

CITY OF AURORA, ILLINOIS  
INVITATION TO BID 16-44

CHEMICALS FOR THE CITY OF AURORA  
WATER TREATMENT FACILITY

BID PROPOSAL FORM

**Bid Due Date & Time:** 2:00 p.m. CST, Wednesday, October 19, 2016

To: **City of Aurora**  
**City Clerk's Office**  
**44 E Downer Place**  
**Aurora, Illinois 60507**

The following offer is hereby made to the City of Aurora, Aurora, Illinois, hereafter called the Owner.

Submitted By:                     Matt Tanner                    

- I. The undersigned Vendor proposes and agrees, after having examined the specifications, quantities and other Bid documents, to irrevocably offer to furnish the materials, equipment and services in compliance with all terms, conditions, specifications and amendments (if applicable) contained in the bid solicitation documents. The items in this Invitation to Bid, including, but not limited to, all required certificates, are fully incorporated herein as a material and necessary part of the Bid.
  - A. The Vendor shall also include with their bid any necessary literature, samples, etc., as required within the Invitation to Bid, Instruction to Bidders and specifications.
  - B. For purposes of this offer, the terms Offeror, Bidder, Contractor, and Vendor are used interchangeably.

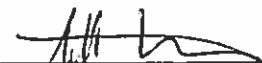
II. In submitting this Offer, the Vendor acknowledges:

- A. All bid documents have been examined: Instructions to Bidder, Specifications and the following addenda:

No. 1, No.       , No.       . (Vendor to acknowledge addenda here.)

- B. To be prepared to execute a contract with the City within ten (10) calendar days after approval by Aurora City Council.

Company Name:           Tanner Industries, Inc.          

Signature & Date:                     10/13/16

**CITY OF AURORA  
INVITATION TO BID 16-44  
CHEMICALS FOR THE CITY OF AURORA  
WATER TREATMENT FACILITY**

**BID PROPOSAL FORM**

Bidders may bid on any or all of the items. The Agreement term will be for a one-year period with a 2<sup>nd</sup> year extension option, subject to mutual administrative consent between the City of Aurora and the Bidder. Year 1 will be the period of January 1, 2017 through December 31, 2017. Year 2 will be the period of January 1, 2018 through December 31, 2018. Bidders shall familiarize themselves with the General Conditions, Special Conditions and the delivery destination.

All bids must be submitted on this bid form. The quantities listed are approximate:

**YEAR 1:**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL AMOUNT
1. Anhydrous Ammonia	40,000	Lbs.	<u>\$ .6850</u>	<u>\$27,400.00</u>
2. Liquid Ferric Chloride	1,100,000	Lbs.	_____	<u>No Bid</u>
3. Carbon Dioxide	1,400,000	Lbs.	_____	<u>No Bid</u>
4. Sodium Hypochlorite	280,000	Gals.	_____	<u>No Bid</u>
5. Calcium Oxide	5,400	Tons	_____	<u>No Bid</u>

**YEAR 2:**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL AMOUNT
1. Anhydrous Ammonia	40,000	Lbs.	<u>\$ .7100</u>	<u>\$28,400.00</u>
2. Liquid Ferric Chloride	1,100,000	Lbs.	_____	<u>No Bid</u>
3. Carbon Dioxide	1,400,000	Lbs.	_____	<u>No Bid</u>
4. Sodium Hypochlorite	280,000	Gals.	_____	<u>No Bid</u>
5. Calcium Oxide	5,400	Tons	_____	<u>No Bid</u>

Your Company's Name Tanner Industries, Inc.

**CITY OF AURORA**  
**16-44**  
**CHEMICALS FOR THE CITY OF AURORA**  
**WATER TREATMENT PLANT**  
**BID PROPOSAL FORM**

The Bidder shall furnish the chemicals, F.O.B. Aurora Water Treatment Plant, 1111 Aurora Avenue, Aurora, Illinois with freight allowed to destination.

The undersigned Bidder proposes to furnish all labor, materials, equipment and services to satisfactorily perform the above referenced contract.

