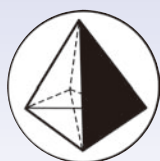
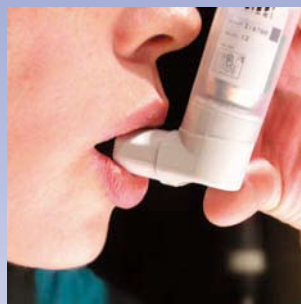
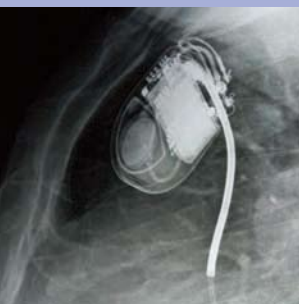


Chemical
Reference
Standards
for

Plastic Additives

1st Edition

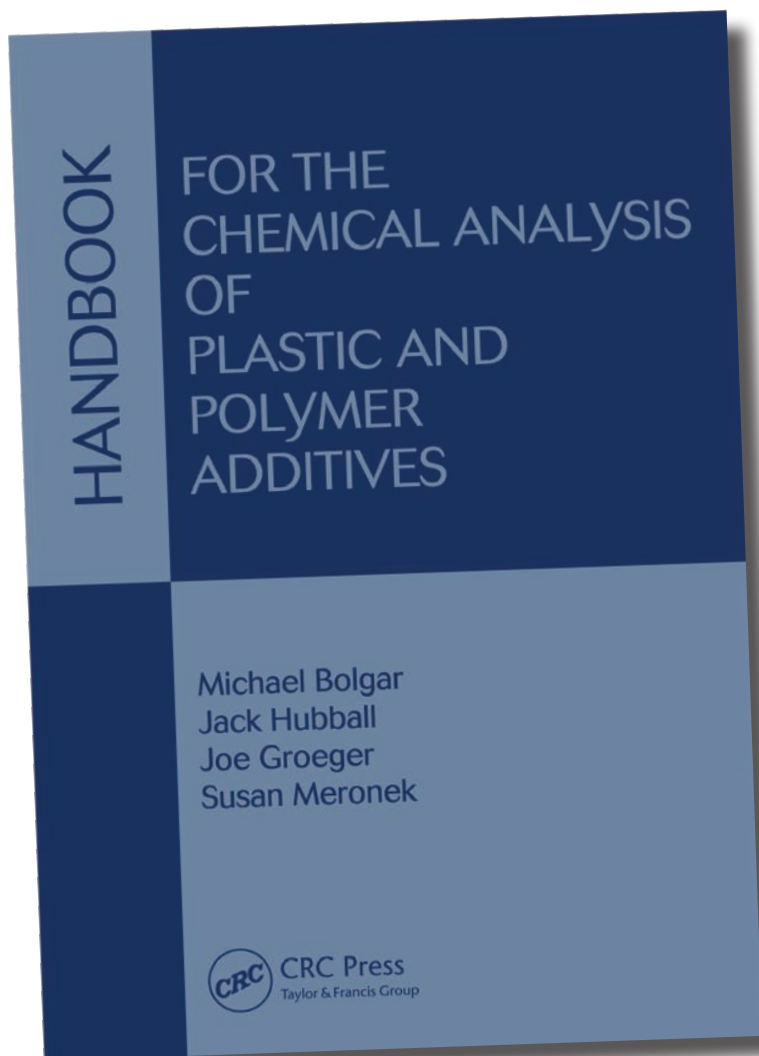


AccuStandard®



The perfect companion for your analysis!

This reference book contains the compounds in this catalog, with important reference data to aid in testing and compliance.



Each Compound has:

Chemical Information

- Structure
- CAS Number (where applicable)
- RTECS Number (where available)
- Formula
- Molecular Weight
- IUPAC Name, other common names and some popular brand names

Physical Properties

- Appearance
- Melting and Boiling Points
- Stability
- Solubilities in several common solvents

Other Important Information

- Application
- Regulatory
- Environmental Impact
- Point of Release
- Toxicological Data

Analytical Data

- Mass Spectrum with key Ions tabulated
- Chromatogram with conditions

As well as information to help with real world examples, tips for analysis in challenging matrices, and much, much more!

The book will be available mid 2007.

Part Number: PLAS-CRC-BOOK
see inside back cover for ordering details

PolyAdd✓Check™

Polymer Additive Reference Standards

Plastic Additives

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AccuStandard has been serving the Analytical Community with high quality Chemical Reference Standards for over 20 years.

Today we are the largest independent manufacturer specializing exclusively in Chemical Reference Standards in the world. We achieved this distinction by concentrating on two goals: to have the widest range of Chemical Reference Standards (over 35,000 solutions and neat), and to have the most responsive customer service (same day shipment and knowledgeable assistance).

If you have not experienced AccuStandard products and services, we welcome you and invite your comments. We also invite your suggestions for new products, special formulations and mixtures, and synthesis of new or rare compounds.

Introduction:

Plastics and other polymeric materials have become indispensable in our everyday lives. Although they offer many benefits, hazardous chemicals may be present in these materials. These hazardous materials can be introduced either intentionally as additives, or unintentionally as pollutants.

AccuStandard has collected or synthesized many of these polymer adjuncts and is pleased to present them in this newest unique catalog as Certified Reference Standards for monitoring these chemicals.

The occurrence, toxicity and analytical methods used in the detection, monitoring (for both presence and levels) of these chemical classes and individual compounds within these classes are more thoroughly described in the book the "Handbook for the Chemical Analysis of Plastic and Polymer Additives" (published in 2007 by CRC Press). Both manufacturers and distributors of plastic and related polymeric materials will find the CRC book to be an authoritative source of information that complements this catalog.

This catalog contains the most comprehensive list of Certified Reference Materials for Additive Analysis available anywhere. Calibrating with Certified Standards adds an additional layer of confidence in the analysis that can aid in meeting regulations, protecting in challenges from governmental regulations, and providing protection from legal issues that could be raised by consumers of your products.

Below find a list of regulations that require analysis of many of these additives:

- EU Directive 2002/96/EC WEEE (Waste Electrical and Electronic Equipment) that establishes limits for the content of a product that must be recyclable or reusable.
- EU Directive 2003/11/EC ROHS (Restriction Of the use of certain Hazardous Substances) restricting the use of six toxins from most electronic and electrical equipment
- EU Directive 90/128/EC for monomers and additives for plastics intended for food contact
- EU Directive 2002/72/EC relating to plastic materials and articles intended to come in contact with foodstuffs
- EU Directive 2002/61/EC Aryl Amine Breakdown Products in Azo Dyes
- EU Directive 67/548/EEC Carcinogenic and Regulated Dyes
- FDA and The United States Code of Federal Regulations (CFR) – 21 CFR Parts 175-178 that regulate adhesives, components of coatings, paper and paperboard components, polymers and adjuvants and production aids.
- United States Environmental Protection Agency (USEPA) – Methods 606, 506-1 and 8061 regulating Phthalates and Adipates

Both the catalog and book are organized into classes by additive type. Manufacturers can easily find Standards that match their particular application and product formulation for the following product categories:

Medical Devices
Food Packaging
Pharmaceutical Packaging
Toys
Wire and Cable
etc.

Plastic Additive Standards

Plastic Additives are used to either aid in the processing of the material, or to make the final product more appealing, durable or useful. Many of these compounds can be used for multiple functions, and many of them interact synergistically to protect against heat, light, and oxidation.

We have listed the compounds by the most common uses. If you cannot find a particular compound, or are interested in a custom solvent, concentration, or a custom solution containing more than one compound please call our Technical Service Department for a quotation.

Accelerators are additives that, as the name implies, accelerate or speed up the chemical reaction or the curing of the polymers into the final plastic. Accelerators are also sometimes called promoters. In rubbers accelerators are used to increase the crosslinking reaction with sulfur in the vulcanization of rubber.

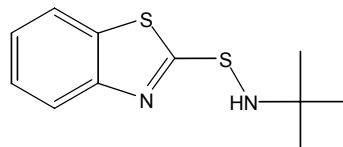
Accelerator BBTS

N-(1,1-dimethylethyl)2-benzothiazolesulfenamide

Akrochem Corporation

PLAS-AC-003S 1000 µg/mL in Hexane
PLAS-AC-003N 50 mg

1 mL



CAS Number 95-31-8

Formula C₁₁H₁₄N₂S₂

M.W. 238.38

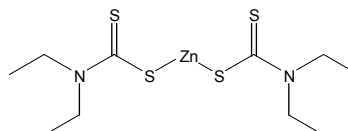
Accelerator EZ & EZ-SP

Zinc diethyldithiocarbamate

Akrochem Corporation

PLAS-AC-006S 1000 µg/mL in Hexane
PLAS-AC-006N 50 mg

1 mL



CAS Number 14324-55-1

Formula C₁₀H₂₀N₂S₄ • Zn

M.W. 361.93

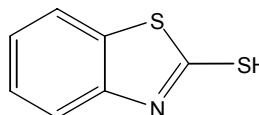
Accelerator MBT, MBT/MG

2-Mercaptobenzothiazole

Akrochem Corporation

PLAS-AC-001S 1000 µg/mL in Hexane
PLAS-AC-001N 50 mg

1 mL



CAS Number 149-30-4

Formula C₇H₅S₂N

M.W. 167.25

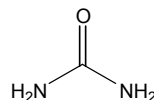
Activator OT Urea

Urea

Akrochem Corporation

PLAS-AC-005S 1000 µg/mL in Hexane
PLAS-AC-005N 50 mg

1 mL



CAS Number 57-13-3

Formula CH₄N₂O

M.W. 60.07

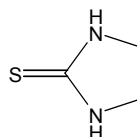
Akroform ETU-22 PM

Ethylene thiourea

Akrochem Corporation

PLAS-AC-002S 1000 µg/mL in Hexane
PLAS-AC-002N 50 mg

1 mL



CAS Number 96-45-7

Formula C₃H₆N₂S

M.W. 102.11

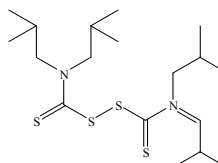
Cure-Rite® IBT

tetraisobutylthiuram disulfide

Noveon, Inc.

PLAS-AC-004S 1000 µg/mL in Hexane
PLAS-AC-004N 50 mg

1 mL



CAS Number 3064-73-1

Formula C₁₈H₃₆N₂S₄

M.W. 408.76

Plastic Additive Standards

Antifoams

Antifoaming agents (sometimes called defoamers) act to stop foaming during processing. Foaming can cause both processing problems as well as weak spots in the final product.

Antifoaming agents typically work by reducing surface tension breaking up the foam. There are many different types of antifoaming agents such as silicones, polysiloxane oils, surfactants, or fatty acids.

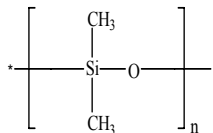
SF100

GE Silicones

Dimethyl silicone fluid

PLAS-AF-001S 1000 µg/mL in Hexane
PLAS-AF-001N 50 mg

1 mL



CAS Number 9016-00-6
Formula $(\text{C}_2\text{H}_6\text{OSi})_x$
M.W.

Antidegradants

Antidegradants include a broad category of additives used in compounding to slow deterioration that can occur due to oxidation, ozone, light or any combination of these conditions. It is basically a generic term for additives that include antioxidants, antiozonants, and UV Stabilizers.

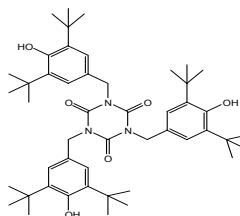
Ethanox® 314

Albemarle Corporation

1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione

PLAS-AX-084S 1000 µg/mL in Hexane
PLAS-AX-084N 50 mg

1 mL



CAS Number 27676-62-6
Formula $\text{C}_{48}\text{H}_{69}\text{N}_3\text{O}_6$
M.W. 784.08

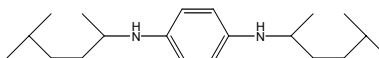
Santoflex® 77PD

Solutia Inc.

