Phthalate Standards

AccuStandard®

CHROMATOGRAPHIC SPECIALTIES INC.

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Phthalate Information

Also commonly known as plasticizers, phthalates are a class of chemical compounds that are generally used as an additive to improve flexibility and durability in plastic. They are widely applied in cosmetic and personal care consumer products such as hair spray, nail polish and fragrances. Due to their low-cost, versatility and effectiveness, phthalates are also utilized during plastics manufacturing, in pharmaceutical coatings, food containers, building materials and textiles.

Phthalates are separated into two distinct classes according to the length of the precursor alcohol, Higher Molecular Weight (HMW) and Lower Molecular Weight phthalates (LMW).

The LMW phthalates such as di-butyl, benzyl butyl and diethyl hexyl are typically made from alcohols with three to six carbon backbones, and are easily released into the environment due to weak bonding between the phthalate and the plastic/polymer substrate.

Leaching and atmospheric release of these compounds increases as the substrate ages and/or weathers. As a result, phthalates have become a major environmental pollutant presenting great exposure risks to wildlife as well as humans through contaminated water, soil, packaged food and many other consumer products. Prolonged exposure to phthalates has been linked to a series of adverse health effects in humans such as cancer, endocrine disruptions, and reduced fertility.

Concerns over adverse health effects has prompted regulatory agencies like the US Food and Drug Administration (USFDA) and the European Chemicals Agency (ECHA) to frequently update their list of phthalates banned from use in consumer products. For instance, phthalates such as bis(2-Ethylhexyl) phthalate (DEHP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DiBP) have been either heavily regulated or banned in baby-care products, toys and other products.

Several analytical methods have been developed for the quantification and identification of phthalates in different matrices. The majority of these methods focus on the analysis of the LMW phthalates ranging from mono/diethyl to mono/dioctyl and, in particular, dibutyl and bis(2-ethylhexyl) phthalate. Other phthalates have also been targeted such as isophthaltes, terephthalates and phthalate replacement compounds which have been deployed as an alternative to phthalates.

AccuStandard presents a comprehensive selection of phthalate Certified Reference Materials (CRMs) as neat, single and multiple component mixes to help meet the testing requirements for USEPA, AOAC, ENISO, and other test methods.

Our selection of phthalate CRMs also include standards for Technical Mixture phthalates, deuterated phthalates and phthalate replacement products.

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Handbook for the Chemical Analysis of Plastic and Polymer Additives, 2nd Edition

Features

- Features updated material to include the most recent additives available
- Contains actual analytical data for each chemical along with the description and methods used for obtaining the results
- Highlights the toxicological and environmental impact of each product
- Summarizes regulatory and health information in a convenient "one-step" format

Includes case studies related to "real-world" issues

With 50 additional compounds, this second edition nearly doubles the number of additives in several categories, including processing aids, antistatic compounds, mould release products, and blowing agents. It includes a listing that can be cross-referenced by trade name, chemical name, CAS number, and even key mass unit ions from the GC/MS run.

Addressing additives from an analytical viewpoint, this comprehensive handbook helps readers identify the additives in plastics. This information can be used to assess compliance with regulations issued by the FDA, US EPA, EU, and other agencies.

Cat. No: BOOK-PLAS-002

Provides the necessary tools for chemists to obtain a more complete listing of additives present in a particular polymeric matrix. It is designed to serve as a valuable source for those monitoring a polymer/plastic material for regulatory or internal compliance. It also helps analysts to correctly identify the complex nature of the materials that have been added to the polymer/plastic.