If there is a discrepancy between the unit price and the total, the unit price will prevail. Designate below the telephone number and contact person who is to be notified for shipment request:

Telephone # 1-800-643-6226

Contact Person Customer Service

The bid price for material shall include shipping and shall remain firm for the duration of this contract year unless otherwise stated below. The City of Aurora reserves the right to limit quantities to meet the needs of the City.

No additional charges over total net bid price will be accepted without written approval of the Purchasing Director.

All bid prices shall be shown as delivered Aurora Destination, Prepaid and Allowed.

Do not add state, federal or local taxes. Municipalities are exempt. Exemption Certification Permit No. Illinois E9996-0842-07.

The City of Aurora reserves the right to reject any or all Bids, or parts thereof, and to waive any technicality, informality or irregularity in the Bids received, and to disregard all nonconforming or conditional Bids or counter-proposals and to hold the best Bids for ninety (90) days from the opening date set forth above. The City further reserves the right to award the Bid to the lowest responsible Bidder whose offer best responds in quality, fitness and capacity to the requirements of the proposed work or usage and therefore is in the best interest of the City.

**BID SUBMITTED BY:**

COMPANY Tanner Industries, Inc.

ADDRESS 735 Davisville Road

CITY, STATE, ZIP Southampton, PA 18966

PREPARER'S NAME Matt Tanner  
Please Type

CONTRACT PERSON Matt Tanner  
Please Type

AUTHORIZED SIGNATURE  Sales Administrator  
Title

PHONE # (215) 322-1228 FAX # (215) 322-7791 DATE 10/13/16

EMAIL: sales@tanncoind.com

**BIDDER'S CERTIFICATION**

I/We hereby certify that:

- A. A complete set of bid papers, as intended, has been received, and that I/We will abide by the contents and/or information received and/or contained herein.
- B. I/We have not entered into any collusion or other unethical practices with any person, firm, or employee of the City which would in any way be construed as unethical business practice.
- C. I/We have adopted a written sexual harassment policy which is in accordance with the requirements of Federal, State and local laws, regulations and policies and further certify that I/We are also in compliance with all other equal employment requirements contained in Public Act 87-1257 (effective July 1, 1993) 775 ILCS 5/2-105 (A).
- D. I/We operate a drug free environment and drugs are not allowed in the workplace or satellite locations as well as City of Aurora sites in accordance with the Drug Free Workplace Act of January, 1992.
- E. The Bidder is not barred from bidding on the Project, or entering into this contract as a result of a violation of either Section 33E-3 or 33E-4 of the Illinois Criminal Code, or any similar offense of "bid rigging" or "bid rotating" of any state or the United States.
- F. I/We will abide by all other Federal, State and local codes, rules, regulations, ordinances and statutes.

COMPANY NAME Tanner Industries, Inc.

ADDRESS 735 Davisville Road

CITY/STATE/ZIP CODE Southampton, PA, 18966

NAME OF CORPORATE/COMPANY OFFICIAL Matt Tanner

PLEASE TYPE OR PRINT CLEARLY

TITLE Sales Administrator

AUTHORIZED OFFICIAL SIGNATURE 

DATE 10/13/16

TELEPHONE ( 215 ) 322-1238

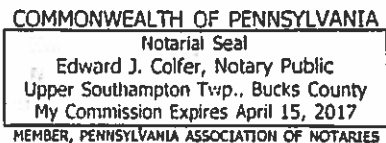
FAX No. ( 215 ) 322-7791

Subscribed and Sworn to

Before me this 13<sup>th</sup> day

of OCTOBER, 2016

Edward J. Colfer  
Notary Public



STATE OF ILLINOIS )  
 )  
County of Kane ) ss.

**BIDDER'S TAX CERTIFICATION**

(BIDDER'S EXECUTING OFFICER), being first duly sworn on oath, deposes and states that all statements made herein are made on behalf of the BIDDER, that this despondent is authorized to make them and that the statements contained herein are true and correct.