N,N'-bis(1,4-dimethylpentyl)-p-phenylenediamine

PLAS-AD-002S 1000 µg/mL in Hexane
PLAS-AD-002N 50 mg

1 mL



CAS Number 3081-14-9
Formula $\text{C}_{20}\text{H}_{30}\text{N}_2$
M.W. 304.58

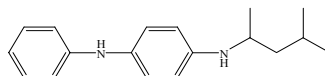
Santoflex® 6PPD

Solutia Inc.

N-phenyl-N'-propan-2-yl-benzene-1,4-diamine

PLAS-AD-004S 1000 µg/mL in Hexane
PLAS-AD-004N 50 mg

1 mL



CAS Number 793-24-8
Formula $\text{C}_{18}\text{H}_{24}\text{N}_2$
M.W. 228.42

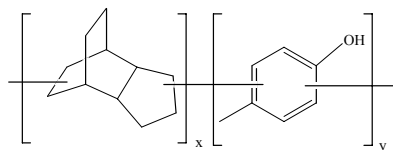
Akrochem Antiox 12

Goodyear Tire & Rubber Company

Butylated reaction product of p-cresol and dicyclopentadiene

PLAS-AD-001S 1000 µg/mL in Hexane
PLAS-AD-001N 50 mg

1 mL



CAS Number 68610-51-5
Formula $\text{C}_{11}\text{H}_{20}\text{OH}$
 $[\text{C}_{12}\text{H}_{22}\text{OH}]_n \text{C}_4\text{H}_9$
M.W. 600-800

Plastic Additive Standards

Antioxidants

Oxidation during compounding or processing can cause problems such as: loss of strength, breakdown or discoloration. Oxidation can also occur in the final product causing discoloration, scratching, and loss of strength, flexibility, stiffness or gloss.

Antioxidants are used in most hydrocarbon polymers including polyethylene, polypropylene, polystyrene, and ABS.

Antioxidants work to slow down the oxidation cycle, usually by scavenging free radicals. Some types of antioxidants are: organophosphites, sterically hindered phenols, amines, and thioesters.

Alkanox® P27

Chemtura Corporation

bis(2,4-di-tert-butylphenyl)pentaerythritol diphosphate and magnesium aluminum hydroxy carbonate hydrate

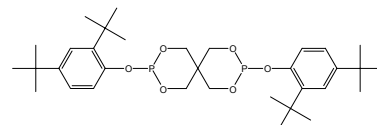
CAS Number 26741-53-7 / 11097-59-9

Formula $C_{33}H_{50}O_5P_2 \cdot H_{16}Al_2Mg_6O_{19}$

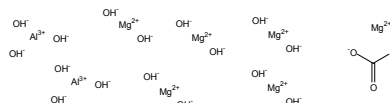
M.W.

PLAS-AX-032S 1000 µg/mL in Hexane

1 mL



PLAS-AX-032N 50 mg



Alkanox® TNPP

Chemtura Corporation

tris(mono-nonylphenyl) phosphite with up to 1% triisopropanol amine

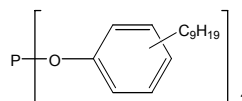
CAS Number 26523-78-4

Formula $C_{45}H_{69}O_3P$

M.W. 689

PLAS-AX-077S 1000 µg/mL in Hexane

1 mL



PLAS-AX-077N 50 mg

Antioxidant 60

Akrochem Corporation

2H-benzimidazole-2-thione, 1,3-di-hydro-4(or 5)-methyl

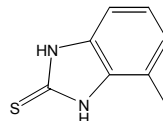
CAS Number 53988-10-6

Formula $C_8H_8N_2S$

M.W. 164.23

PLAS-AX-019S 1000 µg/mL in Methanol

1 mL



PLAS-AX-019N 50 mg

Antioxidant S

Akrochem Corporation

Benzenamine, N-phenyl, reaction products with 2,4,4-trimethylpentene

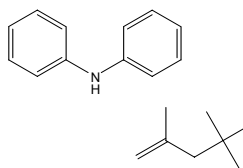
CAS Number 68411-46-1

Formula $C_{12}H_{11}N \cdot C_8H_{16}$

M.W. 393.66

PLAS-AX-057S 1000 µg/mL in Hexane

1 mL



PLAS-AX-057N 50 mg

Cyanox® 1212

Cytec Technology

lauryl stearylthiopropionate

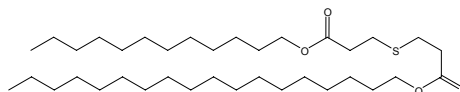
CAS Number 13103-52-1

Formula $C_{36}H_{70}O_4S$

M.W. 599.00

PLAS-AX-047S 1000 µg/mL in Hexane

1 mL



PLAS-AX-047N 50 mg

Plastic Additive Standards

Antioxidants (continued)

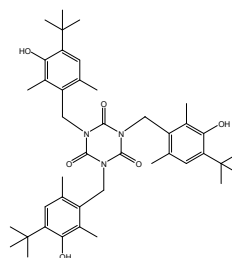
Cyanox® 1790

Cytec Technology

1,3,5-tris(4-tert-butyl-3-hydroxy-2,6-dimethylbenzyl)-1,3,5-triazine-2,4,6-(1h,3h,5h)-trione

PLAS-AX-005S 1000 µg/mL in Hexane
PLAS-AX-005N 50 mg

1 mL



CAS Number 40601-76-1
Formula $C_{42}H_{57}N_3O_6$
M.W. 699.92

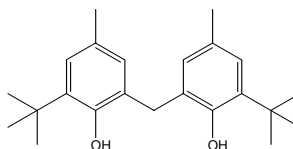
Cyanox® 2246

Cytec Technology

2,2'-methylene-bis-(4-methyl-6-tert-butyl-phenol)

PLAS-AX-013S 1000 µg/mL in Hexane
PLAS-AX-013N 50 mg

1 mL



CAS Number 119-47-1
Formula $C_{23}H_{32}O_2$
M.W. 340.55

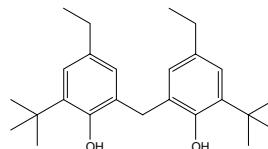
Cyanox® 425

Cytec Technology

2,2'-methylene-bis-(4-ethyl-6-tert-butyl-phenol)

PLAS-AX-012S 1000 µg/mL in Hexane
PLAS-AX-012N 50 mg

1 mL



CAS Number 88-24-4
Formula $C_{25}H_{36}O_2$
M.W. 368.55

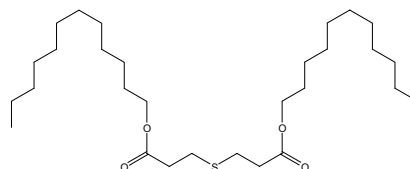
Cyanox® LTDP

Cytec Technology

dilaurylthiopropionate

PLAS-AX-041S 1000 µg/mL in Hexane
PLAS-AX-041N 50 mg

1 mL



CAS Number 123-28-4
Formula $C_{30}H_{58}O_4S$
M.W. 514.85

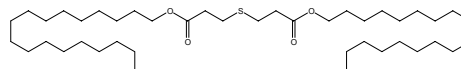
Cyanox® STDP

Cytec Technology

distearylthiopropionate

PLAS-AX-044S 1000 µg/mL in Hexane
PLAS-AX-044N 50 mg

1 mL



CAS Number 693-36-7
Formula $C_{42}H_{82}O_4S$
M.W. 683.3

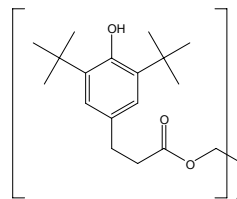
Ethanox® 310

Albemarle Corporation

pentaerythritol tetrakis (3-(3,5-di-t-butyl-4-hydroxyphenyl)propionate)

PLAS-AX-086S 1000 µg/mL in Hexane
PLAS-AX-086N 50 mg

1 mL



CAS Number 6683-19-8
Formula $C_{73}H_{108}O_{12}$
M.W. 1177.65

Plastic Additive Standards

Antioxidants (continued)

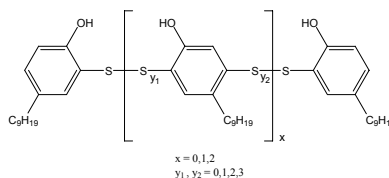
Ethanox® 323

Albemarle Corporation

nonylphenol disulfide oligomer

PLAS-AX-082S 1000 µg/mL in Hexane
 PLAS-AX-082N 50 mg

1 mL



CAS Number
 Formula
 M.W.

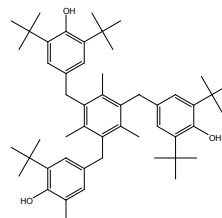
Ethanox® 330

Albemarle Corporation

1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl) benzene

PLAS-AX-021S 1000 µg/mL in Hexane
 PLAS-AX-021N 50 mg

1 mL



CAS Number 1709-70-2
 Formula $C_{54}H_{78}O_3$
 M.W. 775.32

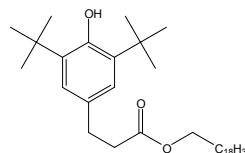
Ethanox® 376

Albemarle Corporation

3,5-di-tert-butyl-4-hydroxyhydrocinnamic acid, octadecyl ester

PLAS-AX-054S 1000 µg/mL in Hexane
 PLAS-AX-054N 50 mg

1 mL



CAS Number 2082-79-3
 Formula $C_{35}H_{62}O_3$
 M.W. 530.87

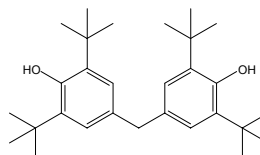
Ethanox® 702

Albemarle Corporation

4,4'-methylenebis(2,6-di-tert-butylphenol)

PLAS-AX-025S 1000 µg/mL in Hexane
 PLAS-AX-025N 50 mg

1 mL



CAS Number 118-82-1
 Formula $C_{29}H_{44}O_2$
 M.W. 424.66

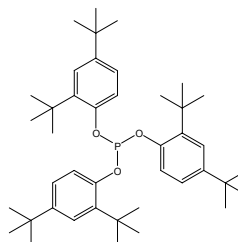
Ethaphos® 368

Albemarle Corporation

tris(2,4-di-tert-butylphenyl) phosphite

PLAS-AX-074S 1000 µg/mL in Hexane
 PLAS-AX-074N 50 mg

1 mL



CAS Number 31570-04-4
 Formula $C_{42}H_{63}O_3P$
 M.W. 646.92

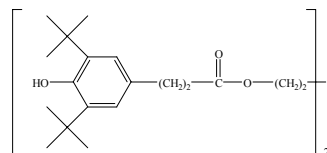
Irganox® 1035

Ciba Specialty Chemicals

thiodiethylene bis(3,5-di-tert-butyl-4-hydroxyhydrocinnamate)

PLAS-AX-069S 1000 µg/mL in Hexane
 PLAS-AX-069N 50 mg

1 mL



CAS Number 41484-35-9
 Formula $C_{38}H_{58}O_6S$
 M.W. 642.93

Plastic Additive Standards

Antioxidants (continued)

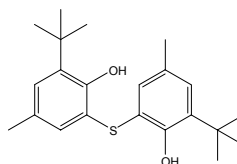
Irganox® 1081

Ciba Specialty Chemicals

6,6'-di-tert-butyl-2,2'-thiodi-p-cresol

PLAS-AX-080S 1000 µg/mL in Hexane
PLAS-AX-080N 50 mg

1 mL



CAS Number 90-66-4
Formula $C_{22}H_{30}O_2S$
M.W. 358.54

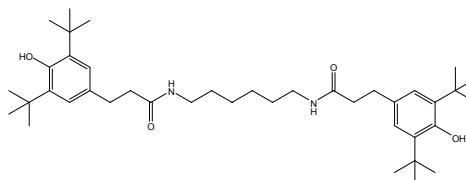
Irganox® 1098

Ciba Specialty Chemicals

N,N'-1,6-hexanediy bis[3,5-bis(1,1-dimethylethyl)-4-hydroxy-benzenepropanamide]

