some dollar increment or percentage? ☐ YES ☒ NO
 - C. If "YES", what is that dollar increment or percentage? _____

NON-COLLUSION STATEMENT

The undersigned affirms that they are duly authorized to execute this contract, that this company, corporation, firms, partnership or individual has not prepared this bid in collusion with any other Bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employer or agent to any other person engaged in this type of business prior to the official opening of this bid.

Vendor:	<u>Tanner Industries, Inc.</u>		
Address:	<u>735 Davisville Road</u>		
City, State, Zip:	<u>Southampton, PA 18966</u>		
Phone:	<u>(215) 322-1238</u>		
Email:	<u>sales@tannerind.com</u>		
Bidder (Print Name):	<u>Matt Tanner</u>		
Bidder Signature:			
Job Title:	<u>Sales Administrator</u>		
Signature of company official authorizing this bid:			
Company Official (Print name):	<u>BRAD TANNER</u>		
Job Title:	<u>President & CEO</u>		

Several Governmental entities around the City of Lewisville have indicated an interest in being included in this contract. Should these Governmental Entities decide to participate in this contract, would you, (the vendor) agree that all terms conditions, specifications, and pricing would apply?

(b) Governmental Entities utilizing Internal-Governmental contracts with the City of Lewisville will be eligible, but not obligated, to purchase materials/services under the contract(s) awarded as a result of this solicitation. All purchases by Governmental Entities other than the City of Lewisville will be billed directly to that Governmental Entity and paid by that Governmental Entity. City of Lewisville will not be responsible for another Governmental Entity's debts. Each Governmental Entity will order their own material/service as needed.

Matt Tanner / Sales Administrator
(Please print or type)

VENDOR SUPPLEMENTAL INFORMATION

The following information is required for contract development.

1. In what state was your business formed? Pennsylvania
2. Provide the following information for the person authorized to execute contracts on behalf of your organization:

Name Matt Tanner Title Sales Administrator
Email Address sales@tannerind.com Telephone No. (215) 322-1238
Mailing Address 735 Davisville Road City Southampton State PA Zip 18966

3. Provide the following information for the contact person authorized to implement this contract on behalf of your organization:

Name Matt Tanner Title Sales Administrator
Email Address sales@tannerind.com Telephone No. (215) 322-1238
Mailing Address 735 Davisville Road City Southampton State PA Zip 18966

4. Provide the following information for the person authorized to receive notices and communications regarding this contract on behalf of your organization:

Name Matt Tanner Title Sales Administrator
Email Address sales@tannerind.com Telephone No. (215) 322-1238
*Physical Business Address 735 Davisville Road City Southampton State PA Zip 18966
**Notices and communications will be mailed to this physical address*

5. Select and complete one of the following:

- a. ☐ **Sole Proprietorship**
- i. Legal name of Sole Proprietor: _____
- ii. Physical business address: _____
- City _____ State _____ Zip _____
- b. ☐ **General Partnership**
- i. Legal name of Partnership: _____
- ii. Physical business address: _____
- City _____ State _____ Zip _____

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

VENDOR SUPPLEMENTAL INFORMATION

- c. ☐ **Limited Partnership**
- i. Legal name of Limited Partnership: _____
- ii. General Partner(s):
- If a legal entity, name of the entity: _____
 - If an individual, name of the individual: _____
- iii. Physical business address: _____
- City _____ State _____ Zip _____
- d. ☒ **Corporation**
- i. Legal name of Corporation: Tanner Industries, Inc.
- ii. Physical business address 735 Davisville Road
- City Southampton State PA Zip 18966
- e. ☐ **Limited Liability Company**
- i. Legal name of Limited Liability Company: _____
- ii. Physical business address _____
- City _____ State _____ Zip _____
- f. ☐ **Other Entity (not listed)**
- i. Legal name and type of Company: _____
- ii. Physical business address _____
- City _____ State _____ Zip _____

6. Does your business have 10 or more full-time employees? ☐ No ☒ Yes

7. a. Are you a publicly traded business? ☒ No ☐ Yes – where traded: _____

b. Are you a wholly owned subsidiary of a publicly traded business? ☒ No ☐ Yes – which publicly traded business: _____

8. a. Is your business registered with the Texas Secretary of State? ☒ No ☐ Yes

b. If yes, please provide records or screenshot(s) from the Texas Secretary of State's website reflecting the name or names for which your business has been registered.

