



Safety Data Sheet

1. Product Identifier and Company Identification

Product name	: Aqua Ammonia Solutions	
HBCC SDS number	: CA13226	
Synonym	: Ammonium Hydroxide; Aqueous Ammonia; Water Ammonia; Aqua Ammonia; Ammonia Solutions	
Product use and Restrictions	: Refer to label or call	
Manufacturer	: Corporate Headquarters	Corporate Safety & Compliance
Contact Address	Hill Brothers Chemical Company 3000 E. Birch St, Suite 108 Brea, California 92821 714-998-8800 – Office 800-821-7234 – Office	Hill Brothers Chemical Company 7121 West Bell Road, Suite 250 Glendale, Arizona 85308 623-535-9955 - Office 623-535-9944 – Fax
Emergency telephone Number (Chemtrec)	: 800-424-9300	
Website	: https://hillbrothers.com	

2. Hazard Identification

Classification	: Acute Toxicity, Inhalation; Category 4 Skin Corrosion; Category 1B Serious Eye Damage/Eye Irritation; Category 1 Specific Target Organ Toxicity (SINGLE EXPOSURE)[Respiratory tract irritation]; Category 3 Aquatic Toxicity (ACUTE); Category 2 Aquatic Toxicity (CHRONIC); Category 2
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Signal Word : Danger



Hazard Statements : H332 Harmful if inhaled.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements : P280 Wear protective gloves. Wear protective clothing. Wear eye/face protection.
P271 Use only outdoors or in a well-ventilated area.
P264 Wash hands thoroughly after handling.
P391 Collect Spillage.

Response : P304+P340+P312 IF INHALED: Remove victim to fresh air and keep

comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.

P301+P330+P331+P310 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.

P303+P361+P353+P363 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Wash all contaminated clothing before reuse.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Prevention : P273 Avoid release to the environment.
P261 Avoid breathing fumes, mists, vapors or spray.

Storage : P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal : P501 Dispose of contents and container in accordance with specified local, regional, national, and international regulations.

3. Composition/Information on Ingredients

For Ammonia Solutions 10-30%		
CAS Number	Ingredient Name	Weight %
7664-41-7	Anhydrous Ammonia	10-30
7732-18-5	Water	70-90

4. First Aid Measures

Summary of First Aid Measures

Ingestion : **Do Not Induce Vomiting.** If person is conscious, give large quantities of water and, if possible, diluted vinegar, lemon juice, orange juice, or other citric juices to neutralize the ammonia. Delay may cause perforation of esophagus or stomach. OBTAIN MEDICAL ATTENTION.

Inhalation : Remove victim to fresh air. Give oxygen if breathing is difficult. If breathing has stopped, start artificial respiration. Keep victim calm and resting. OBTAIN MEDICAL ATTENTION.

Skin : Apply water immediately to exposed areas of skin and continue for at least 30 minutes. Remove contaminated clothing while continuing to apply water. Do not apply salves or ointments to affected areas. OBTAIN MEDICAL ATTENTION.

Eyes : Immediately flush with flowing water for at least 30 minutes with the eyelids held apart. OBTAIN MEDICAL ATTENTION.

Medical Conditions : Ammonia is a respiratory irritant. Persons with impaired pulmonary function may be at increased risk from exposure.

Effects of Overexposure : Irritation and possible burns of the skin and mucous membranes.

Headache, salivation, nausea, and vomiting. Difficult or labored breathing and cough with bloody mucous discharge. Bronchitis, laryngitis, hemoptysis, and pulmonary edema or pneumonitis. Ulceration of the conjunctiva and cornea, and corneal and lenticular opacities. Damage to the eyes may be permanent.

