Results of Proficiency Test
Phthalates in Plastics
February 2012

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Phthalates act as softeners and are commonly used as plasticizers in PVC. Phthalates may migrate fairly easily from PVC into the environment. Because phthalates appeared to have negative effects on health and the environment, regulations have been set up.
The manufacture and import of toys into the EC is regulated by the European Union's Toy Directive 88/378, with in addition the general product safety, which is covered by EU directive 2001/95 and Council Directive + amendments 76/769/EEC. These regulations govern conditions related to toys intended for children under 36 months of age (this group often suck or chew on toys and phthalates migrate easily). Therefore plastic toys are not allowed to contain either more than 0.1 %M/M of DEHP, DBP and BBP combined or more than 0.1%M/M of DINP (3 mixtures, ref. 21), DIDP (2 mixtures, ref 22) and DNOP combined.

• bis(2-ethylhexyl)phthalate (DEHP)[1)]	CASno. 117-81-7	EINECS no. 204-211-0
• dibutylphthalate (DBP)	CASno. 84-74-2	EINECS no. 201-557-4
• benzylbutylphthalate (BBP)	CASno. 85-68-7	EINECS no. 201-622-7
• di-isononylphthalate (DINP-1)	CASno. 28553-12-0	EINECS no. 249-079-5
• di-isononylphthalate (DINP-2)	CASno. 68515-48-0	EINECS no. 271-090-9
• di-isononylphthalate (DINP-3)	CASno. 28552-12-0	EINECS no. 249-079-5
• di-isodecylphthalate (DIDP-1)	CASno. 26761-40-0	EINECS no. 247-977-1
• di-isodecylphthalate (DIDP-2)	CASno. 68515-49-1	EINECS no. 271-091-4
• di-n-octylphthalate (DNOP)	CASno. 117-84-0	EINECS no. 204-214-7

[1)] DEHP is also known as di-(iso)-octylphthalate (DOP).

The determination of phthalates in plastics is known to give problems with the comparability of laboratory results. The fact that phthalates, used in the plastic industry are not pure components, but complex (and overlapping) mixtures is one of the causes for these problems. However, no appropriate PVC reference materials are yet available (ref. 20).
As an alternative, participation in a proficiency test may enable laboratories to check their performance. Therefore, a proficiency test (laboratory-evaluating interlaboratory study) for the determination of phthalates in plastics was again organized by the Institute for Interlaboratory Studies in February 2012.

In the 2012 iis interlaboratory study iis12P01, 158 laboratories in 37 different countries did participate. See appendix 3 for the number of participating laboratories per country.
In this report the results of the proficiency test are presented and discussed.

2 SET UP

The Institute for Interlaboratory Studies in Spijkenisse was the organiser of this proficiency test. It was decided to send two different PVC samples. On request also DiBP and DHP (not banned in the EU) were investigated in this PT. Both PVC materials were prepared by a Chinese factory by addition of technical mixtures of phthalates to PVC and subsequent homogenization. Analyses were subcontracted to an accredited laboratory.

2.1 QUALITY SYSTEM

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, has implemented a quality system based on ILAC-G13:2007 and EN/ISO17043:2010. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentially of participant's data. Also customer's satisfaction is measured on a regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of January 2010 (iis-protocol, version 3.2).

2.3 CONFIDENTIALITY STATEMENT

All data present in this report must be regarded as confidential and for use by the participating companies only. Disclosure of the information in this report is only allowed by means of the entire report. Use of the contents of this report for third parties is only allowed by written permission of the Institute for Interlaboratory Studies. Disclosure of the identity of one or more of the participating companies will be done only after receipt of a written agreement of the companies involved.

2.4 SAMPLES

Two samples were prepared from two different bulk materials.
The first bulk material was a black coloured PVC, to which small amounts of 3 banned phthalates: DBP, BBP and DEHP were added and, to get the desired plasticity (to easify homogenization), 20-25% of a phthalate that is not banned.
The material was cut into pieces, mixed well, and divided over 190 plastic bags of 3 gram each and labelled #12014.

The homogeneity of the subsamples #12014 was checked by determination of phthalates on 8 stratified randomly selected subsamples.

	DBP in %M/M	BBP in %M/M	DEHP in %M/M
Sample #12014-1	0.338	0.354	0.236
Sample #12014-2	0.331	0.346	0.229
Sample #12014-3	0.342	0.325	0.233
Sample #12014-4	0.331	0.345	0.228
Sample #12014-5	0.326	0.343	0.231
Sample #12014-6	0.332	0.349	0.231
Sample #12014-7	0.335	0.351	0.233
Sample #12014-8	0.332	0.348	0.230

Table 1: homogeneity test results of the subsamples #12014

The second bulk material was a brown coloured PVC, to which small, known amounts of DEHP and DINP were added to give a much more rigid material than the other PVC. The material was cut into pieces, mixed well, and divided over 190 plastic bags of 3 gram each and labelled #12015.