Bidder deposes, states and certifies that Bidder is not barred from contracting with any unit of local government in the State of Illinois as result of a delinquency in payment of any tax administered by the Illinois Department of Revenue unless Bidder is contesting, in accordance with the procedures established by the appropriate statute, its liability for the tax or the amount of the tax, all as provided for in accordance with 65 ILCS 5/11-42.1-1.

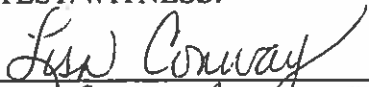
DATED this 13<sup>th</sup> day of October, 2016.

By   
(Signature of Bidder's Executing Officer)

Mutt Tanner  
(Print name of Bidder's Executing Officer)

Sales Administrator  
(Title)

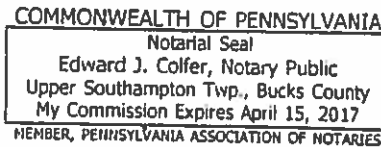
ATTEST/WITNESS:

By   
Title Sales Administrator

Subscribed and sworn to before me this  
13<sup>th</sup> day of OCTOBER, 2016.

Edward J. Colfer  
Notary Public

(SEAL)



CITY OF AURORA, ILLINOIS  
INVITATION TO BID 16-44

CHEMICALS FOR THE CITY OF AURORA  
WATER TREATMENT PLANT

CONTACT INFORMATION

Vendor shall provide the following contact information assigned to service the City of Aurora account.

Customer Service/General Information: Ph: 1-800-643-6226

To place an order:

Name: Heather Kirby

Ph: 1-800-643-6226 ext: 2330 Fax: \_\_\_\_\_

E-mail: Hkirby@tannerind.com

Billing & Invoicing question:

Name: Ed Colfer

Ph: 315-322-1238 ext. 2060 Fax: \_\_\_\_\_

E-mail: EColfer@tannerind.com


Questions:

Name: Matt Clutter

Ph: 608-209-2748 Fax: \_\_\_\_\_

E-mail: MClutter@tannerind.com

Bidder's Name: Matt Tanner

Signature & Date:  10/13/16

CITY OF AURORA, ILLINOIS  
INVITATION TO BID 16-44

CHEMICALS FOR THE CITY OF AURORA  
WATER TREATMENT PLANT

REFERENCES

(Please Type)  
Organization Diamond Heat Treat  
Address 3691 Publishers Drive  
City, State, Zip Rockford, IL 61109  
Phone Number (815) 873-1348  
Contact Person Bill Downing  
Date of Project 10 + Years


\*\*\*\*\*

Organization Leech Lake Water Dept.  
Address #8 North Water Street  
City, State, Zip Leech Lake, IA 52639  
Phone Number (319) 524-5397  
Contact Person Jim Maddox  
Date of Project 15 + Years

\*\*\*\*\*

Organization Rock Island Water Dept.  
Address 2215 10<sup>th</sup> Ave  
City, State, Zip Rock Island, IL 61201  
Phone Number (309) 732-2310  
Contact Person Jason Upton  
Date of Project 10 + Years

\*\*\*\*\*

Bidder's Name: Matt Tanner  
Signature & Date:  10/13/16

# **APPENDIX G**

## **CONTRACT**



**CITY OF AURORA AGREEMENT FOR  
CHEMICALS FOR THE CITY OF AURORA WATER TREATMENT PLANT  
INVITATION TO BID 16-44**

**THIS AGREEMENT**, entered on this \_\_\_\_\_ day of \_\_\_\_\_, 2016 ("Effective Date"), for the Chemicals for the City of Aurora Water Treatment Plant ("Services") is entered into between the **CITY OF AURORA** ("City"), a municipal corporation, located at 44 E. Downer Place, Aurora, Illinois and ("Bidder"), located at \_\_\_\_\_.