Summary of Acute Health Hazards

- Ingestion** : May cause corrosion to the esophagus and stomach with perforation and peritonitis. Ingestion causes burning pain in mouth, throat, stomach, and thorax, constriction of throat, and coughing. This is soon followed by vomiting of blood or by passage of loose stools containing blood. Ingestion of 3-4 ml may be fatal.
- Inhalation** : If inhaled, will cause nausea, vomiting, breathing difficulty, and convulsions. Shock or loss of consciousness may result. Brief exposure to 5000 ppm may be fatal.
- Skin** : **Absorption**: Ammonia, because of its alkalinity and water solubility, tends to break down and disrupt the outer cell layers, permitting rapid penetration. Even so, ammonia is not a systemic poison and the effects will be limited to local effects.
Contact: Causes smarting of the skin and first-degree burns on short exposure. May cause second-degree burns on long exposure.
- Eyes** : Vapor is irritating to the eyes. Liquid will cause burns.
- Note to Physicians** : N/A

Summary of Chronic Health : N/A

5. Fire Fighting Measures

- Extinguishing** : Water spray or fog type streams. Chemical or CO₂ should be used on small fires only. Use water to keep fire exposed containers cool and to protect men affecting the shut off.
- Special Exposure** : The presence of oil or other combustible materials will increase the fire hazard. The explosive (flammable) range of ammonia is broadened by a mixture of oxygen replacing air, and by temperature and pressure higher than atmospheric. Stop the flow of liquid. Approach fire upwind and evacuate area downwind if needed.
- Hazards**
- Special Protective Equipment for Firefighters** : Wear self-contained breathing apparatus and full protective clothing.
- Fire Fighting Procedures** : N/A
- NFPA Rating** : Health - 3

Flammability - 1
Instability - 0



0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

NFPA Rating is for Ammonia, Anhydrous, Liquefied Gas only. Ammonia Solutions are not rated by the NFPA (National Fire Protection Association).

Uniform Fire Code Rating

: N/A

6. Accidental Release Measures

Personal Precautions

: Approach spill from upwind and evacuate area downwind.

Emergency Procedures

: Stop the flow.

Methods of Containment And Clean-Up

: Dike to contain spill. Dilute with water, if necessary to reduce ammonia vaporization. Can be neutralized with dilute phosphoric or sulfuric acids. Vinegar will effectively neutralize small spills of aqua ammonia. Prevent runoff from entering streams, drinking water supply or sewers.

7. Handling and Storage

Safe Handling

: Avoid heating containers of aqua ammonia. Avoid contact with skin and eyes. Avoid inhalation of vapors.

Storage

: Avoid storing in close proximity to strong acids.

Work/Hygienic

: Avoid contact with skin and avoid breathing vapors. Do not eat, drink, or smoke in work area. Wash hands before eating, drinking, or using restroom. Do NOT place food, coffee or other drinks in the area where dusting or splashing of solutions is possible.

Practices

Ventilation

: Local exhaust is essential. Spark-proof fans desirable with mechanical ventilation. Ducts should be located at ceiling level and lead upwards to the outside. Local exhaust must be adequate to reduce ammonia concentration below 25 ppm.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

Chemical Name: Anhydrous Ammonia				
Exposure Limits (TWAs) in Air				
CAS Number	IDLH	ACGIH TLV	OSHA PEL	STEL
7664-41-7	300	25 ppm	50 ppm	35 ppm

Protective Equipment

: Eyewash fountain and safety shower should be available in the work area. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Neoprene and nitrile rubber are recommended materials. Polyvinyl alcohol is not recommended.

Eye Protection

: Tight fitting chemical safety and splash-proof goggles and/or a splash-proof face shield must be worn if there is a likelihood of exposure. Persons subject to ammonia exposure must not wear contact lenses.

Respiratory Protection

: Unless ventilation is adequate to keep airborne concentrations below the exposure standard, wear approved respiratory protection such as an ammonia canister mask or an approved air supplied respirator. Canister or cartridge type masks must not be used above their exposure limits. From 0 -199 ppm, a cartridge type ½ mask respirator is needed. From 200-299 ppm a type "N" gas mask with full face piece is needed. Over 300 ppm a self-contained breathing apparatus (SCBA) is required.

9. Physical and Chemical Properties

Physical State	Liquid	Molecular Weight	
Colour	Clear; Transparent	Weight %	10-30% NH ₃
Odour	Pungent	Odour Threshold	5 ppm
pH	12-14	Vapor Pressure	3-10 PSI @ 16 °C
Relative Density (water =1)	0.9590 -0.8950 @ 16 C (60°F)	Vapor Density (air=1)	0.60 @ 0°C
Viscosity	<1.7 centipoise @ 16 C (60°F)	VOC(g/ml)	100%
Boiling Point/Range (°C)	28°C	Auto-ignition Temperature(°C)	650°C
Melting Point/Range(°C)	-72°C	Evaporation Rate	
Flash Point	NA	Explosive Limits (% , v/v)	NA
Explosive Properties	NA	Oxidizing Properties	NA
Water Solubility	Complete	Partition Coefficient (log Pow)	NA

10. Stability and Reactivity

Reactivity

: Ammonia is lightly reactive, easily undergoing oxidation, substitution and addition reactions.