https://www.accustandard.com/phthalate-reference-standards

Phthalate Compounds

Phthalates

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
Benzyl butyl phthalate (BBP)	85-68-7		NEAT	ALR-082N	100 mg
		100 µg/mL	MeOH	ALR-082S	1 mL
		5 mg/mL	MeOH	AS-E0065	1 mL
bis(2-n-Butoxyethyl)phthalate (DBEP)	117-83-9		NEAT	J-112	100 mg
bis(2-ethylhexyl)cyclohexane-1,2-dicarboxylate	84-71-9	100 µg/mL	Hexane	PHTH-029S-H	1 mL
bis(2-Ethoxyethyl)phthalate	605-54-9		NEAT	J-111	100 mg
bis(2-Ethylhexyl)phthalate (DEHP)	117-81-7		NEAT	ALR-097N	100 mg
		100 µg/mL	MeOH	ALR-097S	1 mL
		1000 µg/mL	MeOH	APP-9-029-10X	1 mL
bis(2-Methoxyethyl)phthalate	117-82-8		NEAT	J-106	100 mg
bis(4-Methylpentyl)phthalate	71850-09-4		NEAT	PHTH-022N	10 mg
			NEAT	PHTH-022S	100 mg
bis(4-Methyl-2-pentyl)phthalate	146-50-9		NEAT	J-109-10MG	10 mg
			NEAT	J-109	100 mg
2-Butoxy-2-oxoethyl butyl phthalate	85-70-1		NEAT	J-115	100 mg
Diallyl phthalate	131-17-9		NEAT	J-002	100 mg
Diamyl phthalate (DPNP)	131-18-0		NEAT	ALR-098N	100 mg
		100 µg/mL	MeOH	ALR-098S	1 mL
Dibenzyl phthalate	523-31-9		NEAT	J-104	100 mg
Dibutyl phthalate	84-74-2		NEAT	J-003	100 mg
		100 µg/mL	MeOH	APP-9-063	1 mL
		1000 µg/mL	MeOH	APP-9-063-10X	1 mL
		5 mg/mL	MeOH	AS-E0066	1 mL
Dicyclohexyl phthalate (DCHP)	84-61-7		NEAT	J-004	100 mg
		100 µg/mL	MeOH	ALR-099S	1 mL
		1 mg/mL	ACN	AS-E0318	1 mL
Didodecyl phthalate	2432-90-8		NEAT	PHTH-018N	100 mg
		100 µg/mL	MeOH	PHTH-018S	1 mL
Diethyl phthalate	84-66-2		NEAT	J-005	100 mg
		100 µg/mL	MeOH	APP-9-081	1 mL
		1000 µg/mL	MeOH	APP-9-081-10X	1 mL
		5 mg/mL	MeOH	AS-E0068	1 mL
Dihexyl phthalate (DHP)	84-75-3		NEAT	ALR-100N	100 mg
		100 µg/mL	MeOH	ALR-100S	1 mL
Diisobutyl phthalate	84-69-5		NEAT	J-113	100 mg
Diisopentyl phthalate (Diisoamyl phthalate) (DIPP)	605-50-5		NEAT	J-127	100 mg
Diisopropyl phthalate	605-45-8		NEAT	PHTH-019N	100 mg
		100 µg/mL	MeOH	PHTH-019S	1 mL
Dimethyl phthalate	131-11-3	100 mg	NEAT	J-010	100 mg
		100 µg/mL	MeOH	APP-9-088	1 mL
		1 mg/mL	MeOH	APP-9-088-10X	1 mL
		5 mg/mL	MeOH	AS-E0069	1 mL
		0.1 mg/mL	EtOAc	M-8032-IS	1 mL
Di-n-heptyl phthalate	3648-21-3		NEAT	PHTH-020N	100 mg
		100 µg/mL	MeOH	PHTH-020S	1 mL
Di-n-octyl phthalate (DNOP)	117-84-0		NEAT	J-011	100 mg
		100 µg/mL	MeOH	APP-9-095	1 mL
		5 mg/mL	MeOH	AS-E0067	1 mL
Dinonyl phthalate	84-76-4		NEAT	J-105	100 mg
Diphenyl phthalate	84-62-8		NEAT	J-013	100 mg
Diundecyl phthalate	3648-20-2		NEAT	PHTH-021N	100 mg
		100 µg/mL	MeOH	PHTH-021S	1 mL
Ethylphthalyl ethyl glycolate	84-72-0	100 µg/mL	Hexane	PHTH-030S-H	1 mL

Visit our website for detailed information on physical properties such as:

