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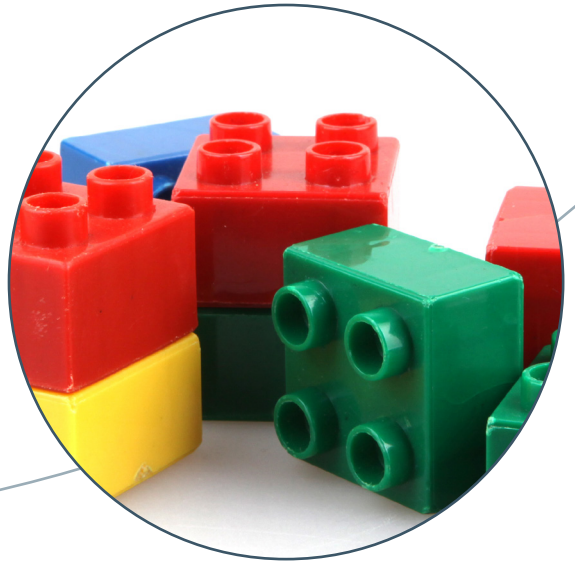
Plastic Standards and Additives

- Polyvinyl Chloride (PVC) Standards
- Polyethylene (PE) Standards
- Heavy Metal Standards for Plastics



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Plastic Standards and Additives

New regulations are constantly being enacted to protect consumers from a variety of potentially dangerous compounds and elements. Recent global regulations have restricted levels of heavy metals in consumer products and waste electronics.

Regulations have also been enacted to control a variety of phthalates in children's products. Spex CertiPrep has continued to lead the certified reference materials field by creating a line of plastic standards for use with these new testing regulations.

Organic and Inorganic
Certified Reference Materials

For use with AA, IC, ICP, GC, GC/MS, LC, LC/MS

Supplied with a
Certificate of Analysis

ISO Accredited
Standards

Plastic Standards and Additives

Phthalates in Polyvinyl Chloride (PVC)

Polyvinyl chloride, or PVC, is a very common plastic used in a wide range of common consumer products, from children's toys and care items to building and construction materials. In the US, ASTM and the CPSC have designated methods for testing children's toys and childcare articles for compliance with the restricted use of six designated phthalates: DBP, BBP, DEHP, DNOP, DIDP, and DINP.

Spex CertiPrep is proud to offer Certified Reference Materials for phthalates in polyvinyl chloride produced under the guidelines of ISO 9001:2015, ISO/IEC 17025:2017 and ISO 17034:2016.

Designed for Methods

US Method – CPSC-CH-C1001-09.3
EU Directive – 2005/84/EC
ASTM – D7823-13

Phthalates in Polyvinyl Chloride (PVC)					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Diisodecyl phthalate (DIDP)	26761-40-0	30,000 µg/g	1.5 g	Polyvinyl Chloride	CRM-PVC001
Diisononyl phthalate (DINP)	28553-12-0	30,000 µg/g			
Bis-(2-Ethylhexyl) phthalate (DEHP)	117-81-7	3,000 µg/g			
Butylbenzyl phthalate (BBP)	85-68-7	3,000 µg/g			
Diethyl phthalate (DEP)	84-66-2	3,000 µg/g			
Dimethyl phthalate (DMP)	131-11-3	3,000 µg/g			
Di-n-butyl phthalate (DBP)	84-74-2	3,000 µg/g			
Di-n-octyl phthalate (DOP)	117-84-0	3,000 µg/g			

Polyvinyl Chloride (PVC) Phthalate Blank			
Description	**Volume**	**Matrix**	**Part #**
Polyvinyl Chloride Phthalate Blank (to be used for testing PVC phthalates, part # CRM-PVC-001 and C1001-09)	1.5 g	Polyvinyl Chloride	CRM-PVCBLK

Plastic Standards and Additives

Phthalates in Polyethylene (PE)

Polyethylene (PE) is one of the world's most common plastics. Polyethylene is used in a variety of common consumer products including children's toys and care items. Current US regulations limit the concentrations of certain phthalates (DBP, BBP, DEHP, DNOP, DIDP, and DINP) in childcare articles and children's toys. Laboratories are now tasked with the analysis of children's toys for these potentially hazardous phthalates.

