

CITY OF ANN ARBOR
INVITATION TO BID



Water Treatment Chemical - Anhydrous Ammonia (NH₃)

ITB No. 4672

Due Date: April 14, 2021 at 2:00 P.M. (Local Time)

Water Treatment

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48104

TABLE OF CONTENTS

INSTRUCTIONS TO BIDDERS	3
INVITATION TO BID	7
SPECIFICATIONS	9
BID FORM	13
GENERAL CONDITIONS	17

ATTACHMENTS

City of Ann Arbor Standard Purchase Order Terms and Conditions

City of Ann Arbor Vendor Conflict of Interest Disclosure Form

City of Ann Arbor Non-Discrimination Ordinance Declaration Form and Notice

INSTRUCTIONS TO BIDDERS

General

The City of Ann Arbor's Procurement Office is soliciting bids for the purchase of Anhydrous Ammonia (NH₃) based on the specifications provided herein. The pricing provided for this ITB shall be firm for one (1) year. Upon mutual agreement between the City and the vendor the pricing provided in this ITB may be extended for two (2) additional one (1) year periods not to exceed three (3) years in total.

Any Bid which does not conform fully to these instructions may be rejected.

Site Inspection

On or prior to April 12, 2021, a bidder may inspect the City's site and equipment. Inspections are by appointment only during business hours (8:00 a.m. to 3:00 p.m.). Appointments can be scheduled by email to Becky Lahr, Drinking Water Quality Manager, Water Treatment Unit at RLahr@a2gov.org. No appointments will be scheduled after April 12, 2021.

Preparation of Bids

Bids should be prepared providing a straight-forward, concise description of the Bidder's ability to meet the requirements of the ITB. Bids shall be written in ink or typewritten. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed and dated in ink by the person signing the Bid.

Bids must be submitted on the "Bid Forms" provided with each blank properly filled in. If forms are not fully completed it may disqualify the bid. No alternative bid will be considered unless alternative bids are specifically requested. If alternatives are requested, any deviation from the specification must be fully described, in detail on a clearly marked "Alternate" section of Bid form.

Each person signing the Bid certifies that he/she is the person in the Bidder's firm/organization responsible for the decision as to the fees being offered in the Bid and has not and will not participated in any action contrary to the terms of this provision.

Questions or Clarifications / Designated City Contacts

All questions regarding this ITB shall be submitted via email. Emailed questions and inquires will be accepted from any and all prospective Bidders in accordance with the terms and conditions of the ITB.

All questions shall be due on or before **March 29, 2021 by 5:00 p.m.** and should be addressed as follows:

Specification/Scope of Work questions emailed to Becky Lahr, Drinking Water Quality Manager, Water Treatment Services Unit at RLahr@a2gov.org.

Bid Process and Compliance questions emailed to Colin Spencer, CSpencer@a2gov.org

Any error, omissions or discrepancies in the specification discovered by a prospective contractor and/or service provider shall be brought to the attention of Colin Spencer at cspencer@a2gov.org after discovery as possible. Further, the contractor and/or service provider shall not be allowed to take advantage of errors, omissions or discrepancies in the specifications.

Addenda

If it becomes necessary to revise any part of the ITB, notice of the Addendum will be posted to Michigan Inter-governmental Trade Network (MITN) www.mitn.info and/or City of Ann Arbor web site www.A2gov.org for all parties to download.

Each Bidder must in its Bid, to avoid any miscommunications, acknowledge all addenda which it has received, but the failure of a Bidder to receive, or acknowledge receipt of; any addenda shall not relieve the Bidder of the responsibility for complying with the terms thereof.

The City will not be bound by oral responses to inquiries or written responses other than written addenda.

Bid Submission

All Bids are due and must be delivered to the City of Ann Arbor Procurement Unit on or before **April 14, 2021 by 2:00 PM (Local time)**. Bids submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Bidder must submit one (1) original Bid and one (1) Bid copy in a sealed envelope clearly marked: ITB No. 4672 – Water Treatment Chemical - Anhydrous Ammonia (NH3).

Bids must be addressed and delivered to:

City of Ann Arbor
Procurement Unit,
c/o Customer Services, 1st Floor
301 East Huron Street
Ann Arbor, MI 48104

All Bids received on or before the Due Date will be publicly opened and recorded immediately. No immediate decisions are rendered.

The following forms provided within this ITB Document should be included in submitted bids.