Molecular Formula
Molecular Weight
Physical State
Specific Gravity
Melting Point
Boiling Point
Flash Point

including the **Structure**

Set of 17 Phthalate Solutions

ALR-PHT-SET **17 x 1 mL**

Each at 100 µg/mL Concentration

Benzyl butyl phthalate (BBP)	ALR-082S	Dimethyl phthalate (DMP)	ALR-111S
Diamyl phthalate (DPNP)	ALR-098S	Di-n-butyl phthalate (DBP)	ALR-104S
Dicyclohexyl phthalate (DCHP)	ALR-099S	Di-n-octyl phthalate (DNOP)	ALR-105S
Di(2-ethyl hexyl) phthalate (DEHP)	ALR-097S	Monobenzyl phthalate (mBzP)	ALR-134S-CN
Diethyl phthalate (DEP)	ALR-110S	Monobutyl phthalate (mBP)	ALR-135S-CN
Di-hexyl phthalate (DHP)	ALR-100S	Monoethyl phthalate (mEP)	ALR-137S-CN
Diisodecyl phthalate (DIDP) (Tech Mix)	ALR-101S	Monoethylhexyl phthalate (mEHP)	ALR-138S-CN
Diisononyl phthalate (DINP) (Tech Mix)	ALR-102S	Monomethyl phthalate	ALR-139S-CN
Diisooctyl phthalate (DIOP) (Tech Mix)	ALR-103S		

Phthalate Compounds

Isophthalates

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
Dimethyl isophthalate	1459-93-4		NEAT	J-009	100 mg
Diphenyl isophthalate	744-45-6		NEAT	J-012	100 mg

Terephthalates

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
bis(2-Ethylhexyl) terephthalate	6422-86-2		NEAT	J-121	100 mg
Diethyl terephthalate	636-09-9		NEAT	J-123	100 mg
Dimethyl terephthalate	120-61-6		NEAT	J-101	100 mg

Visit our website for detailed information on physical properties such as

Molecular Formula
Molecular Weight
Physical State
Specific Gravity
Melting Point
Boiling Point
Flash Point

including the **Structure**

Mono-phthalate esters are the primary phthalate metabolites formed via hydrolysis of one ester bond. It is these compounds that are thought to be toxic agents; and are receiving interest as a possible human health issue. Studies have shown that they can produce estrogenic and immune-suppressive effects in humans. 13 listed mono-phthalates including the mono-ethylhexyl (mEHP) which is the metabolite of the plasticizer with the greatest yearly production and use on a global basis.

Monophthalates

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
Monobenzyl phthalate (mBzP)	2528-16-7		NEAT	ALR-134N	100 mg
		100 µg/mL	ACN	ALR-134S-CN	1 mL
Monobutyl phthalate (mBP)	131-70-4		NEAT	ALR-135N	100 mg
		100 µg/mL	ACN	ALR-135S-CN	1 mL
Monoethyl phthalate (mEP)	2306-33-4		NEAT	ALR-137N	100 mg
		100 µg/mL	ACN	ALR-137S-CN	1 mL
Monoethylhexyl phthalate (mEHP)	4376-20-9		NEAT	ALR-138N	100 mg
		100 µg/mL	ACN	ALR-138S-CN	1 mL
Monomethyl phthalate	4376-18-5		NEAT	ALR-139N	100 mg
		100 µg/mL	ACN	ALR-139S-CN	1 mL
Monooctyl phthalate	5393-19-1		NEAT	ALR-141N	100 mg
		100 µg/mL	ACN	ALR-141S-CN	1 mL
Monoisononyl phthalate Mixture of C9 Isomers			NEAT	ALR-142N	100 mg
		100 µg/mL	ACN	ALR-142S-CN	1 mL
Mono-2-heptyl phthalate			NEAT	ALR-143N	100 mg
		100 µg/mL	ACN	ALR-143S-CN	1 mL
Monohexyl phthalate	24539-57-9		NEAT	ALR-175N	100 mg
		100 µg/mL	ACN	ALR-175S-CN	1 mL
Monoisobutyl phthalate	30833-53-5		NEAT	ALR-176N	100 mg
		100 µg/mL	ACN	ALR-176S-CN	1 mL
Mono-n-pentyl phthalate	24539-56-8		NEAT	ALR-177N	100 mg
		100 µg/mL	ACN	ALR-177S-CN	1 mL
Monocyclohexyl phthalate	7517-36-4		NEAT	ALR-178N	100 mg
		100 µg/mL	ACN	ALR-178S-CN	1 mL
Monoisopropyl phthalate	35118-50-4		NEAT	ALR-179N	100 mg
		100 µg/mL	ACN	ALR-179S-CN	1 mL