PLAS-AX-050S 1000 µg/mL in Hexane
PLAS-AX-050N 50 mg

1 mL



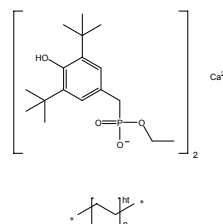
CAS Number 23128-74-7
Formula $C_{40}H_{64}N_2O_4$
M.W. 636.95

Irganox® 1425 WL

Ciba Specialty Chemicals

ethyl 3,5-di-tert-butyl-4-hydroxybenzylphosphonate, calcium salt and polyethylene-wax mixture

PLAS-AX-079N 50 mg



CAS Number 65140-91-2 / 9002-88-4
Formula $2C_{17}H_{29}O_4P \cdot Ca(C_2H_4)_x$
M.W. 695

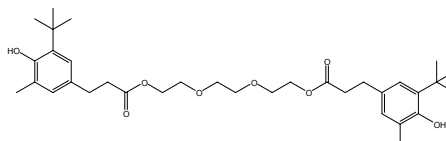
Irganox® 245

Ciba Specialty Chemicals

triethyleneglycol bis[3-(3'-tert-butyl-4'-hydroxy-5'-methylphenol)propionate]

PLAS-AX-070S 1000 µg/mL in Hexane
PLAS-AX-070N 50 mg

1 mL



CAS Number 36443-68-2
Formula $C_{34}H_{50}O_8$
M.W. 586.76

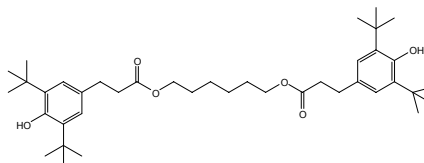
Irganox® 259

Ciba Specialty Chemicals

hexamethylene bis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate)

PLAS-AX-045S 1000 µg/mL in Hexane
PLAS-AX-045N 50 mg

1 mL



CAS Number 35074-77-2
Formula $C_{40}H_{62}O_6$
M.W. 638.92

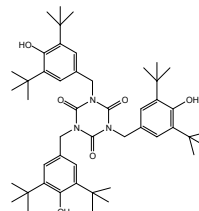
Irganox® 3114 FF

Ciba Specialty Chemicals

1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione

PLAS-AX-078S 1000 µg/mL in Hexane
PLAS-AX-078N 50 mg

1 mL



CAS Number 27676-62-6
Formula $C_{48}H_{69}N_3O_6$
M.W. 784.08

Plastic Additive Standards

Antioxidants (continued)

Irganox® 3125

Ciba Specialty Chemicals

3,5-di-tert-butyl-4-hydroxyhydrocinnamic ester with 1,3,5-tris[2-hydroxyethyl]-s-triazine-2,4,6[1H,3H,5H]-trione

CAS Number 34137-09-2

Formula $C_{60}H_{87}N_3O_{12}$

M.W. 1042.35

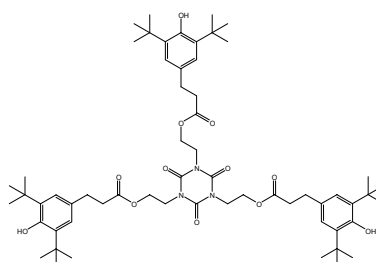
PLAS-AX-020S

1000 µg/mL in
Hexane:Acetone(95:5)

1 mL

PLAS-AX-020N

50 mg



Irganox® 565

Ciba Specialty Chemicals

2,4-bis(n-octylthio)-6-(4-hydroxy-3,5-di-tert-butylanilino)-1,3,5-triazine

CAS Number 991-84-4

Formula $C_{33}H_{56}N_4OS_2$

M.W. 588.96

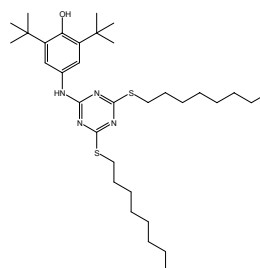
PLAS-AX-014S

1000 µg/mL in Hexane

1 mL

PLAS-AX-014N

50 mg



Irganox® E 201

Ciba Specialty Chemicals

alpha-tocopherol

CAS Number 10191-41-0

Formula $C_{29}H_{50}O_2$

M.W. 430.71

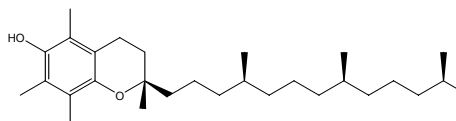
PLAS-AX-027S

1000 µg/mL in Hexane

1 mL

PLAS-AX-027N

50 mg



Irganox® MD 1024

Ciba Specialty Chemicals

1,2-bis(3,5-di-tert-butyl-4-hydroxyhydrocinnamoyl)hydrazide

CAS Number 32687-78-8

Formula $C_{34}H_{52}N_2O_4$

M.W. 552.79

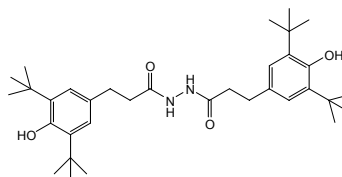
PLAS-AX-001S

1000 µg/mL in Hexane

1 mL

PLAS-AX-001N

50 mg



Isonox® 132

SI Group Incorporated

2,6-di-tert-butyl-4-sec-butylphenol

CAS Number 17540-75-9

Formula $C_{18}H_{30}O$

M.W. 262.43

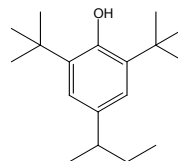
PLAS-AX-018S

1000 µg/mL in Hexane

1 mL

PLAS-AX-018N

50 mg



Isonox® 232

SI Group Incorporated

2,6-di-tert-butyl-4-nonylphenol

CAS Number 4306-88-1

Formula $C_{23}H_{40}O$

M.W. 262.43

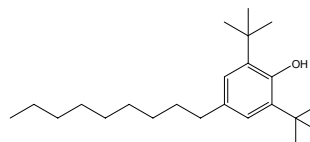
PLAS-AX-063S

1000 µg/mL in Hexane

1 mL

PLAS-AX-063N

50 mg



Plastic Additive Standards

Antioxidants (continued)

Lowinox® AH25

2,5-bis(1,1-dimethylpropyl)-1,4-benzenediol

Chemtura Corporation

CAS Number 79-74-3

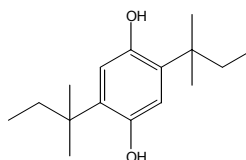
Formula $C_{16}H_{26}O_2$

M.W. 250.38

PLAS-AX-016S 1000 µg/mL in Hexane

1 mL

PLAS-AX-016N 50 mg



Lowinox® CPL

Polymeric sterically hindered phenol

Chemtura Corporation

CAS Number 68610-51-5

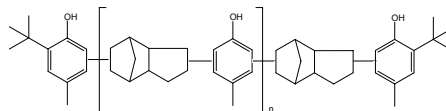
Formula

M.W. 600-700

PLAS-AX-059S 1000 µg/mL in Hexane

1 mL

PLAS-AX-059N 50 mg



Lowinox® TBM-6

4,4'-thiobis(2-tert-butyl-5-methylphenol)

Chemtura Corporation

CAS Number 96-69-5

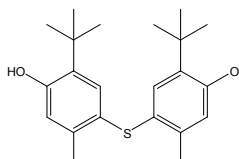
Formula $C_{22}H_{30}O_2S$

M.W. 358.54

PLAS-AX-024S 1000 µg/mL in Hexane:Acetone(9:1)

1 mL

PLAS-AX-024N 50 mg



Markstat® 60

Sodium perchlorate

Chemtura Corporation

CAS Number

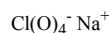
Formula $NaClO_4$

M.W. 122.44

PLAS-AX-028S 1000 µg/mL in Hexane

1 mL

PLAS-AX-028N 50 mg



Naugard® 412S

beta-laurylthiopropionate

Chemtura Corporation

CAS Number 29598-76-3

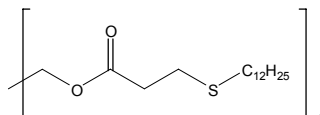
Formula $C_{65}H_{124}O_8S_4$

M.W. 1161.94

PLAS-AX-030S 1000 µg/mL in Hexane

1 mL

PLAS-AX-030N 50 mg



Naugard® 445

4,4'-bis(alpha,alpha-dimethylbenzyl)diphenylamine

Chemtura Corporation

CAS Number 10081-67-1

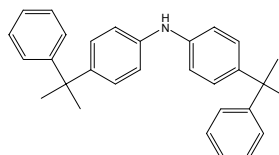
Formula $C_{30}H_{31}N$

M.W. 405.57

PLAS-AX-022S 1000 µg/mL in Hexane

1 mL

PLAS-AX-022N 50 mg



Naugard® 956

proprietary blend of primary and secondary antioxidants

Chemtura Corporation

CAS Number

Formula

M.W.

PLAS-AX-060S 1000 µg/mL in Toluene

1 mL

PLAS-AX-060N 50 mg

N/A

Plastic Additive Standards

Antioxidants (continued)

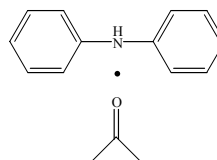
Naugard® A

Chemtura Corporation

acetone diphenylamine condensation products

PLAS-AX-026S	1000 µg/mL in Hexane:Acetone(8:2)
PLAS-AX-026N	50 mg

1 mL



CAS Number	68412-48-6
Formula	$C_{12}H_{11}N \cdot C_3H_6O$
M.W.	227.31

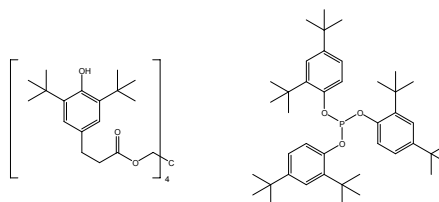
Naugard® B-25

Chemtura Corporation

1:1 blend of Naugard® 10 and Naugard® 524

PLAS-AX-061S	1000 µg/mL in Hexane
PLAS-AX-061N	50 mg

1 mL



CAS Number	6683-19831570-044
Formula	$C_{73}H_{106}O_{12} \cdot C_{42}H_{63}O_3P$
M.W.	1177.65 / 646.92

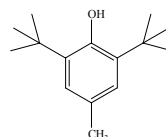
Naugard® BHT

Chemtura Corporation

2,6-di-tert-butyl-4-methylphenol

PLAS-AX-017S	1000 µg/mL in Hexane
PLAS-AX-017N	50 mg

1 mL



CAS Number	128-37-0
Formula	$C_{15}H_{24}O$
M.W.	220.35

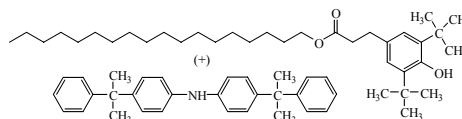
Naugard® HM-22

Chemtura Corporation

blend of phenolic primary and diphenylamine secondary antioxidants
(Naugards 76 and 445)

PLAS-AX-033S	1000 µg/mL in Hexane
PLAS-AX-033N	50 mg

1 mL



CAS Number	
Formula	
M.W.	

