

***INVITATION TO BID  
FROM  
ST. BERNARD PARISH***

***St. Bernard Parish Government  
Department Of Public Works  
1125 East St. Bernard Highway  
Chalmette, Louisiana 70043***



***Specifications***

***Bid for Chemicals for St. Bernard Parish Government, Department of Public Works,  
Water and Sewer Division***

**Liquid Chlorine (150 lb. Cylinders)  
Anhydrous Ammonia**

**Prepared By:  
Department of Public Works  
St. Bernard Parish Government  
1125 East St. Bernard Highway  
Chalmette, Louisiana 70043**



## GENERAL CONDITIONS

1. It is the policy of the St. Bernard Parish Government not to do business with any firm, individual, partnership or corporation employing or owned by any individual who is an employee of the St. Bernard Parish Government.
2. St. Bernard Parish Government encourages the participation of small businesses and businesses owned by women and minorities in the parish's procurement activity.
3. St. Bernard Parish is tax exempt. All prices for procurement by St. Bernard Parish Government for supplies and materials shall be quoted in the unit measure specified unless otherwise specified shall be exclusive of state and parish taxes.
4. All delivery charges must be included in all bids unless it is stated in the bid package that the St. Bernard Parish Government will pick up all materials.
5. Contract will be for a one year period with an option to renew for an additional one year. Contract Renewal must be mutually agreed upon by both parties.
6. St. Bernard Parish reserves the right to cancel at any time for any reason by issuing a thirty day written notice to the vendor.
7. Bid shall be good and may not be withdrawn for a period of 45 calendar days after the scheduled closing time for receiving of Bids.
8. Bids may be withdrawn by the bidder if done by affidavit within 48 hours of bid opening, but only for patently obvious, unintentional and substantial mechanical clerical or mathematical errors.
9. St. Bernard Parish reserves the right to reject any or all bids
10. Bids will be received as stated in the Advertisement for Bids. It is the sole responsibility of the bidder to submit the bid to the designated time and place. Bids received after closing time will be returned unopened to the Bidder.
11. Bid to be awarded to lowest responsive/responsible bidder meeting specifications on each item.
12. Bid must be enclosed in a sealed envelope with the submitting company name and address as well as the project title "Bid for Chemicals for St. Bernard Parish Government, Department of Public Works, Water and Sewer Division" on the outside of the envelope.

13. The Non-Collusion Affidavit and Statutory Affidavit must be completed and notarized. Both affidavits must be returned with the bid.
14. The Employment Letter must be completed and returned with the bid.
15. The bid form must be properly signed by the Bidder. A corporate resolution must be submitted with the bid or the person signing the bid documents must be listed on the Louisiana Secretary of State's website. If bidder is registered out of state of Louisiana, a corporate resolution must be submitted with the bid. Satisfactory evidence of the authority of the person signing on behalf of the individual, firm or partnership must be attached. Failure to comply will cause bid to be rejected and the Parish reserves the right to award bid to the next lowest responsive and responsible bidder in the event. A sample corporate resolution is enclosed in the bid package.
16. Quantities listed are for bidding purposes only. Quantities may be more or less than quantities listed.
17. If addenda(s) are issued, Bidder must acknowledge Addenda on the Bid Form
18. All invoices must be mailed as follows:

St. Bernard Parish Government  
Accounts Payable Department  
8201 West Judge Perez Drive  
Chalmette, Louisiana 70043

STATUTORY AFFIDAVIT  
Required by RS 38:2224

*Pennsylvania*  
STATE OF ~~LOUISIANA~~

PARISH OF Bucks BEING FIRST

DULY SWORN, DEPOSES AND SAYS:

THAT HE IS Sales Administrator OF  
Tanner Industries, Inc.  
(CONTRACTOR)

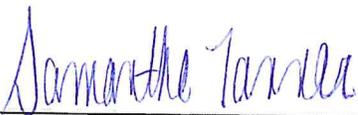
(1) That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and

(2) That no part of the contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for affiant.

  
(SIGNATURE OF BIDDER)

THE ABOVE STATEMENTS MUST BE SUBSCRIBED AND SWORN TO BEFORE A NOTARY PUBLIC.