Deuterated Phthalates

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
Dibenzylphthalate-d_4	1015854-62-2	100 µg/mL	MeOH	PHTH-D4-001S	1 mL
Di-n-butyl phthalate-d_4	93952-11-5	100 µg/mL	MeOH	PHTH-D4-002S	1 mL
Di-iso-butyl phthalate-3,4,5,6-d_4	358730-88-8	100 µg/mL	MeOH	PHTH-D4-003S	1 mL
Dicyclohexyl phthalate-3,4,5,6-d_4	358731-25-6	100 µg/mL	MeOH	PHTH-D4-004S	1 mL
		100 µg/mL	Hexane	PHTH-D4-004S-H	1 mL
Diethyl phthalate-3,4,5,6-d_4	93952-12-6	100 µg/mL	MeOH	PHTH-D4-005S	1 mL
Di-n-hexyl phthalate-3,4,5,6-d_4	1015854-55-3	100 µg/mL	MeOH	PHTH-D4-006S	1 mL
		100 µg/mL	Hexane	PHTH-D4-006S-H	1 mL
Dimethyl phthalate-3,4,5,6-d_4	93951-89-4	100 µg/mL	MeOH	PHTH-D4-007S	1 mL
Di-n-octyl phthalate-3,4,5,6-d_4	93952-13-7	100 µg/mL	MeOH	PHTH-D4-008S	1 mL
		100 µg/mL	Hexane	PHTH-D4-008S-H	1 mL
Di-n-pentyl phthalate-3,4,5,6-d_4	358730-89-9	100 µg/mL	MeOH	PHTH-D4-009S	1 mL
Di-n-propyl phthalate-3,4,5,6-d_4	358731-29-0	100 µg/mL	MeOH	PHTH-D4-010S	1 mL
bis(2-Ethylhexyl) phthalate-3,4,5,6-d_4	93951-87-2	100 µg/mL	MeOH	PHTH-D4-011S	1 mL
		100 µg/mL	Hexane	PHTH-D4-011S-H	1 mL
bis(2-Ethoxyethyl) phthalate-3,4,5,6-d_4	1398066-12-0	100 µg/mL	Hexane	PHTH-D4-014S-H	1 mL
bis(2-Ethoxyethyl) phthalate-3,4,5,6-d_4	1398065-61-6	100 µg/mL	Hexane	PHTH-D4-015S-H	1 mL
bis(2-Butoxyethyl) phthalate-3,4,5,6-d_4	1398065-96-7	100 µg/mL	Hexane	PHTH-D4-016S-H	1 mL
bis(2-Methoxyethyl) phthalate-3,4,5,6-d_4	398065-54-7	100 µg/mL	Hexane	PHTH-D4-017S-H	1 mL
Benzyl butyl phthalate-d_4	93951-88-3	100 µg/mL	Hexane	PHTH-D4-018S-H	1 mL

Phthalate Technical Mixes

The high molecular weight (HMW) phthalates have more than six carbons in the backbone and are synthesized from phthalic acid and mixtures of C9 and C10 alcohols. The two major HMW products are diisononyl phthalate (DINP) and diisodecyl phthalate (DIDP). In recent years, HMW phthalates have been commonly used as a plasticizer in consumer production making testing for these compounds as important as testing for the LMW phthalates.

Unlike LMW phthalates which are typically observed as a single peak isomer during GC analysis, HMW phthalates are generally Technical Mixture standards comprised of multiple peaks representing different isomers of the same parent compound. Isomer ratio can vary depending on the synthesis route and starting the precursor alcohol used.