The homogeneity of the subsamples #12015 was checked by determination of DEHP on 4 stratified randomly selected subsamples.

	DEHP in %M/M
Sample #12015-1	0.54
Sample #12015-2	0.57
Sample #12015-3	0.53
Sample #12015-4	0.56

Table 2: homogeneity test results of the subsamples #12015

From the test results of tables 1 and 2, the repeatabilities were calculated and compared with 0.3 times the corresponding target reproducibility in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	DBP in %M/M	BBP in %M/M	DEHP in %M/M
r (observed) #12014	0.014	0.025	0.007
r (observed) #12015	--	--	0.051
reference method	EN14372:04	EN14372:04	EN14372:04
0.3 x R (ref. method)	0.025	0.026	0.017 / 0.052

Table 3: evaluation of repeatabilities of phthalate contents of the subsamples #12014 and #12015

The observed repeatabilities of the results of homogeneity tests were all in good agreement with 0.3 times the estimated EN14372 reproducibilities. Therefore, homogeneity of subsamples #12014 and #12015 was assumed.

To each of the participating laboratories, one sample of approx. 3 grams of sample of #12014 (A or C, see paragraph 4) and one sample of approx. 3 grams of sample of #12015 were sent on February 15, 2012.

2.5 ANALYSIS

The participants were requested to determine and report ten individual phthalates (DINP1&2, DBP, BBP, DHP, DIDP1&2, DNOP, DEHP and DiBP) and other phthalates on both samples #12014 and #12015.
The participants were explicitly asked to treat the samples as if they were routine samples and to report the analytical results using the indicated units on the report form and not to round the test results, but report as much significant figures as possible.
The participants were also asked not to report ‘less than’ results which are above the detection limit, because such results can not be used for meaningful statistical calculations.

To get comparable results a detailed report form, on which the units were prescribed, was sent together with each set of samples. Also a letter of instructions was added to the package.
The laboratories were asked to complete the report form with the requested details of the methods used.

3 RESULTS

During four weeks after sample despatch the results of the individual laboratories were received. The original data are tabulated per sample in the appendix 1 of this report. The laboratories are presented by their code numbers.
Directly after deadline, a reminder fax was sent to those laboratories that did not report results at that moment. Shortly after the deadline the available results were screened for suspect data. A result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the results. Additional or corrected results are used for the data analysis and the original results are placed under 'Remarks' in the result tables in appendix 1.

3.1 STATISTICS

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. Results reported as '<…' or '>…' were not used in the statistical evaluation.
First the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test. After removal of outliers, this check was repeated.
Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the results should be used with due care. In accordance to ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests. Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.
Finally the reproducibilities were calculated from the standard deviations by multiplying them with a factor of 2.8.

Statistical calculations were performed as described in the report ‘iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation’ of January 2010 (iis-protocol, version 3.2).
For each assigned value the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. When the uncertainty passed the evaluation no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.

3.2 GRAPHICS

In order to visualise the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported analysis results are plotted. The corresponding laboratory numbers are under the X-axis.
The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected standard. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.
Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 4, nos.17-18).

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. the EN14372 reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the spread of this interlaboratory study. The target standard deviation was calculated from the literature reproducibility by division with 2.8.
The z-scores were calculated according to:

$z_{(target)}$ = (result - average of PT) / target standard deviation

The $z_{(target)}$ scores are listed in the result tables in appendix 1.

When a laboratory did use a test method with a reproducibility that is significantly different from the reproducibility of the reference test method used in this report, it is strongly advised to recalculate the z-score, while using the reproducibility of the actual test method used this in order to evaluate the fit-for-useness of the reported test result.

Absolute values for z<2 are very common and absolute values for z>3 are very rare. The usual interpretation of z-scores is as follows:

$\lvert z \rvert < 1$	good
$1 < \lvert z \rvert < 2$	satisfactory
$2 < \lvert z \rvert < 3$	questionable
$3 < \lvert z \rvert$	unsatisfactory

4 EVALUATION

In this interlaboratory study a serious problem was encountered during the execution. After the first raw evaluation it appeared that for sample #12014 by accident two different samples were sent to the laboratories. Both samples, being black PVC granulates. By accident another batch was erroneously labelled #12014 too.
Therefore, it was decided to split-up both data sets of #12014 and to evaluate them separately. The two data sets were renamed as #12014A and #12014C.
For sample12014A the homogeneity data were available:

	DBP in %M/M	DNOP in %M/M
r (observed) #12014A	0.012	0.007
reference method	EN14372:04	EN14372:04
0.3 x R (ref. method)	0.039	0.015

Table 4: evaluation of repeatabilities of phthalate contents of the subsamples #12014A

The observed repeatabilities of the results of homogeneity tests were in good agreement with 0.3 times the estimated EN14372 reproducibilities. Therefore, homogeneity of subsamples #12014A was assumed.

