

PHTHALATES

2010

E&E Chemicals Team

Laboratory Testing Services

SGS Testing Korea Co., Ltd.



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■ 가 (可塑劑, plasticizer)

■ 가 : 가

■ (軟化劑, softener) : 가 , , , , .

■ PVC(polyvinyl chloride) : 가

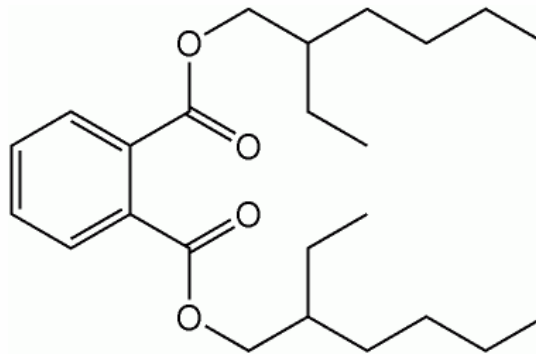


	DEHP, DBP, BBP – DNOP, DINP, DIDP –
	95% - PVC 가 , (20 ~ 60 %)
	, , , ,
	EU Directive 2005/84/EC (1,000 ppm) USA CPSIA (Consumer Product Safety Improvement Act) (1,000 ppm)

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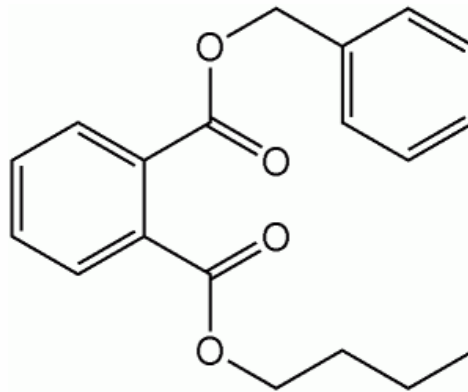
Bis(2-ethyl(hexyl)Phthalate(DEHP)

- CAS No. : 117-81-7
- : GC/MS
- : 가 가
- : , , Rubber,
- :



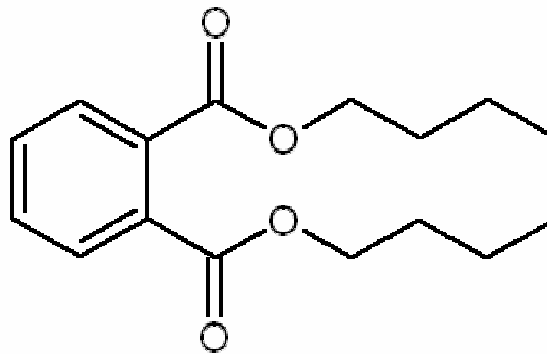
Benzyl butyl phthalate(BBP)

- CAS No. : 85-68-7
- : GC/MS
- : , 가
- : , Rubber,
- :



Dibutyl phthalate(DBP)

- CAS No. : 84-74-2
- : GC/MS
- : 가
- : , , Rubber,
- : ,



가

가

- **DOA(Dioctyl Adipate):** Non Phthalate 가 , PVC , , , 가
- **DINA (Diisononyl Adipate):** , ,
- **(Epoxy):** , 가
- **TPTM(Tri-ethylhexyl trimellitate):** (Trimellitic Acid Ester) 가 , , , ,
- **Phosphoric Acid Ester:** , TCP, TOP, CDP
- **(Polyster):** Adipic acid Polyester, Non Phthalate 가 , , , , PVC ,
- **CITROCIZER-A (Citric acid ester) :** ,

(OECD)

(WWF, World Wildlife Fund) 67

142

- : (PVC) , USEPA 1kg 0.07pg,
(184 g) 가 1.27pg

- DDT:

- : MBT, DBT & TBT,

- PCB:

-A: , , , ,

-

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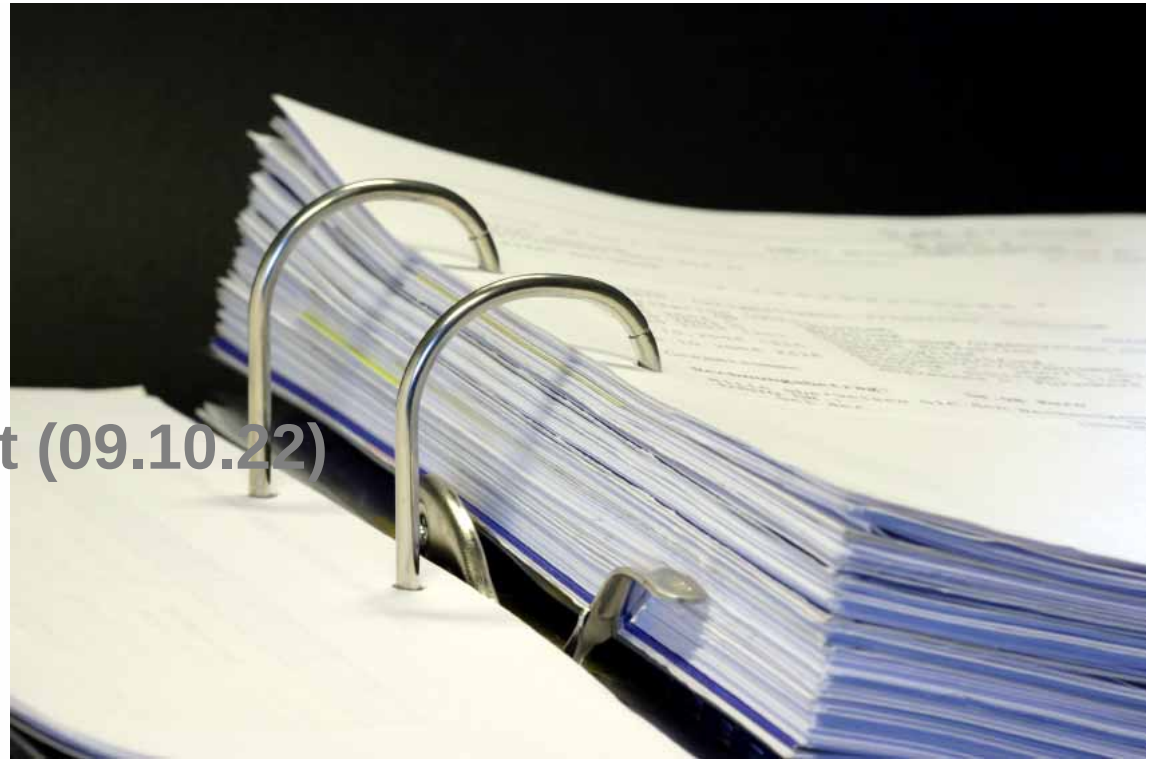
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PHTHALATES

EU RoHS II draft report (09.10.22)
2008/0240 (COD)



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Proposal for a directive
Annex III

Text proposed by the Commission

Substances referred to in *Article 4(7)*

1. *Hexabromocyclododecane (HBCDD)*
2. *Bis (2-ethylhexyl) phthalate (DEHP)*
3. *Butyl benzyl phthalate (BBP)*
4. *Dibutylphthalate (DBP)*

Amendment

Substances referred to in *Article 6a*

1. *Arsenic compounds*
2. *Beryllium and its compounds*
3. *Antimony trioxide*
4. *Dinickeltrioxide*
5. *Bisphenol A*
6. *Organobromines other than brominated flame retardants*
7. *Organochlorines other than chlorinated flame retardants or plasticisers*

Proposal for a directive Annex IV

Text proposed by the Commission

Prohibited substances referred to in Article 4(7) and maximum concentration values tolerated by weight in homogeneous materials

Lead (0,1%)

Mercury (0,1%)

Cadmium (0,01%)

Hexavalent chromium (0,1%)

Polybrominated biphenyls (PBB) (0,1%)

Polybrominated diphenyl ethers(PBDE) (0,1%)

Amendment

Prohibited substances referred to in Article 4(7) and maximum concentration values tolerated by weight in homogeneous materials

Part A

Lead (0,1%)

Mercury (0,1%)

Cadmium (0,01%)

Hexavalent chromium (0,1%)

Polybrominated biphenyls (PBB) (0,1%)