- **Vendor Conflict of Interest Disclosure Form**
- **City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance**

Bids that fail to provide these forms listed above upon bid opening may be rejected as non-responsive and may not be considered for award.

Hand delivered bids may be dropped off in the Purchasing drop box located in the Ann Street (north) vestibule of City Hall which is accessible to the public at all hours. The City will not be liable to any Bidder for any unforeseen circumstances, delivery or postal delays. Postmarking to the Due Date will not substitute for receipt of the Bid. Each Bidder is responsible for submission of their Bid.

Additional time for submission of bids past the stated due date and time will not be granted to a single Bidder; however, additional time may be granted to all Bidders when the City determines in its sole discretion that circumstances warrant it.

Award

The City intends to award a Contract/Purchase Order to the lowest responsible Bidder(s) providing the best value to the City. The City may, at its sole discretion, award line-by-line in the

best interest of value to the City.

Responsible bidder means a bid submitted, which conforms in all aspects of the requirements set forth in the invitation to bid. All aspects could include references, past experience, past performance, and qualifications.

Official Documents

The City of Ann Arbor officially distributes bid documents from the Procurement Unit or through the Michigan Intergovernmental Trade Network (MITN). Copies of the bid documents obtained from any other source are not Official copies. Addenda and other bid information will only be posted to these official distribution sites. If you obtained City of Ann Arbor Bid documents from other sources, it is recommended that you register on www.MITN.info and obtain an official Bid.

Taxes

Municipalities are exempt from Michigan State Sales and Federal Excise taxes. Do not include such taxes in the bid figure(s). The City will furnish the successful bidder with tax exemption certificates when requested.

Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of one-hundred and twenty (120) days.

Non-Discrimination Requirements

All contractors proposing to do business with the City shall satisfy the non-discrimination administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance attached at all work locations where its employees provide services under a contract with the City.

Conflict Of Interest Disclosure

The City of Ann Arbor Purchasing Policy requires that prospective Vendors complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected Vendor unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, some contracts may awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Vendor Conflict of Interest Disclosure Form is attached.

Debarment

Submission of a Bid in response to this ITB is certification that the Bidder is not currently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal departments or agency. Submission is also agreement that the City will be notified of any changes in this status.

Disclosures

After bids are opened, all information in a submitter's bid is subjected to disclosure under the provisions of Michigan Public Act No. 442 of 1976, as amended (MCL 15.231 et seq.) known as the "Freedom of Information Act." The Freedom of Information Act also provides for the complete disclosure of contracts and attachments thereto except where specifically exempted.

Bid Protest

All Bid protests must be in writing and filed with the Purchasing Agent within five (5) business days of the award action. The bidder must clearly state the reasons for the protest. If a bidder contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the bidder to the Purchasing Agent. The Purchasing Agent will provide the bidder with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee whose decision shall be final.

Any inquiries or requests regarding this procurement should be only submitted in writing to the Designated City Contacts provided herein. Attempts by the Offeror to initiate contact with anyone other than the Designated City Contacts provided herein that the prospective Offeror believes can influence the procurement decision, e.g., Elected Officials, City Administrator, Selection Committee Members, Appointed Committee Members, etc., may lead to immediate elimination from further consideration.

Cost Liability

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the Bidder prior to the execution of a contract with the City. By submitting a bid, a bidder agrees to bear all costs incurred or related to the preparation, submission and selection process for the bid.

Reservation of Rights

The City of Ann Arbor reserves the right to accept any bid or alternative bid proposed in whole or in part, to reject any or all bids or alternatives bids in whole or in part and to waive irregularity and/or informalities in any bid and to make the award in any manner deemed in the best interest of the City.

Environmental Commitment

The City of Ann Arbor recognizes its responsibility to minimize negative impacts on human health and the environment while supporting a vibrant community and economy. The City further recognizes that the products and services the City buys have inherent environmental and economic impacts and that the City should make procurement decisions that embody, promote, and encourage the City's commitment to the environment.

The City encourages potential vendors to bring forward emerging and progressive products and services that are best suited to the City's environmental principles.

INVITATION TO BID

City of Ann Arbor
Guy C. Larcom Municipal Building
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including City Nondiscrimination requirements, Vendor Conflict of Interest Form, Instructions to Bidders, Bid Forms, Purchase Order Terms and Conditions, General Conditions, Detailed Specifications, and all Addenda, and understands them. The Bidder declares that it conducted a full investigation of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

In accordance with these bid documents, and Addenda numbered , the undersigned, as Bidder, proposes to deliver to the City all product/services herein described for the amounts set forth in the Bid Forms.