SUBSCRIBED AND SWORN TO THIS 21<sup>st</sup> DAY OF December,  
2022.

  
NOTARY PUBLIC

Commonwealth of Pennsylvania - Notary Seal  
Samantha Tanner, Notary Public  
Bucks County  
My commission expires July 19, 2023  
Commission number 1349030  
Member, Pennsylvania Association of Notaries

NON-COLLUSION  
AFFIDAVIT

*Pennsylvania*  
STATE OF ~~LOUISIANA~~

PARISH OF *Bucks* BEING FIRST

DULY SWORN, DEPOSES AND SAYS:

THAT HE IS *sales Administrator* OF

*Tanner Industries, Inc.*  
(CONTRACTOR)

THE PARTY MAKING THE FOREGOING PROPOSAL OR BID, THAT SUCH BID IS GENUINE AND NOT COLLUSIVE, NOR A SHAM; THAT SAID BIDDER HAS NOT COLLUDED, CONSPIRED, CONNIVED, OR AGREED, DIRECTLY OR INDIRECTLY, WITH ANY BIDDER OR PERSON, TO PUT IN A SHAM BID OR TO REFRAIN FROM BIDDING, AND HAS NOT IN ANY MANNER DIRECTLY OR INDIRECTLY, SOUGHT BY AGREEMENT OR COLLUSION, OR COMMUNICATION OR CONFERENCE, WITH ANY PERSON, TO FIX THE BID PRICE ELEMENT OR SAID BID, OR OF THAT OF ANY OTHER BIDDER OR TO SECURE ANY ADVANTAGE AGAINST ANY OTHER BIDDER OR TO ANY PERSON INTERESTED IN THE PROPOSED CONTRACT; AND THAT ALL STATEMENTS CONTAINED IN SAID PROPOSAL OR BID ARE TRUE.

*[Handwritten Signature]*

(SIGNATURE OF BIDDER)

THE ABOVE STATEMENTS MUST BE SUBSCRIBED AND SWORN TO BEFORE A NOTARY PUBLIC.

SUBSCRIBED AND SWORN TO THIS *21st* DAY OF *December*, 20*22*.

*Samantha Tanner*  
NOTARY PUBLIC

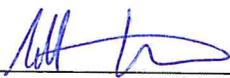
Commonwealth of Pennsylvania - Notary Seal  
Samantha Tanner, Notary Public  
Bucks County  
My commission expires July 19, 2023  
Commission number 1349030  
Member, Pennsylvania Association of Notaries

EMPLOYMENT LETTER

Department of Public Works  
St. Bernard Parish Government  
1125 East St. Bernard Highway  
Chalmette, Louisiana 70043

This is to certify that no one employed by this organization, or having an owner relationship with this organization, is an employee of the St. Bernard Parish Government.

I further assure you that we will not make any payments to any employees or elected officials of St. Bernard Parish as a result or a condition of doing business with the St. Bernard Parish Government.

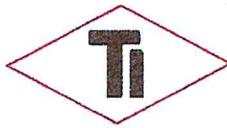
Signed 

Name Matt Tanner  
(print or type)

Title Sales Administrator

Company Tanner Industries, Inc.

Date 12/20/22



# TANNER INDUSTRIES, INC.

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

December 20, 2022

Department of Public Works  
St. Bernard Parish Government  
1125 East St. Bernard Highway  
Chalmette, Louisiana 70043

Excerpt from minutes of meeting of the board of directors of Tanner Industries, Inc.

At the meeting of directors of Tanner Industries, Inc, duly noticed and held on December 20, 2022, a quorum being there present, on motion duly made and seconded. It was:

Resolved. That Matt Tanner, be and is hereby appointed, constituted and designated as agent and attorney-in-fact of the corporation with full power and authority to act on behalf of this corporation in all negotiations, bidding, concerns and transactions with the Parish of St. Bernard or any of its agencies, departments, employees or agents, including but not limited to the execution of all bids, papers, documents, affidavits, bonds, sureties, contracts and acts and to receive and receipt therefore all purchase orders and notices issued pursuant to the provisions of any such bid or contract, this corporation hereby ratifying, approving, confirming and accepting each and every such act performed by said agent and attorney-in-fact.