Only two participants did not report any test results. Finally, 156 laboratories reported 935 numerical results. Observed were 51 statistically outlying test results, which is 5.5% of all results. In proficiency studies outlier percentages of 3% - 7.5% are quite normal.

4.1 EVALUATION PER PHTHALATE/SAMPLE

In this section the results are discussed per component.
Many different test methods were used by the participating laboratories. Many participants reported to have used the standard test method: CPSC-CH-C1001-09 (dissolution in THF), but also several other standard test methods were used: EN14372 (Soxhlet extraction with diethyl ether) and ASTM D3421 (Soxhlet extraction with Chloroform) and in-house methods. Regretfully the CPSC method does not contain any precision statements. Therefore, the requirements from the standardised method EN14372:04, “Child use and care articles, Cutlery and feeding utensils, Safety requirements and tests” were used for evaluation of the results of this interlaboratory study.
Regretfully, only a relative within-laboratory standard deviation RSDr is given in EN14372:04. Multiplication of RSDr by 2.8 gives the repeatability. Multiplication of the repeatability by 3 gives a good estimate of the target reproducibility.

General: Only 58 laboratories did identify the material of #12014A or #12014C correctly as PVC (see appendix 2). The presence of a significant amount (approx. 20%) of di-(2-propylheptyl) phthalate (CAS 53306-54-0) hampered the identification of the plastic by infrared for sample #12014A or #12014C.
The majority of the group identified all the added phthalates correctly: #12014A contained DBP and DNOP, and #12014C contained DBP, BBP and DEHP.
Sample #12015 was identified correctly as PVC by 66 laboratories.

The majority of the group identified the added phthalates correctly. Sample #12015 contained DINP and DEHP.

DBP: The determination of DBP was problematic for sample #12014A and #12014C at the levels of 0.27 and 0.41 %M/M. For sample #12014A no statistical outliers were observed. However the calculated reproducibility is not at all in agreement with the estimated reproducibility of EN14372:04. For sample #12014C, ten (!) statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility of EN14372:04.
Two false negative test results were observed for sample #12014C.
For sample #12015 the group agreed on a concentration below <0.02%M/M.

DNOP: The determination of DNOP was very problematic at the level of 0.18 %M/M for sample #12014A. Three statistical outliers were detected. The observed reproducibility after rejection of the statistical outliers is not at all in agreement with the estimated reproducibility of EN14372:04. Four false negatives were observed. For sample #12014C and #12015 the group agreed on a concentration below <0.02%M/M.

BBP: The determination of BBP was problematic at the level of 0.28 %M/M for sample #12014C. In total 11 statistical outliers were detected. The observed reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility of EN14372:04. Five false negatives were observed. For sample #12014A and #12015 the group agreed on a concentration below <0.02%M/M.

DEHP: The determination of DEHP was problematic for sample #12014C and #12015 at the levels of 0.20-0.33 %M/M. In total 19 statistical outliers were detected. Both observed reproducibilities after rejection of the statistical outliers are not in agreement with the estimated reproducibility of EN14372:04. For sample #12014A the group agreed on a concentration below <0.02%M/M.

DINP: Only seven laboratories reported a test result for DINP-2 in sample #12015. This low number of results will not lead to a sound statistical evaluation. And because these seven test results did not deviate significantly from the DINP-1 test results as reported by the other laboratories, it was decided to include the seven results in the statistical evaluation of the DINP-1 test results. The determination of DINP was problematic for sample #12015 at a level of 0.55 %M/M. Seven statistical outliers and 5 false negatives were detected. The observed reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility of EN14372:04. For the samples #12014A and #12014C the group agreed on a concentration below <0.02%M/M.

DIDP: The group of participants agreed for the determination of DIDP on a concentration below <0.02 %M/M for all three samples.Therefore no significant conclusions were drawn.

DIBP: The group of participants agreed for the determination of DIBP on a concentration below <0.02 %M/M for all three samples.Therefore no significant conclusions were drawn.

