



Hong Kong Government Recognized Service Supplier
Approved Laboratory of The Woolmark Company

Members of :

American National Standards Institute
American Society for Testing and Materials
British Standards Institute

Hong Kong Association for Testing, Inspection and Certification Limited
Hong Kong Toys Council

Test Report

Number: HKGH0137099201

Applicant: P-LIFE JAPAN INC.
1-30-16-205, TODOROKI,
SETAGAYA-KU,
TOKYO 1580082
JAPAN

Date: Aug 23, 2012

Sample Description:

One (1) submitted sample said to be **plastic sheet with p-life additive SMC2360.**

Tests conducted:

As requested by the applicant, refer to attached page(s) for details.

To be continued

For and on behalf of :
Intertek Testing Services HK Ltd.

Karen S.C. Ng
General Manager





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Conclusion:

<u>Tested Samples</u>	<u>Standard</u>	<u>Result</u>
Tested component of submitted sample	94/62/EC and amendment 2004/12/EC & 2005/20/EC Directive (packaging waste) for toxic elements test	Pass
	Phthalates content requirement in Annex XVII Items 51 & 52 of the REACH Regulation (EC) no. 1907/2006 & amendment no. 552/2009 (formerly known as Directive 2005/84/EC)	Pass
Submitted sample	With reference to test method of IEC 62321 edition 1.0 : 2008 and maximum concentration limits quoted from RoHS Directives 2002/95/EC and amendment 2005/618/EC	Pass
	Chemical Confirmation Test for RoHS Directive (2011/65/EU) superseding 2002/95/EC with effect from 3 January 2013	Pass
	European Commission Regulation No. 10/2011 Annex II and Regulation No. 1935/2004 on Specific Migration of Heavy Metal Content	Pass
	SVHC Screening Test	See details enclosed
	European Commission Regulation No. 10/2011 and Regulation No. 1935/2004 on Overall Migration	Pass

Labelling recommendation :

Food type : All aqueous and acidic foods and alcoholic foods and fatty foods and milk products.

Use Condition : Temperature between 70°C and 100°C for less than 15 minutes and room temperature or below storage for unspecified period.

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Tests Conducted

1 Toxic Elements Analysis

As per 94/62/EC and amendment 2004/12/EC & 2005/20/EC Directive on packaging and packaging waste, acid digestion method was used and toxic elements contents were determined by Inductively Coupled Argon Plasma Spectrometry, and Hexavalent Chromium content was determined by UV-Visible Spectrophotometry.

	<u>Result in ppm</u>	<u>Limit (ppm)</u>
Lead (Pb)	<5	--
Cadmium (Cd)	<5	--
Mercury (Hg)	<5	--
Chromium VI (Cr (VI))	<1	--
Sum of Pb, Cd, Hg and Cr (VI)	<16	100

ppm = part per million
< = Less than

Tested Component : Transparent plastic sheet.

Date sample received : Aug 07, 2012

Testing period : Aug 07, 2012 to Aug 13, 2012



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Tests Conducted

2 RoHS Chemical Test

(A) Test Result Summary:

Testing Item	Result
Cadmium (Cd) Content (mg/kg)	ND(<2)
Lead (Pb) Content (mg/kg)	ND(<2)
Mercury (Hg) Content (mg/kg)	ND(<2)
Chromium (VI) (Cr ⁶⁺) Content (mg/kg) (For Non-metal)	ND(<1)
Polybrominated Biphenyls (PBBs) (mg/kg)	
Monobromobiphenyl (MonoBB)	ND(<5)
Dibromobiphenyl (DiBB)	ND(<5)
Tribromobiphenyl (TriBB)	ND(<5)
Tetrabromobiphenyl (TetraBB)	ND(<5)
Pentabromobiphenyl (PentaBB)	ND(<5)
Hexabromobiphenyl (HexaBB)	ND(<5)
Heptabromobiphenyl (HeptaBB)	ND(<5)
Octabromobiphenyl (OctaBB)	ND(<5)
Nonabromobiphenyl (NonaBB)	ND(<5)
Decabromobiphenyl (DecaBB)	ND(<5)
Polybrominated Diphenyl Ethers (PBDEs) (mg/kg)	
Monobromodiphenyl Ether (MonoBDE)	ND(<5)
Dibromodiphenyl Ether (DiBDE)	ND(<5)
Tribromodiphenyl Ether (TriBDE)	ND(<5)
Tetrabromodiphenyl Ether (TetraBDE)	ND(<5)
Pentabromodiphenyl Ether (PentaBDE)	ND(<5)
Hexabromodiphenyl Ether (HexaBDE)	ND(<5)
Heptabromodiphenyl Ether (HeptaBDE)	ND(<5)
Octabromodiphenyl Ether (OctaBDE)	ND(<5)
Nonabromodiphenyl Ether (NonaBDE)	ND(<5)
Decabromodiphenyl Ether (DecaBDE)	ND(<5)