In signing this form, I acknowledge that I have read the above and state that the information contained therein is true and correct.

Signature: [Signature] Date: 6/9/26

Print Name: Matt Tanner Print Title: Sales Administrator

Pennsylvania Department of State
Bureau of Corporations and Charitable Organizations
PO Box 8722 | Harrisburg, PA 17105-8722
T: 717-787-1057
dos.pa.gov/BusinessCharities

Regarding: TANNER INDUSTRIES, INC.
Request Type: Subsistence Certificate **Issuance Date:** April 10, 2026
Request No.: 077258735 **File No.:** 0000658612
Receipt No.: 002674169
Filing Type: Domestic Business Corporation
Filing Subtype: Business
Initial Filing Date: December 02, 1977
Status: Active

TO ALL WHOM THESE PRESENTS SHALL COME, GREETING:

I DO HEREBY CERTIFY THAT

TANNER INDUSTRIES, INC.

is currently subsisting on the records of the Department of State as of the issuance date herein.

I DO FURTHER CERTIFY THAT this Subsistence Certificate shall not imply that all fees, taxes and penalties owed to the Commonwealth of Pennsylvania are paid.



IN TESTIMONY WHEREOF, I have
hereunto set my hand and caused the seal
of my office to be affixed, the day and year
above written

Albert Schmidt
Secretary of the Commonwealth

Verify this certificate online at www.file.dos.pa.gov

EXCEPTIONS

On the lines below, please list any exceptions taken to this bid invitation

[illegible]

Signature: 

Company: Tanner Industries, Inc.

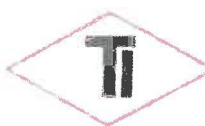
Date: 6/11/26

No exceptions taken to this bid invitation.

Signature: _____

Company: _____

Date: _____



TANNER INDUSTRIES, INC.

735 DAVISVILLE ROAD, THIRD FLOOR
SOUTHAMPTON, PA 18966-3200
215-322-1238 FAX 215-322-7791
www.tannerInd.com

ANHYDROUS AMMONIA SPECIFICATIONS

Metallurgical Grade		
Ammonia (NH_3) Assay	99.9965%	Minimum
Ammonia (NH_3) Assay	99.9990%	Typical
Water	33 ppm	Maximum
Water	<10 ppm	Typical
Oil	2 ppm	Maximum
Oil	1 ppm	Typical

Revision: August 01, 2009

Supercedes: June 01, 2001

Approval: QC/QA 

DIVISIONS

NATIONAL AMMONIA, BOWER AMMONIA AND CHEMICAL, NORTHEASTERN AMMONIA, HAMLER INDUSTRIES



Tanner Industries, Inc.

SAFETY DATA SHEET

Section 1. Identification

Product Name: **Ammonia, Anhydrous**
Synonyms: Ammonia
CAS REGISTRY NO: 7664-41-7
Supplier: Tanner Industries, Inc.
735 Davisville Road
Southampton, PA 18966
Website: www.tannerind.com
Telephone (General): 215-322-1238
Corporate Emergency Telephone Number: 800-643-6226
24 Hour Emergency Telephone Number: Chemtrec: 800-424-9300
Recommended Use: Various Industrial / Agricultural

Section 2. Hazard(s) Identification

Hazard: Acute Toxicity, Corrosive, Gases Under Pressure, Flammable Gas, Acute Aquatic Toxicity

Classification: Acute Toxicity, Inhalation (Category 3)
Skin Corrosion / Irritation (Category 1B)
Serious Eye Damage / Irritation (Category 1)
Gases Under Pressure (Liquefied gas)
Flammable Gases (Category 2)

Note: (1 - Most Severe /
4 - Least Severe)

Pictogram:



Signal word: **Danger**

Hazard statements: Toxic if inhaled.
Causes severe skin burns and serious eye damage.
Corrosive to the respiratory tract.
Flammable gas.
Contains gas under pressure; may explode if heated.