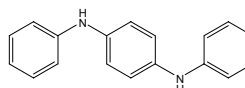
Naugard® J

Chemtura Corporation

N,N'-diphenyl-*p*-phenylenediamine

PLAS-AX-048S	1000 µg/mL in Hexane:Acetone(1:1)
PLAS-AX-048N	50 mg

1 mL



CAS Number	74-31-7
Formula	$C_{18}H_{16}N_2$
M.W.	260.36

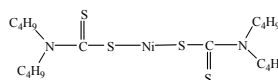
Naugard® NBC

Chemtura Corporation

nickel dibutyl dithiocarbamate

PLAS-AX-051S	1000 µg/mL in Hexane
PLAS-AX-051N	50 mg

1 mL



CAS Number	13927-77-0
Formula	$C_{18}H_{36}N_2NiS_4$
M.W.	467.45

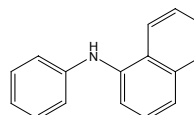
Naugard® PANA

Chemtura Corporation

N-phenyl-1-naphthylamine

PLAS-AX-058S	1000 µg/mL in Hexane
PLAS-AX-058N	50 mg

1 mL



CAS Number	90-30-2
Formula	$C_{16}H_{13}N$
M.W.	219.28

Plastic Additive Standards

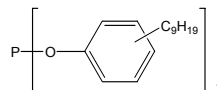
Antioxidants (continued)

Naugard® PHR

Chemtura Corporation

tris(mono-nonylphenyl) phosphite with up to 1% triisopropanol amine

PLAS-AX-076S	1000 µg/mL in Hexane	1 mL
PLAS-AX-076N	50 mg	



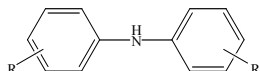
CAS Number	26523-78-4
Formula	$C_{45}H_{99}O_3P$
M.W.	689.00

Naugard® PS-30

Chemtura Corporation

Benzenamine, N-phenyl, reaction products with 2,4,4-trimethylpentene

PLAS-AX-038S	1000 µg/mL in Hexane	1 mL
PLAS-AX-038N	50 mg	



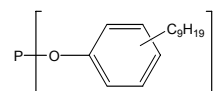
CAS Number	68411-46-1
Formula	$C_{12}H_{11}N \cdot C_6H_{16}$
M.W.	N/A

Naugard® PS-35 (now Weston 399)

Chemtura Corporation

tris-nonyl phenyl phosphite

PLAS-AX-046S	1000 µg/mL in Hexane	1 mL
PLAS-AX-046N	50 mg	



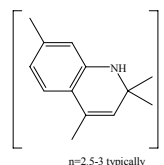
CAS Number	
Formula	$C_{45}H_{99}O_3P$
M.W.	689.32

Naugard® Q Extra

Chemtura Corporation

1,2-dihydro-2,2,4-trimethylquinoline (polymerized)

PLAS-AX-002S	1000 µg/mL in Hexane	1 mL
PLAS-AX-002N	50 mg	



CAS Number	26780-96-1
Formula	$(C_{12}H_{15}N)_n$
M.W.	(173.25) _n

Naugard® RM-51

Chemtura Corporation

blend of phenolic primary and phosphite secondary antioxidants

PLAS-AX-034S	1000 µg/mL in Hexane	1 mL
PLAS-AX-034N	50 mg	

N/A

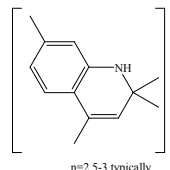
CAS Number	26523-78-4
Formula	$(C_9H_{19}C_6H_4O_3)_3P$
M.W.	689.02

Naugard® Super Q

Chemtura Corporation

1,2-dihydro-2,2,4-trimethylquinoline (polymerized)

PLAS-AX-003S	1000 µg/mL in Hexane	1 mL
PLAS-AX-003N	50 mg	



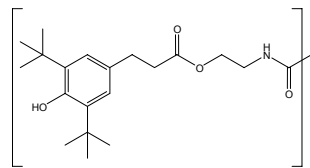
CAS Number	147-47-7
Formula	$C_{12}H_{15}N$
M.W.	173.26

Naugard® XL-1

Chemtura Corporation

2,2'-oxamidobis[ethyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate]

PLAS-AX-008S	1000 µg/mL in Hexane	1 mL
PLAS-AX-008N	50 mg	



CAS Number	70331-94-1
Formula	$C_{40}H_{60}N_2O_8$
M.W.	697.00

Plastic Additive Standards

Antioxidants (continued)

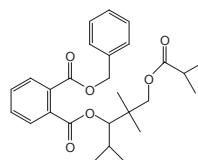
Santicizer® 278

Solutia Inc.

benzyl 3-isobutyryloxy-1-isopropyl-2,2-dimethylpropyl phthalate

PLAS-AX-029S 1000 µg/mL in Hexane
PLAS-AX-029N 50 mg

1 mL



CAS Number 16883-83-3

Formula $C_{27}H_{34}O_6$

M.W. 454.56

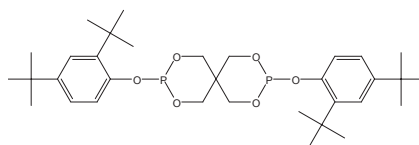
Ultrinox® 626

Chemtura Corporation

bis(2,4-di-tert-butylphenyl)pentaerythritol diphosphite

PLAS-AX-031S 1000 µg/mL in Hexane
PLAS-AX-031N 50 mg

1 mL



CAS Number 26741-53-7

Formula $C_{33}H_{50}O_6P_2$

M.W. 604.69

Antioxidants , Antidegradants

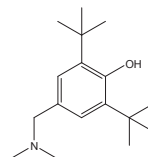
Ethanox® 703

Albemarle Corporation

2,6-di-tert-butyl-N,N-dimethylamino-p-cresol

PLAS-AX-085S 1000 µg/mL in Hexane
PLAS-AX-085N 50 mg

1 mL



CAS Number 88-27-7

Formula $C_{17}H_{29}NO$

M.W. 263.42

Antiozonants are materials added to plastics to slow the deterioration of the finished product that occurs from exposure to ozone. Antiozonants typically work by migrating to the surface of the product and then create an ozone-impermeable barrier or skin on the surface.

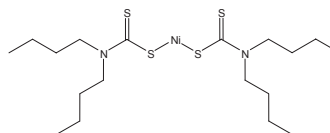
Akrochem NIBUD

Akrochem Corporation

nickel dibutyl dithiocarbamate

PLAS-AZ-001S 1000 µg/mL in Hexane
PLAS-AZ-001N 50 mg

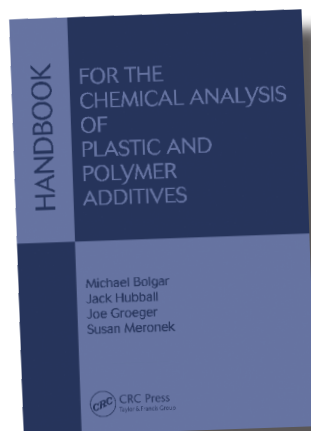
1 mL



CAS Number 13927-77-0

Formula $C_{18}H_{36}N_2NiS_4$

M.W. 467.45



Your Perfect Companion

Part No. **PLAS-CRC-BOOK**

Plastic Additive Standards

Blowing Agents

Blowing agents are sometimes also called chemical foaming agents. They are used to release gas into the plastic or resin. Blowing agents can be used to reduce weight, improve softness, provide insulation, add shock absorption properties or add resilience in the final product.

Chemical blowing agents (as opposed to physical blowing agents such as nitrogen gas) are principally organic chemicals that decompose at elevated temperatures to release a gas during decomposition that can add a cellular structure in the plastic.

CPW-100

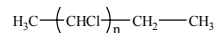
Harwick Standard

chlorinated paraffin wax

CAS Number 63449-39-8

PLAS-BA-001S 1000 µg/mL in Hexane

1 mL



Formula Unspecified

PLAS-BA-001N 50 mg

M.W.

Blowing Agents, Plasticizers

Celogen® AZ

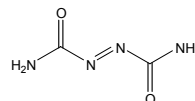
Chemtura Corporation

carbamoyliminourea

CAS Number 123-77-3

PLAS-BA-002S 1000 µg/mL in DMSO

1 mL



Formula C₂H₄N₄O₂

PLAS-BA-002N 50 mg

M.W. 116.08

Coupling Agents

Coupling agents promote the physical or chemical interaction with the polymer.

Silquest® A-187

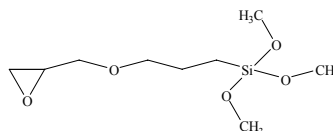
Chemtura Corporation

gamma-glycidypropyltrimethoxysilane

CAS Number 2530-83-8

PLAS-CA-004S 1000 µg/mL in Hexane

1 mL



Formula C₉H₂₀O₅Si

PLAS-CA-004N 50 mg

M.W. 236.38

Silquest® A-1100

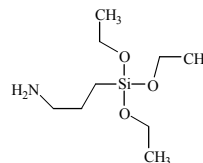
Chemtura Corporation

gamma-aminopropyltriethoxysilane

CAS Number 919-30-2

PLAS-CA-002S 1000 µg/mL in Hexane

1 mL



Formula C₉H₂₃NO₃Si

PLAS-CA-002N 50 mg

M.W. 221.37

Silquest® A-1102

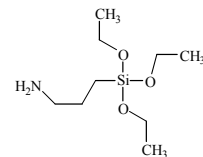
General Electric

gamma-aminopropyltriethoxysilane (Tech grade)

CAS Number 919-30-2

PLAS-CA-003S 1000 µg/mL in Hexane

1 mL



Formula C₉H₂₃NO₃Si

PLAS-CA-003N 50 mg

M.W. 221.37

Plastic Additive Standards

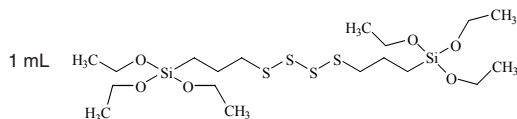
Coupling Agents (Continued)

Silquest® A-1289

bis-(triethoxysilylpropyl)tetrasulfide

General Electric

PLAS-CA-001S 1000 µg/mL in Hexane
PLAS-CA-001N 50 mg



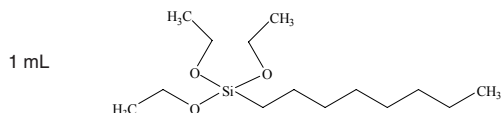
CAS Number 211519-85-6
Formula $C_{18}H_{42}O_6S_4Si_2$
M.W. 538.94

Silquest® A-137

octyltriethoxysilane

General Electric

PLAS-CA-005S 1000 µg/mL in Hexane
PLAS-CA-005N 50 mg



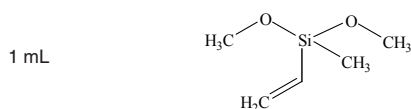
CAS Number 2943-75-1
Formula $C_{14}H_{32}O_3Si$
M.W. 276.55

Silquest® A-2171

vinylmethyldimethoxysilane

General Electric

PLAS-CA-006S 1000 µg/mL in Hexane
PLAS-CA-006N 50 mg



CAS Number 16753-62-1
Formula $C_5H_{12}O_2Si$
M.W. 132.24

Cross-Linking Agents

Crosslinking is the polymerization reaction that branches out from the main molecular chain forming a network pattern of chemical bonds. Crosslinking agents enhance this crosslinking and bonding between polymer chains.

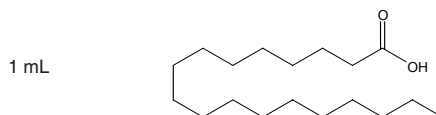
Crosslinking adds desirable properties such as: solidity, elasticity, impermeability to gases, and better electrical insulation. Crosslinking can also improve a rubber's resistance to chemicals, heat and abrasion.

F-300, F-1000, F-1500, F-2000, F-3000

stearic acid

Harwick Standard

PLAS-CL-006S 1000 µg/mL in Hexane
PLAS-CL-006N 50 mg



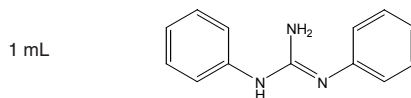
CAS Number 57-11-4
Formula $C_{18}H_{36}O_2$
M.W. 284.48

Perkacit® DPG

N,N'-diphenylguanidine

Akzo Nobel Chemicals B.V.

PLAS-CL-004S 1000 µg/mL in Hexane:Acetone(90:10)
PLAS-CL-004N 50 mg



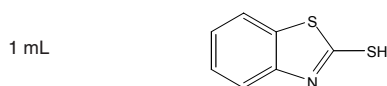
CAS Number 102-06-7
Formula $C_{13}H_{13}N_3$
M.W. 211.27

Perkacit® MBT

2-mercaptobenzothiazole

Akzo Nobel Chemicals B.V.

PLAS-CL-002S 1000 µg/mL in Hexane
PLAS-CL-002N 50 mg



CAS Number 149-30-4
Formula $C_7H_5S_2N$
M.W. 167.25

Plastic Additive Standards

Cross-Linking Agents (Continued)

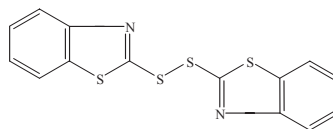
Perkacit® MBTS

2,2'-dithiobis(benzothiazole)

Akzo Nobel Chemicals B.V.