mg/kg = milligram per kilogram = ppm

< = Less than

ND = Not detected



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(B) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 ppm)
Lead (Pb)	0.1% (1000 ppm)
Mercury (Hg)	0.1% (1000 ppm)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 ppm)
Polybrominated Biphenyls (PBBs)	0.1% (1000 ppm)
Polybrominated Diphenyl ethers (PBDEs)	0.1% (1000 ppm)

The above limits were quoted from 2002/95/EC and Amendment 2005/618/EC for homogeneous material.

(C) Test Method:

Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) Content	With reference to IEC 62321 edition 1.0 : 2008, by acid digestion and determined by ICP-OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 edition 1.0 : 2008, by acid digestion and determined by ICP-OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 edition 1.0 : 2008, by acid digestion and determined by ICP-OES	2 mg/kg
Chromium (VI) (Cr ⁶⁺) Content (For Non-Metal)	With reference to IEC 62321 edition 1.0 : 2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1 mg/kg
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 edition 1.0 : 2008, by solvent extraction and determined by GC/MS and further HPLC confirmation when necessary	5 mg/kg

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Tests Conducted

3 Overall Migration Test

As per Commission Regulation (EU) No. 10/2011, selection of test condition & food simulants by 82/711/EEC, 85/572/EEC and its amendment.

I. Condition of contact in actual use :

Temperature between 70°C and 100°C for less than 15 minutes and room temperature or below storage for unspecified period.

II. Test Results :

<u>Food Simulant</u>	<u>Result (mg/dm²)</u>	<u>Limit (mg/dm²)</u>
3% (w/v) acetic acid	<1	10
10% (v/v) ethanol	<1	10
Fatty food simulant	2	10

Remark : < = Less than

Date sample received : Aug 07, 2012
Testing period : Aug 07, 2012 to Aug 22, 2012

4 Specific Migration of Heavy Metal Test

As per Commission Regulation (EU) No. 10/2011, selection of test condition & food simulants by 82/711/EEC, 85/572/EEC and its amendment and EN13130-1.

I. Condition of contact in actual use :

Temperature between 70°C and 100°C for less than 15 minutes and room temperature or below storage for unspecified period.

II. Test results :

<u>Food Simulant</u>	<u>Element</u>	<u>Result (mg/kg)</u>	<u>Limit (mg/kg)</u>
3% (w/v) acetic acid	Barium	<0.1	1 (max.)
	Cobalt	<0.03	0.05 (max.)
	Copper	<1	5 (max.)
	Iron	<5	48 (max.)
	Lithium	<0.1	0.6 (max.)
	Manganese	<0.1	0.6 (max.)
	Zinc	<5	25 (max.)

Remark : < = Less than

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Testing period : Aug 07, 2012 to Aug 22, 2012



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Tests Conducted

5 SVHC Screening Test

By a combination of X-Ray Fluorescence Spectroscopy, Inductively Coupled Argon Plasma Spectrometry and Gas Chromatographic - Mass Spectrometry techniques.