Precautionary statements: Avoid breathing gas/vapors.
Use only outdoors or in well-ventilated area.
Wear protective gloves, protective clothing, eye protection, face protection.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Precautionary statements
(continued):

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor/physician and seek medical attention for severe exposure or if symptoms persist. Specific treatment, see supplemental first aid instructions in Section 4 (First Aid Measures).

IF ON SKIN: Rinse immediately with plenty of water before removing clothes. Contaminated clothing could possibly be frozen to skin. Rinse skin with water or shower (minimum of 20 minutes). Specific treatment, see supplemental first aid instructions in Section 4 (First Aid Measures).

IF IN EYES: Immediately call a doctor/physician and seek medical attention. Rinse continuously with water for several minutes (minimum of 20 minutes). Specific treatment, see supplemental first aid instructions in Section 4 (First Aid Measures).

Wash contaminated clothing before reuse.

Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Store locked up. Dispose of contents/container in accordance with local, regional, national, international regulations as applicable. See section 13 (Disposal Considerations).

In case of gas fire: Do not extinguish, unless leak can be stopped safely.

In case of leakage: Eliminate all ignition sources.

NFPA Rating:

Health (Blue) - 3

Flammability (Red) – 1

Instability (Yellow) – 0

Special Hazards (White) – NA



Note:

For indoor refrigeration systems/equipment the degree of flammability is 3 (refer to International Mechanical Code (IMC), Chapter 11).

NFPA Numbering System:

0 = Least Hazardous / 4 = Most Hazardous

HMIS Rating:

ANHYDROUS AMMONIA		
HEALTH	-	3
FLAMMABILITY		1
PHYSICAL HAZARD		0
PERSONAL PROTECTION		H

See note in Section 16 regarding the Hazardous Materials Identification System (HMIS).

HMIS Hazard Index:

0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe

Section 3. Composition / Information on Ingredients

CHEMICAL NAME: Ammonia, Anhydrous

CAS REGISTRY NO: 7664-41-7

SYNONYMS: Ammonia

CHEMICAL FAMILY: Inorganic nitrogen compounds

COMPOSITION: 99+% Ammonia

FORMULA: NH₃

Section 4. First Aid Measures

IF INHALED: Immediately remove person to fresh air and keep comfortable for breathing. In case of severe exposure or if irritation persists, breathing difficulties or respiratory symptoms arise, seek medical attention. If not breathing, administer artificial respiration. If trained to do so, administer supplemental oxygen, if required.

IF ON SKIN: Immediately rinse skin and contaminated clothing with plenty of water before removing clothes. Clothing that has been contacted by liquid ammonia may freeze to the skin. Thaw frozen clothing from skin before removing. Flush skin with copious amounts of tepid water for a minimum of 20 minutes. Do not rub or apply topical, occlusive compounds, such as ointments, certain creams, etc., on affected area. For liquid ammonia contact, seek immediate medical attention. For severe vapor contact or if irritation persists, seek medical attention.

IF IN EYES: Immediately rinse continuously with copious amounts of tepid water for a minimum of 20 minutes. Eyelids should be held apart and away from eyeball for thorough rinsing. Do not rub or apply topical, occlusive compounds, such as ointments, certain creams, etc., on affected area. Seek medical attention.

IF SWALLOWED: Rinse mouth. Do not induce vomiting. If conscious, give large amounts of water to drink. May drink orange juice, citrus juice or diluted vinegar (1:4) to counteract ammonia. If unconscious, do not give anything by mouth. Seek medical attention.