Phthalates Technical Mixes

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
Benzyl 2-ethylhexyl phthalate	27215-22-1		NEAT	ALR-165N	100 mg
		100 µg/mL	MeOH	ALR-165S	1 mL
n-Butyl benzyl phthalate	85-68-7		NEAT	PHTH-014N	10 mg
		100 µg/mL	MeOH	PHTH-014S	1 mL
Butyl cyclohexyl phthalate	84-64-0		NEAT	J-122	100 mg
n-Butyl iso-butyl phthalate			NEAT	PHTH-013N	10 mg
		100 µg/mL	MeOH	PHTH-013S	1 mL
Butyl octyl phthalate	84-78-5		NEAT	J-001	100 mg
Decyl octyl phthalate			NEAT	PHTH-012N	10 mg
		100 µg/mL	MeOH	PHTH-012S	1 mL
Didecyl phthalate	84-77-5		NEAT	J-120	100 mg
Diisodecyl phthalate (DIDP)	26761-40-0		NEAT	ALR-101N	100 mg
		100 µg/mL	MeOH	ALR-101S	1 mL
Diisoheptyl phthalate	71888-89-6		NEAT	PHTH-017N	50 mg
		100 µg/mL	MeOH	PHTH-017S	1 mL
Diisohexyl phthalate	68515-50-4		NEAT	J-007-10MG	10 mg
Diisononyl phthalate (C8 to C10 Isomers)	68515-48-0		NEAT	ALR-102N	100 mg
(DINP) (Tech Mix)		100 µg/mL	MeOH	ALR-102S	1 mL
Diisooctyl phthalate (C8 Isomers)	27554-26-3		NEAT	ALR-103N	100 mg
(DIOP) (Tech Mix)	100 µg/mL	MeOH	ALR-103S	1 mL	
Hexyl 2-ethylhexyl phthalate	75673-16-4		NEAT	J-016	100 mg
Isobutyl benzyl phthalate			NEAT	PHTH-015N	10 mg
		100 µg/mL	MeOH	PHTH-015S	1 mL
Isobutylcyclohexyl phthalate	5334-09-8		NEAT	J-014	100 mg
Pentyl isopentyl phthalate	84777-06-0		NEAT	PHTH-016N	10 mg
		100 µg/mL	MeOH	PHTH-016S	1 mL
n-Octyl n-decyl phthalate	119-07-3		NEAT	J-015	100 mg

Phthalate Replacements Standards

World-wide concern over enviromental and health-related factors associated with phthalates has led to restrictions of use in a wide array of products. This has resulted in the plastics industry generating a variety of alternatives. In response, AccuStandard has developed phthalate replacement standards, comprised of 42 compounds representing 18 chemical classes.

