

***WHAT EVERY CHEMICAL
TECHNOLOGIST WANTS TO
KNOW ABOUT...***

Volume II

***DISPERSANTS, SOLVENTS,
AND SOLUBILIZERS***

Compiled by
Michael and Irene Ash

Chemical Publishing Co., Inc.
New York, N.Y.

Dispersants, Solvents, and Solubilizers Volume 2

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ISBN: 978-0-8206-0050-5

Chemical Publishing Company:
www.chemical-publishing.com
www.chemicalpublishing.net

First Edition:

© **Chemical Publishing Company, Inc.** - New York 1987

Second Impression:

Chemical Publishing Company, Inc. - 2011

Printed in the United States of America

PREFACE

This reference book is the second volume in the set of books entitled **WHAT EVERY CHEMICAL TECHNOLOGIST WANTS TO KNOW . . . SERIES**. This compendium serves a unique function for those involved in the chemical industry—it provides the necessary information for making the decision as to which trademark chemical product is most suitable for a particular application.

The chemicals included in this second book of the series have their major function as dispersants, solvents, and solubilizers, however, complete cross-referencing is provided for the multiple functions of all the chemicals.

The first section which is the major portion of each volume contains the most common generic name of the chemicals as the main entry. All these generic entries are in alphabetical order. Synonyms for these chemicals are then listed. The CTFA name appears alongside the appropriate generic name. The structural and/or molecular formula of the chemical is listed whenever possible. The generic chemical is sold under various tradenames and these are listed here in alphabetical order for ease of reference along with their manufacturer in parentheses. The *Category* subheading lists all the possible functions that the chemical can serve. Because of differences in form, activity, etc., individual tradenames of the generic chemical are used in particular applications more frequently. These are delineated in the *Applications* section. The differences in properties, toxicity/handling, storage/handling, and standard packaging are specified in the subsequent sections wherever distinguishing characteristics are known.

The second section of the volume **TRADENAME PRODUCTS AND GENERIC EQUIVALENTS** helps the user who only knows a chemical by one tradename to locate its main entry in section 1. The user can look up this tradename in this section of the book and be referred to the appropriate, main-entry, generic chemical name.

The third section **GENERIC CHEMICAL SYNONYMS AND CROSS REFERENCES** provides a way of locating the main entries by knowing only one of the synonyms. If the generic chemical is not in the volume, it will refer you to the volume in which it is contained.

The fourth section **TRADENAME PRODUCT MANUFACTURERS** lists the full addresses of the companies that manufacture or distribute the tradename products found in the first section.

The following is a list of the six volumes that comprise this series:

Volume I	Emulsifiers and Wetting Agents
Volume II	Dispersants, Solvents and Solubilizers
Volume III	Plasticizers, Stabilizers and Thickeners
Volume IV	Conditioners, Emollients and Lubricants
Volume V	Resins
Volume VI	Polymers and Plastics

This series has been made possible through long hours of research and compilation and the dedication and tireless efforts of Roberta Dakan who helped make this distinctive series possible. Our appreciation is extended to all the chemical manufacturers and distributors who supplied the technical information.

M. and I. Ash

NOTE

The information contained in this series is accurate to the best of our knowledge; however, no liability will be assumed by the publisher for the correctness or comprehensiveness of such information. The determination of the suitability of any of the products for prospective use is the responsibility of the user. It is herewith recommended that those who plan to use any of the products referenced seek the manufacturer's instructions for the handling of that particular chemical.

