CERTIFICATE OF ANALYSIS

BASELINE® Ammonia Solution

1	PRODU	JCT NU	MBER:	S02070	1	LOT	IUMBEI	R: 7216	101	AS	SAY (NI	13, w/w): 21%	,		
2A Li 4 Be average of three aliquots subsampled from three samples representative of the lot. The samples are slowly evaporated to dryness. The resulting residue is reconstituted in a small volume of SEASTAR™ BASELINE® 2% Nitric Acid / 2% Hydrogen Peroxide. Operations are conducted under Class 100 or better clean-room conditions. Na 12 Mg STAN AI SA 4A 5A 6A 7A STAN BE STANT BASELINE® 2% Nitric Acid / 2% Hydrogen Peroxide. Operations are conducted under Class 100 or better clean-room conditions. The results are an average of three aliquots subsampled from three samples representative of the lot. The samples are slowly evaporated to dryness. The resulting residue is reconstituted in a small volume of SEASTAR™ BASELINE® 2% Nitric Acid / 2% Hydrogen Peroxide. Operations are conducted under Class 100 or better clean-room conditions. For volatile elements (indicated by *), the acid samples are diluted then directly injected into the ICP-MS. Values 13 AI																
< 2										2B	< 10					
20 Ca < 10	21 Sc < 0.01	22 Ti < 0.5	23 V < 1	24 Cr < 0.2			27 Co < 0.1	28 Ni < 5	29 Cu < 0.5	30 Z n < 2	31 Ga < 0.01	32 Ge < 1	33 As < 0.5	34 Se < 5		
38 Sr < 0.05	39 Y < 0.01	40 Zr < 0.01	41 Nb < 0.01	42 Mo < 0.05		44 Ru < 0.01	45 Rh < 0.01	46 Pd < 0.1	47 Ag < 0.5	48 Cd < 0.02	49 In < 0.01	50 Sn < 0.1	51 Sb < 0.05	52 Te < 0.05		15
56 Ba < 0.1	57 La < 0.01		73 Ta									82 Pb < 0.1				
	4 Be < 0.05 12 Mg < 2 20 Ca < 10 38 Sr < 0.05	2A Most eler average evaporate Nitric Acid For volati below 3 ti 3B 20 Ca 21 Sc < 10 < 0.01 38 Sr 39 Y < 0.05 5 56 Ba 57 La	2A 4 Be average of three ali evaporated to dryne Nitric Acid / 2% Hydr For volatile elements below 3 times the state 3B 4 20 Ca 21 Sc 22 Ti < 10 < 0.01 < 0.5 38 Sr 39 Y 40 Zr < 0.05 38 Sr < 0.01 < 0.01 5 56 Ba 57 La 72 Hf	A Be < 0.05 Most elements are determined average of three aliquots subsite evaporated to dryness. The result Nitric Acid / 2% Hydrogen Perox For volatile elements (indicated below 3 times the standard deviation 3B 4B 5B C 20 Ca 21 Sc 22 Ti 23 V < 10 < 0.01 < 0.5 < 1 D 38 Sr 39 Y 40 Zr 41 Nb < 0.05 < 0.01 < 0.01 D 38 Sr 39 Y 40 Zr 41 Nb < 0.05 < 0.01 < 0.01	A Be average of three aliquots subsampled from evaporated to dryness. The resulting residu Nitric Acid / 2% Hydrogen Peroxide. 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ALL VALUES ARE REPORTED IN PARTS PER TRILLION (PPT)

	. (' /	$\Delta \omega$		
(1) (2)	(2)	Ele		
(3)	(3)	Col		
(4)				
	(3)	(1) (2) (2) (3) (3)		

KEY (1) Atomic Number

(2) Elemental Symbol(3) Concentration (mean

in ppt)
(4) 1 Standard Deviation
(N=3)

58 Ce	59 Pr	60 Nd		62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
< 0.01	< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
194													
90 Th		92 U											
< 0.01		< 0.01	100										



NH₃ (20 - 22%): Properties

Molar Mass: 17.03g/mol

Density: 0.92 g/ml

Molarity: 11 moles/litre

Normality: 11 moles/litre

Greg Henson QA & RA Manager Release Date: January 19, 2017 Expiry Date: January 19, 2020

Product Integrity:

Based on extensive testing results, SEASTAR CHEMICALS INC have found our products, unopened and sealed, maintain the certified integrity, or product quality, for a minimum of three years under the following conditions:

- Stored at room temperature, maximum range 15°C (59°F) to 25°C (77°F).
- Minimum exposure to light.
- For limited time, storage/transport temperature range 5°C (41°F) to 35°C (95°F)

Upon opening the product, the product's integrity will depend on proper handling and exposure to contaminants. The product has been bottled under CLASS 100 clean room conditions, to maintain the certified quality it should be used under these conditions. Furthermore to reduce trace metal contamination, the inner pack of plastic bags and bottle should be opened under CLASS 100 particle conditions to maintain the integrity of the product. The use of plastic gloves, hair net and a clean room suit is also advised.

Safety:

PRIOR to opening or storing this product be sure to consult the Material Safety Data Sheet (MSDS) Section 7 Handling and Storage to ensure safe storage and handling with regards to this hazardous material. This information must be understood prior to its use or storage.

SAFETY HANDLING NOTES: Consult your MSDS, PRIOR to handling these materials. Use proper safety apparel according to the recommendations of the MSDS. Exposure controls and personal protection should include: a properly functioning fume hood, protection for eyes (safety glasses), hands (chemically compatible gloves), feet (chemically compatible boots) and exposed skin (splash protection and a chemically compatible apron). All of these items must conform to local/regional/national regulatory requirements.

Greg Henson

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QA & RA Manager

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