Polybrominated diphenyl ethers(PBDE) (0,1%)

Part B

Brominated flame retardants (0,1 %)

Chlorinated flame retardants (0,1 %)

Polyvinylchloride (PVC) (0,1 %)

Chlorinated plasticisers (0,1 %)

Bis (2-ethylhexyl) phthalate (DEHP) (0,1%)

Butyl benzyl phthalate (BBP) (0,1 %)

Dibutylphthalate (DBP) (0,1 %)

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CPSIA (Consumer Product Safety Improvement Act)

by Consumer Product Safety Commission



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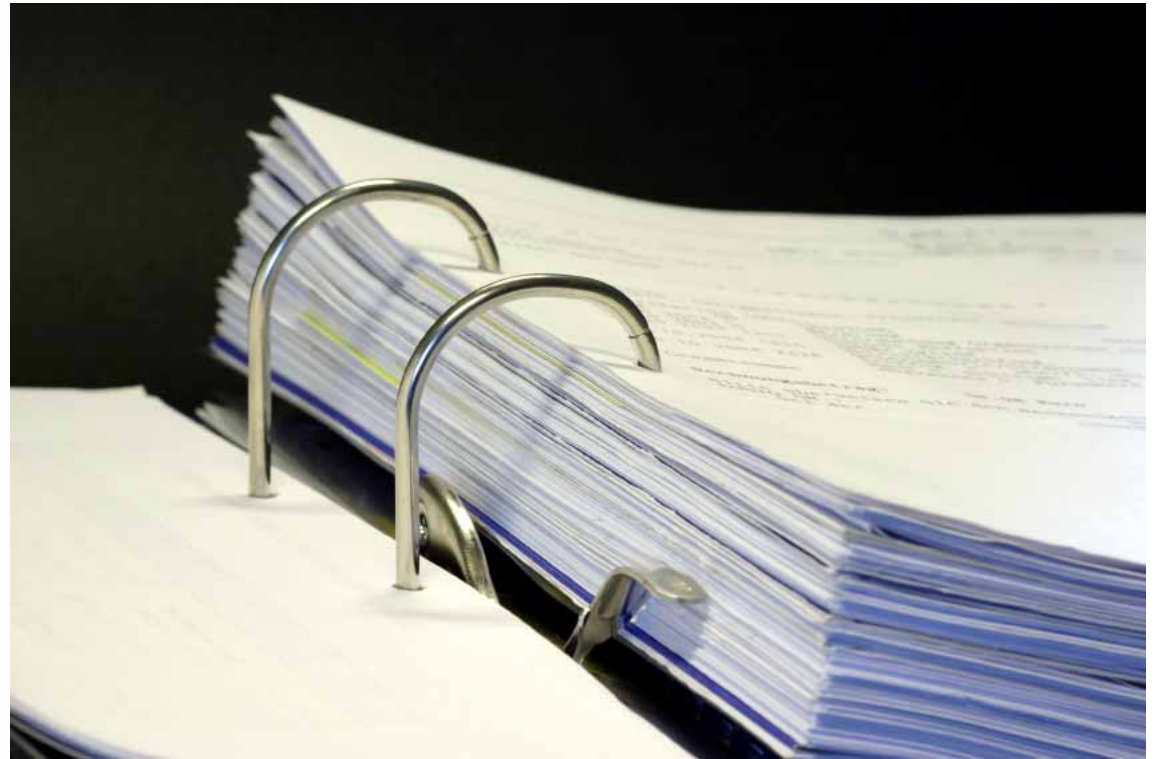
가소제 사용의 금지

가소제 Phthalates	적용	기준	입법 후 시행일자
DEHP, DBP or BBP	완구나 어린이용 제품	$\leq 0.1\%$	180 일
DINP, DIDP or DNOP	어린이의 입안에 들어갈 수 있는 제품이나 부품	$\leq 0.1\%$	180 일

- 완구나 어린이 제품에 대한 가소제의 새로운 연방 기준
- 독성학자가 1년 동안 연구하여 위험성의 결과를 내는 동안은 DINP, DIDP, DnOP 는 일시적으로 금지를 한다.
- 그리고 CPSC는 연구결과를 토대로 하여 최종적으로 규제를 할 것인지를 결정한다.