Chemical Substances	EC No.	CAS No.	Results
Anthracene	204-371-1	120-12-7	<0.02% (w/w)
4,4'-Diaminodiphenylmethane	202-974-4	101-77-9	<0.02% (w/w)
Dibutyl phthalate (DBP)	201-557-4	84-74-2	<0.02% (w/w)
Cobalt dichloride Δ	231-589-4	7646-79-9	<0.02% (w/w)
Diarsenic pentaoxide Δ	215-116-9	1303-28-2	<0.02% (w/w)
Diarsenic trioxide Δ	215-481-4	1327-53-3	<0.02% (w/w)
Sodium dichromate Δ	234-190-3	7789-12-0, 10588-01-9	<0.02% (w/w)
5-Tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	201-329-4	81-15-2	<0.02% (w/w)
Bis (2-ethylhexyl) phthalate (DEHP)	204-211-0	117-81-7	<0.02% (w/w)
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD)	247-148-4 and 221-695-9	25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)	<0.02% (w/w)
Short chain chlorinated paraffin (C10-C13)	287-476-5	85535-84-8	<0.02% (w/w)
Bis (tributyltin) oxide Δ	200-268-0	56-35-9	<0.02% (w/w)
Lead hydrogen arsenate Δ	232-064-2	7784-40-9	<0.02% (w/w)
Triethyl arsenate Δ	427-700-2	15606-95-8	<0.02% (w/w)
Benzyl butyl phthalate (BBP)	201-622-7	85-68-7	<0.02% (w/w)
Anthracene oil	292-602-7	90640-80-5	<0.02% (w/w)
Anthracene oil, anthracene paste, distn. lights	295-278-5	91995-17-4	<0.02% (w/w)
Anthracene oil, anthracene paste, anthracene fraction	295-275-9	91995-15-2	<0.02% (w/w)
Anthracene oil, anthracene-low	292-604-8	90640-82-7	<0.02% (w/w)
Anthracene oil, anthracene paste	292-603-2	90640-81-6	<0.02% (w/w)
Diisobutyl phthalate (DIBP)	201-553-2	84-69-5	<0.02% (w/w)
2,4-Dinitrotoluene	204-450-0	121-14-2	<0.02% (w/w)
Lead chromate Δ	231-846-0	7758-97-6	<0.02% (w/w)
Lead chromate molybdate sulfate red Δ (C.I. pigment red 104)	235-759-9	12656-85-8	<0.02% (w/w)
Lead sulfochromate yellow Δ (C.I. pigment yellow 34)	215-693-7	1344-37-2	<0.02% (w/w)
Coal tar pitch, high temperature	266-028-2	65996-93-2	<0.02% (w/w)
Tris(2-chloroethyl)phosphate (TCEP)	204-118-5	115-96-8	<0.02% (w/w)
Aluminosilicate, refractory ceramic fibres Δ	--	Index number 650-017-00-8	<0.02% (w/w)
Zirconia aluminosilicate, refractory ceramic fibres Δ	--	Index number 650-017-00-8	<0.02% (w/w)
Acrylamide	201-173-7	79-06-1	<0.02% (w/w)
Trichloroethylene	201-167-4	79-01-6	<0.02% (w/w)
Boric acid Δ	233-139-2/ 234-343-4	10043-35-3, 11113-50-1	<0.02% (w/w)



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Chemical Substances	EC No.	CAS No.	Results
Disodium tetraborate, anhydrous Δ	215-540-4	1330-43-4, 1303-96-4, 12179-04-3	<0.02% (w/w)
Tetraboron disodium heptaoxide, hydrate Δ	235-541-3	12267-73-1	<0.02% (w/w)
Sodium chromate Δ	231-889-5	7775-11-3	<0.02% (w/w)
Potassium chromate Δ	232-140-5	7789-00-6	<0.02% (w/w)
Ammonium dichromate Δ	232-143-1	7789-09-5	<0.02% (w/w)
Potassium dichromate Δ	231-906-6	7778-50-9	<0.02% (w/w)
2-Ethoxyethanol	203-804-1	110-80-5	<0.02% (w/w)
2-Methoxyethanol	203-713-7	109-86-4	<0.02% (w/w)
Cobalt (II) diacetate Δ	200-755-8	71-48-7	<0.02% (w/w)
Cobalt (II) carbonate Δ	208-169-4	513-79-1	<0.02% (w/w)
Cobalt (II) dinitrate Δ	233-402-1	10141-05-6	<0.02% (w/w)
Cobalt (II) sulphate Δ	233-334-2	10124-43-3	<0.02% (w/w)
Chromium trioxide Δ	215-607-8	1333-82-0	<0.02% (w/w)
Acids generated from chromium trioxide and their oligomers Δ :			<0.02% (w/w)
Chromic acid	231-801-5	7738-94-5	
Dichromic acid	236-881-5	13530-68-2	
Oligomers of chromic acid and dichromic acid			
1-Methyl-2-pyrrolidone	212-828-1	872-50-4	<0.02% (w/w)
1,2-Benzenedicarboxylic acid, di-C ₆₋₈ -branched alkyl esters, C7-rich (DIHP)	276-158-1	71888-89-6	<0.02% (w/w)
1,2-Benzenedicarboxylic acid, di-C ₇₋₁₁ -branched and linear alkyl esters (DHNUP)	271-084-6	68515-42-4	<0.02% (w/w)
1,2,3-Trichloropropane	202-486-1	96-18-4	<0.02% (w/w)
2-Ethoxyethyl acetate (2-EEA)	203-839-2	111-15-9	<0.02% (w/w)
Hydrazine	206-114-9	7803-57-8, 302-01-2	<0.02% (w/w)
Strontium chromate Δ	232-142-6	7789-06-2	<0.02% (w/w)
Lead styphnateΔ	239-290-0	15245-44-0	<0.02 % (w/w)
Lead diazide, Lead azideΔ	236-542-1	13424-46-9	<0.02 % (w/w)
Lead dipicrateΔ	229-335-2	6477-64-1	<0.02 % (w/w)
Phenolphthalein	201-004-7	77-09-8	<0.02 % (w/w)
2,2'-Dichloro-4,4'-methylenedianiline	202-918-9	101-14-4	<0.02 % (w/w)
N,N-dimethylacetamide	204-826-4	127-19-5	<0.02 % (w/w)
Trilead diarsenateΔ	222-979-5	3687-31-8	<0.02 % (w/w)
Calcium arsenateΔ	231-904-5	7778-44-1	<0.02 % (w/w)
Arsenic acidΔ	231-901-9	7778-39-4	<0.02 % (w/w)
Bis(2-methoxyethyl) ether	203-924-4	111-96-6	<0.02 % (w/w)
1,2-Dichloroethane	203-458-1	107-06-2	<0.02 % (w/w)
4-(1,1,3,3-Tetramethylbutyl)phenol; 4-tert-octyl phenol	205-426-2	140-66-9	<0.02 % (w/w)
2-Methoxyaniline; o-Anisidine	201-963-1	90-04-0	<0.02 % (w/w)
Bis(2-methoxyethyl) phthalate	204-212-6	117-82-8	<0.02 % (w/w)
Formaldehyde, oligomeric reaction products with aniline (technical MDA)	500-036-1	25214-70-4	<0.02 % (w/w)
Pentazine chromate octahydroxideΔ	256-418-0	49663-84-5	<0.02 % (w/w)