PLAS-CL-001S 1000 µg/mL in Hexane
PLAS-CL-001N 50 mg

1 mL



CAS Number 120-78-5

Formula $C_{14}H_{18}N_2S_4$

M.W. 332.48

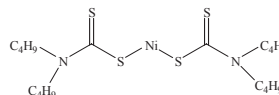
Perkacit® NDBC

nickel dibutyl dithiocarbamate

Akzo Nobel Chemicals B.V.

PLAS-CL-005S 1000 µg/mL in Hexane
PLAS-CL-005N 50 mg

1 mL



CAS Number 13927-77-0

Formula $C_{18}H_{36}N_2NiS_4$

M.W. 467.45

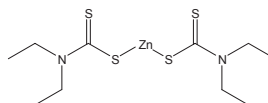
Perkacit® ZDEC

zinc diethyldithiocarbamate

Akzo Nobel Chemicals B.V.

PLAS-CL-007S 1000 µg/mL in Hexane
PLAS-CL-007N 50 mg

1 mL



CAS Number 14324-55-1

Formula $C_{10}H_{20}N_2S_2Zn$

M.W. 361.9

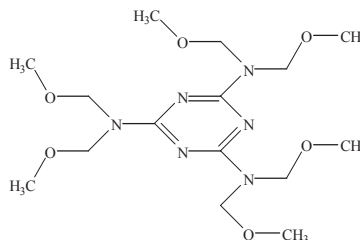
Resimene® 3520

hexamethoxy methyl melamine

Cytec Surface Specialties

PLAS-CL-003S 1000 µg/mL in Hexane
PLAS-CL-003N 50 mg

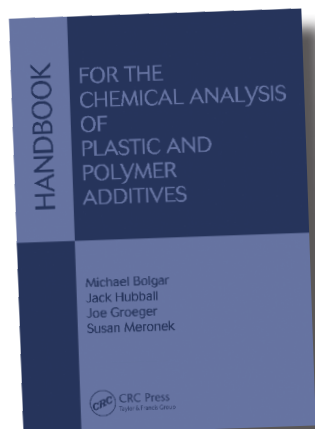
1 mL



CAS Number 3089-11-0

Formula $C_{15}H_{30}N_6O_6$

M.W. 390.51



Your Perfect Companion

Part No. **PLAS-CRC-BOOK**

Plastic Additive Standards

Flame Retardants

Flame retardants are added to inhibit ignition or the flammability of the end-use product. Flame retardants generally function by inhibiting the mechanisms of burning. Typical chemical elements found in compounds used as flame retardants are: aluminum, bromine, chlorine, fluorine and sulfur.

Brominated flame retardants commonly used in polystyrene, polyesters, polyolefins, polyamides, epoxies and ABS. Decabromodiphenyl oxide is the most frequently used brominated flame retardant. The bromodiphenyl ethers are the most highly regulated of these compounds, and AccuStandard offers the most complete line of individual congeners available anywhere.

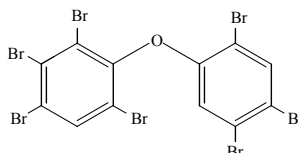
Some of these flame retardants are not typically added to polymers in processing, but can be found in a polymer matrix from leaching out of the contents. The largest example of this type is the Aroclors, which can often be found in a plastic matrix from having been in contact with a fluid containing these materials.

2,2',3,4,4',5,6'-Heptabromodiphenyl ether

BDE-183S

50 µg/mL in Isooctane

1 mL



CAS Number 207122-16-5

Formula C₁₂H₃Br₇O

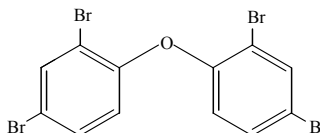
M.W. 722.48

2,2',4,4'-Tetrabromodiphenyl ether

BDE-047S

50 µg/mL in Isooctane

1 mL



CAS Number 40088-47-9

Formula C₁₂H₆Br₄O

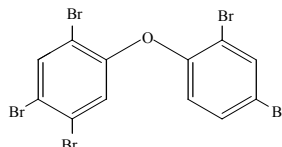
M.W. 485.82

2,2',4,4',5-Pentabromodiphenyl ether

BDE-099S

50 µg/mL in Isooctane

1 mL



CAS Number 32534-81-9

Formula C₁₂H₅Br₅O

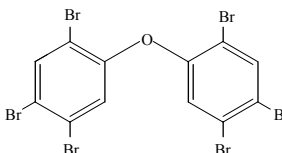
M.W.

2,2',4,4',5,5'-Hexabromodiphenyl ether

BDE-153S

50 µg/mL in Isooctane

1 mL



CAS Number 36483-60-0

Formula C₁₂H₄Br₆O

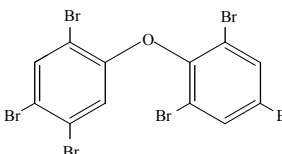
M.W. 643.62

2,2',4,4',5,6'-Hexabromodiphenyl ether

BDE-154S

50 µg/mL in Isooctane

1 mL



CAS Number 207122-15-4

Formula C₁₂H₄Br₆O

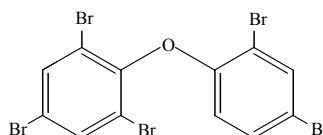
M.W. 643.59

2,2',4,4',6-Pentabromodiphenyl ether

BDE-100S

50 µg/mL in Isooctane

1 mL



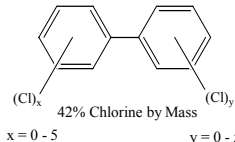
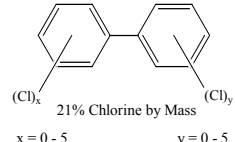
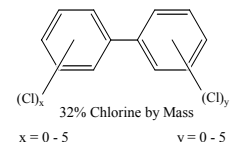
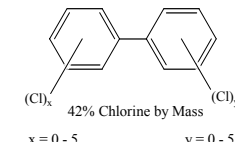
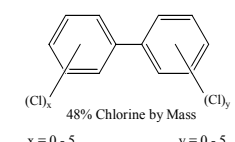
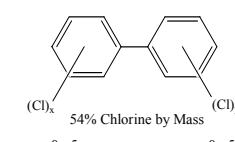
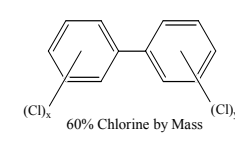
CAS Number 189084-64-8

Formula C₁₂H₅Br₅O

M.W. 564.69

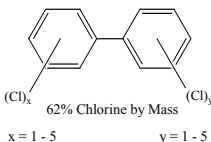
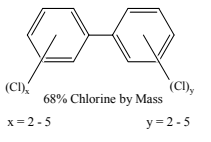
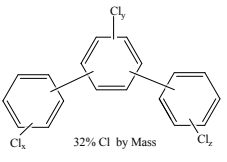
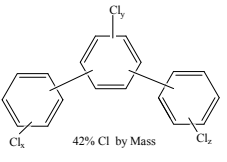
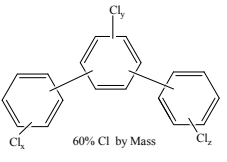
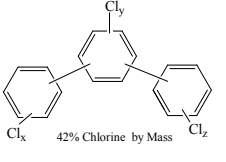
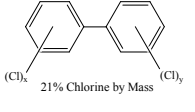
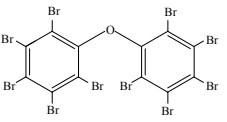
Plastic Additive Standards

Flame Retardants (continued)

Aroclor® 1016		Monsanto			
C-216S-H-10X	1000 µg/mL in Hexane	1 mL	 <p>42% Chlorine by Mass x = 0 - 5 y = 0 - 5</p>	CAS Number	12674-11-2
C-216N	100 mg			Formula	Technical Mix
Aroclor® 1221		Monsanto			
C-221S-H-10X	1000 µg/mL in Hexane	1 mL	 <p>21% Chlorine by Mass x = 0 - 5 y = 0 - 5</p>	CAS Number	11104-28-2
C-221N-50MG	50 mg			Formula	Technical Mix
Aroclor® 1232		Monsanto			
C-232S-H-10X	1000 µg/mL in Hexane	1 mL	 <p>32% Chlorine by Mass x = 0 - 5 y = 0 - 5</p>	CAS Number	11414-16-5
				Formula	Technical Mix
Aroclor® 1242		Monsanto			
C-242S-H-10X	1000 µg/mL in Hexane	1 mL	 <p>42% Chlorine by Mass x = 0 - 5 y = 0 - 5</p>	CAS Number	53469-21-9
C-242N-50MG	50 mg			Formula	Technical Mix
Aroclor® 1248		Monsanto			
C-248S-H-10X	1000 µg/mL in Hexane	1 mL	 <p>48% Chlorine by Mass x = 0 - 5 y = 0 - 5</p>	CAS Number	12672-29-6
C-248N-50MG	50 mg			Formula	Technical Mix
Aroclor® 1254		Monsanto			
C-254S-H-10X	1000 µg/mL in Hexane	1 mL	 <p>54% Chlorine by Mass x = 0 - 5 y = 0 - 5</p>	CAS Number	11097-69-1
C-254N-50MG	50 mg			Formula	Technical Mix
Aroclor® 1260		Monsanto			
C-260S-H-10X	1000 µg/mL in Hexane	1 mL	 <p>60% Chlorine by Mass x = 0 - 5 y = 0 - 5</p>	CAS Number	11096-82-5
C-260N-50MG	50 mg			Formula	Technical Mix

Plastic Additive Standards

Flame Retardants (continued)

Aroclor® 1262		Monsanto			
C-262S-H-10X	1000 µg/mL in Hexane	1 mL		CAS Number 37324-23-5	Formula Technical Mix
C-262N-50MG	50 mg			M.W.	
Aroclor® 1268		Monsanto			
C-268S-H-10X	1000 µg/mL in Hexane	1 mL		CAS Number 11100-14-4	Formula Technical Mix
C-268N	10 mg			M.W.	
Aroclor® 5432		Monsanto			
T-432S	35 µg/mL in Toluene	1 mL		CAS Number 63496-31-1	Formula Technical Mix
				M.W.	
Aroclor® 5442		Monsanto			
T-442S	35 µg/mL in Toluene	1 mL		CAS Number 12642-23-8	Formula Technical Mix
				M.W.	
Aroclor® 5460		Monsanto			
T-460S	35 µg/mL in Toluene	\$ 25		CAS Number 11126-42-4	Formula Technical Mix
				M.W.	
Aroclor® 6050		Monsanto			
T-6050S	35 µg/mL in Toluene	1 mL	 + 	CAS Number	Formula Technical Mix
				M.W.	
Decabromodiphenyl ether					
BDE-209S	50 µg/mL in Isooctane	1 mL		CAS Number 1163-19-5	Formula C ₁₂ Br ₁₀ O
				M.W. 959.22	

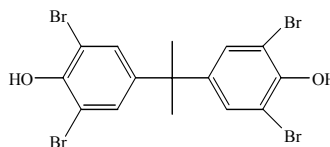
Plastic Additive Standards

Flame Retardants (continued)

Firemaster BP4A

4,4'-(1-methylethylidene) bis (2,6-dibromophenol)

FRS-006S 100 µg/mL in Toluene 1 mL
FRS-006N 10 mg

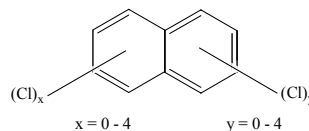


CAS Number 79-94-7
Formula $C_{15}H_{12}Br_4O_2$
M.W. 543.91

Halowax 1000

Polychlorinated Naphthalene

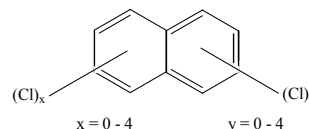
N-1000S 100 µg/mL in Methanol 1 mL



CAS Number 58718-66-4
Formula Technical Mix
M.W.

