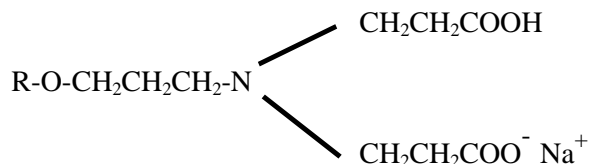


AMPHOTERIC N

Tomah Amphoteric N is a unique amphoteric surfactant with exceptionally high foaming properties in the presence of many other surfactants and components typically used in shampoos and personal care products. Amphoteric N is a modified dipropionate amphoteric supplied as a 35% aqueous solution of the partial sodium salt. Amphoteric N is CTFA listed as Sodium C12-15 Alkoxypropyl Iminodipropionate.

Amphoteric N is represented by the formula:



SPECIFICATIONS

Activity, %	33 min.
Color, Gardner	7 max.
pH, 5% solution	6-9
Clarity	Clear

TYPICAL PROPERTIES

Specific Gravity, 77°F	1.04
Color and Form	Light amber liquid
Solubility	Soluble in glycols, water, and alcohols. Insoluble in oils and most solvents.
Flash Point °F	>200
Pour Point °F	30
Molecular Weight	340

PERFORMANCE PROPERTIES

- ◆ High foam wetting agent
- ◆ Excellent coupling properties
- ◆ Good detergent
- ◆ Exceptionally P.U.R.E. - far fewer by-products than imidazoline amphoterics
- ◆ Compatible with anionics, cationics, and nonionics
- ◆ Salt-free

AMPHOTERIC N

Electrolyte Solubility:	(5% surfactant at 72°F for 24 hours.)
in NaOH	27%
in KOH	35%
in sodium metasilicate pentahydrate	60%+

AMPHOTERIC DATA

Wetting

SURFACE TENSION DATA: The following chart shows surface tension data generated via a Kruss tensiometer. All recordings were taken in a solution of 2% NaOH. The following parameters were obtained from the wetting curves:

CMC (critical micelle concentration)
 Surface tension at 0.1% concentration
 Minimum surface tension

Product	CMC	S.T. @ 0.1%	Min. S.T.
Alkali Surfactant	0.30%	37 dynes	27 dynes
Amphoterics 400	2.00%	65 dynes	41 dynes
Amphoterics N	0.30%	38 dynes	36 dynes
Amphoterics L	0.01%	33 dynes	33 dynes

SUGGESTED USES

- ◆ Shampoos and personal care
- ◆ High foam alkaline and acid cleaners
- ◆ Mechanical foaming systems
- ◆ Corrosion inhibitor in metal working lubricants
- ◆ Hand soaps
- ◆ Viscosity builder via pH adjustment or salt addition

AMPHOTERIC N

PACKAGING

Amphoteric N is available in 55 gallon tighthead drums or bulk quantities. NOTE: Refer to Material Safety Data Sheet for D.O.T. Classification and for any additional information

The suggestions in this publication concerning the application of Tomah products are intended only to illustrate common uses of such products. Because Tomah is not aware of the numerous factors which may affect the use of its products in any particular application, Tomah provides no warranty or representation as to the suitability of its products for any such use, or as to whether any such use may infringe a third party's patent or other proprietary right. Each customer must, on the basis of its own evaluation of those factors, assume sole responsibility for such suitability and any such infringement.

Standard Specifications, although current at the time of publication, are subject to change without notice. For the latest Standard Specifications, contact your Sales Representative.

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AMPHOTERIC N

AMPHOTERIC FOAM STABILITY

Conditions:

Temperature: 25°C
 Concentration: 0.1% active
 pH: neutral

Ross-Miles Foam Volume: 0 ppm Water Hardness

Compound	Initial Foam (cm)	Foam (5 min.)	Stability (Vol. %)
Amphoteric-400	3.0	0	0
Alkali Surfactant	9.5	7.7	81.1
Nonylphenol-9EO	11.8	10.2	86.4
Amphoteric-N	17.5	17.0	97.1
Amphoteric-SC	17.7	17.5	98.9
Amphoteric-L	18.2	17.1	94.0
Alcohol Sulfate	19.4	19.4	100

Ross-Miles Foam Volume: 150 ppm Water Hardness

Compound	Initial Foam (cm)	Foam (5 min.)	Stability (Vol. %)
Amphoteric-400	2.6	0	0
Nonylphenol-9EO	12.7	11.6	91.3
Alcohol Sulfate	12.8	12.7	99.2
Alkali Surfactant	13.1	3.8	29.0
Amphoteric-L	17.8	17.6	98.9
Amphoteric-N	18.0	18.0	100
Amphoteric-SC	18.3	18.3	100

Ross-Miles Foam Volume: 300 ppm Water Hardness

Compound	Initial Foam (cm)	Foam (5 min.)	Stability (Vol. %)
Amphoteric-400	2.0	0	0
Alcohol Sulfate	10.4	6.1	58.7
Nonylphenol-9EO	12.0	11.1	92.5
Alkali Surfactant	12.1	7.76	64.1
Amphoteric-N	16.5	16.5	100
Amphoteric-SC	17.4	17.4	100
Amphoteric-L	17.7	17.5	98.9