Chemical Stability

: Material generally considered stable. Heating over ambient temperatures

causes vapor pressure of ammonia to increase rapidly. Stable

Possibility of Hazardous Reactions or Polymerizations : Hazardous polymerization will not occur

Conditions to Avoid : Heat, open flames, and electrical equipment and fixtures which are not vapor-proof or grounded.

Incompatible Materials : Avoid strong acids. Ammonia will react with bromine, chlorine, mercury, silver, and bleach to form explosive compounds. Avoid use of metals containing copper, zinc, and brass.

Hazardous Decomposition Products : Combustion of ammonia will yield small amounts of nitrogen and water.

11. Toxicological Information

Acute and Chronic Effects : See Section 4

Routes of Exposure

Ingestion : Yes
Inhalation : Yes
Skin : Yes
Eyes : Yes

Symptoms related to Physical, Chemical & Toxicological Characteristics : Burning of the eyes, conjunctivitis, skin irritation, swelling of the eyelids and lips, dry red mouth and tongue, burning in the throat, and coughing. In more severe cases of exposure, difficulty in breathing, signs and symptoms of lung congestion, and, ultimately, death from respiratory failure due to pulmonary edema may occur.

Numerical Measures of Toxicity : Toxicity by Ingestion: Oral rat, LD50: 350 mg/kg

Chronic Toxicity : N/A

Carcinogenicity : N/A

Product Name: Aqua Ammonia Solutions					
ACGIH	IARC	EPA	NIOSH	NTP	OSHA
No	No	No	No	No	No

Target Organs : N/A

12. Ecological Information

Ecotoxicity : Harmful to aquatic life in very low concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Do not contaminate any body of water by direct application, cleaning of equipment or disposal.

Persistence and Degradability : N/A

Bioaccumulative Potential :

Product/Ingredient	Log <i>P_{ow}</i>	BCF	Potential
N/A	N/A	N/A	N/A

Mobility in Soil : N/A

13. Disposal Considerations

Disposal of Container : Consult federal, state, or local authorities for proper disposal procedures.

14. Transport Information

UN# : UN2672
Proper Shipping Name : Ammonia Solutions
Hazard Class/Division : 8
Packing Group : III
Marine Pollutant : Yes
Special Precautions : N/A
Emergency Response Guidebook : N/A
Placard Advisory : 2012 ERG, Guide 154, pages 246-247



15. Regulatory Information

Section 302 Extremely Hazardous Substance (EHS) : N/A

Section 304 Extremely Hazardous Substance (EHS) : N/A


CERCLA Hazardous Substance : N/A

Section 313 Supplier : This product contains the following toxic chemical(s) subject to the reporting requirements of SARA TITLE III Section 313 of the Emergency Planning and Community Right-To Know Act of 1986 and of 40 CFR 372:

<u>CAS #</u>	<u>Chemical Name</u>	<u>% By Weight</u>
1336-21-6	Ammonium Hydroxide	10-30%

Clean Air Act (CAA) : N/A
California Prop 65 : N/A

- TSCA** : All substances in this product are listed in the Chemical Substance Inventory of the Toxic Substances Control Act.
- Label Warning** : Corrosive
- EPA Registration** : N/A
- Toxicity by Ingestion** : Oral rat, LD50: 350 mg/kg
- IDLH Value** : 300 ppm (The Immediately Dangerous to Life and Health Value)
- Reportable Quantity** : 1000 Pounds (454 Kilograms)

	Maximum use level for Ammonium Hydroxide under NSF/ANSI Standard 60		
	Ammonium Hydroxide 19%	Maximum use	26 mg/L
	Ammonium Hydroxide 20%	Maximum use	25 mg/L
	Ammonium Hydroxide 29.45%	Maximum use	17 mg/L
	Ammonium Hydroxide 26° be	Maximum use	17 mg/L
	Ammonium Hydroxide 24.5%*	Maximum use	20 mg/L
*NSF certification for 24.5% applies to Aqua Ammonia produced at the San Jose facility only.			

