

# Test Report

No. CTSPN/02922-1/14  
CTS Ref. CTSPN/14/0402/Toray

Date : 02/01/2015

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**TORAY PLASTICS (MALAYSIA) SDN BHD**  
**2628, MK. 1, SPT., LORONG PERUSAHAAN 4**  
**PRAI FREE INDUSTRIAL ZONE**  
**13600 PRAI, PENANG, MALAYSIA**

**The following merchandise was (were) submitted and identified by the client as:**

Sample Description : TOYOLAC™ 920 555  
TOYOLAC™ 900 352  
TOYOLAC™ 900 352A  
Sample Receiving Date : 19/12/2014  
Testing Period : 22/12/2014 to 29/12/2014  
Date Completed : 29/12/2014  
Reporting Date : 02/01/2015

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Test Requested : Selected test(s) as requested by client  
Test Method : Please refer to next page(s).  
Test Results : Please refer to next page(s).  
Analysts : Tan Lin Wei & Hooi Yee Man

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# Test Report

No. CTSPN/02922-1/14  
 CTS Ref. CTSPN/14/0402/Toray

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Test results:

Test Part Description :

Sample Description : TOYOLAC<sup>TM</sup> 920 555  
 TOYOLAC<sup>TM</sup> 900 352  
 TOYOLAC<sup>TM</sup> 900 352A

**RoHS Directive 2011/65/EU Annex II**

Test Item(s):	Unit	Test Method	Results	MDL	Limit
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cd by ICP-OES)	N.D.	2	100
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Pb by ICP-OES)	N.D.	2	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013 (Determination of Hg by ICP-OES)	N.D.	2	1000
Hexavalent Chromium (CrVI)	mg/kg	With reference to IEC 62321:2008 (Determination of CrVI by UV-Vis)	N.D.	2	1000
<b>Sum of PBBs</b>	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	-	1000
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBB by GC-MS)	N.D.	5	-

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Sum of PBDEs	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	-	1000
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBDE by GC-MS)	N.D.	5	-

Note : (a) mg/kg = ppm ; (0.1wt% = 1000ppm)  
 (b) N.D. = Not Detected  
 (c) MDL = Method Detection Limit  
 (d) - = Not regulated

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## Test Report

No. CTSPN/02922-1/14  
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Date : 02/01/2015

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### Test Part Description :