DHP: The group of participants agreed for the determination of DHP on a concentration below <0.02 %M/M for all three samples.Therefore no significant conclusions were drawn.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibilities as found for the group of participating laboratories and the reproducibilities of EN14372:2004 (R_{target}) in the next tables:

Parameter	Unit	n	Average	2.8 * sd	R (target)
DBP	%M/M	42	0.415	0.189	0.105
DNOP	%M/M	35	0.182	0.103	0.046

Table 5: overview of results for sample #12014A

Parameter	Unit	n	Average	2.8 * sd	R (target)
DBP	%M/M	101	0.265	0.082	0.067
BBP	%M/M	97	0.282	0.090	0.071
DEHP	%M/M	102	0.201	0.075	0.051

Table 6: overview of results for sample #12014C

Parameter	Unit	n	Average	2.8 * sd	R (target)
DINP (1+2)	%M/M	138	0.552	0.400	0.139
DEHP	%M/M	139	0.339	0.166	0.086

Table 7: overview of results for sample #12015

4.3 COMPARISON WITH PREVIOUS INTERLABORATORY STUDIES

	February 2012	*February 2011*	*February 2010*	*February 2009*
Number of reporting labs	155	120	134	102
Number of results reported	935	1250	767	797
Statistical outliers	51	103	59	33
Percentage outliers	5.5%	8.2%	7.7%	4.1%

Table 8: comparison with previous proficiency tests

In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.
In comparison with previous proficiency tests, significant improvements are observed for the evaluated components, see below table. From 2010 - 2012 significant differences between the EN14372 results and the results from THF dissolution were observed. In the current PT this was no longer the case.

R (%rel.)	*February 2012*	*February 2011*	*February 2010*	*February 2009*	*February 2008*	*February 2007*
DINP [1)]	73	33 - 47	42^{T} – 167^{E}	--	69^{T} - 72^{E}	104
DBP	31 – 46	48	39	52^{T} – 61^{E}	42^{E} – 82^{T}	--
DEHP	37 – 49	34 – 36	21^{T} – 153^{E}	46^{E} – 54^{T}	29^{T} - 54^{E}	53 - 59
BBP	32	37 – 42	39	58^{E} – 127^{T}	64^{E} – 79^{T}	--
DIDP	--	43	--	--	39^{T} - 51^{E}	--
DNOP	57	41	--	--	--	--
DHP	--	30	--	--	--	--

Table 9: Relative reproducibilities of detected phthalates in this PT and the former PTs (E=EN14372; T=THF dissolution)

1) Mix of DINP-1 and DINP-2 isomers

In this PT two of samples from a previous PT (#1013 and #1014 of iis10P01) were re-used as respective sample #12014C and #12015. An overview of the differences in results is given in below tables:

		#1013 in iis10P01			#12014C in iis12P01		
Parameter	unit	n	average	2.8 * sd	n	average	2.8 * sd
DBP	%/M/M	125	0.274	0.106	101	0.265	0.082
BBP	%/M/M	127	0.291	0.114	97	0.282	0.090
DEHP	%/M/M	123	0.203	0.073	102	0.201	0.075

table 10: comparison of results of identical samples in iis10P01 and iis12P01

		#1014 in iis10P01			#12015 in iis12P01		
Parameter	unit	n	average	2.8 * sd	n	average	2.8 * sd
DINP – EN14372	%/M/M	34	0.386	0.642	59	0.521	0.131
DINP – THF dissolution	%/M/M	54	0.559	0.234	81	0.576	0.366
DEHP – EN14372	%/M/M	34	0.259	0.396	58	0.328	0.183
DEHP – THF dissolution	%/M/M	54	0.350	0.075	80	0.347	0.149

table 11: comparison of results of identical samples in iis10P01 and iis12P01

The agreement of the THF dissolution results from the PT iis10P01 and from the PT iis12P01 is striking (0.559 *vs* 0.576 and 0.350 *vs* 0.347) and does emphasize the robustness of this extraction technique.

5 DISCUSSION

As remarked above significant differences were observed between EN14372 results and results from THF dissolution in the PTs in 2008, 2009 and 2010. This was caused by the significant differences in recovery between the two extraction methods. The recovery of the THF dissolution method will be close to 100%, while the recovery of the Soxhlet extraction with diethyl ether (EN14372) will strongly depend on the grain size of the sample and the extraction time. Obviously the laboratories participating in the iis' PTs were able to improve the recovery of the EN14372 method significantly over the last years, thus reducing the difference with the THF recovery to be no longer significant and thus closing the gap with the THF-dissolution method.