Designed for Methods

US Method – CPSC-CH-C1001-09.3
EU Directive – 2005/84/EC
ASTM – D7823-13

Phthalates in Medium Density Polyethylene					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Diisononyl phthalate (Branched) (DINP)	28553-12-0	30,000 µg/g	5 g	Polyethylene	CRM-PE001
Diisodecyl phthalate (DIDP)	26761-40-0	30,000 µg/g			
Di-n-butyl phthalate (DBP)	84-74-2	3,000 µg/g			
Di-n-octyl phthalate (DOP)	117-84-0	3,000 µg/g			
Diethyl phthalate (DEP)	84-66-2	3,000 µg/g			
Dimethyl phthalate (DMP)	131-11-3	3,000 µg/g			
Bis-(2-Ethylhexyl) phthalate (DEHP)	117-81-7	3,000 µg/g			
Butylbenzyl phthalate (BBP)	85-68-7	3,000 µg/g			

Plastic Standards and Additives

Phthalates in Polyethylene (PE) (continued)

8 Regulated Phthalates and BPA in Medium Density Polyethylene					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Diisononyl phthalate (DINP)	28553-12-0	30,000 µg/g	5 g	Polyethylene	CRM-PE002
Diisodecyl phthalate (DIDP)	26761-40-0	30,000 µg/g			
Bisphenol A (BPA)	80-05-7	3,000 µg/g			
Bis-(2-Ethylhexyl) phthalate (DEHP)	117-81-7	3,000 µg/g			
Butylbenzyl phthalate (BBP)	85-68-7	3,000 µg/g			
Di-n-butyl phthalate (DBP)	84-74-2	3,000 µg/g			
Di-n-octyl phthalate (DOP)	117-84-0	3,000 µg/g			
Diethyl phthalate (DEP)	84-66-2	3,000 µg/g			
Dimethyl phthalate (DMP)	131-11-3	3,000 µg/g			

Polyethylene (PE) Phthalate Blank			
Description	**Volume**	**Matrix**	**Part #**
Polyethylene Blank (to be used for testing PE phthalates, part # CRM-PE001, CRM-PE002 and C1001-09)	5 g	Polyethylene	CRM-PEBLK

Plastic Standards and Additives

Plastic Additives

Plastic additives or plasticizers are chemicals added to increase the plasticity of fluidity of many polymer materials. Additives for plastic can be used to change the physical properties of polymers, add colorants or fragrances, or provide a finish to the final product.

These plastic additives are most commonly found as phthalate esters. The safety of the use of these phthalate esters or phthalates has been a topic of great discussion and regulation. Many phthalates are under governmental restriction for use in a wide variety of consumer products. The use of phthalates in the consumer world is ubiquitous and many analytical labs are now tasked to quantify the regulated plasticizers while ruling out the presence of other similar plasticizers.

Standards are a critical part of the analysis of plasticizers in order for a laboratory to determine the concentration of the truly regulated plasticizers from a similar type or form of plasticizer.

Spex CertiPrep's full line of plasticizer compound standards can assist the analytical laboratory with all of their plasticizer analyses by all of the current analytical methods including GC/MS and LC/MS.

Calibration Standard Phthalates					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Butylbenzyl phthalate (BBP)	85-68-7	1,000 µg/g for each component	1 mL	Isooctane	C1001-09
Di-n-butyl phthalate (DBP)	84-74-2				
Bis-(2-Ethylexyl) phthalate (DEHP)	117-81-7				
Diisodecyl phthalate (DIDP)	26761-40-0				
Diisononyl phthalate (DINP)	28553-12-0				
Di-n-octyl phthalate (DOP)	117-84-0				

Plastic Standards and Additives

Plastic Additives (continued)