The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

Bidder further agrees that the cited provisions of Chapter 14 form a part of this Contract.

The Bidder declares that it has become familiar with the City Conflict of Interest Disclosure Form and certifies that the statement contained therein is true and correct.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS 1st DAY OF April, 2021.

Tanner Industries, Inc.
Bidder's Name


Authorized Signature of Bidder

735 Davisville Rd, Southampton PA 18966
Official Address

Matt Tanner
(Print Name of Signer Above)

(215) 322-1238
Telephone Number

sales@tannerind.com
Email Address for Award Notice

LEGAL STATUS OF BIDDER

(The Bidder shall fill out the appropriate form and strike out the other three.)

Bidder declares that it is:

* A corporation organized and doing business under the laws of the State of Pennsylvania, for whom Matt Tanner, bearing the office title of _____, whose signature is affixed to this Bid, is authorized to execute contracts.

NOTE: If not incorporated in Michigan, please attach the corporation's Certificate of Authority

• A limited liability company doing business under the laws of the State of _____, whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.

* A partnership, organized under the laws of the state of _____ and filed in the county of _____, whose members are (list all members and the street and mailing address of each) (attach separate sheet if necessary):

* An individual, whose signature with address, is affixed to this Bid: _____ (initial here)

Authorized Official

 Date 4/9, 2021

(Print) Name ERIC HINDAWI Title CFO

Company: Tanner Industries, Inc.

Address: 735 Davisville Road, Southampton, PA 18966

Contact Phone (215) 322-1238 Fax (215) 322-7791

Email sales@tannerind.com

SPECIFICATIONS

CITY OF ANN ARBOR STANDARD SPECIFICATIONS FOR ANHYDROUS AMMONIA

This specification pertains to anhydrous ammonia (NH₃) for use in the treatment of municipal water supplies.

PART 1: General Information Part 1.1 Definitions

The following definitions shall apply in this specification:

Manufacturer: *Any party that produces liquid oxygen as covered by this specification.*

Purchaser: *Any party that enters into a contract, either written or verbal, to purchase liquid oxygen in accordance with the provisions of this specification.*

Vendor: *Any party that enters into a contract, either written or verbal, to supply liquid oxygen for purchase in accordance with this specification.*

Part 1.2 Affidavit of Compliance

The purchaser requires an affidavit from the manufacturer or vendor that the ammonia furnished under the purchaser's orders meets or exceeds, ANSI/AWWA Standard B305- 15, NSF Standard 60 and the specifications of this standard.

Part 1.3 Rejection

Notice of Nonconformance. If the ammonia does not meet the requirements of this standard, a notice of nonconformance shall be provided by the purchaser to the vendor within 10 working days of receipt of the shipment at its point of destination. The results of the purchaser's test shall prevail unless the vendor notifies the purchaser within five working days of receipt of the notice of nonconformance that a retest is desired.

If the material delivered is found to not meet the requirements of this standard, the responsibility of removal from the point of destination shall fall wholly on the vendor. An exception to this point may be made if a price adjustment is made between the vendor and the purchaser.

PART 2: Specifications

Part 2.1 Physical Requirements

Anhydrous ammonia (NH₃) supplied under this standard shall be a pungent, colorless,

liquefied compressed gas. The material shall contain no solid in suspension that could interfere with the proper operation of ammonia feed equipment. Anhydrous ammonia has a molecular weight of 17.031 g/mol and a boiling point of -33.43°C (-28.17°F) at 1 atm. Under the same conditions the density is 42.57 pounds per cubic foot. Ammonia vapor is 0.597 times as heavy as air.

Part 2.2 Chemical Requirements

The anhydrous ammonia of this standard shall be refrigeration grade or better and shall have a minimum assay of **99.98%** ammonia or more by weight (note that this is more restrictive than ANSI/AWWA Standard B305-15). Ammonia is classified as nonflammable by the Department of Transportation. It is highly associated and stable.

Part 2.3 Impurities

2.3.1 *General impurities.* The anhydrous ammonia supplied in accordance with this standard shall contain no soluble material or organic substances in quantities capable of producing deleterious effects to the health of those consuming water that has been properly treated with anhydrous ammonia. These quantities shall not be capable of causing water so treated to exceed USEPA safe drinking water standards.

2.3.2 *Water.* The water content shall not exceed **150 ppm** by weight (note that this is more restrictive than ANSI/AWWA Standard B305-15).