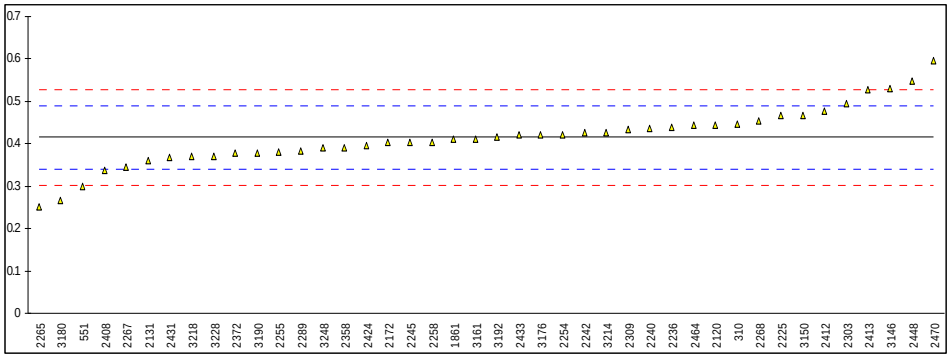
Also, it will be clear from the figures in table 11 that the overall performance of the laboratories that tested phthalates in plastics did improve significantly over the last years, except for DINP and DNOP. The relative reproducibility for several phthalates was reduced to 35-40%, which means that the interlaboratory standard deviation will be approx. 14% relative. The relative reproducibility for phthalates that are a mixture of various isomers, like DINP and DNOP, showed much more problems and therefore further improvement is still to be expected.
Each laboratory has to evaluate its performance in this study and make decisions about necessary and/or possible corrective actions.

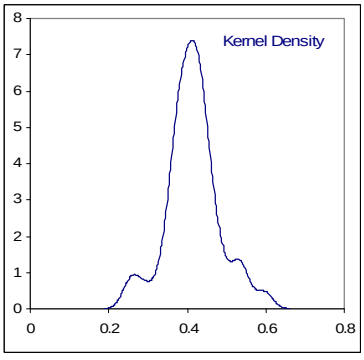
APPENDIX 1

Determination of DBP on sample #12014 A; results in %M/M

lab	method	value	mark	z(targ)	remarks
310	in house	0.446		0.84	
551	in house	0.299		-3.10	
1861	CPSC-CH-C1001-09.3	0.4102		-0.12	
2120	CPSC-CH-C1001-09.3	0.444		0.78	
2131	in house	0.36		-1.47	
2172	in house	0.402		-0.34	
2225	CPSC-CH-C1001-09.3	0.466		1.37	
2236	CPSC-CH-C1001-09.3	0.438		0.62	
2240	CPSC-CH-C1001-09.3	0.436		0.57	
2242	CPSC-CH-C1001-09.3	0.426		0.30	
2245	CPSC-CH-C1001-09.3	0.403		-0.32	
2254	CPSC-CH-C1001-09.3	0.421	C	0.17	First reported 0.0421
2255	CPSC-CH-C1001-09.3	0.38		-0.93	
2258	CPSC-CH-C1001-09.3	0.403		-0.32	
2265	EN15777	0.2516		-4.37	
2267	in house	0.3453		-1.86	
2268	CPSC-CH-C1001-09.3	0.453		1.02	
2289	CPSC-CH-C1001-09.3	0.383		-0.85	
2303	CPSC-CH-C1001-09	0.495		2.15	
2309	in house	0.433		0.49	
2358	D3421Mod.	0.39		-0.66	
2372	CPSC-CH-C1001-09.3	0.377		-1.01	
2408	CPSC-CH-C1001-09.3	0.338		-2.06	
2412	INH-24613	0.4779		1.69	
2413	CPSC-CH-C1001-09.3	0.5273		3.01	
2424	CPSC-CH-C1001-09.3	0.395		-0.53	
2431	CPSC-CH-C1001-09.3	0.367		-1.28	
2433	CPSC-CH-C1001-09.3	0.420		0.14	
2448	CPSC-CH-C1001-09.3	0.548		3.57	
2464	INH-34	0.443		0.75	
2470	CPSC-CH-C1001-09.3	0.597	C	4.88	First reported 0.055
3146	in house	0.53	C	3.09	First reported 0.605
3150	EN15777	0.466		1.37	
3161	in house	0.411		-0.10	
3176	EN15777	0.42		0.14	
3180		0.267		-3.96	
3190	CPSC-CH-C1001-09.3	0.379		-0.96	
3192	in house	0.417		0.06	
3214	CPSC-CH-C1001-09.3	0.426		0.30	
3218	CPSC-CH-C1001-09.3	0.37		-1.20	
3228	CPSC-CH-C1001-09.3	0.371		-1.17	
3248	in house	0.390		-0.66	

normality	OK
n	42
outliers	0
mean (n)	0.4148
st.dev. (n)	0.06756
R(calc.)	0.1892
R(EN14372:04)	0.1045