NOTE TO PHYSICIAN: Respiratory injury may appear as a delayed phenomenon. Pulmonary edema may follow chemical bronchitis. Supportive treatment with necessary ventilation actions, including oxygen, may warrant consideration.

Section 5. Fire Fighting Measures

EXTINGUISHING MEDIA:

Water Spray, Water Fog, Dry Chemical, Carbon Dioxide (CO₂) or foam.

SPECIAL FIRE FIGHTING PROCEDURES:

Must wear protective clothing and a positive pressure SCBA.

Stop flow of gas or liquid if possible.

Approach fire upwind and evacuate area downwind if needed.

Use water spray to keep fire-exposed containers cool and control vapors.

If a portable container (such as a cylinder or trailer) can be moved from the fire area without risk to the individual, do so to prevent the pressure relief valve of the trailer or portable container from discharging or the cylinder from rupturing. If relief valves are inoperative, heat exposed storage containers may become explosion hazards due to over pressurization.

Stay upwind when containers are threatened.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Outdoors, ammonia is not generally a fire hazard. Indoors, in confined areas, ammonia may be a fire hazard, especially if oil or other combustible materials are present.

Combustion may form toxic nitrogen oxides (NO_x).

Section 6. Accidental Release Measures

GENERAL:

Only properly trained and equipped persons should respond to an ammonia release.

Wear eye, hand and respiratory protection and protective clothing; see Section 8, Exposure Controls / Personal Protection.

Stop source of leak, if possible, provided it can be done in a safe manner.

Leave the area of a spill by moving laterally and upwind.

Isolate the affected area. Non-responders should evacuate the area, or shelter in place.

SPECIFIC STEPS TO BE TAKEN:

For a hazardous material release response, Level A and/or Level B ensemble including positive-pressure SCBA should be used. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).

Stay upwind and use water spray downwind of container to absorb the evolved gas.

Do not apply water directly to container, unless there is heat impingement, as ammonia boils at -28 °F (direct water will heat container), and more vapors will be released.

Caution: Adding water directly to liquid spills will increase volatilization of ammonia, thus increasing the possibility of exposure. Contain spill and runoff from entering drains, sewers, streams, lakes and water systems by utilizing methods such as diking, containment, and absorption.

Section 7. Handling and Storage**SPECIAL PRECAUTIONS:**

Only trained persons should handle anhydrous ammonia. Store in well-ventilated areas, with containers tightly closed. Protect from temperatures exceeding 120 °F (48.8 °C). Protect containers from physical damage. Keep away from ignition sources, especially in indoor spaces. Do not use plastic. Do not use any non-ferrous metals such as copper, brass, bronze, tin, zinc or galvanized metals. Use only stainless steel, carbon steel or black iron for anhydrous ammonia containers or piping.

OSHA 29 CFR 1910.111 prescribes handling and storage requirements for anhydrous ammonia.

Refer to Compressed Gas Association (CGA) G-2.1 for the recommendations for the storage and handling of anhydrous ammonia.

VENTILATION:

Local exhaust should be sufficient to keep ammonia vapor below applicable exposure standards.

WORKPLACE PROTECTIVE EQUIPMENT:

Protective equipment should be stored near, but outside of anhydrous ammonia area. Water for first aid, such as an eyewash station and safety shower, should be kept available in the immediate vicinity. See 29 CFR 1910.111 for workplace requirements.

DISPOSAL:

See Section 13, Disposal Considerations. Classified as Resource Conservation and Recovery Act (RCRA) Hazardous Waste due to corrosivity with designation D002, if disposed of in original form.