OTHER BOOKS BY MICHAEL AND IRENE ASH

A Formulary of Paints and Other Coatings, Volumes I and II
A Formulary of Detergents and Other Cleaning Agents
A Formulary of Adhesives and Sealants
A Formulary of Cosmetic Preparations
The Thesaurus of Chemical Products, Volumes I and II
Encyclopedia of Industrial Chemical Additives, Volumes I-IV
Encyclopedia of Surfactants, Volumes I-IV
Encyclopedia of Plastics, Polymers and Resins, Volumes I-IV
What Every Chemical Technologist Wants to Know About. . .
Volume I—Emulsifiers and Wetting Agents

ABBREVIATIONS

@	..... at
anhyd.	..... anhydrous
APHA	..... American Public Health Association
approx.	..... approximately
aq.	..... aqueous
ASTM	..... American Society for Testing and Materials
avg.	..... average
B.P.	..... boiling point
Btu	..... British thermal unit
C	..... degrees Centigrade
CAS	..... Chemical Abstracts Service
cc	..... cubic centimeter(s)
CC	..... closed cup
cm	..... centimeter(s)
cm ³	..... cubic centimeter(s)
COC	..... Cleveland Open Cup
compd.	..... compound, compounded
conc.	..... concentrated, concentration
cP, cps	..... centipoise
cs, cSt	..... centistokes
CTFA	..... Cosmetic, Toiletry and Fragrance Association
DEA	..... diethanolamine
disp	..... dispersible, dispersion
dist	..... distilled
DOT	..... Department of Transportation
DW	..... distilled water
EO	..... ethylene oxide
equiv.	..... equivalent
F	..... degrees Fahrenheit
F.P.	..... freezing point
FDA	..... Food and Drug Administration
ft ³	..... cubic foot, cubic feet
g	..... gram(s)
gal	..... gallon(s)
HLB	..... hydrophile-lipophile balance
insol.	..... insoluble
IPA	..... isopropyl alcohol
kg	..... kilogram(s)
l, L	..... liter(s)
lb	..... pound(s)
M.P.	..... melting point
M.W.	..... molecular weight
max	..... maximum
MEA	..... monoethanolamine
MEK	..... methyl ethyl ketone
mfg.	..... manufacture
MIBK	..... methyl isobutyl ketone
min	..... minute(s)
min.	..... mineral, minimum
MIPA	..... monoisopropanolamine

misc.	miscible
ml	milliliter(s)
mm	millimeter(s)
NF	National Formulary
no.	number
o/w	oil-in-water
OC	open crucible
PEG	polyethylene glycol
pH	hydrogen-ion concentration
pkgs	packages
PMCC	Pensky Marten closed cup
POE	polyoxyethylene, polyoxyethylated
POP	polyoxypropylene
PPG	polypropylene glycol
pt.	point
R&B	Ring & Ball
RD	Recognized Disclosure
ref.	refractive
rpm	revolutions per minute
R.T.	room temperature
s	second(s)
sol.	soluble, solubility
sol'n.	solution
sp.gr.	specific gravity
SS	stainless steel
std.	standard
SUS	Saybolt Universal seconds
TCC	Taggart closed cup
TEA	triethanolamine
tech.	technical
temp.	temperature
theoret.	theoretical
TLV	threshold limit value
TOC	Taggart open cup
UL	Underwriter's Laboratory
USP	United States Pharmacopoeia
uv, UV	ultraviolet
veg.	vegetable
visc.	viscosity, viscous
w/o	water-in-oil
wt	weight
≈	approximately equal to
<	less than
>	greater than
≤	less than or equal to
≥	greater than or equal to

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Acetone (CTFA)

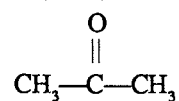
SYNONYMS:

Dimethyl ketone
2-Propanone

EMPIRICAL FORMULA:

C_3H_6O

STRUCTURE:



CAS No.:

67-64-1

TRADENAME EQUIVALENTS:

Generically sold by:

Allied-Signal, Ashland, Eastman, Harwick, Shell, Union Carbide, Union Oil

CATEGORY:

Solvent, diluent, intermediate

APPLICATIONS:

Industrial applications: adhesives/cements (generic); paint, varnish, lacquer mfg.
(generic); rubber (generic)

Industrial cleaners: precision equipment cleaner/drier (generic)

PROPERTIES:

Form:

Liquid (generic)

Color:

Colorless (generic)

Odor:

Characteristic, pleasant (generic)

Acetone (cont' d.)