Phthalates Replacements

Azelaic Acid Derivatives	CAS No.	Matrix	Cat. No.	Unit
Diisodecyl azelate	28472-97-1	1000 µg/mL in Acetone	PLAS-PL-075S-A	1 mL
Diisoctyl azelate	26544-17-2	1000 µg/mL in Acetone	PLAS-PL-076S-A	1 mL
Dimethyl azelate	1732-10-1	1000 µg/mL in Acetone	PLAS-PL-077S-A	1 mL
Di-n-hexyl azelate	109-31-9	1000 µg/mL in Acetone	PLAS-PL-078S-A	1 mL
Di(2-ethyl hexyl) azelate	103-24-2	1000 µg/mL in Acetone	PLAS-PL-081S-A	1 mL
Adipic Acid Derivatives				
Di(tridecyl) adipate	16958-92-2	1000 µg/mL in Acetone	PLAS-PL-079S-A	1 mL
Di(n-heptyl, n-nonyl) adipate	68515-75-3	1000 µg/mL in Hexane	PLAS-PL-080S	1 mL
Diisobutyl adipate	84-69-5	1000 µg/mL in Hexane	PLAS-PL-082S	1 mL
Diisodecyl adipate	27178-16-1	1000 µg/mL in Hexane	PLAS-PL-083S	1 mL
Dimer Acid Derivatives				
Bis(2-hydroxyethyl) dimerate	68855-78-7	1000 µg/mL in Hexane	PLAS-PL-084S	1 mL
Epoxy Derivatives				
Epoxidized linseed oil	8016-11-3	1000 µg/mL in Toluene	PLAS-PL-085S-T	1 mL
2-Ethylhexyl epoxy tallate	61789-01-3	1000 µg/mL in Hexane	PLAS-PL-086S	1 mL
Fumeric Acid Derivative				
Dibutyl fumarate	105-75-9	1000 µg/mL in Hexane	PLAS-PL-087S	1 mL
Glycerol Derivative				
Glycerol triacetate	102-76-1	1000 µg/mL in Hexane	PLAS-PL-088S	1 mL
Isobutyrate Derivative				
2,2,4-Trimethyl-1,3-pentanediol-diisobutyrate	6846-50-0	1000 µg/mL in Hexane	PLAS-PL-089S	1 mL
Maleic Acid Derivatives				
di(2-Ethylhexyl)maleate [Dioctyl maleate]	142-16-5	1000 µg/mL in Hexane	PLAS-PL-090S	1 mL
Di n-butyl maleate	105-76-0	1000 µg/mL in Hexane	PLAS-PL-091S	1 mL
Mellitates				
Tricapryl trimellitate	27251-75-8	1000 µg/mL in Hexane	PLAS-PL-092S	1 mL
Triisodecyl trimellitate	36631-30-8	1000 µg/mL in Hexane	PLAS-PL-093S	1 mL
Tri-(n-octyl, n-decyl) trimellitate	67989-23-5	1000 µg/mL in Hexane	PLAS-PL-094S	1 mL
Myristate				
Isopropyl myristate	110-27-0	1000 µg/mL in Hexane	PLAS-PL-095S	1 mL
Olieic Acid Derivatives				
Glycerol monooleate	25496-72-4	1000 µg/mL in Hexane	PLAS-PL-096S	1 mL
Methyl oleate	112-62-9	1000 µg/mL in Hexane	PLAS-PL-097S	1 mL
n-Propyl oleate	111-59-1	1000 µg/mL in Hexane	PLAS-PL-098S	1 mL
Tetrahydrofurfuryl oleate		1000 µg/mL in Hexane	PLAS-PL-099S	1 mL
Palmitic Acid derivative				
Isopropyl palmitate	142-91-6	1000 µg/mL in Hexane	PLAS-PL-100S	1 mL
Benzoic Acid Derivatives				
Di(propylene glycol) dibenzoate	27138-31-4	1000 µg/mL in Hexane	PLAS-PL-101S	1 mL
Polyethylene glycol 200 dibenzoate	9004-86-8	1000 µg/mL in Hexane	PLAS-PL-102S	1 mL
Phosphoric Acid Derivatives				
t-Butylphenyl diphenyl phosphate	56803-37-3	1000 µg/mL in Hexane	PLAS-PL-103S	1 mL
Tri-butoxyethyl phosphate	78-51-3	1000 µg/mL in Hexane	PLAS-PL-104S	1 mL
Ricinoleic Acid Derivatives				
Butyl ricinoleate	151-13-3	1000 µg/mL in Hexane	PLAS-PL-105S	1 mL
Glyceryl (triacetyl)ricinoleate	101-34-8	1000 µg/mL in Hexane	PLAS-PL-106S	1 mL
n-Butyl acetyl ricinoleate	140-04-5	1000 µg/mL in Hexane	PLAS-PL-107S	1 mL
Propylene glycol ricinoleate	26402-31-3	1000 µg/mL in Toluene	PLAS-PL-108S-T	1 mL
Succinic acid Derivatives				
Diethyl succinate	123-25-1	1000 µg/mL in Acetone	PLAS-PL-109S	1 mL
Sulfonic acid Derivatives				
o,p-Toluenesulfonamide	8013-74-9	1000 µg/mL in Acetone	PLAS-PL-110S-A	1 mL
N-Ethyl o,p-toluenesulfonamide	8047-99-2	1000 µg/mL in Toluene	PLAS-PL-111S-T	1 mL
Stearic acid Derivatives				
Ethylene glycol monostearate	111-60-4	1000 µg/mL in Hexane	PLAS-PL-112S	1 mL
Isopropyl isostearate	68171-33-5	1000 µg/mL in Hexane	PLAS-PL-113S	1 mL
n-Butyl stearate		1000 µg/mL in Hexane	PLAS-PL-114S	1 mL
Glycerol monostearate	31566-31-1	1000 µg/mL in Toluene	PLAS-PL-115S-T	1 mL
Propylene glycol monostearate		1000 µg/mL in Hexane	PLAS-PL-116S	1 mL