Method C1001-09.4 Phthalates					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Butylbenzyl phthalate (BBP)	85-68-7	1,000 µg/g for each component	1 mL	Isooctane	C1001-09.4
Bis(2-Ethylhexyl)phthalate (DEHP)	117-81-7				
Di-n-butyl phthalate (DBP)	84-74-2				
Di-n-hexyl phthalate (DNHP)	84-75-3				
Diamyl phthalate	131-18-0				
Dicyclohexyl phthalate (DCHP)	84-61-7				
Diisobutyl phthalate (DIBP)	84-69-5				
Diisononyl phthalate (DINP)	28553-12-0				

Individual Phthalates					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Bis-(2-ethylhexyl) isophthalate	137-89-3	1,000 µg/mL	1 mL	Methanol-P&T	S-4928
Bis-(2-ethylhexyl) phthalate	117-81-7	1,000 µg/mL	1 mL	Methanol	S-1970
Bis-(2-ethylhexyl) terephthalate	6422-86-2	1,000 µg/mL	1 mL	Methanol	S-5459
Bis-(4-methyl-2-pentyl) phthalate	146-50-9	1,000 µg/mL	1 mL	Methanol	S-4154
Butybenzyl phthalate	85-68-7	1,000 µg/mL	1 mL	Methylene chloride	S-680-MECL
Diamyl phthalate	131-18-0	1,000 µg/mL	1 mL	Methanol	S-4157
Dibenzyl phthalate	523-31-9	1,000 µg/mL	1 mL	Methylene chloride	S-1186
Dicapryl phthalate	131-15-7	1,000 µg/mL	1 mL	Methanol-P&T	S-4932
Dicyclohexyl phthalate	84-61-7	1,000 µg/mL	1 mL	Methanol-P&T	S-4151
Diethyl phthalate	84-66-2	1,000 µg/mL	1 mL	Methanol-P&T	S-1515
Diisobutyl phthalate	84-69-5	1,000 µg/mL	1 mL	Methanol-P&T	S-4150
Diisodecyl phthalate	26761-40-0	1,000 µg/mL	1 mL	Methanol-P&T	S-4464
Diisoheptyl phthalate	71888-89-6	1,000 µg/mL	1 mL	Methylene chloride	S-1553
Diisononyl phthalate	28553-12-0	1,000 µg/mL	1 mL	Acetone	S-1559
Di-iso-octyl phthalate	27554-26-3	1,000 µg/mL	1 mL	Methanol	S-5738
Dimethoxyethyl phthalate	117-82-8	1,000 µg/mL	1 mL	Methanol-P&T	S-1575

Plastic Standards and Additives

Plastic Additives (continued)

Individual Phthalates (continued)					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Dimethyl phthalate	131-11-3	1,000 µg/mL	1 mL	Methanol-P&T	S-1590
Di-n-butyl phthalate	84-74-2	1,000 µg/mL	1 mL	Methanol-P&T	S-1770
Di-n-hexyl phthalate	84-75-3	1,000 µg/mL	1 mL	Methanol-P&T	S-4155
Di-n-hexyl phthalate	84-75-3	1,000 µg/mL	1 mL	Hexane	S-4155-H
Di-n-octyl phthalate	117-84-0	1,000 µg/mL	1 mL	Methanol-P&T	S-1775
Dinonyl phthalate	84-76-4	1,000 µg/mL	1 mL	Methanol-P&T	S-4153
Dipropyl phthalate	131-16-8	1,000 µg/mL	1 mL	Methanol-P&T	S-4491
Isopentyl pentyl phthalate	776297-69-9	1,000 µg/mL	1 mL	Methylene chloride	S-6109

Acetaldehyde

Acetaldehyde is one of the most common aldehydes that occur in nature and industrial processes. Naturally occurring, acetaldehyde is found as a byproduct of ethanol fermentation in alcoholic beverages, and yeast products such as bread and ripe fruit. Acetaldehyde forms by degradation of PET exposed to high temperatures or high pressures.