2.3.3 *Oil.* The oil content shall not exceed **3 ppm** by weight (note that this is more restrictive than ANSI/AWWA Standard B305-15).

2.3.4 *Product certification.* Anhydrous ammonia is a direct additive used in the treatment of potable water. This product must conform to NSF Standard 60.

PART 3: Marking and Shipping Part 3.1 Marking

Each container shall carry a clear identification of the material it contains and shall carry the proper current labeling and precautionary information as required by federal, state and local requirements.

Part 3.2 Bulk Shipments

Anhydrous ammonia in bulk shipment delivered by truck shall comply with all federal requirements.

PART 4: Affidavit of Compliance

The City of Ann Arbor requires an affidavit from the manufacturer or supplier attesting that the anhydrous ammonia complies with all the applicable requirements of this standard.

INSURANCE

Effective the date of this Agreement, and continuing without interruption during the term of this Agreement, Contractor shall provide certificates of insurance to the City on behalf of itself, and when requested any subcontractor(s).

A. The certificates of insurance shall meet the following minimum requirements.

1. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident
Bodily Injury by Disease - \$500,000 each employee
Bodily Injury by Disease - \$500,000 each policy limit

2. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98 or current equivalent. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements including, but not limited to: Products and Completed Operations, Explosion, or Pollution. Limited Pollution endorsement is allowed if Broadened Pollution Liability Coverage is included in the Motor Vehicle Liability Insurance. Further, the following minimum limits of liability are required:

\$1,000,000	Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined
\$2,000,000	Per Job General Aggregate
\$1,000,000	Personal and Advertising Injury

3. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97 or current equivalent. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined. Pollution Liability - Broadened Coverage Required
4. Umbrella/Excess Liability Insurance shall be provided to apply in excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000

- B. Insurance required under A.2 and A.3 above of this contract shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.
- C. Documentation must provide and demonstrate an unconditional 30-day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. An original certificate of insurance may be provided as an initial indication of the required insurance, provided that no later than 21 calendar days after commencement of any work the Contractor supplies a copy of the endorsements required on the policies. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this contract, the Contractor shall deliver proof of renewal and/or new policies to the Administering Service Area/Unit at least ten days prior to the expiration date.

REFERENCES: Please list at least three (3) entities for which you have done similar work:

<u>Organization</u>	<u>Address</u>	<u>Contact Person</u>	<u>Telephone</u>
1. <u>Michigan City Water</u>	<u>111 Lakeshore Dr.</u> <u>Michigan City, IN</u>	<u>Greg Burnett</u>	<u>(219) 872-4430</u>
2. <u>City of Fort Wayne</u>	<u>1100 Griswold Dr.</u> <u>Fort Wayne, IN</u>	<u>Gayle Cooper</u>	<u>(260) 427-1376</u>
3. <u>Bodycote</u>	<u>2580 Haggarty Rd.</u> <u>Canton, MI</u>	<u>Bryan Ames</u>	<u>(734) 451-0338</u>

PRICING

Supplier may revise the price semi-annually using the formula below, using the Producers Price Index (PPI) published by the U.S. Bureau of Labor Statistics ("BLS"). The choice of specific BLS Producers Price index or indices and the weighting given to a choice of multiple indices will be mutually agreed upon by the City and the Provider. Seasonally unadjusted indices will be used. The adjusted price will be in effect for six months only, at which time it will be adjusted again or revert to the bid price (base selling price).

- The Supplier should include in their bid an appropriate index or indices and the weighting to be applied to each. The Supplier should include the Series ID number with their bid and include their proposed revision formula.
- The Supplier will adjust the price semiannually, on January 20 and July 20 (if the renewal extensions are exercised or the contract is multiyear). The bid price (base selling price) must be in effect for at least 6 months before the first price adjustment.
- The Base Selling Price will be the amount bid by the Supplier.
- The Base Period Factor, denoted with a subscripted zero (in the example: E₀ and D₀), shall consist of an average of the most recent finalized indices for a period of one year, immediately preceding the date of the approved City Council resolution for the product being purchased, for that particular representative index. For monthly published indices this will be the arithmetic average of the twelve most recently published finalized indices. For quarterly published indices this will be the arithmetic average of the four most recently published finalized indices.
- The Adjustment Factor, denoted with no subscript (in the example: E and D), shall be based upon an average of the six most recently published monthly indices, (or three most recently published quarterly indices) at the time of the revision, for that particular index. For timeliness, if any monthly or quarterly index is still preliminary (designated with a Pin the published numbers) at the time of the revision, it will be used in its preliminary state.
- Should the index referenced cease to be published or is published in an alternate form (different Series Number, Base Date, or Period), a mutually agreed upon and similar index will be used for future adjustments.
- When Base Dates are revised by the BLS, rebasing shall be done as needed based upon the old and new reference base period.
- The US Bureau of Labor Statistics Producers Price indices can be found at www.bls.gov/ppi
- The Revision Formula is: $P = P_o[r/100(X/X_o) + s/100(Y/Y_o) + t/100(Z/Z_o) + \dots]$
Where
- P_o = Base Selling Price or original bid price as per the Bid Documents.
- P = Revised product price for the new future six month period.
 X_o = Base Period Factor for a selected index.
 X = Adjustment Factor for the same index.
 $r + s + t + \dots = 100$ = weighted proportion of selected index in revision formula