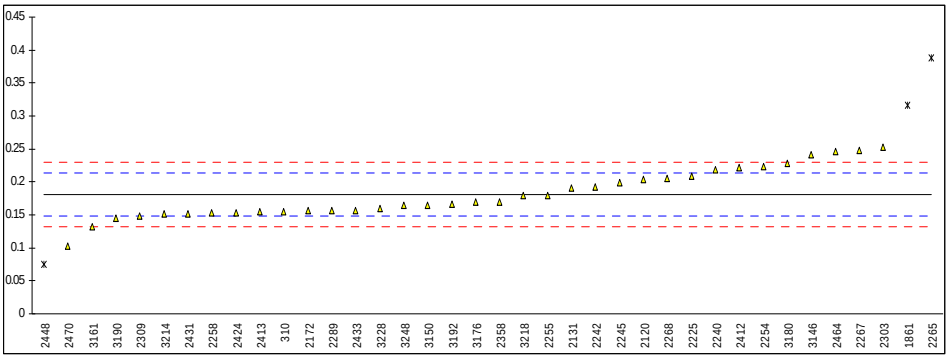


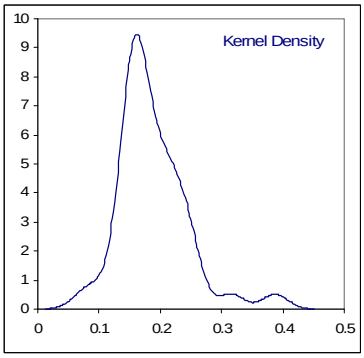


Determination of DNOP on sample #12014 A; results in %M/M

lab	method	value	mark	z(targ)	remarks
310	in house	0.155		-1.62	
551	in house	n.d.		-----	False negative?
1861	CPSC-CH-C1001-09.3	0.3159	G(0.01)	8.23	
2120	CPSC-CH-C1001-09.3	0.203		1.32	
2131	in house	0.19		0.52	
2172	in house	0.156		-1.56	
2225	CPSC-CH-C1001-09.3	0.208		1.62	
2236	CPSC-CH-C1001-09.3	<0.005		-----	False negative?
2240	CPSC-CH-C1001-09.3	0.218		2.23	
2242	CPSC-CH-C1001-09.3	0.193		0.70	
2245	CPSC-CH-C1001-09.3	0.199		1.07	
2254	CPSC-CH-C1001-09.3	0.224		2.60	
2255	CPSC-CH-C1001-09.3	0.18		-0.09	
2258	CPSC-CH-C1001-09.3	0.153		-1.75	
2265	EN15777	0.3874	G(0.01)	12.60	
2267	in house	0.2475		4.04	
2268	CPSC-CH-C1001-09.3	0.206		1.50	
2289	CPSC-CH-C1001-09.3	0.156		-1.56	
2303	CPSC-CH-C1001-09	0.252		4.32	
2309	in house	0.149		-1.99	
2358	D3421Mod.	0.17		-0.70	
2372	CPSC-CH-C1001-09.3	n.d.		-----	False negative?
2408	CPSC-CH-C1001-09.3	n.d.		-----	False negative?
2412	INH-24613	0.2218		2.47	
2413	CPSC-CH-C1001-09.3	0.1545		-1.65	
2424	CPSC-CH-C1001-09.3	0.154		-1.68	
2431	CPSC-CH-C1001-09.3	0.151		-1.87	
2433	CPSC-CH-C1001-09.3	0.157		-1.50	
2448	CPSC-CH-C1001-09.3	0.075	G(0.01)	-6.52	
2464	INH-34	0.247		4.01	
2470	CPSC-CH-C1001-09.3	0.103	C	-4.81	First reported <0.005
3146	in house	0.242		3.70	
3150	EN15777	0.165		-1.01	
3161	in house	0.132		-3.03	
3176	EN15777	0.17		-0.70	
3180		0.229		2.91	
3190	CPSC-CH-C1001-09.3	0.145		-2.23	
3192	in house	0.167		-0.89	
3214	CPSC-CH-C1001-09.3	0.151		-1.87	
3218	CPSC-CH-C1001-09.3	0.18		-0.09	
3228	CPSC-CH-C1001-09.3	0.160		-1.32	
3248	in house	0.164		-1.07	

normality	not OK
n	35
outliers	3
mean (n)	0.1815
st.dev. (n)	0.03672
R(calc.)	0.1028
R(EN14372:04)	0.0457