Section 8. Exposure Controls / Personal Protection**EXPOSURE LIMITS FOR AMMONIA: (Vapor)**

Ammonia		
USA ACGIH	ACGIH TWA	25 ppm
USA ACGIH	ACGIH STEL	35 ppm
USA NIOSH IDLH	NIOSH IDLH	300 ppm
USA NIOSH	NIOSH REL (TWA)	18 mg/m ³ ; 25 ppm
USA NIOSH	NIOSH REL (STEL)	27 mg/m ³ ; 35 ppm
USA OSHA	OSHA PEL (TWA)	35 mg/m ³ ; 50 ppm
Alberta	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
British Columbia	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
Manitoba	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
New Brunswick	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
Newfoundland & Labrador	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
Northwest Territories	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
Nova Scotia	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
Nunavut	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)

Ontario	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
Prince Edward Island	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
Quebec	TWAEV / STEV	25 ppm (TWAEV), 35 ppm (STEV)
Saskatchewan	TWA / STEL	25 ppm (TWA), 35 ppm (STEL)
Yukon	TWA / STEL	25 ppm (TWA), 40 ppm (STEL)
Mexico	OEL TWA (mg/m ³)	18 mg/m ³
Mexico	OEL TWA (ppm)	25 ppm
Mexico	OEL STEL (mg/m ³)	27 mg/m ³
Mexico	OEL STEL (ppm)	35 ppm

PROTECTIVE EQUIPMENT:

EYE/FACE PROTECTION: Chemical splash goggles should be worn when handling anhydrous ammonia. A face shield can be worn over chemical splash goggles as additional protection.

Wearing contact lenses when handling anhydrous ammonia is not recommended.

Refer to 29 CFR 1910.133 for OSHA eye protection requirements. Refer to 29 CFR 1910.132(d) for OSHA requirements for hazard assessments and equipment selection.

SKIN PROTECTION: Ammonia impervious gloves and clothing (such as neoprene, butyl and Teflon) should be worn to prevent contact during normal operations, such as loading/unloading and transfers.

Chemical boots can be worn as additional protection.

RESPIRATORY PROTECTION: Respiratory protection approved by NIOSH for ammonia must be used when applicable safety and health exposure limits are exceeded. For escape in emergencies, NIOSH approved respiratory protection should be used, such as a full-face gas mask and canisters/cartridges approved for ammonia or SCBA. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).

Refer to 29 CFR 1910.134 and ANSI: Z88.2 for OSHA respiratory protection requirements.

Also refer to 29 CFR 1910.111 for respiratory protection requirements at bulk installations.

VENTILATION: Local exhaust should be sufficient to keep ammonia vapor below applicable exposure standards.

FOR A HAZARDOUS MATERIAL RELEASE RESPONSE: Level A and/or Level B ensemble including positive-pressure SCBA should be used. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).

Section 9. Physical and Chemical Properties

Physical state.	Gas Under Pressure (Liquefied gas)
Color.	Clear colorless liquid.
Odor (includes odor threshold).	Pungent odor. Odor threshold 2 to 5 ppm.
Melting point/freezing point.	Freezing point: -107.9 °F (-77.7 °C).
Boiling point.	-28 °F (33.3 °C) at 1 Atm.
Flammability.	Liquid: Non-flammable Vapor: Flammable concentrations of vapor may accumulate in confined spaces.
Lower and upper explosion limit/flammability limit.	LEL/UEL 16% to 25% (Ammonia vapor in air) Listed in the <i>NIOSH Pocket Guide to Chemical Hazards</i> at 15% to 28%.
Flash point.	Not applicable.
Auto-ignition temperature.	1,204 °F / 651 °C, if catalyzed. 1,570 °F / 854 °C, if un-catalyzed. (Ammonia vapor)