Solubility:

Miscible with alcohol (generic)
Miscible with chloroform (generic)
Miscible with ether (generic)
Miscible with most oils (generic)
Miscible with water (generic)

M.W.:

58.08 (generic)

Sp.gr.:

0.791–0.793 (generic)

Density:

6.59 lb/gal (generic)

Visc.:

0.3075 cps (generic)

B.P.:

56.13 C (generic)

M.P.:

–94.9 C (generic)

Flash Pt.:

–9.4 C (OC) (generic)

Ref. Index:

1.3591 (20 C) (generic)

TOXICITY/HANDLING:

Practically nontoxic (generic)

STORAGE/HANDLING:

Flammable (generic)

Acetylated sucrose distearate (CTFA)

SYNONYMS:

Sucrose distearate, acetates

TRADENAME EQUIVALENTS:

Crodesta A-10, A-20 [Croda]

CATEGORY:

Dispersant, wetting agent, emulsifier

APPLICATIONS:

Cosmetic industry preparations: (Crodesta A-10); toiletries (Crodesta A-10)

Pharmaceutical applications: (Crodesta A-10)

PROPERTIES:

Form:

Solid (Crodesta A-20)

Acetylated sucrose distearate (cont' d.)

Wax (Crodesta A-10)

Color:

Yellow/white (Crodesta A-10)

Composition:

100% active (Crodesta A-20)

100% active, 3% monoester (Crodesta A-10)

Solubility:

Sol. in veg. oil (Crodesta A-10)

Sol. in veg./min. oil combinations (Crodesta A-10)

M.P.:

43–49 C (Crodesta A-10)

HLB:

1.0 (Crodesta A-20)

< 3.0 (Crodesta A-10)

Acid No.:

5.0 max. (Crodesta A-10)

Iodine No.:

1.0 max. (Crodesta A-10)

Saponification No.:

230–290 (Crodesta A-10)

Hydroxyl No.:

20 max. (Crodesta A-10)

Aminomethyl propanol (CTFA)

SYNONYMS:

2-Amino-2-methyl-1-propanol

AMP

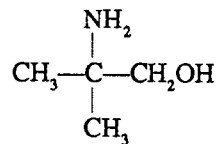
Isobutanolamine

1-Propanol, 2-amino-2-methyl-

EMPIRICAL FORMULA:

$C_4H_{11}NO$

STRUCTURE:



CAS No.:

124-68-5

Aminomethyl propanol (cont' d.)

TRADENAME EQUIVALENTS:

AMP, AMP-95 [IMC]

CATEGORY:

Dispersant, solubilizer, neutralizer, stabilizer, emulsifier, catalyst, corrosion inhibitor, antifoam

APPLICATIONS:

Cosmetic industry preparations: emulsions (AMP, AMP-95); hairsprays (AMP)

Farm products: insecticides/pesticides (AMP, AMP-95)

Household detergents: (AMP, AMP-95)

Industrial applications: construction (AMP, AMP-95); dyes and pigments (AMP, AMP-95); paint mfg. (AMP, AMP-95); polymers/polymerization (AMP, AMP-95); water treatment (AMP, AMP-95)

PROPERTIES:

Form:

Liquid (AMP-95)

Solid (AMP)

Color:

Colorless (AMP-95)

APHA 20 (AMP)

Odor:

Low (AMP-95)

Composition:

95% active in water (AMP-95)

100% active (AMP)

Solubility:

Sol. in water (AMP, AMP-95)

Ionic Nature:

Anionic (AMP)

M.W.:

89.14 (AMP, AMP-95)

Sp.gr.:

0.928 (40/40 C) (AMP)

0.942 (AMP-95)

Density:

7.78 lb/gal (AMP)

7.85 lb/gal (AMP-95)

Visc.:

102 cp (30 C) (AMP)

147 cp (AMP-95)

F.P.:

-2 C (AMP-95)

B.P.:

165 C (AMP)

Aminomethyl propanol (cont' d.)