Determination of DINP, BBP, DiDP and DEHP on sample #12014 A; results in %M/M

lab	method	DINP	mark	BBP	mark	DiDP	mark	DEHP	mark
310	in house	0.000		0.000		-----		0.006	
551	in house	n.d.		-----		0.169	ex	n.d.	
1861	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.	
2120	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.	
2131	in house	<0.01		<0.01		<0.01		<0.01	
2172	in house	n.d.		n.d.		n.d.		0.009	
2225	CPSC-CH-C1001-09.3	<0.015		<0.005		<0.015		<0.0150	
2236	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005		0.008	
2240	CPSC-CH-C1001-09.3	0.000		0.000		0.000		0.019	
2242		-----		-----		-----		n.d.	
2245	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.	
2254	CPSC-CH-C1001-09.3	<0.010		<0.004		<0.010		<0.004	
2255		-----		-----		-----		-----	
2258	CPSC-CH-C1001-09.3	0		0		0.259	ex	0.005	
2265	EN15777	0.5058	ex	-----		0.7711	ex	-----	
2267	in house	0.2638	ex	n.d.		n.d.		n.d.	
2268	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01		0.019	
2289		-----		-----		0.060		-----	
2303	CPSC-CH-C1001-09	<0.02		<0.02		<0.02		<0.02	
2309	in house	n.d.		n.d.		n.d.		0.018	
2358	D3421Mod.	n.d.		n.d.		0.11	ex	0.00049	
2372	CPSC-CH-C1001-09.3	n.d.		n.d.		0.140	ex	n.d.	
2408	CPSC-CH-C1001-09.3	0.160	ex	n.d.		n.d.		n.d.	
2412	INH-24613	n.d.		n.d.		n.d.		n.d.	
2413	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.	
2424	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005		<0.005	
2431		-----		-----		-----		-----	
2433	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.	
2448		-----		-----		-----		-----	
2464		-----		-----		-----		-----	
2470	CPSC-CH-C1001-09.3	<0.050		<0.005		<0.050		<0.005	
3146	in house	<0.005		<0.005		0.124	ex	0.007	
3150	EN15777	0.267	ex	0.002		11.9	ex	0.009	
3161	in house	2.707	ex	n.d.		2.966	ex	0.019	
3176		-----		-----		-----		0.016	
3180		-----		-----		-----		-----	
3190	CPSC-CH-C1001-09.3	<0.010		<0.010		0.079		<0.010	
3192	in house	n.d.		n.d.		n.d.		n.d.	
3214	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.	
3218		-----		-----		-----		-----	
3228	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005		<0.005	
3248	in house	n.d.		n.d.		n.d.		n.d.	
	normality	n.a.		n.a.		n.a.		OK	
	n	33		31		33		34	
	outliers	0		0		0		0	
	mean (n)	<0.02		<0.02		<0.02		<0.02	
	st.dev. (n)	n.a.		n.a.		n.a.		n.a.	
	R(calc.)	n.a.		n.a.		n.a.		n.a.	
	R(EN14372:04)	n.a.		n.a.		n.a.		n.a.	