Phthalate Mixtures

AOAC International Phthalates

Phthalates in Water-Based Adhesive

AOAC-PHTH-01 **1 mL**

1000 µg/mL each in n-Hexane 9 comps.

- bis(2-Methoxyethyl)phthalate
- Dipentyl phthalate
- Benzyl butyl phthalate
- Diphenyl phthalate
- Dicyclohexyl phthalate
- Dihexyl phthalate
- bis(2-n-butoxyethyl)phthalate
- Di-n-octyl phthalate
- bis(2-Ethylhexyl)phthalate

Phthalates in Water-Based Adhesive Internal Standard

AOAC-PHTH-01-IS **1 mL**

AOAC-PHTH-01-IS-PAK ***SAVE*** **5 x 1 mL**

100 µg/mL each in n-Hexane 10 comps.

- bis(2-methoxyethyl) Phthalate-3,4,5,6-d_4
- di-n-pentyl phthalate-d_4
- bis(2-ethoxyethyl) Phthalate-3,4,5,6-d_4
- Benzyl butyl phthalate-d_4
- Diphenyl Phthalate-3,4,5,6-d_4
- Dicyclohexyl Phthalate-3,4,5,6-d_4
- Di-n-hexyl Phthalate-3,4,5,6-d4
- bis(2-butoxyethyl) Phthalate-3,4,5,6-d_4
- Di-n-octyl Phthalate-3,4,5,6-d_4
- bis(2-ethylhexyl)phthalate-d_4

EN ISO 18856 Phthalates

Phthalates Reference Standard

ENISO18856 **1 x 1 mL**

1000 µg/mL each in Ethyl acetate 10 comps.

- Benzyl butyl phthalate
- bis(2-Ethylhexyl)phthalate
- Di-n-octyl phthalate
- Di-n-propyl phthalate
- Dibutyl phthalate
- Dicyclohexyl phthalate
- Didecyl phthalate
- Diethyl phthalate
- Diisobutyl phthalate
- Dimethyl phthalate

Phthalate EPA Methods and Additional Mixes

Method 506 Phthalate Esters by PID

Phthalate Esters

M-506 — **1 x 1 mL**
M-506-PAK — *SAVE* **5 x 1 mL**
1.0 mg/mL each in Isooctane — 7 comps.

- Benzyl butyl phthalate
- Dimethyl phthalate
- Diethyl phthalate
- Di-*n*-butyl phthalate
- bis(2-Ethylhexyl)adipate
- bis(2-Ethylhexyl)phthalate
- Di-*n*-octyl phthalate

M-506-QC — **1 x 1 mL**
M-506-QC-PAK — *SAVE* **5 x 1 mL**
At stated conc. (mg/mL) in MeOH — 7 comps.

Benzyl butyl phthalate	0.25	bis(2-Ethylhexyl) adipate	1.2
Dimethyl phthalate	0.1	bis(2-Ethylhexyl) phthalate	0.25
Diethyl phthalate	0.1	Di-*n*-octyl phthalate	0.65
Di-*n*-butyl phthalate	0.1		

Method 606 Phthalate Esters by GC/ECD

M-606 — **1 x 1 mL**
M-606-PAK — *SAVE* **5 x 1 mL**
0.2 mg/mL each in MeOH — 6 comps.

- Benzyl butyl phthalate
- Dimethyl phthalate
- Diethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate

Method 8060 Phthalate Esters by GC/ECD

Phthalate Esters

M-8060 — **1 x 1 mL**
M-8060-PAK — *SAVE* **5 x 1 mL**
2.0 mg/mL each in Isooctane — 6 comps.