Halowax 1001

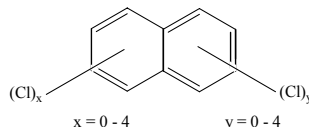
N-1001S 100 µg/mL in Methanol 1 mL



CAS Number 58718-67-5
Formula Technical Mix
M.W.

Halowax 1013

N-1013S 100 µg/mL in Methanol 1 mL



CAS Number 1321-64-8
Formula Technical Mix
M.W.

Halowax 1051

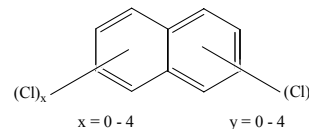
Octachloronaphthalene

N-1051S 100 µg/mL in Methanol 1 mL

CAS Number 2234-13-1
Formula $C_{10}Cl_8$
M.W. 403.73

Halowax 1099

N-1099S 100 µg/mL in Methanol 1 mL

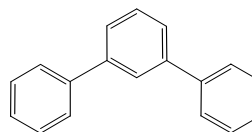


CAS Number 39450-05-0
Formula Technical Mix
M.W.

m-Terphenyl

1,3-diphenylbenzene

T-002N 100 mg



CAS Number 92-06-8
Formula $C_6H_5C_6H_4C_6H_5$
M.W. 230.32

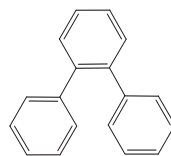
Plastic Additive Standards

Flame Retardants (continued)

o-Terphenyl

T-001N

100 mg



CAS Number 84-15-1

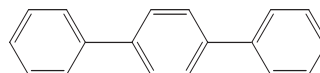
Formula $C_6H_5C_6H_4C_6H_5$

M.W. 230.32

p-Terphenyl

T-003N

100 mg



CAS Number 92-94-4

Formula $C_{18}H_{14}$

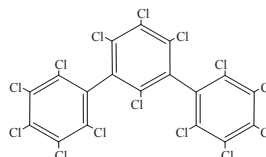
M.W. 230.32

Tetradecachloro-m-terphenyl

T-005S

35 µg/mL in Toluene

1 mL



CAS Number

Formula $C_{18}Cl_{14}$

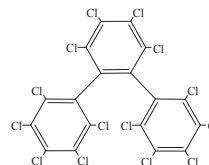
M.W. 712.48

Tetradecachloro-o-terphenyl

T-004S

35 µg/mL in Toluene

1 mL



CAS Number

Formula $C_{18}Cl_{14}$

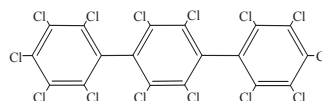
M.W. 712.48

Tetradecachloro-p-terphenyl

T-006S

35 µg/mL in Toluene

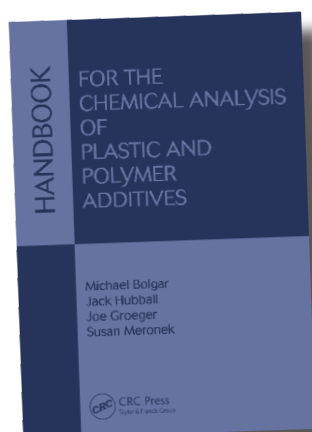
1 mL



CAS Number

Formula $C_{18}Cl_{14}$

M.W. 712.48



Your Perfect Companion

Part No. **PLAS-CRC-BOOK**

Plastic Additive Standards

Plasticizers

A plasticizer is a compound added to a material, usually a plastic, to make it flexible, resilient and easier to handle. Plasticizers are major components in plastics that determine the physical properties of polymer products.

Plasticizers are generally medium to high molecular weight esters of aliphatic or aromatic carboxylic acids, or sometimes of phosphoric acid. The phosphate esters are often also used for their flame retardant properties. Adipates and phthalates are also very common, but are becoming more highly regulated due to concern that they could act as endocrine disruptors.

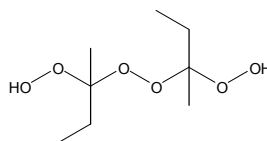
The USEPA regulates many Phthalates and Adipates by Methods 606, 506-1 and 8061.

2-Butanone peroxide (in DMP)

Di(1-methylethylketone)peroxide

PLAS-PL-023S 1000 µg/mL in Hexane
PLAS-PL-023N 50 mg

1 mL



CAS Number 1338-23-4
Formula C₈H₁₆O₆
M.W. 210.22

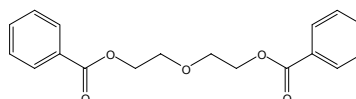
Benzoflex® 2-45

diethylene glycol, dibenzoate

Velsicol Chemical

PLAS-PL-015S 1000 µg/mL in Hexane
PLAS-PL-015N 50 mg

1 mL



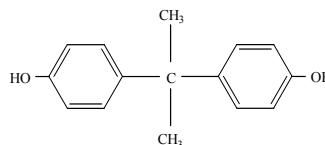
CAS Number 120-55-8
Formula C₁₈H₁₈O₅
M.W. 314.33

Bisphenol A

4,4'-dihydroxy-2,2-diphenylpropane

M-1626-01S 1000 µg/mL in Methanol
M-1626-01N N/A

1 mL



CAS Number 80-05-7
Formula C₁₅H₁₆O₂
M.W. 228.29

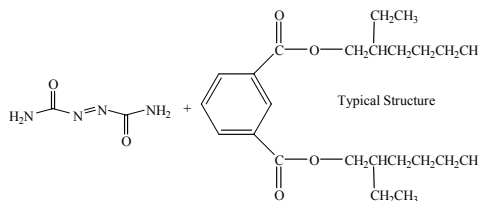
Celogen® SD-125

50% azodicarbonamide in a phthalate plasticizer

Chemtura Corporation

PLAS-PL-009S 1000 µg/mL in Hexane
PLAS-PL-009N 50 mg

1 mL



CAS Number
Formula
M.W.

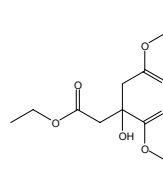
Citroflex 2

2-hydroxy-1,2,3-propanetricarboxylic acid, triethyl ester

Morflex, Inc.

PLAS-PL-028S 1000 µg/mL in Hexane
PLAS-PL-028N 50 mg

1 mL



CAS Number 77-93-0
Formula C₁₂H₂₀O₇
M.W. 276.32

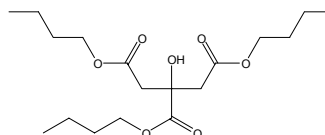
Citroflex 4

2-hydroxy-1,2,3-propanetricarboxylic acid, tributyl ester

Morflex, Inc.

PLAS-PL-030S 1000 µg/mL in Hexane
PLAS-PL-030N 50 mg

1 mL



CAS Number 77-94-1
Formula C₁₈H₃₂O₇
M.W. 360.45

Plastic Additive Standards

Plasticizers (continued)

Citroflex A-2

2-(acetoxy)-1,2,3-propanetricarboxylic acid, triethyl ester

Morflex, Inc.

CAS Number 77-89-4

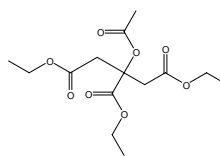
PLAS-PL-001S

1000 µg/mL in Hexane

1 mL

PLAS-PL-001N

50 mg



Formula $C_{14}H_{22}O_8$

M.W. 318.32

Citroflex A-4

2-Acetoxy-1,2,3-propanetricarboxylic acid, tributyl ester

Morflex, Inc.

CAS Number 77-90-7

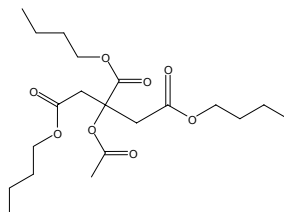
PLAS-PL-002S

1000 µg/mL in Hexane

1 mL

PLAS-PL-002N

50 mg



Formula $C_{20}H_{34}O_8$

M.W. 402.54

Citroflex B-6

n-butyltri-n-hexyl citrate

Morflex, Inc.

CAS Number 82469-79-2

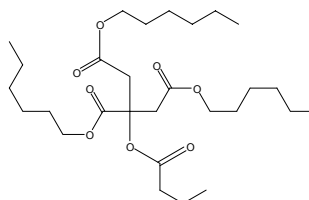
PLAS-PL-025S

1000 µg/mL in Hexane

1 mL

PLAS-PL-025N

50 mg



Formula $C_{28}H_{50}O_8$

M.W. 514.7

Dibutyl Phthalate

Houghton Chemical

CAS Number 84-74-2

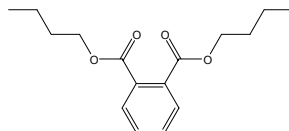
PLAS-PL-013S

1000 µg/mL in Hexane

1 mL

PLAS-PL-013N

50 mg



Formula $C_{16}H_{22}O_4$

M.W. 278.34

Diocetyl Phthalate (DOP)

Houghton Chemical

CAS Number 117-81-7

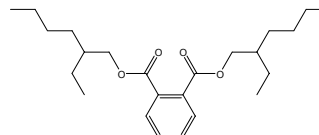
PLAS-PL-019S

1000 µg/mL in Hexane

1 mL

PLAS-PL-019N

50 mg



Formula $C_{24}H_{38}O_4$

M.W. 390.56

Hercoflex® 900

1,3-Isobenzofurandione, polymer with 2,2'-(1,2-ethanediylbis(oxy))bis(ethanol), benzoate

Hercules Incorporated

CAS Number 68186-30-1

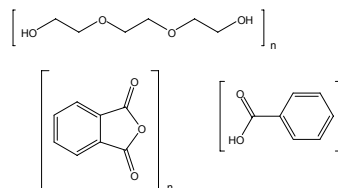
PLAS-PL-038S

1000 µg/mL in Hexane

1 mL

PLAS-PL-038N

50 mg



Formula $(C_8H_4O_3)_n$
 $(C_6H_4O_2)_n$
 $(C_7H_6O_2)_n$

M.W. 420.41

Plastic Additive Standards

Plasticizers (continued)

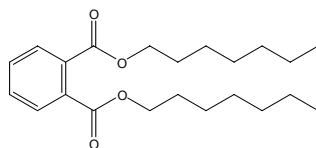
Jayflex® 77

diisooheptyl phthalate

ExxonMobil Corporation

PLAS-PL-017S 1000 µg/mL in Hexane
PLAS-PL-017N 50 mg

1 mL



CAS Number 71888-89-6
Formula $C_{22}H_{34}O_4$
M.W. 362.50

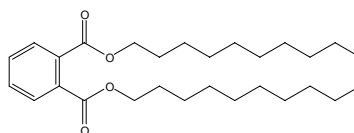
Jayflex® DIDP Plasticizer

diisodecyl phthalate

ExxonMobil Corporation

PLAS-PL-016S 1000 µg/mL in Hexane
PLAS-PL-016N 50 mg

1 mL



CAS Number 68515-49-1
Formula $C_{28}H_{46}O_4$
M.W. 446.66

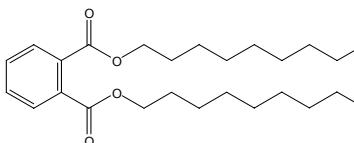
Jayflex® DINP Plasticizer

diisononyl phthalate

ExxonMobil Corporation

PLAS-PL-018S 1000 µg/mL in Hexane
PLAS-PL-018N 50 mg

1 mL



CAS Number 68515-48-0
Formula $C_{26}H_{42}O_4$
M.W. 418.61

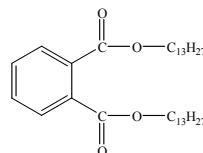
Jayflex® DTDP plasticizer

ditridecyl phthalate

ExxonMobil Corporation

PLAS-PL-020S 1000 µg/mL in Hexane
PLAS-PL-020N 50 mg

1 mL



CAS Number 68515-47-9
Formula $C_{34}H_{58}O_4$
M.W. 530.82

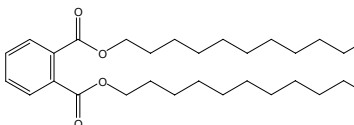
Jayflex® L11P-E Plasticizer

diundecyl phthalate

ExxonMobil Corporation

PLAS-PL-021S 1000 µg/mL in Hexane
PLAS-PL-021N 50 mg

1 mL



CAS Number 3648-20-2
Formula $C_{30}H_{50}O_4$
M.W. 474.72

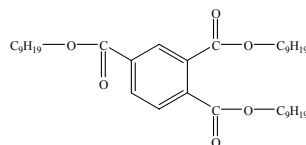
Jayflex® TINTM Plasticizer

triisononyl trimellitate

ExxonMobil Corporation

PLAS-PL-029S 1000 µg/mL in Hexane
PLAS-PL-029N 50 mg

1 mL



CAS Number 53894-23-8
Formula $C_{36}H_{60}O_6$
M.W. 588.96

Plastic Additive Standards

Plasticizers (continued)

Laurex®

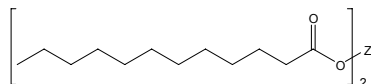
Chemtura Corporation

zinc salt of lauric and related fatty acids

CAS Number

PLAS-PL-032S 1000 µg/mL in Hexane
PLAS-PL-032N 50 mg

1 mL



Formula $C_{24}H_{46}O_4Zn$
M.W. 464.01

Markstat® 51

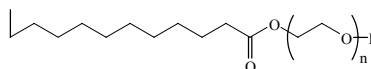
Chemtura Corporation

poly(ethylene glycol) monolaurate

CAS Number 9004-81-3

PLAS-PL-003S 1000 µg/mL in Hexane
PLAS-PL-003N 50 mg

1 mL



Formula $(C_2H_4O)_n C_{12}H_{24}O_2$
M.W.