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REACH SVHC



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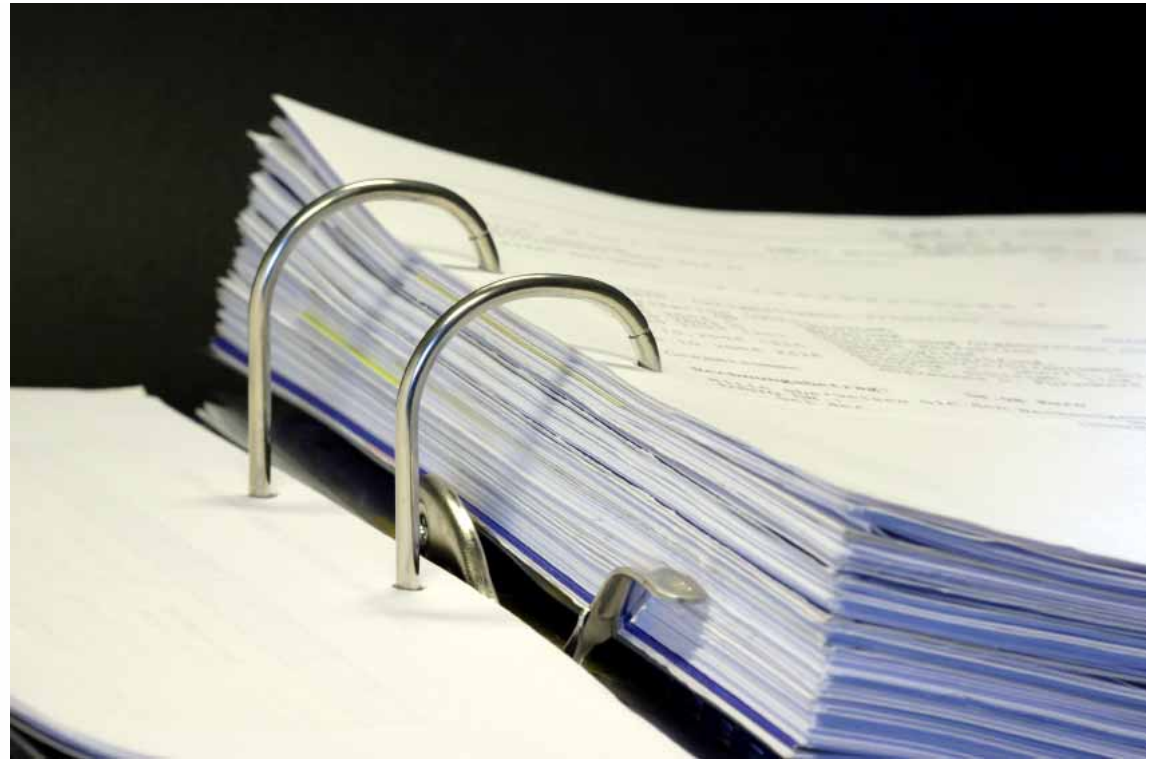
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Substance name	CAS. Number	EC Number	Application()
Anthracene	120-12-7	204-371-1	PAHs , , , (Dyes), OLED
4,4'-Diaminodiphenylmethane	101-77-8	202-374-4	Azo , , , (Dyes)
Dibutyl phthalate	84-74-2	201-557-4	Phthalates 가 (phthalates), (Adhesive)
Cobalt dichloride*	7646-79-9	231-589-4	Co , , , , , ,
Diarsenic pentaoxide*	1303-28-2	215-116-9	As , , Battery, ,
Diarsenic trioxide*	1327-53-3	215-481-4	As , , , , , ,
Sodium dichromate, dihydrate*	7789-12-0 10588-01-9	234-190-3	, , , , , 가 ,
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	201-329-4	, , , , , ,
Bis (2-ethyl(hexyl)phthalate) (DEHP)	117-81-7	204-211-0	Phthalates 가 (phthalates), (Adhesive)
Hexabromocyclododecane (HBCDD)	51-7, 134237-52-8	247-148-4, 221-695-9	HBCDD , , ,
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	287-476-5	SCCP , 가 , , PCB, PVC, , ,
Bis(tributyltin)oxide**	56-35-9	200-268-0	TBTO , , , , , ,
Lead hydrogen arsenate	7784-40-9	202-004-2	Pb , , , , LCD , , ,
Benzyl butyl phthalate	85-68-7	201-622-7	Phthalates 가 (phthalates), (Adhesive)
Triethyl arsenate*	15606-95-8	427-700-2	As , , , , , , , LCD, IC