16. Other Information

- Revision date** : 07/16/2021
- Supersedes** : 03/31/2021
- First Issue** : 01/02/1986
- Chemical Family/Type** : Inorganic Bases
- Section(s) changed since last revision** : Section 9

IMPORTANT! Read this SDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This SDS has been prepared in accordance with the Globally Harmonized System of Chemical and Labeling of Chemicals (GHS) Fifth Edition and the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The SDS information is based on sources believed to be reliable. Available data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control; **Hill Brothers Chemical Company** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks and exercise appropriate precautions for protection of employees and others prior to use.

PRODUCT PROFILE

AMMONIUM HYDROXIDE

AQUA AMMONIA

Food Chemical Codex, ACS, and NSF Standards Specification

STANDARDS

Hill Brothers Chemical Company produces ammonium hydroxide at San Jose, CA and City of Industry, CA in compliance with current Good Manufacturing Practices (cGMP) and meets or exceeds, by typical periodic analysis, the current Food Chemical Codex (FCC) standards as listed in the FCC monograph.

In accordance with the FDA Title 21 CFR 184.1139 ammonium hydroxide is listed as Generally Recognized as Safe (GRAS) with no limitations other than cGMP for the following uses:

Leavening agent	21 CFR 170.3 (o) (17)
pH Control agent	21 CFR 170.3 (o) (23)
Surface-finishing agent	21 CFR 170.3 (o) (30)
Boiler water additive	21 CFR 170.310
Feed additive	21 CFR 582.1139

Hill Brothers' ammonium hydroxide also meets the current specifications for reagent grade ammonium hydroxide, established by the American Chemical Society (ACS), and has been tested and certified by NSF International for drinking water treatment.

QUALITY CONTROL

Each manufactured batch is quality control tested to meet basic physical properties including assay, specific gravity, temperature, and turbidity. Hill Brothers' will, by way of a third party laboratory, periodically commission a chemical analysis of randomly manufactured ammonium hydroxide at each facility to assure compliance to so stated standards and specifications.

HAZARDOUS MATERIAL WARNING

Ammonium Hydroxide is classified as a hazardous material. Hill Brothers, as a basic manufacturer of ammonium hydroxide, attests that the product meets all pertinent specifications, but accepts no responsibility for its end use. Ingestion of this or any hazardous material may result in serious injury or fatality. Although this product meets FDA Title 21 CFR 184.1139 specifications, this in no way mitigates the hazards inherent in this product. Appropriate precautions must be observed whenever using this product. Please refer to Hill Brothers' MSDS for more detailed safe handling and hazardous information.

Prepared by: Tony Garcia, Director of R&D for Hill Brothers Chemical Co.

Rev. 8/06

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Southern Calif. • San Jose, CA • San Diego, CA • Salt Lake City, UT
Phoenix, AZ • Tucson, AZ • Pacific Northwest • International Sales



Hill Brothers Chemical Co.
Corporate Office
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PRODUCT PROFILE