Decomposition temperature.	Not available.
pH	Not applicable (Highly alkaline/base).
Kinematic viscosity.	0.00982 cP at 68 °F / 20 °C.
Solubility.	In water: (per 100 pounds of water): 86.9 pounds at 32 °F / 0 °C, 51 pounds at 68 °F / 20 °C.
Partition coefficient n-octanol/water (log value).	Not applicable.
Vapor pressure.	114 psig at 70 °F / 21.1 °C.
Density and/or relative density.	Liquid density: 38.00 Lb/Ft ³ at 70 °F / 21.1 °C.
Relative vapor density.	Vapor density (air = 1): 0.596 at 32 °F / 0 °C.
Particle characteristics.	Not applicable.
Evaporation Rate.	Not applicable.
Molecular Weight.	17.031 g/mol
Viscosity.	0.00982 cP at 68 °F / 20 °C.
Partition Coefficient.	Not available.
Weight per Gallon.	5.15 pounds at 60 °F / 15.5 °C.
Gas Specific Volume.	20.78 Ft ³ /Lb at 32 °F (0 °C) and 1 Atm.
Specific Gravity of liquid.	0.682 at -28 °F (-33.3 °), compared to water at 32 °F (0 °C).
Surface Tension.	23.4 Dynes / cm at 52 °F (11.1 °C).
Critical Pressure.	111.5 Atm.
Critical Temperature.	271.4 °F (133 °C).

Section 10. Stability and Reactivity

REACTIVITY:

Anhydrous ammonia has potentially explosive reactions with strong oxidizers. Anhydrous ammonia forms explosive mixtures in air with hydrocarbons, chlorine, fluorine and silver nitrate. Anhydrous ammonia reacts to form explosive products, mixtures or compounds with mercury, gold, silver, iodine, bromine, silver oxide and silver chloride.

CHEMICAL STABILITY:

Stable under normal ambient conditions of temperature and pressure. Heating a closed container causes vapor pressure to increase. Will not polymerize.

POSSIBILITY OF HAZARDOUS REACTIONS:

Will react exothermically with acids and water.

CONDITIONS TO AVOID:

Avoid anhydrous ammonia contact with chlorine, which forms a chloramine gas, which is a primary skin irritant and sensitizer. Avoid contact with galvanized surfaces, copper, brass, bronze, mercury, gold and silver. A corrosive reaction will occur.

INCOMPATIBLE MATERIALS:

Anhydrous ammonia is incompatible with acetaldehyde, acrolein, boron, chloric acid, chlorine monoxide, chlorites, nitrogen tetroxide, perchlorate, sulfur, tin and strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS:

Under normal conditions of storage and use, hazardous decomposition products should not be produced. At high temperatures (e.g. above 600 °F), ammonia may disassociate generating hydrogen and nitrogen gases. Decomposition temperatures may be lowered by contact with certain metals, such as iron, nickel and zinc and by catalytic surfaces.

Section 11. Toxicological Information

Potential health effects:

The extent of injury produced by exposure to ammonia depends on the duration of the exposure, the concentration of the liquid or vapor and the depth of inhalation. Ammonia is an irritant and corrosive to the skin, eyes, respiratory tract and mucous membranes. May cause severe chemical burns to the eyes, lungs and skin. Skin and respiratory related diseases could be aggravated by exposure.

Exposure Routes:

Inhalation (vapors, gas), skin and/or eye contact (vapors, gas, liquid).

Symptoms of acute exposure:

- Inhalation:** Exposure may result in severe irritation and/or burns of the nose, throat and respiratory tract. May cause dyspnea (breathing difficulty), wheezing, chest pain, bronchospasm, pink frothy sputum, pulmonary edema or respiratory arrest. Extreme exposure may result in death from spasm, inflammation or edema. Respiratory injury may appear as a delayed phenomenon. Pulmonary edema may follow chemical bronchitis. Brief inhalation exposure to 5,000 ppm may be fatal.
- Skin:** Irritation, corrosive burns, blister formation (vesiculation) may result. Contact with liquid may produce freeze burns (frostbite) and caustic burns.
- Eyes:** Vapors may cause severe irritation. Tearing, eye burns, permanent eye damage or blindness may occur. Effects of direct contact may range from irritation and lacrimation to severe injury and blindness.
- Ingestion:** Ingestion is unlikely since the material is a gas under normal atmospheric conditions. If ingested, it may cause burns and corrosion, severe pain of the mouth, throat, esophagus and stomach or may be fatal

Chronic Exposure: Repeated exposure to ammonia may cause chronic irritation of the eyes and respiratory tract.