Acetaldehyde					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Acetaldehyde	75-07-0	1,000 µg/mL	1.8 mL	H_2O	S-125-W1.8

Plastic Standards and Additives

Heavy Metal Standards

Plastics have an indispensable place in modern life, but the use of plastics (and chemicals used to create them) have caused problems in the environment and in human health. Plastics have become infamous for their additives such as phthalates. Phthalates are added and can mimic natural biological metabolites such as endocrine and hormone compounds necessary in biological function. But, it is also true that many plastics are created using dangerous or potentially toxic metal additives or catalysts like antimony or lead which can have an impact on health. In addition, plastic manufacturing can add other elemental contamination like aluminum, chromium and other wear metals via manufacturing equipment. Spex standards allow consumer safety laboratories, plastic manufacturers and companies employing plastic packaging to monitor levels of toxic and wear metals in consumer goods to reduce exposure to metal contamination.

Heavy Metals				
Description	**Concentration**	**Volume**	**Matrix**	**Part #**
Antimony	1,000 µg/mL	30 mL	H_2O/0.6% Tartaric Acid/tr. HNO_3	PLSB7-2M
Antimony	1,000 µg/mL	125 mL	H_2O/0.6% Tartaric Acid/tr. HNO_3	PLSB7-2Y
Antimony	1,000 µg/mL	250 mL	H_2O/0.6% Tartaric Acid/tr. HNO_3	PLSB7-2T
Antimony	1,000 µg/mL	500 mL	H_2O/0.6% Tartaric Acid/tr. HNO_3	PLSB7-2X
Arsenic	1,000 µg/mL	30 mL	2% HNO_3	PLAS2-2M
Arsenic	1,000 µg/mL	125 mL	2% HNO_3	PLAS2-2Y
Arsenic	1,000 µg/mL	250 mL	2% HNO_3	PLAS2-2T
Arsenic	1,000 µg/mL	500 mL	2% HNO_3	PLAS2-2X
Barium	1,000 µg/mL	30 mL	2% HNO_3	PLBA2-2M
Barium	1,000 µg/mL	125 mL	2% HNO_3	PLBA2-2Y
Barium	1,000 µg/mL	250 mL	2% HNO_3	PLBA2-2T
Barium	1,000 µg/mL	500 mL	2% HNO_3	PLBA2-2X
Cadmium	1,000 µg/mL	30 mL	2% HNO_3	PLCD2-2M
Cadmium	1,000 µg/mL	125 mL	2% HNO_3	PLCD2-2Y
Cadmium	1,000 µg/mL	250 mL	2% HNO_3	PLCD2-2T
Cadmium	1,000 µg/mL	500 mL	2% HNO_3	PLCD2-2X

Plastic Standards and Additives

Heavy Metal Standards (continued)

Heavy Metals (continued)				
Description	**Concentration**	**Volume**	**Matrix**	**Part #**
Chromium	1,000 µg/mL	30 mL	2% HNO_3	PLCR2-2M
Chromium	1,000 µg/mL	125 mL	2% HNO_3	PLCR2-2Y
Chromium	1,000 µg/mL	250 mL	2% HNO_3	PLCR2-2T
Chromium	1,000 µg/mL	500 mL	2% HNO_3	PLCR2-2X
Lead	1,000 µg/mL	30 mL	2% HNO_3	PLPB2-2M
Lead	1,000 µg/mL	125 mL	2% HNO_3	PLPB2-2Y
Lead	1,000 µg/mL	250 mL	2% HNO_3	PLPB2-2T
Lead	1,000 µg/mL	500 mL	2% HNO_3	PLPB2-2X
Mercury	1,000 µg/mL	30 mL	10% HNO_3	PLHG4-2M
Mercury	1,000 µg/mL	125 mL	10% HNO_3	PLHG4-2Y
Mercury	1,000 µg/mL	250 mL	10% HNO_3	PLHG4-2T
Mercury	1,000 µg/mL	500 mL	10% HNO_3	PLHG4-2X
Selenium	1,000 µg/mL	30 mL	2% HNO_3	PLSE2-2M
Selenium	1,000 µg/mL	125 mL	2% HNO_3	PLSE2-2Y
Selenium	1,000 µg/mL	250 mL	2% HNO_3	PLSE2-2T
Selenium	1,000 µg/mL	500 mL	2% HNO_3	PLSE2-2X

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