Following is an example of a revision formula. The parameters are defined below.

$$P = P_o \times [0.70 (E/E_o) + 0.30 (D/D_o)]$$

Product Price

P_o = Base Selling Price or original bid price as per the Bid Documents
P = Revised product price for the new future six month period.

Electric Power

E_o = Base Period Factor for Electric Power Distribution - East North Central

E = Adjustment Factor for Electric Power Distribution - East North Central
PPI Monthly Index - Series ID: PCU221122221122433, Not Seasonally Adjusted, Base Date: 9012

Diesel

D_o = Base Period Factor for #2 Diesel Fuel

D = Adjustment Factor for #2 Diesel Fuel
PPI Monthly Index - Series ID: WPU057303, Not Seasonally Adjusted, Base Date: 8200

GENERAL CONDITIONS

ESTIMATED QUANTITIES

Quantities stated are estimated and not guaranteed. The quantities stated will be used for award purposes only and are based up an average of actual annual usage.

DOWN PAYMENTS

Any bid proposal submitted which requires a down payment or prepayment of any kind prior to delivery and acceptance of the item, as being in conformance with the specifications will not be considered for award.

PURCHASE ORDER

The successful bidder will be issued a purchase order from the City of Ann Arbor, which will create a bilateral contract between the City and the successful bidder. The purchase order shall commit the bidder to perform the contract in accordance with the specifications and the terms and conditions of the purchase order.

The terms and conditions of the Purchase Order are provided herein.

CONTRACT TERM

The pricing provided for this ITB shall be firm for one (1) year. Upon mutual agreement between the City and the vendor the pricing provided in this ITB may be extended for two (2) additional one (1) year periods not to exceed three (3) years in total.

City of Ann Arbor: General Terms and Conditions

The following General Terms and Conditions shall apply.

Tax Exemption: The City of Ann Arbor is tax exempt, ID# 38-6004534.

Acceptance of Contract: This order is the City's contract to purchase the goods and services described on the reverse front side of this document from the Vendor. The City's placement of this order is expressly conditioned upon the Vendor's acceptance of all the terms and conditions of purchase contained on or attached to this purchase order. All specifications, drawings, and data submitted to the Vendor with this order are hereby incorporated and made part hereof.

Amendments: No agreement or understanding to modify this contract shall be binding upon the City unless in writing and signed by the City's authorized agent.

Delivery: All prices must be F.O.B. delivery point. Time is of the essence on this contract. If delivery dates cannot be met, the Vendor agrees to advise the City, in writing of the earliest possible shipping date. The City reserves the right to cancel or purchase elsewhere and hold the Vendor accountable.

Risk of Loss: Regardless of F.O.B. point, the Vendor agrees to bear all risk of loss, injury, or destruction of goods and materials ordered herein which may for any reason occur prior to delivery or acceptance by the City, whichever is later. No such loss, injury, or destruction shall release the Vendor from any obligations hereunder.

Inspection: Goods and materials must be properly packaged. Damaged goods and materials will not be accepted. The City reserves the right to inspect the goods at a reasonable time subsequent to delivery where circumstances or conditions prevent effective inspection of the goods at the time of delivery. All rejected goods shall be returned to the Vendor at no cost to the City, whether the damage is readily apparent at the time of delivery or later. The City's acceptance is conditioned on such inspection.

Patents and Copyrights: If an article sold and delivered to the City hereunder shall be protected by any applicable patent or copyright, the Vendor agrees to indemnify and save harmless the City, from and against any and all suits, claims, judgments, and costs instituted or recovered against it by any person whomsoever on account of the use or sale of such articles by the City in violation or right under such patent or copyright.