Sample Description : TOYOLAC™ 920 555  
TOYOLAC™ 900 352  
TOYOLAC™ 900 352A

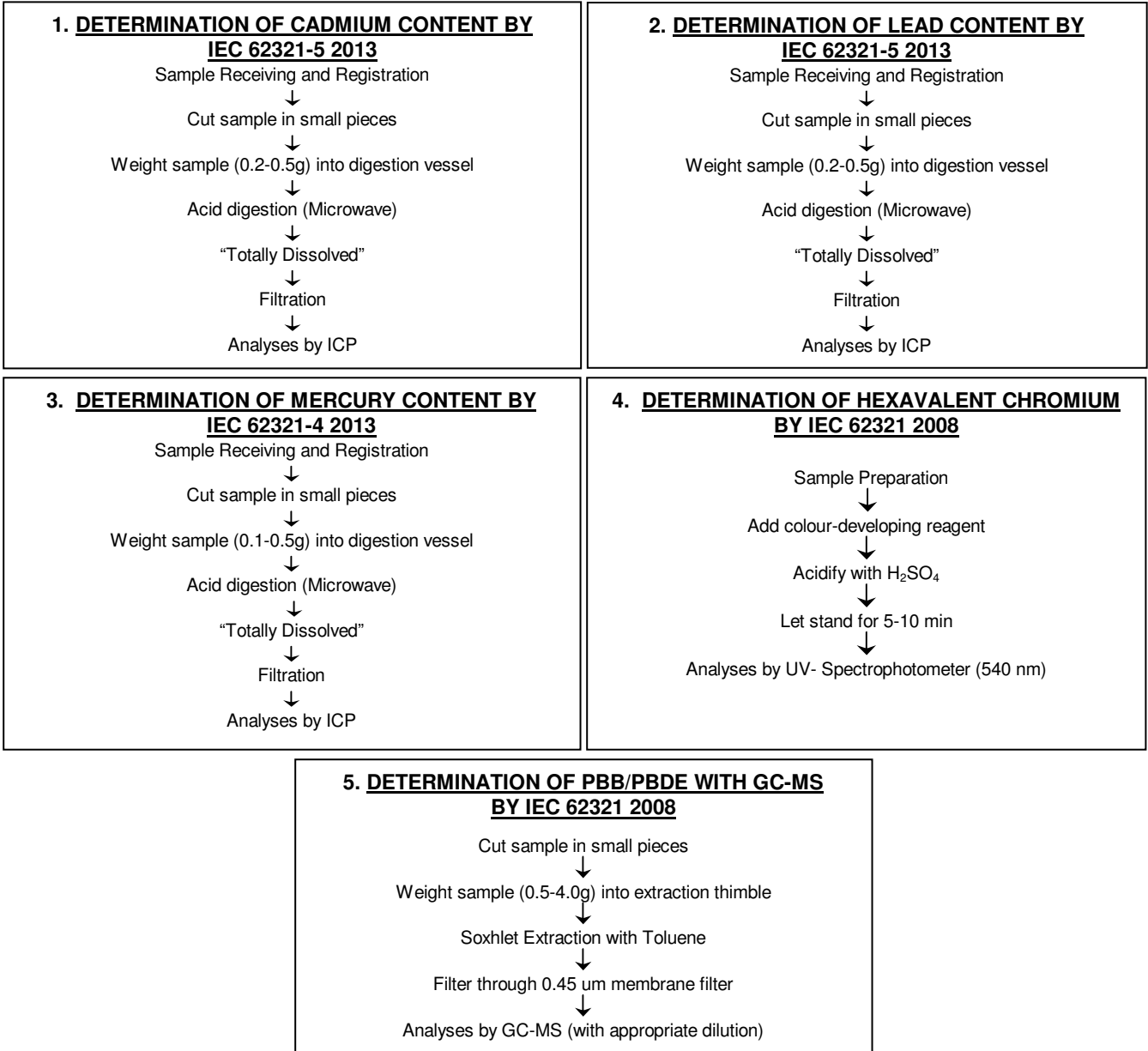


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\*\*\*\* End of Report \*\*\*\*

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# Test Report

No. CTSPN/02922-2/14  
CTS Ref. CTSPN/14/0402/Toray

Date : 02/01/2015

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**TORAY PLASTICS (MALAYSIA) SDN BHD**  
**2628, MK. 1, SPT., LORONG PERUSAHAAN 4**  
**PRAI FREE INDUSTRIAL ZONE**  
**13600 PRAI, PENANG, MALAYSIA**

**The following merchandise was (were) submitted and identified by the client as:**

Sample Description : TOYOLAC™ 920 555  
TOYOLAC™ 900 352  
TOYOLAC™ 900 352A  
Sample Receiving Date : 22/12/2014  
Testing Period : 22/12/2014 to 29/12/2014  
Date Completed : 29/12/2014  
Reporting Date : 02/01/2015

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Test Requested : Selected test(s) as requested by client  
Test Method : Please refer to next page(s).  
Test Results : Please refer to next page(s).  
Analyst : Tay Siam Pine

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# Test Report

No. CTSPN/02922-2/14  
 CTS Ref. CTSPN/14/0402/Toray

Date : 02/01/2015

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Test result:

Test Part Description :

Sample Description : TOYOLAC™ 920 555  
 TOYOLAC™ 900 352  
 TOYOLAC™ 900 352A

**Optional: RoHS Directive 2011/65/EU, priority substances**

Test Item(s):	Unit	Test Method	Results	MDL	Limit
*Hexabromocyclododecane (HBCDD)	mg/kg	Based on IEC 62321:2008 (Determination of HBCDD by GC-MS)	N.D.	10	-
*Bis (2-ethylhexyl) phthalate (DEHP)	mg/kg	Based on EN 14372:2004 (Determination of DEHP by GC-MS)	N.D.	30	-
*Butyl benzyl phthalate (BBP)	mg/kg	Based on EN 14372:2004 (Determination of BBP by GC-MS)	N.D.	30	-
*Dibutyl phthalate (DBP)	mg/kg	Based on EN 14372:2004 (Determination of DBP by GC-MS)	N.D.	30	-

Note:

- (a) Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC: Hexabromocyclododecane (HBCDD), Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP) and Dibutyl phthalate (DBP) are considered as a priority for risk evaluation and substance restriction.
- (b) - = not regulated
- (c) \*The above tests were subcontracted to SGS SA based on report no CTSSA/25161/14.

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### Test Part Description :

Sample Description : TOYOLAC™ 920 555  
TOYOLAC™ 900 352  
TOYOLAC™ 900 352A



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### DETERMINATION OF HBCDD CONTENT

Cut sample in small pieces



Weight sample (0.5-4.0g) into extraction thimble



Soxhlet Extraction with Toluene



Filter through 0.45 um membrane filter



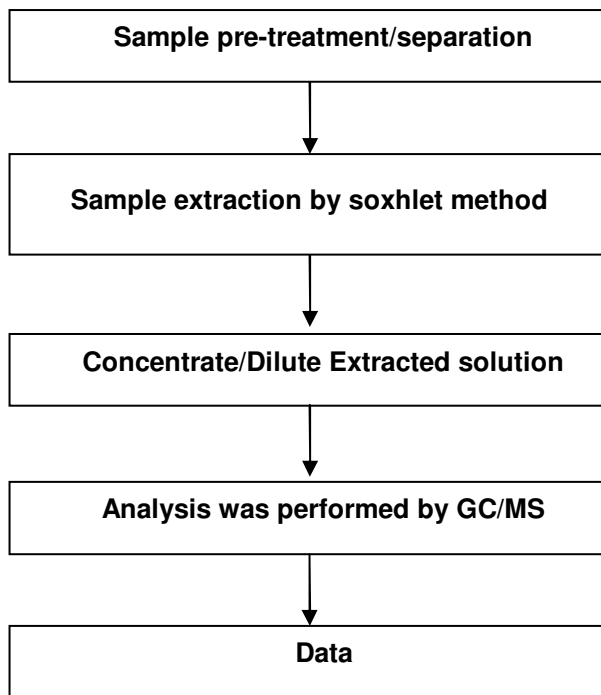
Analyses by GC-MS (with appropriate dilution)

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**Analytical flow chart of Phthalates Content**



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