Substance name	CAS. Number	EC Number	Application()
Anthracene oil	90640-80-5	292-602-7	
Anthracene oil, anthracene paste, distn. Lights	91995-17-4	295-278-5	
Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	295-275-9	PAHs
Anthracene oil, anthracene-low	90640-82-7	292-604-8	
Anthracene oil, anthracene paste	90640-81-6	292-603-2	
Pitch, coal tar, high temp.	65996-93-2	266-028-2	PAHs
Diisobutyl phthalate	84-69-5	201-553-2	Phthalates 가
2,4-Dinitrotoluene	121-14-2	204-450-0	Foam
Acrylamide	79-06-01	201-173-7	*
tris(2-chloroethyl)phosphate	115-96-8	204-118-5	, 가 ,
Aluminosilicate Refractory Ceramic Fibres		650-017-00-8	Ceramic Fibers
Zirconia Aluminosilicate, Refractory Ceramic Fibres		650-017-00-8	Ceramic Fibers
Lead chromate	7758-97-6	231-846-0	
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	12656-85-8	235-759-9	가 , 가 , , , , ,
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2	215-693-7	가 , 가 , , 가 , , , ,

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REACH Annex 17



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No.	Regulation (EC) No 552/2009 Designation of the substance, of the group of substances or of the mixture	Regulation (EC) No 552/2009 Conditions of restriction				CAS. No	EC. No	() 가		
51	The following phthalates (or other CAS and EC numbers covering the substance): (a) bis(2-ethylhexyl) phthalate (DEHP) CAS No 117-81-7 EC No 204-211-0 (b) Dibutyl phthalate (DBP) CAS No 84-74-2 EC No 201-557-4 (c) Benzyl butyl phthalate (BBP) CAS No 85-68-7 EC No 201-622-7	1. Shall not be used as substances or in mixtures, in concentrations greater than 0,1 % by weight of the plasticised material, in toys and childcare articles. 2. Toys and childcare articles containing these phthalates in a concentration greater than 0,1 % by weight of the plasticised material shall not be placed on the market. 3. The Commission shall re-evaluate, by 16 January 2010, the measures provided for in relation to this entry in the light of new scientific information on such substances and their substitutes, and if justified, these measures shall be modified accordingly. 4. For the purpose of this entry "childcare article" shall mean any product intended to facilitate sleep, relaxation, hygiene, the feeding of children or sucking on the part of children.	Phthalates ()	bis(2-ethylhexyl) phthalate DEHP dibutyl phthalate DBP benzyl butyl phthalate BBP		117-81-7 84-74-2 85-68-7	204-211-0 201-557-4 201-622-7	, 0.1%	가	
52	The following phthalates (or other CAS- and EC numbers covering the substance): (a) Di-"isononyl" phthalate (DINP) CAS No 28553-12-0 and 68515-48-0 EC No 249-079-5 and 271-090-9 (b) Di-"isodecyl" phthalate (DIDP) CAS No 26761-40-0 and 68515-49-1 EC No 247-977-1 and 271-091-4 (c) Di-n-octyl phthalate (DNOP) CAS No 117-84-0 EC No 204-214-7	1. Shall not be used as substances or in mixtures, in concentrations greater than 0,1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children. 2. Such toys and childcare articles containing these phthalates in a concentration greater than 0,1 % by weight of the plasticised material shall not be placed on the market. 3. The Commission shall re-evaluate, by 16 January 2010, the measures provided for in relation to this entry in the light of new scientific information on such substances and their substitutes, and if justified, these measures shall be modified accordingly. 4. For the purpose of this entry "childcare article" shall mean any product intended to facilitate sleep, relaxation, hygiene, the feeding of children or sucking on the part of children.	Phthalates ()	di-"isononyl" phthalate DINP di-"isodecyl" phthalate DIDP di-n-octyl phthalate DNOP		28553-12-0 68515048-0 26761-40-0 68515-49-1 117-84-0	249-079-5 271-090-9 247-977-1 271-091-1 204-214-7	, 0.1%	가	