M.P.:

30 C (AMP)

Flash Pt.:

172 F (AMP)

182 F (TCC) (AMP-95)

Surface Tension:

36-38 dynes/cm (AMP-95)

TOXICITY/HANDLING:

Skin irritant; causes eye burns; protective goggles and gloves should be worn (AMP, AMP-95)

STORAGE/HANDLING:

Corrosive to copper, brass, and aluminum; store in iron or steel; combustible (AMP, AMP-95)

STD. PKGS.:

55-gal drums or bulk (AMP, AMP-95)

Aminotrimethylene phosphonic acid

SYNONYMS:

Amino tris (methylene phosphonic acid)

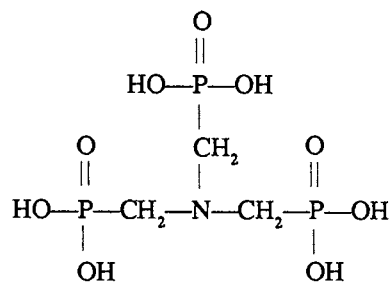
Nitriлотris (methylene) trisphosphonic acid

Phosphonic acid, [nitriлотris (methylene)] tris-

EMPIRICAL FORMULA:

$C_3H_{12}NO_9P_3$

STRUCTURE:



CAS No.:

6419-19-8

TRADENAME EQUIVALENTS:

Dequest 2000 [Monsanto]

Fostex AMP [Henkel]

Unihib 305 [Lonza]

Aminotrimethylene phosphonic acid (cont' d.)

CATEGORY:

Dispersant, scale inhibitor, corrosion inhibitor, sequestrant, conditioning agent

APPLICATIONS:

Industrial applications: heat exchange equipment (Unihib 305); industrial processing, aqueous systems (Dequest 2000; Unihib 305); metal processing (Dequest 2000); paper processing (Dequest 2000); textile/leather processing (Dequest 2000); water treatment (Fostex AMP; Unihib 305)

Industrial cleaners: (Dequest 2000)

PROPERTIES:

Form:

Liquid (Dequest 2000; Fostex AMP)

Clear low-viscosity liquid (Unihib 305)

Color:

Straw (Dequest 2000)

Pale yellow (Unihib 305)

Composition:

50% active (Fostex AMP)

50% active in water (Dequest 2000)

50% solids (Unihib 305)

Ionic Nature:

Anionic (Fostex AMP)

Stability:

Hydrolytically stable over a wide pH range and at elevated temps. (Unihib 305)

pH:

< 2 (1% sol'n.) (Unihib 305)

TOXICITY/HANDLING:

Mildly irritating to skin; moderate eye irritant; avoid prolonged/repeated skin contact; use with protective goggles (Unihib 305)

Ammonium cumenesulfonate (CTFA)

SYNONYMS:

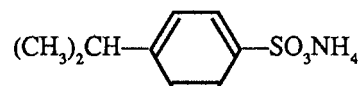
Benzenesulfonic acid, (1-methylethyl)-, ammonium salt

(1-Methylethyl) benzenesulfonic acid, ammonium salt

EMPIRICAL FORMULA:

$C_9H_{12}O_3S \cdot H_3N$

STRUCTURE:



Ammonium cumenesulfonate (cont' d.)