Aqua Ammonia Properties

Wt.% Ammonia, NH ₃	Wt.% Nitrogen, % N	Sp. Grav. @ 60°F Comp'd w/ H ₂ O @ 60°F	Baumé @ 60°F	Wt. Per Gallon (lbs.)	Lbs. NH ₃ Per Gallon @ 60°F	Lbs. N Per Gallon @ 60°F	Boiling Point @ 14.7 psia (°F)
13	10.7	0.9493	17.49	7.91	1.03	0.85	144.4
13.37	11	0.9479	17.69	7.89	1.05	0.86	142.9
14	11.5	0.9459	18.02	7.88	1.1	0.91	140.4
14.58	12	0.9439	18.33	7.86	1.15	0.95	138.1
15	12.3	0.9425	18.55	7.85	1.18	0.97	136.4
15.8	13	0.9398	18.98	7.83	1.24	1.02	133.2
16	13.2	0.9392	19.08	7.82	1.25	1.03	132.4
17	14	0.9359	19.6	7.79	1.32	1.09	128.4
18	14.8	0.9326	20.13	7.77	1.4	1.15	124.5
18.23	15	0.9318	20.25	7.76	1.41	1.16	123.6
19	15.6	0.9293	20.65	7.74	1.47	1.21	120.6
19.44	16	0.9280	20.88	7.73	1.50	1.23	118.9
20	16.4	0.9261	21.17	7.71	1.54	1.27	116.7
20.66	17	0.9240	21.15	7.70	1.59	1.31	114.3
21	17.3	0.9230	21.69	7.69	1.62	1.33	113.0
21.87	18	0.9203	22.14	7.66	1.68	1.38	109.9
22	18.1	0.9198	22.21	7.66	1.69	1.39	109.4
23	18.9	0.9166	22.73	7.63	1.75	1.44	106.0
23.09	19	0.9163	22.78	7.63	1.76	1.45	105.7
24	19.7	0.9135	23.24	7.61	1.83	1.51	102.6
24.3	20	0.9126	23.4	7.60	1.85	1.52	101.6
25	20.6	0.9105	23.76	7.58	1.90	1.56	99.3
25.52	21	0.9090	24.02	7.57	1.93	1.59	97.6
26	21.4	0.9075	24.27	7.56	1.97	1.62	96
26.73	22	0.9053	24.54	7.54	2.02	1.66	93.6
27	22.2	0.9045	24.78	7.53	2.03	1.67	92.7
28	23	0.9016	25.29	7.51	2.10	1.73	89.4
29	23.9	0.8986	25.8	7.48	2.17	1.79	86.1
29.16	24	0.8983	25.88	7.48	2.18	1.80	85.6
30	24.7	0.8957	26.31	7.46	2.24	1.85	82.8
30.38	25	0.8946	26.5	7.45	2.26	1.86	81.6

Rev. 3/2021

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Southern California (800) 438-8515 Northern California (800) 438-8515 Phoenix, Arizona (888) 866-2210 Tucson, Arizona (888) 866-2210 Utah/Pacific Northwest (800) 336-3911



Hill Brothers Chemical Co.
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PRODUCT PROFILE

Aqua Ammonia

BAUMÉ/ SPECIFIC GRAVITY/ AMMONIA CONTENT @ 60°F

BAUMÉ	SP. GRAVITY	%NH ₃	BAUMÉ	SP. GRAVITY	%NH ₃
10.00	1.0000	0	19.50	0.9365	16.80
10.25	0.9982	0.4	19.75	0.9349	17.28
10.50	0.9964	0.8	20.00	0.9333	17.76
10.75	0.9947	1.21	20.25	0.9318	18.24
11.00	0.9929	1.62	20.50	0.9302	18.72
11.25	0.9912	2.04	20.75	0.9287	19.20
11.50	0.9894	2.46	21.00	0.9272	19.68
11.75	0.9876	2.88	21.25	0.9256	20.16
12.00	0.9859	3.3	21.50	0.9241	20.64
12.25	0.9842	3.73	21.75	0.9226	21.12
12.50	0.9825	4.16	22.00	0.9211	21.60
12.75	0.9807	4.59	22.25	0.9195	22.08
13.00	0.9790	5.02	22.50	0.9180	22.56
13.25	0.9773	5.45	22.75	0.9165	23.04
13.50	0.9756	5.88	23.00	0.9150	23.52
13.75	0.9739	6.31	23.25	0.9135	24.01
14.00	0.9722	6.74	23.50	0.9121	24.50
14.25	0.9705	7.17	23.75	0.9106	24.99
14.50	0.9689	7.61	24.00	0.9091	25.48
14.75	0.9672	8.05	24.25	0.9076	25.97
15.00	0.9655	8.49	24.50	0.9061	26.46
15.25	0.9639	8.93	24.75	0.9047	26.95
15.50	0.9622	9.38	25.00	0.9032	27.44
15.75	0.9605	9.83	25.25	0.9018	27.93
16.00	0.9589	10.28	25.50	0.9003	28.42
16.25	0.9573	10.73	25.75	0.8989	28.91
16.50	0.9556	11.18	26.00	0.8974	29.40
16.75	0.9540	11.64	26.25	0.8960	29.89
17.00	0.9524	12.10	26.50	0.8946	30.38
17.25	0.9508	12.56	26.75	0.8931	30.87
17.50	0.9492	13.02	27.00	0.8917	31.36
17.75	0.9475	13.49	27.25	0.8903	31.85
18.00	0.9459	13.96	27.50	0.8889	32.34
18.25	0.9444	14.43	27.75	0.8875	32.83
18.50	0.9428	14.90	28.00	0.8861	33.32
18.75	0.9412	15.37	28.25	0.8847	33.81
19.00	0.9396	15.84	28.50	0.8833	34.30
19.25	0.9380	16.32	28.75	0.8819	34.79