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Material	Likelihood of non-compliance to the phthalate directive
PVC	High
PU	High
Polymeric Paint /Coating	High
AC (Acetyl cellulose)	High
Blended material	High

In the same study phthalates have been found as impurity in EVA, Kraton, PE, PP, rubber, TPR (Thermo plastic rubber) and TPU (Thermo plastic urethane). This kind of impurities can easily fail the 0,1% limit stated in the directive.

■ SGS HK

가 30%

■

() Study Impurity
0.1%가
EVA, Kraton, PE, PP, Rubber, TPR, TPU

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Technical part

Analysis part



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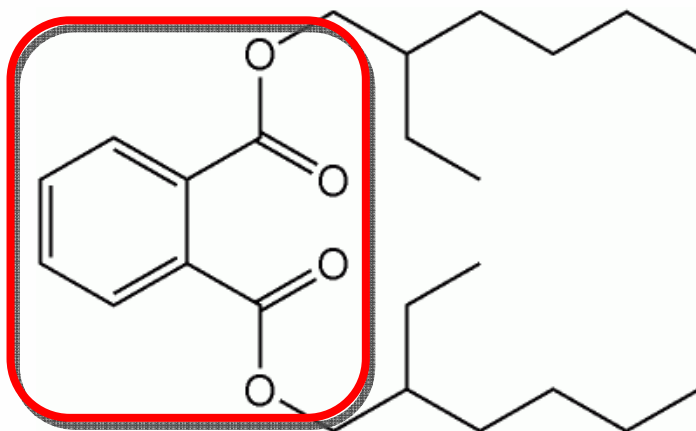
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SGS Standards
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and Chemservice

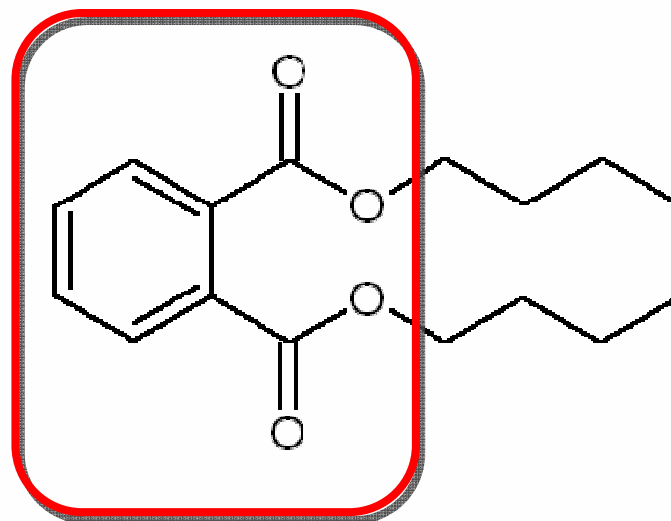
Second source Standard
TCI, Sigma and Fluka

Name	CAS No	Notes
BBP (Benzyl butyl phthalate)	85-68-7	6
DBP (Dibutyl phthalate)	84-74-2	
DEHP (Di- (2-ethylhexyl) phthalate)	117-81-7	
DIDP (Di-isodecyl phthalate)	26761-40-0	
DINP (Di-isononyl phthalate)	28553-12-0	
DNOP (Di-n-octyl phthalate)	117-84-0	8
DEP (Di-ethyl phthalate)	84-66-2	
DMP (Di-methyl phthalate)	131-11-3	
DIBP (Di-isobutyl phthalate)	84-69-5	10
DNHP (Di-n-hexyl phthalate)	84-75-3	
DEHA (Di-2-ethylhexyl adipate) (DOA)	103-23-1	16
DPrP (Di-propyl phthalate)	131-16-8	
DCHP (Di-cyclohexyl phthalate)	84-61-7	
DPP (Di-pentyl phthalate)	131-18-0	
DNNP (Di-n-nonyl phthalate) (DNP)	84-76-4	
DIOP (Di-isooctyl phthalate)	27554-26-3	