Uniform Commercial Code: All applicable portions of the Michigan Uniform Commercial Code shall govern contracts for goods with the City of Ann Arbor; except as modified by contract documents.

Non-waiver of Rights: No failure of either party to exercise any power given to it hereunder or to insist upon strict compliance by the other party with its obligations hereunder, and no custom or practice of the parties at variance with the terms hereof, nor any payment under this agreement shall constitute a waiver of either party's right to demand exact compliance with the terms hereof.

Material Safety Data Sheets: Applicable Material Safety Data Sheets, in compliance with OSHA/MIOSHA hazard communication regulations/standards, must be provided by the Vendor to the City at the time of purchase.

Assignments: The Vendor agrees not to assign or transfer this contract or any part thereof without the written consent of the City of Ann Arbor, acting through its authorized representative. Any unauthorized assignment may subject the contractor to immediate termination.

Laws Governing, Severability: This contract shall be governed by and construed according to the laws of the State of Michigan. Vendor agrees to submit to the jurisdiction and venue of the Circuit Court of Washtenaw County, MI, or if original jurisdiction is established, the U.S. District Ct. for Eastern District of MI, Southern Division. The Vendor stipulates venues referenced are convenient and waives any claim of non-convenience. If any term herein is found to be ineffective, unenforceable or illegal under any present or future laws, such term shall be fully severable, and the remaining terms shall not be affected and shall remain full force and effect.

Prevailing Wage: It shall be the responsibility of the Vendor to comply, when applicable, with the prevailing wage requirements and/or the Davis-Bacon Act as amended.

Living Wage: It shall be the responsibility of the Vendor to comply, when applicable, with the City of Ann Arbor's Living Wage Ordinance as defined in Chapter 23, Section 1:811-1:821.

Non-Discrimination: It shall be the responsibility of the Vendor to comply, when applicable, with, all State, Federal and Local non-discrimination laws, including MCL 37.2209 and Section 9:158 of the City Code.

Indemnification: To the fullest extent permitted by law the Vendor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result from any act or omission, associated with the performance of this contract by the Vendor or anyone acting on the Vendor's behalf under this contract. The Vendor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City's sole negligence. This indemnity survives delivery and acceptance of the Vendor's goods and services.

Warranty: The Vendor warrants to the City that all goods and services furnished hereunder will conform in all respects to the terms of this contract, including any drawings, specifications and standards incorporated herein. In addition, the Vendor warrants the goods and services are suitable for and will perform in accordance with the purposes for which they were intended.

Payment Terms: The City of Ann Arbor's payment terms are net 30. The payment date will be calculated based on the invoice receipt date or delivery date, whichever is later.

Payments: All invoices for goods and services shall be emailed to accountspayable@a2gov.org. Mailed invoices shall be addressed to the City of Ann Arbor, Accounts Payable, P.O. Box 8647, Ann Arbor, MI 48107, as indicated on the front of this purchase order. Invoices must include the Vendor's name, phone number, and clearly listed item descriptions, quantities and units of measure. The Vendor acknowledges and understands that invoices not addressed as stated above shall have the net 30 begin once the invoice is received by Accounts Payable.

Compliance with Laws: The Vendor certifies that in performing this contract it will comply with all applicable provisions of Federal, State and Local laws, regulations, rules and orders.

Termination for Cause: In the event the Vendor fails, at any time, to comply with, fully perform or strictly adhere to any covenant, condition or representation contained within the contract, the City shall have the right to give written notice to Vendor of such failure. If such failure is not cured to the City's satisfaction within ten (10) business days from the time of delivery to Vendor of such notice, the City shall have the right to terminate immediately without the requirement of a further notice.



Vendor Conflict of Interest Disclosure Form

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <hr/> <input type="checkbox"/> Interest in vendor's company <input type="checkbox"/> Other (please describe in box below)

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
<i>Tanner Industries, Inc.</i>	<i>(215) 322-1238</i>	
Vendor Name	Vendor Phone Number	
	<i>4/1/21</i>	<i>Matt Tanner</i>
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

**CITY OF ANN ARBOR
DECLARATION OF COMPLIANCE**

Non-Discrimination Ordinance

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.


In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy, including but not limited to an acceptable affirmative action program if applicable.
- (b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to ~~civil penalties~~ and termination of the awarded contract.