I hereby certify the foregoing to be a true and correct copy of an excerpt of the minutes of the above dated meeting of the board of directors of said corporation, and the same has not be revoked or rescinded.

Sincerely,  
**Tanner Industries, Inc.**

Eric Hindawi  
Secretary Treasurer

## Specifications

### **Item A      Liquid Chlorine (150 Lb. Cylinders)**

Product must be shipped in 150 lb. cylinders. Chlorine needs to be delivered within five days of placement of order. Minimum shipment of 15 cylinders.

### **Item B      Anhydrous Ammonia**

Product must meet E.P.A and A.W.W.A. approval for use in potable water treatment. Product must be delivered to owner via supplier supplied 500-gallon tank.

Metallurgical Grade (M Grade)  
Ammonia Assay: 99.9965 Min  
Ammonia Assay: 99.999 Typical  
Water (ppm): 33 Max  
Water (ppm): 10 Typical  
Oil (ppm): 2 Max  
Oil (ppm): 1 Typical

**All prices quoted on items A and B shall include shipping charges.**

Special Conditions – Deliveries

1. Item A shall be delivered to the following address:

Reggio Booster Pump Station  
4400 East Louisiana Highway 46  
St. Bernard, Louisiana 70085

2. Item B shall be delivered to the following address:

St. Bernard Parish Government  
Department of Public Works  
Water and Sewer Division  
1111 East St. Bernard Highway  
Chalmette, Louisiana 70043

BID FORM

St. Bernard Parish Government  
Department of Public Works  
1125 East St. Bernard Highway  
Chalmette, Louisiana 70043

Ladies/Gentlemen,

Having examined the Specifications the undersigned in compliance with your invitation to bid hereby proposed to furnish the following for the price listed below:

Item No.	Description	Unit Price	Quantity	Total
A.	Liquid Chlorine (150 lb. Cylinders)	\$ _____ lb.	5,475 lbs.	\$ <u>No Bid</u>
B.	Anhydrous Ammonia	\$ <u>1.34</u> lb.	31,025 lbs.	\$ <u>41,573.50</u>

Quantities are estimates only on a per annual contract

The undersigned agrees that this Bid shall be good and may not be withdrawn for a period of 45 calendar days after the scheduled closing time for receiving of Bids.

The following additional items are attached to this Bid Form:

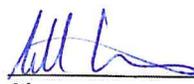
- a) Non-Collusion Affidavit
- b) Statutory Affidavit
- c) Employment Letter
- d) Satisfactory evidence of the authority of person signing bid/proposal form. (As per General Conditions – Item No. 15)

The Bidder acknowledges receipt of, and makes part of this Proposal, the following addenda:

\_\_\_\_\_

Tanner Industries, Inc.  
Company's Name

735 Davicville Rd, Southampton, PA 18966  
Address

  
Signature

(215) 322-1238  
Telephone Number

sales @ tannerind.com  
Title

sales @ tannerind.com  
E-Mail address

## EQUIPMENT LEASE AGREEMENT

THIS AGREEMENT made as of this 2nd day of April, 2014 between **Tanner Industries, Inc.** ("Lessor") and **St. Bernard Parish** ("Lessee").

The equipment and accessories (the [Equipment]) leased pursuant to the Agreement are the following:

**One (1) 500 water gallon anhydrous ammonia storage tank with 7.5KW/ 480 Volt Vaporizer Assembly.**

The initial term of this lease shall be for a period of 24 months commencing on April, 2014. Thereafter, this lease shall continue from year to year unless terminated by either party on 30 days prior written notice.

Rent for the Equipment shall be **\$ 200.00** per month payable upon receipt of invoice.

The Equipment will be installed at Lessee's premises at

**1111 East St. Bernard Highway, St. Bernard, LA. 70043**

Lessee owns/leases those premises.

The Equipment will only be used to store Lessor's Anhydrous Ammonia unless Lessor first consents in writing to the contrary.

Lessor will arrange to have the Equipment shipped to Lessee with transportation charges from location of manufacture or storage to Lessee's plant paid by Lessee.