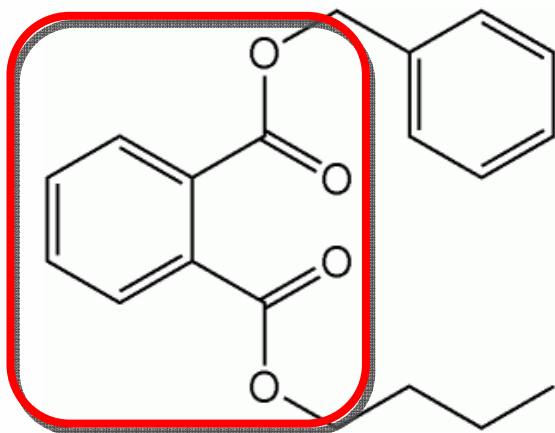
DEHP



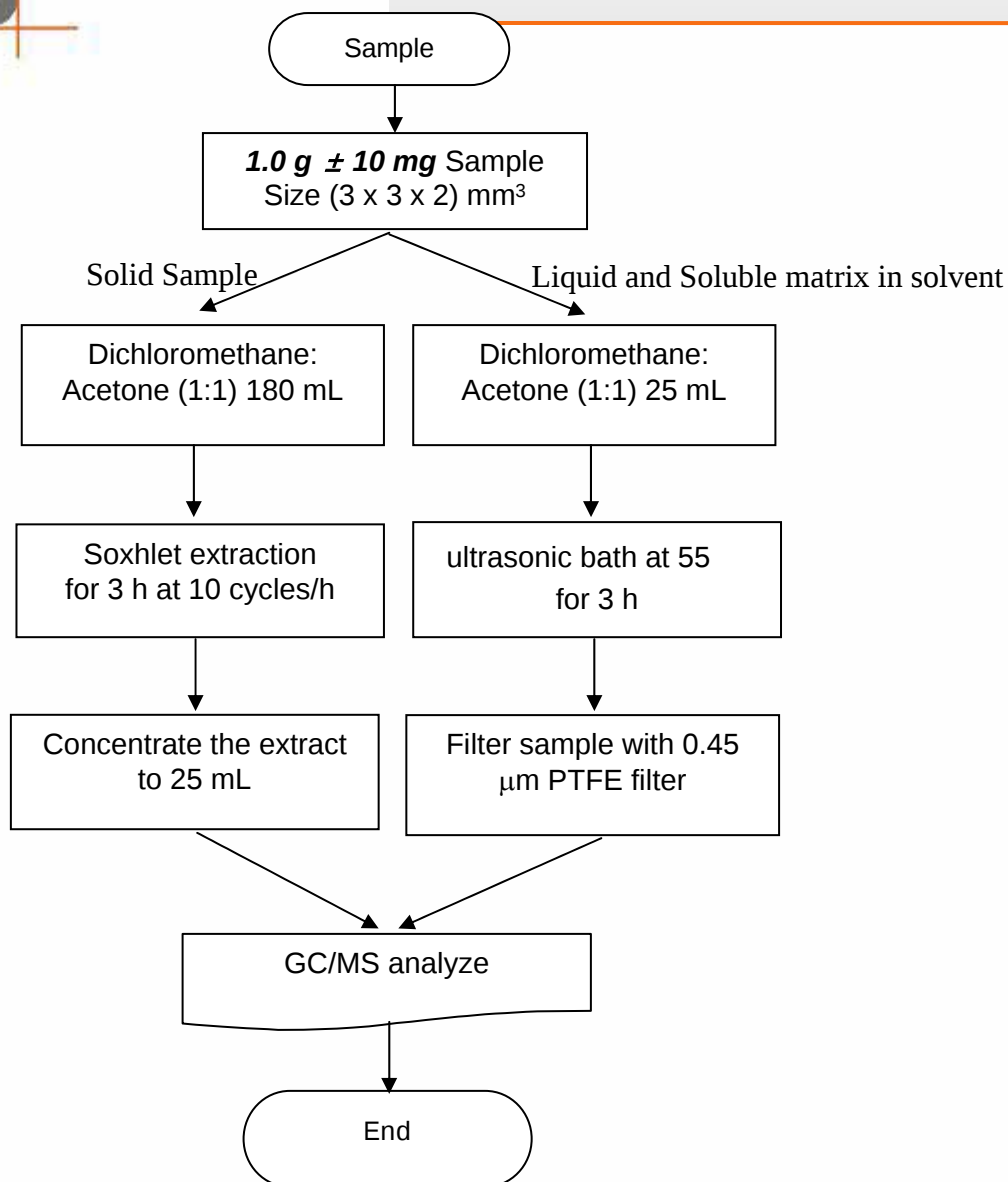
DBP



BBP

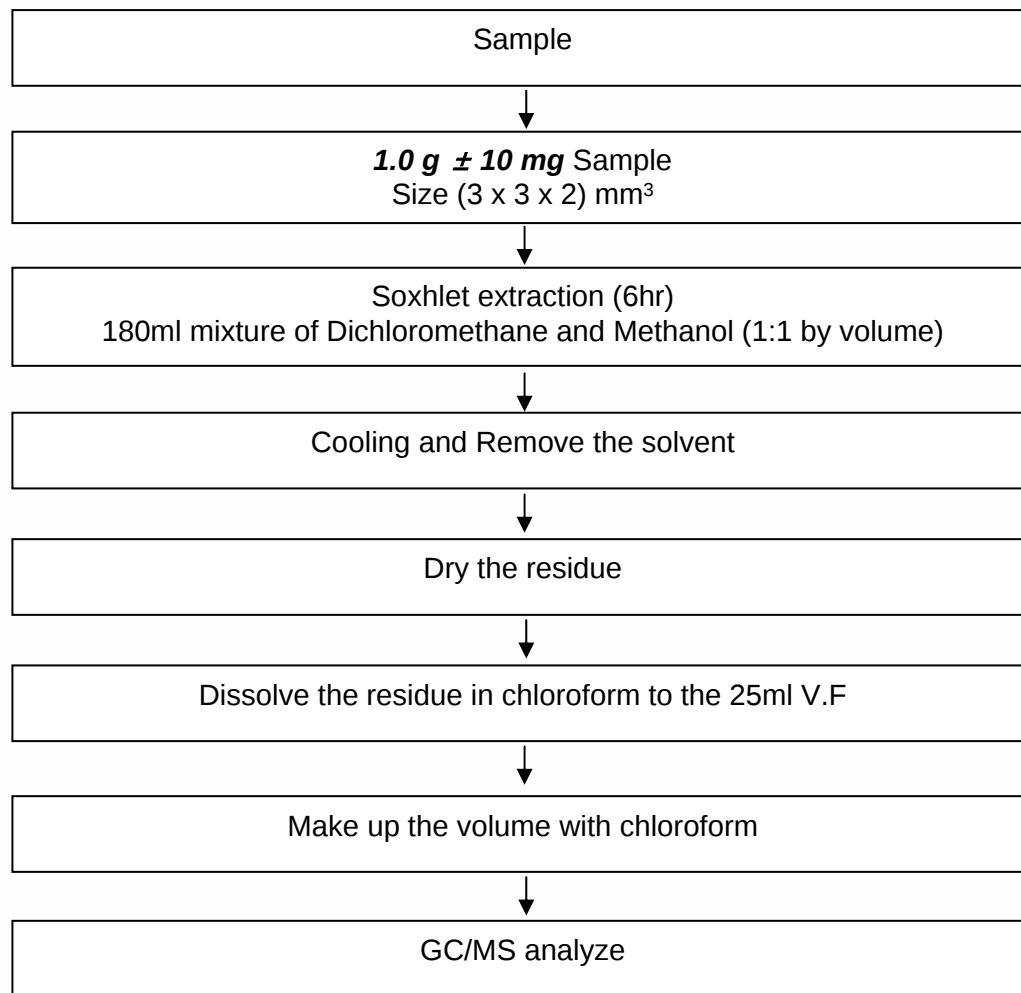


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Vinyl Chloride Plastic

가



Q & A



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THANK YOU



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