Toxicity:

Ammonia (7446-41-7)	
LC50 (Inhalation) Rat	2000 ppm, 4-hour exposure.
LC50 (Inhalation) Rat	5131 mg/m ³ (7338 ppm) to 11,592 mg/m ³ (16,600 ppm), 1 hour exposure.

Not listed in the National Toxicology Program (NTP).

Not recognized by OSHA as a carcinogen.

Not listed as a carcinogen by the International Agency for Research on Cancer (IARC monograph).

Germ cell mutagenicity information is not available. Reproductive toxicity information is not available.

Section 12. Ecological Information

Ammonia is harmful to aquatic life at very low concentrations. Notify local health and wildlife officials and operators of any nearby water intakes upon contamination of surface water.

Toxicity:

Terrestrial plants: LOEC = 3-250 ppm NH₃.

Aquatic plants: LOEC = 0.5-500 mg NH₃-N/L.

Acute toxicity to invertebrates: 48 h LC50 = 2.94 mg un-ionized NH₃-N/L.

Chronic toxicity to invertebrates: NOEC = 0.163- 0.42 mg un-ionized NH₃/L.

Acute toxicity to fish: 96-h: LC50 = 0.09 – 3.51 mg un-ionized NH₃/L.

Chronic toxicity to fish: NOEC = 0.025-1.2 mg un-ionized NH₃/L.

Environmental Fate Information: Ammonia dissipates relatively quickly in ambient air and rapidly returns to the soil via combination with sulfate ions or washout by rainfall. Ammonia strongly adsorbs to soil, sediment particles and colloids in water under aerobic conditions. Biodegradation of ammonia to nitrate occurs in water under aerobic conditions resulting in a biological oxygen demand (BOD).

Persistence/Degradability:

Biodegradable in soil. Ozonation in the air. Soluble in water.

Bioaccumulative Potential:

Not applicable.

Mobility in Soil:

No additional information available.

Other Adverse Effects:

No additional information available.

Section 13. Disposal Considerations

Dispose of unused contents/container in accordance with local/regional/national/international regulations as applicable.

Listed as hazardous substance under the Clean Water Act (CWA) (40 CFR 116.4 and 40 CFR 117.3).

Classified as hazardous waste under the Resource Conservation and Recovery Act (RCRA) (40 CFR 261.22 Corrosive #D002).

Comply with all regulations.

Suitably diluted product may be utilized as fertilizer on agricultural land.

For hazardous waste regulations information call the RCRA Hotline (800) 424-9346, or visit the US EPA website.

Section 14. Transport Information

	US DOT Classification	TDG Classification	IMDG Classification (International)
UN Number	UN 1005	UN 1005	UN 1005
UN Proper Shipping Name	Ammonia, anhydrous	Ammonia, anhydrous	Ammonia, anhydrous
Transport Hazard Class(es)	2.2	2.3 (8)	2.3 (8)
Placard(s)	 Domestic  (Only as required by 49 CFR 172.322)  International (2.3)  Special Permit Required	 or  (Refer to TDG Regulations 4.18.2)  (Only as required by TDG Regulations 4.22)	  

ENVIRONMENTAL HAZARDS:

IMDG, Known Marine Pollutant: Yes

United Nations Model Regulations, Environmentally Hazardous: Yes

US Department of Transportation (US Domestic)

PACKAGE MARKINGS:	Refer to 49 CFR 172.302, General marking requirements for bulk packagings. Refer to 49 CFR 172.301, General marking requirements for non-bulk packagings. Refer to 49 CFR 172.328, Cargo Tanks for additional marking requirements.
ADDITIONAL INFORMATION:	Marine Pollutant Requirements: Subject to the requirements of 49 CFR 172.322. The words "Inhalation Hazard" shall be entered on each shipping paper in association with the shipping description, shall be marked on each non-bulk package in association with the proper shipping name and identification number, and shall be marked on two opposing sides of each bulk package.