- Benzyl butyl phthalate
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate

M-8060-QC — **1 x 1 mL**
M-8060-QC-PAK — *SAVE* **5 x 1 mL**
At stated conc. (mg/mL) in MeOH — 6 comps.

Benzyl butyl phthalate	0.1	Di-*n*-butyl phthalate	0.25
Diethyl phthalate	0.25	Di-*n*-octyl phthalate	0.5
Dimethyl phthalate	0.25	bis(2-Ethylhexyl)phthalate	0.5

Method 8061A Phthalate Esters by GC/ECD

Phthalate Esters

M-8061-R1 — **1 x 1 mL**
M-8061-R1-PAK — *SAVE* **5 x 1 mL**
1.0 mg/mL each in Hexane — 15 comps.

- bis(2-*n*-Butoxyethyl)phthalate
- Butyl benzyl phthalate
- Diamyl phthalate
- Di-n-butyl phthalate
- Dicyclohexyl phthalate
- Diethyl phthalate
- Dihexyl phthalate
- Diisobutyl phthalate
- Dimethyl phthalate
- Dinonyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethoxyethyl)phthalate
- bis(2-Ethylhexyl)phthalate
- bis(2-Methoxyethyl)phthalate
- bis(4-Methyl-2-pentyl)phthalate

M-8061A — **1 x 1 mL**
M-8061A-PAK — *SAVE* **5 x 1 mL**
1.0 mg/mL each in Hexane — 6 comps.

- Butyl benzyl phthalate
- bis(2-Ethylhexyl)phthalate
- Di-*n*-butyl phthalate
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-octyl phthalate

Matrix Spike Solution

M-8061A-MS — **1 x 1 mL**
M-8061A-MS-PAK — *SAVE* **5 x 1 mL**
2.0 mg/mL each in Acetone — 2 comps.

- Butyl benzyl phthalate
- bis(2-Ethylhexyl)phthalate

Internal Standard

M-8061-IS — **1 x 1 mL**
M-8061-IS-PAK — *SAVE* **5 x 1 mL**
5.0 mg/mL in Hexane

- Benzyl benzoate

Surrogate Standards

M-8061-SS — **1 x 1 mL**
M-8061-SS-PAK — *SAVE* **5 x 1 mL**
50 µg/mL each in Acetone

M-8061-SS-10X — **1 x 1 mL**
M-8061-SS-10X-PAK — *SAVE* **5 x 1 mL**
500 µg/mL each in Acetone — 3 comps.

- Dibenzyl phthalate
- Diphenyl isophthalate
- Diphenyl phthalate

Additional Phthalate Mixes

Appendix IX Phthalate Mix

APP-9-PHTH-MIX — **1 x 1 mL**
1000 µg/mL each in Cyclohexane — 6 comps.

- bis(2-Ethylhexyl)phthalate
- Dibutyl phthalate
- Di-n-octyl phthalate
- Diisodecyl phthalate
- Diisoonyl phthalate
- Benzyl butyl phthalate

Phthalate Esters Mix

M-PHE — **1 x 1 mL**
M-PHE-PAK — *SAVE* **5 x 1 mL**
At stated conc.(µg/mL) in Acetone — 6 comps.

Benzyl butyl phthalate	10	Dimethyl phthalate	25
bis(2-Ethylhexyl)phthalate	50	Di-n-butyl phthalate	25
Diethyl phthalate	25	Di-n-octyl phthalate	50

Adipate and Phthalate Standard

WS-PHTH-001 — **1 x 1 mL**
1000 µg/mL each in Acetone — 2 comps.

- bis(2-Ethylhexyl)phthalate
- bis(2-Ethylhexyl)adipate

Phthalate Mix

ASM-146 — **1 x 1 mL**
1.0 mg/mL each in MeOH — 6 comps.

- Benzyl butyl phthalate
- Dimethyl phthalate
- Diethyl phthalate
- Di-n-butyl phthalate
- Di-n-octyl phthalate
- bis(2-Ethylhexyl)phthalate

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