Morflex® 150

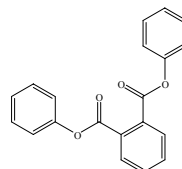
Morflex, Inc.

dicyclohexyl phthalate

CAS Number 84-61-7

PLAS-PL-014S 1000 µg/mL in Hexane
PLAS-PL-014N 50 mg

1 mL



Formula $C_{20}H_{26}O_4$
M.W. 330.46

Morflex® 190

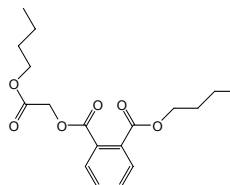
Morflex, Inc.

butylphthalyl butyl glycolate

CAS Number 85-70-1

PLAS-PL-008S 1000 µg/mL in Hexane
PLAS-PL-008N 50 mg

1 mL



Formula $C_{18}H_{24}O_6$
M.W. 336.38

Morflex® 560

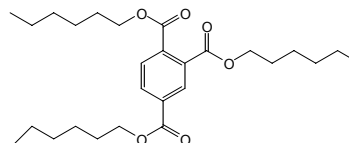
Morflex, Inc.

tri-n-hexyl trimellitate

CAS Number 1528-49-0

PLAS-PL-031S 1000 µg/mL in Hexane
PLAS-PL-031N 50 mg

1 mL



Formula $C_{27}H_{42}O_6$
M.W. 462.62

Paraplex® G-30

CPH Innovations

proprietary dibasic acid polyester mixture

CAS Number

PLAS-PL-027S 1000 µg/mL in Hexane
PLAS-PL-027N 50 mg

1 mL

N/A

Formula
M.W.

Plastic Additive Standards

Plasticizers (continued)

Plasthall® ESO

epoxidized soybean oil

CPH Innovations

CAS Number 8013-07-8

Formula

M.W.

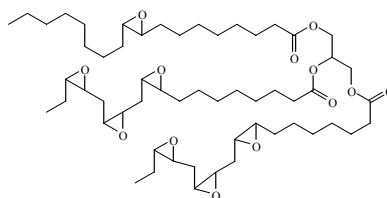
PLAS-PL-035S

1000 µg/mL in Hexane

1 mL

PLAS-PL-035N

50 mg



Polycizer® Butyl Oleate

butyl oleate

Harwick Chemical

CAS Number 142-77-8

Formula $C_{22}H_{42}O_2$

M.W. 338.57

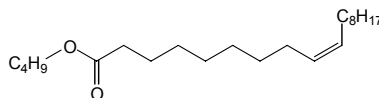
PLAS-PL-007S

1000 µg/mL in Hexane

1 mL

PLAS-PL-007N

50 mg



Polycizer® DP 500

Dipropylene glycol dibenzoate

Harwick Chemical

CAS Number 27138-31-4

Formula $C_{20}H_{22}O_5$

M.W. 342.39

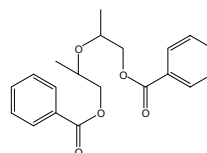
PLAS-PL-011S

1000 µg/mL in Hexane

1 mL

PLAS-PL-011N

50 mg



Santicizer® 141

2-ethylhexyldiphenyl phosphate

Solutia Inc.

CAS Number 1241-94-7

Formula $C_{20}H_{27}O_4P$

M.W. 362.4

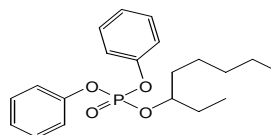
PLAS-PL-026S

1000 µg/mL in Hexane

1 mL

PLAS-PL-026N

50 mg



Santicizer® 148

Mixture: isodecyldiphenyl phosphate (80-90%) / diisodecyl phenyl phosphate / triphenyl phosphate

Solutia Inc.

CAS Number 29761-21-5

Formula $C_{22}H_{31}O_4P$

M.W. 390.46

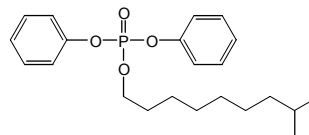
PLAS-PL-022S

1000 µg/mL in Hexane

1 mL

PLAS-PL-022N

50 mg



Santicizer® 160

benzyl butyl phthalate

Solutia Inc.

CAS Number 85-68-7

Formula $C_{19}H_{20}O_4$

M.W. 312.37

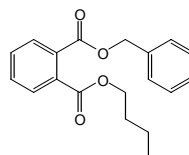
PLAS-PL-004S

1000 µg/mL in Hexane

1 mL

PLAS-PL-004N

50 mg



Santicizer® 261

benzyl phthalate

Solutia Inc.

CAS Number 68515-40-2

Formula

M.W. 368.5

PLAS-PL-005S

1000 µg/mL in Hexane

1 mL

N/A

PLAS-PL-005N

50 mg

Plastic Additive Standards

Plasticizers (continued)

Vinsol® resin

Hercules Incorporated

gum rosin

CAS Number 8050-09-7

PLAS-PL-036S

1000 µg/mL in Hexane

1 mL

N/A

Formula Unspecified

PLAS-PL-036N

50 mg

M.W.

Processing Aids

Processing aids are compounding materials that improve the processing of polymers by: creating better dispersion of dry materials, increasing extrusion rates, reducing powder consumption during mixing, promoting compound fusion, adding lubrication, improving knitting and creating a smoother surface on calendered and extruded products.

Kemamide® E ultra

Chemtura Corporation

erucamide

CAS Number 112-84-5

PLAS-PA-001S

1000 µg/mL in Hexane

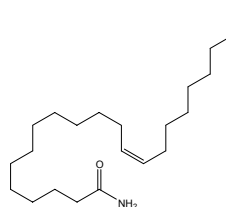
1 mL

Formula C₂₂H₄₃NO

PLAS-PA-001N

50 mg

M.W. 337.58



Retarders

Retarders are used to delay the onset of crosslinking and can be used to allow for longer processing times. They are also used to reduce scorching.

Retarder AK

Akrochem Corporation

phthalic anhydride

CAS Number 85-44-9

PLAS-RT-001S

1000 µg/mL in
Hexane:Acetone(80:20)

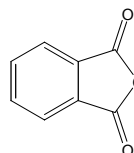
1 mL

Formula C₈H₄O₃

PLAS-RT-001N

50 mg

M.W. 148.12



Plastic Additive Standards

Stearates

Stearic acid and the metallic salts of this acid are used for many different applications depending on the polymer system. Stearates can act as lubricants, acid scavengers, anti-tack compounds, vulcanization promoter/accelerator, or a mold release agent.

Stearic Acid RG (rubber grade)

Akrochem Corporation

stearic acid

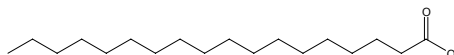
CAS Number 57-11-4

Formula $C_{18}H_{36}O_2$

M.W. 284.48

PLAS-ST-001S 1000 µg/mL in Hexane

1 mL



PLAS-ST-001N 50 mg

Stearic Acid TP

Akrochem Corporation

stearic acid

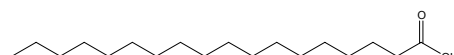
CAS Number 57-11-4

Formula $CH_3(CH_2)_{16}COOH$

M.W. 284.48

PLAS-ST-002S 1000 µg/mL in Hexane

1 mL



PLAS-ST-002N 50 mg

UV Stabilizers

UV stabilizers, or light absorbers, act to protect the plastic against UV or sunlight damage such as discoloration, cracking, brittleness, or other loss of desirable physical properties.

Typical UV Stabilizers are benzophenones, hindered amines, and benzotriazole. Also used, but not as effective, are salicylate esters, cyanoacrylates and bezilidenes.

Tinuvin® PED

Ciba Specialty Chemicals

2-(2-Hydroxy-5-methylphenyl)benzotriazole

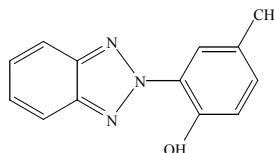
CAS Number 2440-22-4

Formula $C_{13}H_{11}N_3O$

M.W. 225.27

PLAS-UV-005S 1000 µg/mL in Hexane

1 mL



PLAS-UV-005N 50 mg

Uvinul® 3000

BASF Corporation

2,4-dihydroxybenzophenone

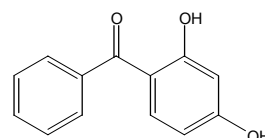
CAS Number 131-56-6

Formula $C_{13}H_{10}O_3$

M.W. 214.22

PLAS-UV-001S 1000 µg/mL in Hexane

1 mL



PLAS-UV-001N 50 mg

Uvinul® 3008

BASF Corporation

2-hydroxy-4-octyloxybenzophenone

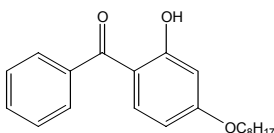
CAS Number 1843-05-6

Formula $C_{21}H_{26}O_3$

M.W. 326.43

PLAS-UV-002S 1000 µg/mL in Hexane

1 mL



PLAS-UV-002N 50 mg

Plastic Additive Standards

UV Stabilizers (Continued)

Uvinul® 3040

BASF Corporation

2-hydroxy-4-methoxybenzophenone

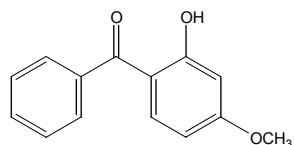
CAS Number 131-57-7

Formula $C_{14}H_{12}O_3$

M.W. 228.26

PLAS-UV-003S 1000 µg/mL in Hexane

1 mL



PLAS-UV-003N 50 mg

Uvinul® 3049

BASF Corporation

2,2-dihydroxy-4,4-dimethoxybenzophenone

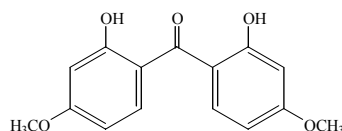
CAS Number 131-54-4

Formula $C_{15}H_{14}O_5$

M.W. 274

PLAS-UV-004S 1000 µg/mL in Hexane

1 mL



PLAS-UV-004N 50 mg

Vegetable Oils

Vegetable oils, typically the epoxide or the ester of the parent oil, are used as plasticizers. They offer the advantage of not only providing flexibility in the final plastic, but also add heat and light stabilizing advantages without the requirements for additional additives. Vegetable oil plasticizers are generally less toxic than their petrochemical counterparts, this makes them very attractive for certain applications like food or toys.

Some of their disadvantages are that they may not mix properly at higher concentrations, may cause brittleness in some applications, and often are only suitable as secondary plasticizers.