Lessee will be responsible for the installation of the Equipment, including the installation of appropriate foundations, fences and other site preparations, and Lessee will maintain all installation materials in good condition. Lessee will install, maintain and use the Equipment in compliance with all applicable laws and regulations. Lessee is responsible for controlling external corrosion and the general maintenance of the Equipment covered by this Agreement which includes repainting of the Equipment where appropriate.

Lessor will bear the cost to replace gauges, valves, fittings, vaporizers and heaters, if any, supplied with the Equipment only if the need for replacement is due to normal wear and tear, and not as a result of Lessee's negligence or failure to properly maintain the Equipment in which case the cost of replacement shall be Lessee's responsibility.

Lessee will be responsible for any license and/or inspection fees or taxes arising out of its possession or use of the Equipment; and for all risk of loss to the Equipment during the period of Lessee's possession of the equipment, including the period of installation, removal, and transportation back to Lessor's terminal/warehouse facilities following removal, including any applicable costs associated with the off loading of the vessel on our premises i.e. crane charges.

It is the responsibility of Lessee to comply with all regulatory obligations including, but not limited to, registrations and fees, training and reporting requirements under all Federal, State and Local laws, codes and statutes resulting from the presence of the chemicals and/or equipment supplied in connection with this agreement.

Further, it is the responsibility of the Lessee to warn and protect its employees and others exposed to the hazards posed by the Lessee's storage and use of those chemicals.

Lessor reserves the right to have the Equipment removed at any time after Lessee has breached this Agreement or the Agreement is otherwise terminated. If at any time Lessee has breached this agreement Lessor shall accelerate the due date for the payment of all rent remaining to be paid, from and after the occurrence of the event of default to the expiration of the term of the lease, and such amount shall be paid to Lessor on demand as liquidated damages for Lessee's default, in addition to all sums due and unpaid as of the date of the event of default.

If the Equipment is removed for any reason, Lessee will bear the reasonable cost of removal and transportation to Lessor's nearest terminal/warehouse facility (or to such other facility as is designated by Lessor), including any applicable costs associated with the off loading of the vessel on our premises i.e. crane charges, and of any necessary repairs needed to the vessel.

Title to the Equipment shall at all times remain in Lessor and the Equipment shall remain personal property irrespective of the manner of installation and if the Equipment is installed on leased premises Lessee agrees to obtain at Lessor's request a "Landlord's Waiver" with respect to the Equipment in form satisfactory to Lessor. Lessee will not create, or permit the creation or perfection of any charge, lien or encumbrance on the Equipment.

Lessor shall have access at all times to the Equipment for the purpose of inspecting and maintaining it.

Lessee agrees (a) to make neither permanent additions nor alterations to Equipment without Lessor's written consent; (b) not to deliver possession of the Equipment or any part thereof to any party other than Lessor; (c) to keep legible and visible all trademarks, marks of ownership, and warnings on the Equipment; (d) not to assign this Agreement or any interest therein or right thereunder without Lessor's prior written consent; (e) to execute such security instruments as Lessor may reasonably require including, but not limited to, proper financing statements; and (f) to reimburse Lessor for the full replacement cost of the Equipment in the event of its loss or loss of its manufacture's data plate, said replacement cost to be that in effect at the time Lessor is notified of such loss, or in the absence of notification, at the time of termination of this lease.

Lessee shall use the Equipment to store Lessor's product of the kind described and will not use the equipment for any other

covenants herein. It is expressly understood and agreed that the indemnities contained in this paragraph covers claims by Lessee's employees. Nothing herein however, shall be construed as applying to any loss or liability arising out of or resulting from the sole negligence of the Lessor. Lessee agrees to carry the following insurance coverage during the period of the lease;

- A. Workers' Compensation Insurance which provides statutory limits and employee liability coverage with limits of \$500,000. for each accident and each employee by disease.
- B. Commercial General Liability Insurance with a minimum limit of liability of \$1,000,000.00 each occurrence, \$1,000,000.00 Product/Completed Operations Aggregate Limits and \$2,000,000.00 General Aggregate Limits.
- C. Commercial Automobile Liability Insurance including owned, hired and non-owned vehicles with a minimum limit of \$1,000,000.00 each accident.
- D. Property Insurance evidencing special causes of loss coverage on the above Equipment.
- E. Any other insurance as may be required by Law.