**WHEREAS**, the City issued an Invitation to Bid ("Bid") on September 28, 2016 for the Chemicals for the City of Aurora Water Treatment Plant located at 1111 Aurora Avenue, Aurora, IL; and

**WHEREAS**, the Bidder submitted a Bid Proposal in response to the Bid and represents that it is ready, willing and able to perform the Services specified in the Bid and herein as well as any additional services agreed to and described in the Agreement; and

**WHEREAS**, on \_\_\_\_\_, the City awarded a contract to Bidder.

**IN CONSIDERATION** of the mutual promises and covenants herein contained, the parties hereto do mutually agree to the following:

1. **Agreement Documents.** The Agreement shall be deemed to include this document, Bidder's response to the Bid, to the extent it is consistent with the terms of the Bid, any other documents as agreed upon by the parties throughout the term of this Agreement, along with any exhibits, all of which are incorporated herein and made a part of this Agreement. In the event of a conflict between this Agreement and any exhibit, the provisions of this Agreement shall control.

Invitation to Bid 16-44

In connection with the Bid and this Agreement, Bidder acknowledges that it has furnished and will continue to furnish various certifications, affidavits and other information and reports, which are incorporated herein. Bidder represents that such material and information furnished in connection with the Bid and this Agreement is truthful and correct. Bidder shall promptly update such material and information to be complete and accurate, as needed, to reflect changes or events occurring after the Effective Date of this Agreement.

2. **Scope of Services.** Bidder shall perform the Services listed in the Instructions to Bidders and Special Conditions, attached hereto as Exhibit 1.

3. **Term.** Year 1 of the contract period will be from January 1, 2017 through December 31, 2017. Year 2 of the contract period will be from January 1, 2018 through December 31, 2018.

4. **Compensation.**

a. **Maximum Price.** In accordance with the Bidder's Bid, the maximum price for providing the Services shall be:

<u>Item</u>	<u>Unit Price</u>	<u>Contract Period</u>
_____	_____	January 1 through December 31, 2017
_____	_____	January 1 through December 31, 2018

Price shall remain firm for the entire contract period.

b. **Schedule of Payment.** The City shall pay the Bidder for the Services in accordance with the amounts set forth in Exhibit 2. The Bidder shall be required to submit an itemized invoice as well as any supporting documentation as required by the City. Payment shall be made upon the basis of the approved invoices and supporting documents. The City shall utilize its best efforts to make payment within forty-five (45) days after approval of the invoice. Each invoice shall be accompanied by a statement of the Bidder of the percentage of completion of the Services through the date of the invoice.

5. **Performance of Services.**

**Standard of Performance.** Bidder shall perform all Services set forth in this Agreement, and any other agreed documents incorporated herein, with the degree, skill, care and diligence customarily required of a professional performing services of comparable scope, purpose and magnitude and in conformance with the applicable professional standards. Bidder shall, at all times, use its best efforts to assure timely and satisfactory rendering and completion of the Services. Bidder shall ensure that Bidder and all of its employees or subcontractors performing Services under this Agreement shall be: (i) qualified and competent in the applicable discipline or industry; (ii) appropriate licensed as required by law; (iii) strictly comply with all City of Aurora, State of Illinois, and applicable federal laws or regulations; (iv) strictly conform to the terms of this Agreement. Bidder shall, at all times until the completion of the Services, remain solely responsible for the professional and technical accuracy of all Services and deliverables furnished, whether such services are rendered by the Bidder or others on its behalf, including, without limitation, its subcontractors. No review, approval, acceptance, nor payment for any and all of the Services by the City shall relieve the Bidder from the responsibilities set forth herein.

6. **Termination.**

**Termination for Convenience.** The City has the right to terminate this Agreement, in whole or in part, for any reason or if sufficient funds have not been appropriated to cover the estimated requirement of the Services not yet performed, by providing Bidder with thirty (30) days notice specifying the termination date. On the date specified, this Agreement will end. If this Agreement is terminated by the City, as provided herein, the City shall pay the Bidder only for services performed up to the date of termination. After the termination date, Bidder has no further contractual claim against the City based upon this Agreement and any payment so made to the Bidder upon termination shall be in full satisfaction for Services rendered. Bidder shall deliver to the City all finished and unfinished documents, studies and reports and shall become the property of the City.