Section 15. Regulatory Information

Subject to the reporting requirements of Section 302, Section 304, Section 312 and Section 313, Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR 372.

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Section 103, any environmental release of this chemical equal to or over the reportable quantity of 100 pounds must be reported promptly to the National Response Center, Washington, D.C. (1-800-424-8802).

Emergency Planning & Community Right to Know Act, (EPCRA) extremely hazardous substance, 40 CFR 355, Title III, Section 302 – Ammonia, Threshold Planning Quantity (TPQ) 500 pounds.
Listed on the US EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

EPA Hazard Categories – Immediate: Yes; Delayed: No; Fire: No; Sudden Release: Yes; Reactive: No

Clean Air Act – Section 112(r): Listed under EPA's Risk Management Program (RMP), 40 CFR Part 68, at storage/process amounts greater than the Threshold Quantity (TQ) of 10,000 pounds (ammonia, anhydrous).

Anhydrous ammonia is listed under Department of Homeland Security regulation 6 CFR Part 27, Chemical Facility Anti-Terrorism Standards (CFATS) at storage / process amounts greater than the threshold quantity of 10,000 pounds (ammonia, anhydrous).

Occupational Safety & Health Administration (OSHA): This material is considered to be hazardous as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200. This material is subject to Process Safety Management requirements of 29 CFR 1910.119 if maintained on-site, including storage / process, in quantities of 10,000 pounds (ammonia, anhydrous) or greater.

Section 16. Other Information

Preparation Information: Revision Date *December 16, 2025*.
Replaces Revision Date January 19, 2023.

Revised by: HJS

HMIS Rating: The American Coatings Association's (ACA) *Hazardous Materials Identification System (HMIS®)* and corresponding *HMIS® Implementation Manual*, aid employers with the development and implementation of a comprehensive Hazard Communication Program. The program and manual address hazard assessment, labeling, Safety Data Sheets (SDS), and employee training. ACA's HMIS® hazard rating scheme is designed to be compatible with workplace labeling requirements of the U.S. Occupational Safety and Health Administration's (OSHA) revised Hazard Communication Standard (HCS). It is constructed to communicate hazard information to employees through training and the use of colors, numbers, letters of the alphabet, and symbols of types of personnel protective equipment (PPE).
HMIS® ratings are to be used with a fully implemented HMIS® program. It is the responsibility of the employer to determine the appropriate hazard classification and personnel protective equipment (PPE) code for this material.

For more information on HMIS® consult the HMIS® Implementation Manual.
HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

Acronyms:

ACGIH: American Conference of Governmental Industrial Hygienists
ANSI: American National Standards Institute
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
DHS: Department of Homeland Security
DOT: Department of Transportation
EPA: Environmental Protection Agency
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IDLH: Immediately Dangerous to Life or Health
IMDG: International Maritime Dangerous Goods
NFPA: National Fire Protection Association
NIOSH: National Institute for Occupational Safety and Health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
PPM: Parts Per Million
RCRA: Resource Conservation and Recovery Act
REL: Recommended Exposure Limit
SCBA: Self Contained Breathing Apparatus
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TWA: Time Weighted Average

Disclaimer:

The information, data, and recommendations in this safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process. To the best of our knowledge, the information, data, and recommendations set forth herein are believed to be accurate. We make no warranties, either expressed or implied, with respect thereto and assume no liability in connection with any use of such information, data, and recommendations. Judgements as to the suitability of the information contained herein for the party's own use or purposes are solely the responsibility of that party. Any party handling, transferring, transporting, storing, applying or otherwise using this product should review thoroughly all applicable laws, rules, regulations, standards and good engineering practices. Such thorough review should occur before the party handles, transfers, transports, stores, applies or otherwise uses this product.