Such insurance shall include contractual liability insuring the indemnity agreements contained in this contract and name Lessor, its agents, employees, representatives, officers, directors, stockholders and affiliated companies as Additional Insureds on a primary, non-contributory basis, except for that insurance listed in A. above. Lessee further agrees to provide Lessor with insurance certificates evidencing such coverage from insurance company or companies, with an A rating or better, authorized to do business in the state where Lessor has located the Equipment. Lessor will be given 30 days written notice of cancellation or reduction of any insurance coverage.

Each party to this agreement and its respective insurance carriers hereby waive all rights of subrogation against the other for loss or damage to each respective party's building, equipment, improvements or any property whatsoever covered by any of the insurance maintained by the parties pursuant to this lease. If any of the policies of insurance required under this agreement require an endorsement to provide for the waiver of subrogation as previously set forth, then the named insureds of such policies will cause them to be so endorsed.

Lessor is not the manufacturer of and does not guarantee the Equipment in any way. THERE IS NO WARRANTY THAT THE EQUIPMENT SUPPLIED HEREUNDER SHALL BE FIT FOR ANY PARTICULAR PURPOSE NOR IS THERE ANY WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, EXCEPT AS EXPRESSLY PROVIDED HEREIN. Lessee shall inspect the Equipment when received and failure to notify Lessor of Lessee's non-acceptance within 10 days after receipt shall constitute Lessee's acceptance of the Equipment as satisfactory.

Lessor may notify Lessee in writing of any change in the yearly/monthly rental rate. If Lessee fails to notify Lessor of Lessee's objection to such new rental rate within 30 days after such notice of change, the new rate shall become effective 30 days after the date of Lessor's notification.

Termination of this Agreement for any reason shall not relieve the parties of any obligation that may remain unfulfilled at the time of such termination.

No waiver or delay in enforcing any of its rights hereunder by either party shall constitute a release of any of the obligations of the other party hereunder in respect of any other matter or action relating thereto.

This Agreement comprises the entire agreement between Lessor and Lessee and no terms or conditions, other than those stated herein, and no agreement or understanding, oral or written, in any way purporting to modify these terms and conditions, shall be binding on either party unless hereafter made in writing and specifically stating that it is intended to modify these terms and conditions and signed by both parties. All proposals, negotiations, and representations, if any, made prior and with reference hereto are merged herein.

This Agreement shall be construed in accordance with the laws of the Commonwealth of Pennsylvania.

If any part of this Agreement is held invalid or unenforceable for any reason, such part shall be deemed waived and the balance of the Agreement shall continue in full force and effect.

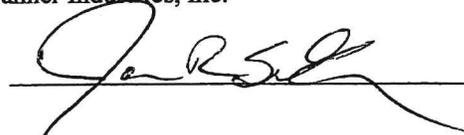
IN WITNESS WHEREOF the parties have executed this Agreement as of the day and year first written above:

Purchase order required for lease fee, Yes  No  (Please check one).  
If yes, please attach a copy of the purchase order.

Lessor: Tanner Industries, Inc.

Lessee:

Signature



Signature



James R. Selby

Mgr. of Technical Services  
Print Name and Title

4/2/14  
Date

Hillary J. Nunez Jr. 4/16/14  
Print Name and Title Director of Public Works Date

# NSF International

## RECOGNIZES

**TANNER INDUSTRIES, INC.**  
Facility: NATALBANY, LA

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

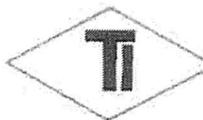


This certificate is the property of NSF International and must be returned upon request. For the most current and complete information please visit the NSF website at [www.nsf.org](http://www.nsf.org).

*David Perkins*

David Perkins, General Manager  
Water Purification Systems

December 20, 2004  
Certificate # 01268-01

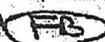


# TANNER INDUSTRIES, INC.

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 



**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:**

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 (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)

<b>Ammonia</b>		
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 <sup>3</sup> ; 25 ppm
USA NIOSH	NIOSH REL (STEL)	27 mg/m <sup>3</sup> ; 35 ppm
USA OSHA	OSHA PEL (TWA)	35 mg/m <sup>3</sup> ; 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 <sup>3</sup>
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**

<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> at 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

### 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.