7. Miscellaneous Provisions.

a. **Illinois Freedom of Information Act.** The Bidder acknowledges the requirements of the Illinois Freedom of Information Act (FOIA) and agrees to comply with all requests made by the City of Aurora for public records (as that term is defined by Section 2(c) of FOIA in the undersigned's possession and to provide the requested public records to the City of Aurora within two (2) business days of the request being made by the City of Aurora. The undersigned agrees to indemnify and hold harmless the City of Aurora from all claims, costs, penalty, losses and injuries (including but not limited to, attorney's fees, other professional fees, court costs and/or arbitration or other dispute resolution costs) arising out of or relating to its failure to provide the public records to the City of Aurora under this agreement.

b. **Entire Agreement.** This Agreement, along with the documents set forth in Section 1 and incorporated by reference elsewhere in this Agreement, with consent of the parties, represents the entire agreement between the parties with respect to the performance of the Services. No other contracts, representations, warranties or statements, written or verbal, are binding on the parties. This Agreement may only be amended as provided herein.

c. **Consents and Approvals.** The parties represent and warrant to each other that each has obtained all the requisite consents and approvals, whether required by internal operating procedures or otherwise, for entering into this Agreement and the undertakings contemplated herein.

d. **Counterparts.** This Agreement may be executed in one or more counterparts, each of which shall be an original, but all of which shall constitute one and the same instrument.

FOR CITY OF AURORA

By: \_\_\_\_\_

ATTEST:

\_\_\_\_\_  
City Clerk

FOR \_\_\_\_\_

By \_\_\_\_\_

(If a Corporation) CORPORATE NAME \_\_\_\_\_

(SEAL)

By \_\_\_\_\_  
President – Contractor

ATTEST:

\_\_\_\_\_  
Secretary

(If a Co-Partnership)

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Partners doing Business under the firm

\_\_\_\_\_  
Contractor

(If an Individual)

\_\_\_\_\_ (SEAL)

\_\_\_\_\_ (SEAL)  
Contractor

**CITY OF AURORA  
CHEMICALS FOR THE CITY OF AURORA WATER TREATMENT PLANT  
INVITATION TO BID 16-44**

**EXHIBIT 1**

**(INVITATION TO BID)**

**CITY OF AURORA  
CHEMICALS FOR THE CITY OF AURORA WATER TREATMENT PLANT  
INVITATION TO BID 16-44**

**EXHIBIT 2**

**(BID PROPOSAL FORM 16-44)**



# TANNER INDUSTRIES, INC.

735 DAVISVILLE ROAD, THIRD FLOOR  
SOUTHAMPTON, PA 18966-3200  
215-322-1238 FAX 215-322-7725  
www.tannerind.com

October 13, 2016

City of Aurora  
Aurora, IL 60507  
Bid No. 16-44

Dear Sir:

This is to certify that Matthew Tanner has the corporate authority to enter into agreements/contracts for Tanner Industries, Inc.

If there is a need for additional information, please call 1-800-643-6226

Sincerely,  
**Tanner Industries, Inc.**

Eric Hindawi  
Secretary Treasurer

**Tanner Industries, Inc. Bid Exceptions for Bid 16-44:**

**Pg. 12 – 28. Insurance and Hold Harmless Provision**

The Bidder agrees to indemnify and save harmless the City of Aurora, their agents and employees from and against all loss and expenses (including costs and reasonable attorneys' fees) by reason of liability imposed by law or claims made upon the City of Aurora for damages because of bodily injury, including death at any time resulting therefrom sustained by any person or persons or on account of damage to property, including loss of use thereof, to the extent arising out of or in consequence of the negligent performance of this project work, whether such claims or injuries to persons or damage to property be due to the negligence of the Bidder or his Subcontractors. The Bidder shall assume total risk and shall be responsible for any and all damages or losses caused by or in any way resulting from the Bidder's negligent performance of the work and provide all insurance necessary to protect and save harmless the City of Aurora and its employees.