Tanner Industries, Inc.
Company Name

 4/1/21
Signature of Authorized Representative Date

Matt Tanner / Sales Administrator
Print Name and Title

735 Davisville Rd., Southampton, PA 18966
Address, City, State, Zip

(215) 322-1238 / sales@tannerind.com
Phone/Email Address

Questions about the Notice or the City Administrative Policy, Please contact:
Procurement Office of the City of Ann Arbor
(734) 794-6500

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below.
You can review the entire ordinance at www.a2gov.org/humanrights.

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at www.a2gov.org/humanrights. Then submit it to the Human Rights Commission by e-mail (hrc@a2gov.org), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at hrc@a2gov.org.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.

Tanner Industries, Inc. Bid Exceptions for ITB No. 4672:

**Pg. 13
Bid Form**

MONITORING: The successful Provider may provide a telemetry device(s) for tank monitoring that provides data to the Provider on tank level, so that ordering product is unnecessary and resupply is managed by the supplier according to the needs of the Water Treatment Plant. This device (these devices) will be ~~at no cost~~charged to the City of Ann Arbor accordingly based on what is needed.

Pg. 18 City of Ann Arbor: General Terms and Conditions

Indemnification: To the fullest extent permitted by law the Vendor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting ~~or alleged to result~~ from any negligent act or omission, associated with the performance of this contract by the Vendor or anyone acting on the Vendor's behalf under this contract. The Vendor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City's ~~sole~~-negligence. This indemnity survives delivery and acceptance of the Vendor's goods and services.

Warranty: Prior to delivery into City's storage vessel. The Vendor warrants to the City that all goods and services furnished hereunder will conform in all respects to the terms of this contract, including any drawings, specifications and standards incorporated herein. In addition, the Vendor warrants the goods and services are suitable for and will perform in accordance with the purposes for which they are intended.



April 9, 2021

To whom it may concern,

Tanner Industries, Inc. will supply you with Anhydrous Ammonia from Tanner's New Castle, PA facility. This material is NSF/ANSI certified, and meets the AWWA standards. You can also access the Official Listing online at www.nsf.org.

I hope this letter will satisfy your request. We look forward to working with you as quality partners, and if you have any questions, or require further information, please contact me.

Sincerely,

TANNER INDUSTRIES, INC.,

David Binder
Director of Quality, Safety and Regulatory Affairs



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, Third Floor
Southampton, PA 18966

Website: www.tannerind.com

Telephone (General): 215-322-1238
Corporate Emergency Telephone Number: 800-643-6226
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 4) Note: (1 - Most Severe / 4 - Least Severe)
Skin Corrosion / Irritation (Category 1B)
Serious Eye Damage / Irritation (Category 1)
Gases Under Pressure (Liquefied gas)
Flammable Gases (Category 2)
Acute Aquatic Toxicity (Category 1)

Pictogram:



Signal word: **Danger**

Hazard statements: Harmful if inhaled.
Causes severe skin burns and serious eye damage.
Flammable gas.
Contains gas under pressure; may explode if heated.
Very toxic to aquatic life.

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, 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.

In case of leakage: Eliminate all ignition sources, if safe to do so.

In case of leaking gas fire: Stop flow of gas before extinguishing.

Dispose of contents/container in accordance with local, regional, national, international regulations as applicable. See section 13 (Disposal Considerations).

NFPA Rating:

Health (Blue) - 3

Flammability (Red) - 1

Instability (Yellow) - 0

Special Hazards (White) - NA



Note: The degree of hazard for flammability may be 3 in a confined space.

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

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/m3)	18 mg/m3
Mexico	OEL TWA (ppm)	25 ppm
Mexico	OEL STEL (mg/m3)	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. Do not wear contact lenses when handling anhydrous ammonia. Refer to 29 CFR 1910.133 for OSHA eye protection requirements.