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Chemical Substances	EC No.	CAS No.	Results
Potassium hydroxyoctaoxodizincatedichromate Δ	234-329-8	11103-86-9	<0.02 %(w/w)
Dichromium tris(chromate) Δ	246-356-2	24613-89-6	<0.02 %(w/w)
[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)	208-953-6	548-62-9	<0.02 %(w/w)
1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β -TGIC)	423-400-0	59653-74-6	<0.02 %(w/w)
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	203-977-3	112-49-2	<0.02 %(w/w)
4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol	209-218-2	561-41-1	<0.02 %(w/w)
Lead(II) bis(methanesulfonate) Δ	401-750-5	17570-76-2	<0.02 %(w/w)
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	203-794-9	110-71-4	<0.02 %(w/w)
Diboron trioxide Δ	215-125-8	1303-86-2	<0.02 %(w/w)
α,α -Bis[4-(dimethylamino)phenyl]-4(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)	229-851-8	6786-83-0	<0.02 %(w/w)
1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	219-514-3	2451-62-9	<0.02 %(w/w)
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	202-027-5	90-94-8	<0.02 %(w/w)
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	202-959-2	101-61-1	<0.02 %(w/w)
Formamide	200-842-0	75-12-7	<0.02 %(w/w)
[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26)	219-943-6	2580-56-5	<0.02 %(w/w)

Remark : SVHC = Substance of Very High Concern
< = Less than
 Δ = Determination was based on elemental analysis.

The chemical substances listed in table above are the SVHC included in candidate list promulgated by European Chemicals Agency (ECHA) before and on Jun 18, 2012, which are defined in Article 57 of REACH Regulation (EC1907/2006).

REACH requirement: As per Article 33(1) of the REACH Regulation (EC1907/2006), recipients of product must be provided with information of safe use if any of the tested substances (SVHC) exceeded 0.1%(w/w). A product meets the requirement of Article 33(1) by default when no SVHC exceeds 0.1%(w/w).

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6 Phthalate Content Test

With reference to EN14372, by Gas Chromatographic-Mass Spectrometric (GC-MS) analysis.

	<u>Result (% w/w)</u>	<u>Limit (% w/w)</u> <u>(max.)</u>
Dibutyl phthalate (DBP)	<0.01	--
Diethyl hexyl phthalate (DEHP)	<0.01	--
Benzyl butyl phthalate (BBP)	<0.01	--
Sum of DBP,DEHP & BBP	<0.01	0.1
Di-iso-nonyl phthalate (DINP)	<0.01	--
Di-n-octyl phthalate (DnOP)	<0.01	--
Di-iso-decyl phthalate (DIDP)	<0.01	--
Sum of DINP,DnOP & DIDP	<0.01	0.1

Remark : The above limit was quoted according to Annex XVII Items 51 & 52 of the REACH Regulation (EC) no. 1907/2006 & amendment no. 552/2009 (formerly known as Directive 2005/84/EC) for phthalate content in toys and children articles.

< = Less than

Tested Component : Transparent plastic sheet.

Date sample received : Aug 07, 2012

Testing period : Aug 07, 2012 to Aug 11, 2012

End of report

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