

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



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



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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. 6/01

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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.

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