Akrofax™ A

Akrochem Corporation

CAS Number

Formula

M.W.

PLAS-VA-001S 1000 µg/mL in Hexane

1 mL

N/A

PLAS-VA-001N 50 mg

Akrofax™ B

Akrochem Corporation

vulcanized vegetable oil

CAS Number

Formula

M.W.

PLAS-VA-002S 1000 µg/mL in Hexane

1 mL

N/A

PLAS-VA-002N 50 mg

Plastic Additive Standards

Dyes and Breakdown Products

Dyes and colorant products are one of the largest categories of plastic additives and are also used in textiles, leather goods, food and personal care products. They are used for both aesthetic purposes and to alter physical properties of the product, such as to repel light. Many dyes and their breakdown products have been determined to have both adverse health properties and adverse environmental properties, and as such, are being increasingly regulated. EU Directives 67/548/EEC and 2002/61/EC and 76/768/EEC are the most far-reaching regulations for this class of compounds.

Dye Standards - EU Directive 67/548/EEC

Criterion #22 Regulated Dyes - Carcinogenic

Each in 100 µg/mL in MeOH	Cat. No.	Unit
Disperse Blue 1	DYE-001S	1 mL
Disperse Orange 11	DYE-002S	1 mL
Disperse Yellow 3	DYE-003S	1 mL
Basic Violet 14	DYE-012S	1 mL
Direct Black 38	DYE-013S	1 mL
Direct Blue 6	DYE-014S	1 mL

Criterion #23 Regulated Dye - Disperse dyes, Sensitizing

Each in 100 µg/mL in MeOH	Cat. No.	Unit
Disperse Blue 3	DYE-004S	1 mL
Disperse Orange 1	DYE-005S	1 mL
Disperse Orange 3	DYE-006S	1 mL
Disperse Red 1	DYE-007S	1 mL
Disperse Yellow 9	DYE-008S	1 mL
Disperse Blue 35	DYE-009S	1 mL
Disperse Blue 124	DYE-010S	1 mL
Disperse Orange 37	DYE-011S	1 mL
Disperse Blue 7	DYE-015S	1 mL
Disperse Blue 26	DYE-016S	1 mL
Disperse Blue 102	DYE-017S	1 mL
Disperse Red 11	DYE-018S	1 mL
Disperse Red 17	DYE-019S	1 mL

Aryl Amine Breakdown Products in Azo Dyes - EU Directive 2002/61/EC

Individual Aryl Amine Standards Analyte	100 µg/mL in AcCN in 1 mL	1000 µg/mL in AcCN in 1 mL	10 µg/mL in Ethyl acetate in 10 mL	Internal Standards	
o-Aminoazotoluene (01)	RAC-01	RAC-01-10X	RAC-01-EA-0.1X-10ML	RAC-IS	1 x 1 mL
4-Aminobiphenyl (02)	RAC-02	RAC-02-10X	RAC-02-EA-0.1X-10ML	1000 µg/mL in AcCN	
2-Amino-4-nitrotoluene (03)	RAC-03	RAC-03-10X	RAC-03-EA-0.1X-10ML	3,3',5,5'-Tetramethylbenzidine	
Benzidine (04)	RAC-04	RAC-04-10X	RAC-04-EA-0.1X-10ML		
4-Chloroaniline (05)	RAC-05	RAC-05-10X	RAC-05-EA-0.1X-10ML	RAC-IS-EA	1 x 1 mL
4-Chloro-o-toluidine (06)	RAC-06	RAC-06-10X	RAC-06-EA-0.1X-10ML	1000 µg/mL in Ethyl acetate	
p-Cresidine (07)	RAC-07	RAC-07-10X	RAC-07-EA-0.1X-10ML	3,3',5,5'-Tetramethylbenzidine	
2,4-Diaminoanisole* (08)	RAC-08	RAC-08-10X	RAC-08-EA-0.1X-10ML		
4,4'-Diaminodiphenylmethane (09)	RAC-09	RAC-09-10X	RAC-09-EA-0.1X-10ML		
2,4-Diaminotoluene (10)	RAC-10	RAC-10-10X	RAC-10-EA-0.1X-10ML		
3,3'-Dichlorobenzidine (11)	RAC-11	RAC-11-10X	RAC-11-EA-0.1X-10ML		
3,3'-Dimethoxybenzidine (12)	RAC-12	RAC-12-10X	RAC-12-EA-0.1X-10ML		
3,3'-Dimethylbenzidine (13)	RAC-13	RAC-13-10X	RAC-13-EA-0.1X-10ML		
3,3'-Dimethyl-4,4'-diaminodiphenylmethane (14)	RAC-14	RAC-14-10X	RAC-14-EA-0.1X-10ML		
4,4'-Methylenebis(2-chloroaniline) (15)	RAC-15	RAC-15-10X	RAC-15-EA-0.1X-10ML		
2-Naphthylamine (16)	RAC-16	RAC-16-10X	RAC-16-EA-0.1X-10ML		
4,4'-Oxydianiline (17)	RAC-17	RAC-17-10X	RAC-17-EA-0.1X-10ML		
4,4'-Thiodianiline (18)	RAC-18	RAC-18-10X	RAC-18-EA-0.1X-10ML		
o-Toluidine (19)	RAC-19	RAC-19-10X	RAC-19-EA-0.1X-10ML		
2,4,5-Trimethylaniline (20)	RAC-20	RAC-20-10X	RAC-20-EA-0.1X-10ML		
p-Aminoazobenzene (21)	RAC-21	RAC-21-10X	RAC-21-EA-0.1X-10ML		
2-Aminobiphenyl (22)	RAC-22	RAC-22-10X	RAC-22-EA-0.1X-10ML		
o-Anisidine (23)	RAC-23	RAC-23-10X	RAC-23-EA-0.1X-10ML		
3-Chloro-o-toluidine (24)	RAC-24	RAC-24-10X	RAC-24-EA-0.1X-10ML		

RAC-R1-SET

100 µg/mL

24 x 1 mL (Set includes the above ampules) In Acetonitrile

* In form of the Sulfate hydrate 171 µg/mL in Pyridine (100 µg/mL as the base)

RAC-R1-10X-SET

1000 µg/mL in AcCN

24 x 1 mL (Set includes the above ampules) In Acetonitrile

* In form of the Sulfate hydrate 1,710 µg/mL in Pyridine (1000 µg/mL as the base)

Carcinogenic Aryl Amine Mix (contains the 24 Aryl Amines listed above)

AE-00049

10 µg/mL in Ethyl acetate

1 x 1 mL

AE-00049-10ML

10 µg/mL in Ethyl acetate

1 x 10 mL

Plastic Additive Standards

Deuterated Phthalates

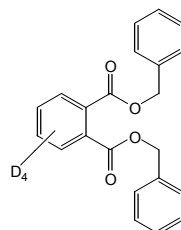
These deuterated compounds can be used as internal standards for method development for determining phthalates in environmental or other types of samples.

Other compounds are available. Contact our Technical Service Department if you require additional deuterated or other labeled compounds.

Deuterated Phthalate Solution Set	PHTH-D4S-SET	11 x 1 mL
Deuterated Phthalate Neat Set	PHTH-D4N-SET	11 x 5 mg
Set include 11 Deuterated Phthalates listed below and next page.		

dibenzylphthalate-d₄

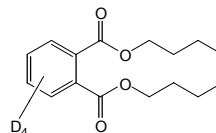
PHTH-D4-001S	1000 µg/mL in Methanol	1 mL
PHTH-D4-001N	5 mg	



CAS No.	
Formula	C ₆ D ₄ (COOCH ₂ C ₆ H ₅) ₂
M.W.	350.41

di-n-butyl phthalate-d₄

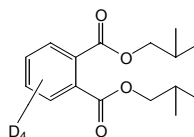
PHTH-D4-002S	1000 µg/mL in Methanol	1 mL
PHTH-D4-002N	5 mg	



CAS No.	93952-11-5
Formula	C ₆ D ₄ (COOCH ₂ CH ₂ CH ₂ CH ₃) ₂
M.W.	282.37

Di-iso-butyl Phthalate-3,4,5,6-d₄

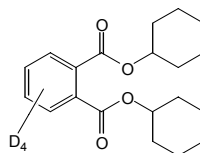
PHTH-D4-003S	1000 µg/mL in Methanol	1 mL
PHTH-D4-003N	5 mg	



CAS No.	358730-88-8
Formula	C ₆ D ₄ [COOCH ₂ CH(CH ₃) ₂] ₂
M.W.	326.43

Dicyclohexyl Phthalate-3,4,5,6-d₄

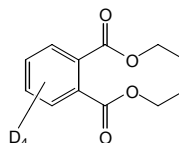
PHTH-D4-004S	1000 µg/mL in Methanol	1 mL
PHTH-D4-004N	5 mg	



CAS No.	358731-25-6
Formula	C ₆ D ₄ (COOC ₆ H ₁₁) ₂
M.W.	334.45

Diethyl Phthalate-3,4,5,6-d₄

PHTH-D4-005S	1000 µg/mL in Methanol	1 mL
PHTH-D4-005N	5 mg	



CAS No.	93952-12-6
Formula	C ₆ D ₄ (COOCH ₂ CH ₃) ₂
M.W.	226.26

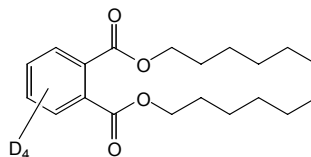
Deuterated Phthalates (Continued)

Plastic Additive Standards

Di-n-hexyl Phthalate-3,4,5,6-d₄

PHTH-D4-006S 1000 µg/mL in Methanol
PHTH-D4-006N 5 mg

1 mL

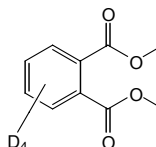


CAS No. N/A
Formula C₆D₄[COO(CH₂)₅CH₃]₂
M.W. 338.48

Dimethyl Phthalate-3,4,5,6-d₄

PHTH-D4-007S 1000 µg/mL in Methanol
PHTH-D4-007N 5 mg

1 mL

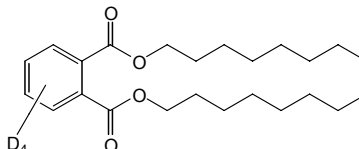


CAS No. 93951-89-4
Formula C₆D₄(COOCH₃)₂
M.W. 198.21

Di-n-octyl Phthalate-3,4,5,6-d₄

PHTH-D4-008S 1000 µg/mL in Methanol
PHTH-D4-008N 5 mg

1 mL

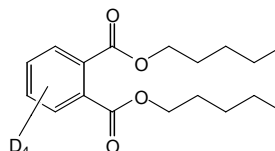


CAS No. 93952-13-7
Formula C₆D₄[COO(CH₂)₇CH₃]₂
M.W. 394.59

Di-n-pentyl Phthalate-3,4,5,6-d₄

PHTH-D4-009S 1000 µg/mL in Methanol
PHTH-D4-009N 5 mg

1 mL

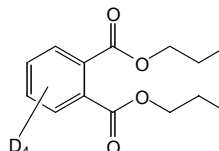


CAS No. 358730-89-9
Formula C₆D₄[COO(CH₂)₄CH₃]₂
M.W. 310.43

Di-n-propyl Phthalate-3,4,5,6-d₄

PHTH-D4-010S 1000 µg/mL in Methanol
PHTH-D4-010N 5 mg

1 mL

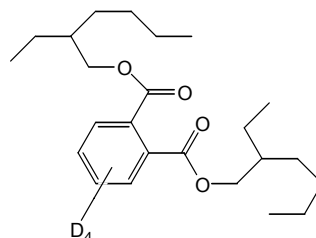


CAS No. 358731-29-0
Formula C₆D₄(COOCH₂CH₂CH₃)₂
M.W. 254.32

Bis(2-ethylhexyl) Phthalate-3,4,5,6-d₄

PHTH-D4-011S 1000 µg/mL in Methanol
PHTH-D4-011N 5 mg

1 mL



CAS No. 93951-87-2
Formula
M.W. 394.59

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