CAS No.:

37475-88-0

TRADENAME EQUIVALENTS:

Eltesol ACS60 [Albright & Wilson/Detergents]

Naxonate 6AC [Nease]

Reworyl ACS60 [Rewo Chemische Werke GmbH]

Ultra NCS Liquid [Witco Chem./Organics]

Witconate NCS [Witco Chem./Organics]

CATEGORY:

Hydrotrope, solubilizer, coupling agent, viscosity modifier, stabilizer, antiblocking agent, cloud point depressant

APPLICATIONS:

Household detergents: (Reworyl ACS60; Witconate NCS); dishwashing (Naxonate 6AC); heavy-duty cleaner (Eltesol ACS60; Naxonate 6AC); light-duty cleaners (Eltesol ACS60); liquid detergents (Eltesol ACS60; Naxonate 6AC; Ultra NCS Liquid); powdered detergents (Eltesol ACS60; Naxonate 6AC; Ultra NCS Liquid)

Industrial applications: adhesives (Naxonate 6AC); dyes and pigments (Naxonate 6AC); electroplating (Naxonate 6AC); lubricating/cutting oils (Naxonate 6AC); polymers/polymerization (Naxonate 6AC); printing inks (Naxonate 6AC); leather processing (Naxonate 6AC)

Industrial cleaners: sanitizers/germicides (Naxonate 6AC)

PROPERTIES:**Form:**

Liquid (Naxonate 6AC; Reworyl ACS60; Witconate NCS; Ultra NCS Liquid); (@ 20 C) (Eltesol ACS60)

Color:

Pale pink (Eltesol ACS60)

Klett 80 max. (Naxonate 6AC)

Composition:

40% conc. (Ultra NCS Liquid)

60% active min. (Naxonate 6AC)

60% active min. in water (Eltesol ACS60)

60% conc. (Reworyl ACS60)

Solubility:

Sol. in water (Witconate NCS)

Ionic Nature:

Anionic (Naxonate 6AC; Reworyl ACS60; Witconate NCS; Ultra NCS Liquid)

Density:

1.10 g/cm³ (20 C) (Eltesol ACS60)

pH:

7.0–8.0 (Naxonate 6AC); (10% aq. sol'n.) (Eltesol ACS60)

STD. PKGS.:

55-gal lined drums or tankwagons (Naxonate 6AC)

Ammonium dodecylbenzenesulfonate (CTFA)

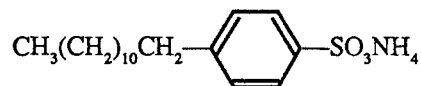
SYNONYMS:

Ammonium lauryl benzene sulfonate
Benzenesulfonic acid, dodecyl-, ammonium salt

EMPIRICAL FORMULA:

$C_{18}H_{30}O_3S \cdot H_3N$

STRUCTURE:



CAS No.:

1331-61-9

TRADENAME EQUIVALENTS:

Conco AAS-50M [Continental]
Hetsulf 50A [Heterene]
Nansa AS40 [Albright & Wilson/Marchon]
Newcol 210 [Nippon Nyukazai]

CATEGORY:

Dispersant, detergent, emulsifier, wetting agent

APPLICATIONS:

Automobile cleaners: car shampoo (Nansa AS40)
Household detergents: (Nansa AS40); dishwashing (Nansa AS40); light-duty cleaners
(Conco AAS-50M; Hetsulf 50A); liquid detergents (Conco AAS-50M; Nansa
AS40)
Industrial cleaners: (Nansa AS40)

PROPERTIES:

Form:

Liquid (Conco AAS-50M; Newcol 210)
Slurry (Hetsulf 50A)
Opaque gel (Nansa AS40)

Color:

Golden yellow (Nansa AS40)

Composition:

40% active (Nansa AS40)
40% conc., contains isopropanol (Conco AAS-50M)
48% active (Hetsulf 50A)
50% conc. (Newcol 210)

Ionic Nature:

Anionic (Conco AAS-50M; Hetsulf 50A; Newcol 210)

pH:

6.0–6.5 (2% aq.) (Nansa AS40)
6.0–7.0 (5% aq. sol'n.) (Hetsulf 50A)

Biodegradable: (Hetsulf 50A)