Rev. 3/2021

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PRODUCT SPECIFICATIONS

Aqua Ammonia Industrial Grade Ammonium Hydroxide



PRODUCT DESCRIPTION

Aqua Ammonia (NH₃) is a clear and colorless, low vapor pressure liquid product manufactured to the following reagent grade specifications:

CHEMICAL PROPERTIES


PROPERTY	SPECIFICATIONS**
Appearance	Colorless, Water White
Assay* (% by wt. NH ₃ min.)	19.0% or 29.45% (26°Be)
Residue after ignition	20 ppm maximum
Carbon Dioxide	20 ppm maximum
Chloride	0.5 ppm maximum
Phosphate	2 ppm maximum
Total Sulfur – (as SO ₄)	2 ppm maximum
Heavy Metals (as Pb)	0.5 ppm maximum
Iron	0.2 ppm maximum
Substance Reducing Permanganate	Pass

*Custom strengths are available meeting the same specifications.

**Hill Brothers' Aqua Ammonia meets or exceeds all above specifications by independent laboratory test.

PHYSICAL PROPERTIES

PROPERTY	PROPERTIES	
Assay (% by wt. NH ₃ min)	19.0%	29.45%
Specific Gravity at 60°F	0.929	0.897
Pounds per gallon at 60°F	7.74	7.47
Boiling Point – Sea Level	120.6°F	85.6°F

	Maximum use level for Ammonium Hydroxide under NSF/ANSI Standard 60		
	Ammonium Hydroxide 19%	Maximum use	26 mg/L
	Ammonium Hydroxide 20%	Maximum use	25 mg/L
	Ammonium Hydroxide 29.45%	Maximum use	17 mg/L
	Ammonium Hydroxide 26° be	Maximum use	17 mg/L
	Ammonium Hydroxide 24.5%*	Maximum use	20 mg/L
*NSF certification for 24.5% applies to Aqua Ammonia produced at the San Jose facility only.			

SAFETY AND HANDLING

Proper safety equipment and other safety concerns must be observed. Refer to the Aqua Ammonia SDS for current information.

Rev. 12/2020

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The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Wednesday, February 21, 2024** at 12:15 a.m. Eastern Time. Please [contact NSF](#) to confirm the status of any Listing, report errors, or make suggestions.

Alert: NSF is concerned about fraudulent downloading and manipulation of website text. Always confirm this information by clicking on the below link for the most accurate information:

<http://info.nsf.org/Certified/PwsChemicals/Listings.asp?Company=22370&>

NSF/ANSI/CAN 60 Drinking Water Treatment Chemicals - Health Effects

Hill Brothers Chemical Company

3000 East Birch Street

Suite 108

Brea, CA 92821

United States

714-998-8800

Facility : Phoenix, AZ

Calcium Chloride

Trade Designation

HICO Liquid Calcium Chloride

Product Function

Defluoridation

Max Use

200mg/L

Softener

Liquid Calcium Chloride 30-38%

Softener

200mg/L

Defluoridation

Chlorine[CL]

Trade Designation

Chlorine Gas

Product Function

Disinfection & Oxidation

Max Use

30 mg/L

[CL] The residual levels of chlorine (hypochlorite ion and hypochlorous acid), chlorine dioxide, chlorate ion, chloramine and disinfection by-products shall be monitored in the finished drinking water to ensure compliance to all applicable regulations.