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

APPEARANCE AND ODOR:	Colorless liquid or gas with a pungent odor. Odor threshold 2 - 5 ppm.
SOLUBILITY IN WATER:	(per 100 pounds of water): 86.9 pounds at 32 °F, 51 pounds at 68 °F
SPECIFIC GRAVITY OF GAS (air = 1):	0.596 at 32 °F
SPECIFIC GRAVITY OF LIQUID (water = 1):	0.682 at -28 °F (Compared to water at 39 °F).
WEIGHT (per gallon):	5.15 pounds at 60 °F
PH:	Not applicable (Highly alkaline/base).
BOILING POINT:	-28 °F at 1 Atm.
FORMULA:	NH ₃
MOLECULAR WEIGHT:	17.03 (NH ₃)
FLAMMABILITY	
FLASHPOINT:	None
FLAMMABLE LIMITS OF VAPOR IN AIR:	LEL/UEL 16% to 25% (Listed in the <i>NIOSH Pocket Guide to Chemical Hazards</i> at 15% to 28%).
AUTO IGNITION TEMPERATURE:	1,204 °F (If catalyzed). 1,570 °F (If un-catalyzed).
CRITICAL TEMPERATURE:	271.4 °F
DECOMPOSITION TEMPERATURE:	-108.4 °F
GAS SPECIFIC VOLUME:	20.78 Ft ³ /Lb at 32 °F and 1 Atm.
VAPOR DENSITY:	0.0481 Lb/Ft ³ at 32 °F
LIQUID DENSITY:	38.00 Lb/Ft ³ at 70 °F
VISCOSITY:	0.00982 cP at 68 °F
EVAPORATION RATE:	Not applicable
APPROXIMATE FREEZING POINT:	-108 °F
VAPOR PRESSURE:	114 psig at 70 °F
SURFACE TENSION:	23.4 Dynes / cm at 52 °F
CRITICAL PRESSURE:	111.5 Atm
PARTITION COEFFICIENT:	-114 at 77 °F

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:

Anhydrous ammonia decomposes to hydrogen and nitrogen gases above 450 °C (842 °F). Decomposition temperatures may be lowered by contact with certain metals, such as iron, nickel and zinc and by catalytic surfaces such as porcelain and pumice.

Section 11. Toxicological Information

Potential health effects: Ammonia is an irritant and corrosive to the skin, eyes, respiratory tract and mucous membranes. Exposure to liquid or rapidly expanding gases may cause severe chemical burns and frostbite to the eyes, lungs and skin. Skin and respiratory related diseases could be aggravated by exposure. The extent of injury produced by exposure to ammonia depends on the duration of the exposure, the concentration of the liquid, gas or vapor and the depth of inhalation.

Exposure Routes:

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

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:

LC₅₀ - 5131 mg/m³ (7338 ppm) to 11,592 mg/m³ (16,600 ppm), 60 minute exposure, Rat.

LD₅₀ - 350 mg / kg (Oral / Rat).

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

14.1

US Department of Transportation (US Domestic)

HAZARD CLASS: 2.2, Non-Flammable Gas. (49 CFR 173.115)

PROPER SHIPPING NAME: Ammonia, Anhydrous

IDENTIFICATION NUMBER: UN 1005

LABEL / PLACARD: 2.2, Non-Flammable Gas



(Only as required by 49 CFR 172.322)

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.

14.2

International

HAZARD CLASS: 2.3 (Poison Gas), Subsidiary 8 (Corrosive)
PROPER SHIPPING NAME: Ammonia, Anhydrous
LABEL / PLACARD: 2.3, 8 / Poison Gas, Corrosive (Subsidiary)
IDENTIFICATION NUMBER: UN 1005
ADDITIONAL INFORMATION: Marine pollutant



ENVIRONMENTAL HAZARDS:

IMDG, Known Marine Pollutant: Yes
United Nations Model Regulations, Environmentally Hazardous: Yes

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 November 1, 2018.
Replaces Revision Date May 1, 2015.

Revised by: HJS

Revisions to this Safety Data Sheet

Section 2: Added note regarding the degree of hazard for flammability in a confined space.
Added note regarding the Hazardous Materials Identification System (HMIS).
Section 8: Reformatted and added information for Canada and Mexico.
Section 14.1: Updated information for Package Markings and added “Additional Information.”
Section 14.2: Updated “Additional Information” and “Environmental Hazards.”

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.



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 (NH₃) Assay	99.9965%	Minimum
Ammonia (NH₃) 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 **FB**

DIVISIONS

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

NSF International

RECOGNIZES

TANNER INDUSTRIES, INC.
Facility: NEW CASTLE, PA

AS COMPLYING WITH NSF/ANSI 60.
PRODUCTS APPEARING IN THE NSF OFFICIAL LISTING ARE
AUTHORIZED TO BEAR THE NSF MARK.



This certificate is the property of NSF International and must be returned upon request. For the most current and complete information, please access NSF's website (www.nsf.org).

A handwritten signature in black ink, appearing to read "D. Purkiss".

August 15, 2007
Certificate# 4H281 - 01

David Purkiss, General Manager
Water Distribution Systems