# 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

<b>Metallurgical Grade</b>		
<b>Ammonia ( NH<sub>3</sub> ) Assay</b>	<b>99.9965%</b>	<b>Minimum</b>
<b>Ammonia ( NH<sub>3</sub> ) Assay</b>	<b>99.9990%</b>	<b>Typical</b>
<b>Water</b>	<b>33 ppm</b>	<b>Maximum</b>
<b>Water</b>	<b>&lt;10 ppm</b>	<b>Typical</b>
<b>Oil</b>	<b>2 ppm</b>	<b>Maximum</b>
<b>Oil</b>	<b>1 ppm</b>	<b>Typical</b>

Revision: August 01, 2009  
Supercedes: June 01, 2001  
Approval: QC/QA **FB**

# NSF International

RECOGNIZES

TANNER INDUSTRIES, INC.

Plant at: BELVIDERE, IL

AS COMPLYING WITH NSF/ANSI 60.

PRODUCTS APPEARING IN THE NSF OFFICIAL LISTING ARE  
AUTHORIZED TO BEAR THE NSF MARK.



Certification Program  
Accredited by the  
American National  
Standards Institute



Certification Program  
Accredited by the  
Standards Council  
of Canada

This certificate is the property of NSF International and must be returned upon request. To verify certification, call 800 NSF MARK or (1-734-769-8300)

March 11, 2002

Certificate# 0L262 - 01

A handwritten signature in cursive script, appearing to read "James R. Paschal".

James R. Paschal, General Manager  
Water Distribution Systems



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](http://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:



HMIS Classification:

ANHYDROUS AMMONIA	
HEALTH	3
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	H

NFPA Numbering System:

0 = Least Hazardous / 4 = Most Hazardous

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 (CO<sub>2</sub>) 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<sub>x</sub>).

## **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)

OSHA	50 ppm,	35 mg / m <sup>3</sup> PEL	8 hour TWA
NIOSH	35 ppm,	27 mg / m <sup>3</sup> STEL	15 minutes
	25 ppm,	18 mg / m <sup>3</sup> REL	10 hour TWA
	300 ppm,	IDLH	
ACGIH	25 ppm,	18 mg / m <sup>3</sup> TLV	8 hour TWA
	35 ppm,	27 mg / m <sup>3</sup> STEL	15 minutes

### 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

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

LC<sub>50</sub> - 5131 mg/m<sup>3</sup> (7338 ppm) to 11,592 mg/m<sup>3</sup> (16,600 ppm), 60 minute exposure, Rat.

LD<sub>50</sub> - 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 NH<sub>3</sub>.

Aquatic plants: LOEC = 0.5-500 mg NH<sub>3</sub>-N/L.

Acute toxicity to invertebrates: 48 h LC50 = 2.94 mg un-ionized NH<sub>3</sub>-N/L.

Chronic toxicity to invertebrates: NOEC = 0.163- 0.42 mg un-ionized NH<sub>3</sub>/L.

Acute toxicity to fish: 96-h: LC50 = 0.09 – 3.51 mg un-ionized NH<sub>3</sub>/L.

Chronic toxicity to fish: NOEC = 0.025-1.2 mg un-ionized NH<sub>3</sub>/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 Department of Transportation

#### HAZARD CLASS:

(US Domestic): 2.2 (Non-Flammable Gas)

(International): 2.3 (Poison Gas), subsidiary 8 (Corrosive)

#### PROPER SHIPPING DESCRIPTION:

(US Domestic): UN1005, Ammonia, Anhydrous, 2.2, RQ, Inhalation Hazard

(International): UN1005, Ammonia, Anhydrous, 2.3, (8), RQ, Poison-Inhalation Hazard Zone "D"

#### LABEL / PLACARD:

(US Domestic): Non-Flammable Gas



(International): Poison Gas, Corrosive (Subsidiary)



#### IDENTIFICATION NUMBER:

UN 1005

#### ENVIRONMENTAL HAZARDS:



IMDG, Known Marine Pollutant: No  
United Nations Model Regulations, Environmentally Hazardous: No

#### 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.

Toxic Substances Control Act (TSCA): Listed in the TSCA 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 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 May 1, 2015  
Replaces all previously dated versions.

Prepared by: HJS

Revisions to this Safety Data Sheet have been created to comply with the requirements of the OSHA Hazard Communication Final Rule issued in 2012 (HazCom 2012).

#### 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.