Ferric Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferric Chloride 42 BE	Coagulation & Flocculation	250mg/L

Ferrous Chloride

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Ferrous Chloride	Coagulation & Flocculation	250mg/L

Sodium Hydroxide

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Liquid Caustic Soda, 25%	pH Adjustment	200 mg/L
Liquid Caustic Soda, 30%	pH Adjustment	167 mg/L
Liquid Caustic Soda, 33%	pH Adjustment	152 mg/L
Liquid Caustic Soda, 50%	pH Adjustment	100 mg/L

Sodium Hypochlorite[HY]

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
12.5% Liquid Bleach	Disinfection & Oxidation	84mg/L
Sodium Hypochlorite - 12.5%	Disinfection & Oxidation	84mg/L
Sodium hypochlorite 5.25%	Disinfection & Oxidation	200mg/L

[HY] The residual levels of chlorine (hypochlorite ion and hypochlorous acid), chlorine dioxide, chlorate ion, chloramine and disinfection by-products shall be monitored in the finished drinking water to ensure compliance to all applicable regulations. Also, reference the AWWA B300 (Hypochlorites) standard's Recommendations for the Handling and Storage of Hypochlorite Solutions appendix for information on preservation techniques for hypochlorite bleach in transit and storage.

Sulfuric Acid

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Sulfuric Acid 40%	Corrosion & Scale Control pH Adjustment	103mg/L
Sulfuric Acid 50%	Corrosion & Scale Control pH Adjustment	92mg/L
Sulfuric Acid 66 Baume	Corrosion & Scale Control pH Adjustment	50mg/L
Sulfuric Acid 93%	Corrosion & Scale Control pH Adjustment	50mg/L

Facility : Industry, CA

Ammonia, Anhydrous**Trade Designation**

Ammonia Gas

Product FunctionDisinfection & Oxidation
Ozone Reduction**Max Use**

5mg/L

Anhydrous Ammonia

Disinfection & Oxidation
Ozone Reduction

5mg/L

Ammonium Hydroxide**Trade Designation**

Ammonium Hydroxide 19%

Product Function

Disinfection & Oxidation

Max Use

26mg/L

Ammonium Hydroxide 20%

Disinfection & Oxidation

25mg/L

Ammonium Hydroxide 24.5%

Disinfection & Oxidation

20mg/L

Ammonium Hydroxide 29.45%

Disinfection & Oxidation

17mg/L

Aqua Ammonia 20%

Disinfection & Oxidation

25mg/L

Aqua Ammonia 24.5%

Disinfection & Oxidation

20mg/L

Aqua Ammonia 26 BE

Disinfection & Oxidation

17mg/L

Ammonium Sulfate**Trade Designation**

Ammonium Sulfate 40% Solution

Product FunctionChloramination
Disinfection & Oxidation**Max Use**

60mg/L

Liquid Ammonium Sulfate 40%

Chloramination
Disinfection & Oxidation

60mg/L

Calcium Chloride**Trade Designation**

HICO Liquid Calcium Chloride

Product FunctionDefluoridation
Softener**Max Use**

200mg/L

Liquid Calcium Chloride 30-38%

Defluoridation
Softener

200mg/L

Facility : San Jose, CA**Ammonia, Anhydrous****Trade Designation**

Ammonia Gas

Product FunctionDisinfection & Oxidation
Ozone Reduction**Max Use**

5mg/L

Anhydrous Ammonia

Disinfection & Oxidation
Ozone Reduction

5mg/L

Ammonium Hydroxide**Trade Designation****Product Function****Max Use**

Ammonium Hydroxide 19%	Disinfection & Oxidation	26 mg/L
Ammonium Hydroxide 20%	Disinfection & Oxidation	25 mg/L
Ammonium Hydroxide 24.5%	Disinfection & Oxidation	20 mg/L
Ammonium Hydroxide 29.45%	Disinfection & Oxidation	17 mg/L
Aqua Ammonia 20%	Disinfection & Oxidation	25 mg/L
Aqua Ammonia 24.5%	Disinfection & Oxidation	20 mg/L
Aqua Ammonia 26 BE	Disinfection & Oxidation	17 mg/L

Ammonium Sulfate**Trade Designation**

Ammonium Sulfate 40% Solution

Product Function

Chloramination

Max Use

60mg/L

Disinfection & Oxidation

Liquid Ammonium Sulfate 40%

Chloramination

60mg/L

Disinfection & Oxidation

Calcium Chloride**Trade Designation**

HICO Liquid Calcium Chloride 200

Product Function

Defluoridation

Max Use

200mg/L

Softener

Liquid Calcium Chloride 30-38%

Softener

200mg/L

Defluoridation

 Number of matching Manufacturers is 1

Number of matching Products is 42

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