Ex= result excluded as false postive

Determination of DiBP and DHP on sample #12014 A; results in %M/M

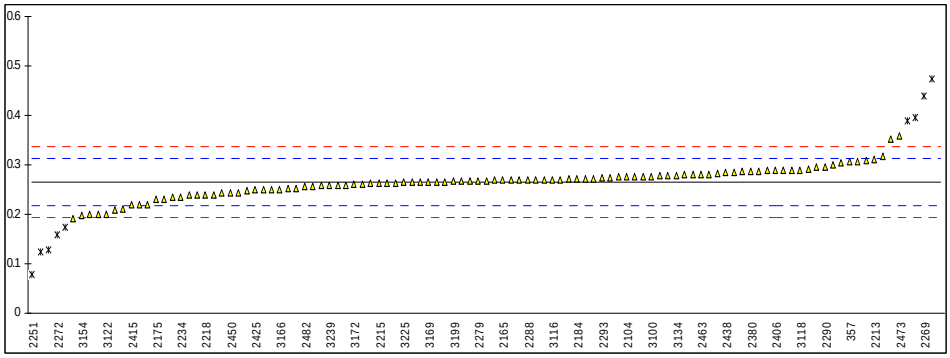
lab	method	DIBP	mark	DHP	mark
310	in house	0.000		0.000	
551	in house	n.d.		-----	
1861	CPSC-CH-C1001-09.3	n.d.		n.d.	
2120	CPSC-CH-C1001-09.3	n.d.		n.d.	
2131	in house	<0.01		<0.01	
2172	in house	n.d.		n.d.	
2225	CPSC-CH-C1001-09.3	<0.005		<0.005	
2236	CPSC-CH-C1001-09.3	<0.005		<0.005	
2240	CPSC-CH-C1001-09.3	0.000		0.000	
2242		-----		-----	
2245	CPSC-CH-C1001-09.3	n.d.		n.d.	
2254	CPSC-CH-C1001-09.3	-----		-----	
2255		-----		-----	
2258	CPSC-CH-C1001-09.3	-----		0	
2265	EN15777	0.08143		-----	
2267	in house	n.d.		-----	
2268	CPSC-CH-C1001-09.3	<0.01		<0.01	
2289		-----		-----	
2303	CPSC-CH-C1001-09	<0.02		<0.02	
2309	in house	-----		-----	
2358	D3421Mod.	n.d.		n.d.	
2372	CPSC-CH-C1001-09.3	n.d.		n.d.	
2408	CPSC-CH-C1001-09.3	0.046		n.d.	
2412	INH-24613	n.d.		n.d.	
2413	CPSC-CH-C1001-09.3	n.d.		n.d.	
2424	CPSC-CH-C1001-09.3	<0.005		<0.005	
2431		-----		-----	
2433	CPSC-CH-C1001-09.3	n.d.		-----	
2448		-----		-----	
2464		-----		-----	
2470	CPSC-CH-C1001-09.3	<0.005		<0.005	
3146	in house	<0.005		<0.005	
3150	EN15777	0.003		-----	
3161	in house	n.d.		n.d.	
3176		-----		-----	
3180		-----		-----	
3190	CPSC-CH-C1001-09.3	<0.010		<0.010	
3192	in house	n.d.		n.d.	
3214	CPSC-CH-C1001-09.3	n.d.		n.d.	
3218		-----		-----	
3228	CPSC-CH-C1001-09.3	<0.005		<0.005	
3248	in house	n.d.		n.d.	
	normality	n.a.		n.a.	
	n	28		26	
	outliers	0		0	
	mean (n)	<0.02		<0.02	
	st.dev. (n)	n.a.		n.a.	
	R(calc.)	n.a.		n.a.	
	R(EN14372:04)	n.a.		n.a.	

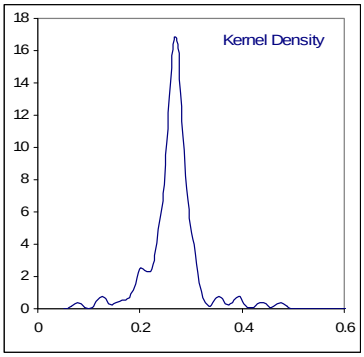
Determination of DBP on sample #12014 C; results in %M/M

lab	method	value	mark	-----	remarks
330	ASTM derivated	0.29		1.04	
357	EN14372	0.306		1.71	
607	in house	0.289		0.99	
622	EN14372	1.74	C,G(0.01)	61.77	First reported 1.549
1213	CPSC-CH-C1001-09.3	0.24		-1.06	
2102	INH-487	0.292		1.12	
2104	in house	0.275		0.41	
2115	CPSIA	0.307		1.75	
2127	in house	0.208		-2.40	
2129	in house	0.253		-0.51	
2132	CPSC-CH-C1001-09.3	0.287		0.91	
2137	CPSC-CH-C1001-09.3	0.281		0.66	
2139	CPSC-CH-C1001-09.3	0.270		0.20	
2146		0.265		-0.01	
2152	CPSC-CH-C1001-09.3	0.280		0.62	
2156	EPA3540C	0.211		-2.27	
2165	CPSC-CH-C1001-09.3	0.270		0.20	
2173	CPSC-CH-C1001-09.3	0.23		-1.48	
2175	EPA3550C/8270D	0.2297		-1.49	
2179	EN14372	0.2349		-1.27	
2182	CPSC-CH-C1001-09.3	0.262		-0.14	
2184	CPSC-CH-C1001-09.3	0.271		0.24	
2187	D3421	0.264		-0.05	
2190		0.258		-0.30	
2196	CPSC-CH-C1001-09.3	0.253		-0.51	
2197	in house	0.268		0.11	
2201	CPSC-CH-C1001-09.3	0.25		-0.64	
2213	EN14372	0.31		1.87	
2214	in house	0.123	G(0.05)	-5.96	
2215	in house	0.262		-0.14	
2217	EN15777	0.263		-0.09	
2218	CPSC-CH-C1001-09.3	0.240		-1.06	
2226	CPSC-CH-C1001-09.3	0.2867		0.90	
2229	in house	0.257		-0.35	
2232	CPSC-CH-C1001-09.3	0.192		-3.07	
2234	INH-22048	0.235		-1.27	
2237	in house	0.317		2.17	
2238	CPSC-CH-C1001-09.3	0.239		-1.10	
2243	CPSC-CH-C1001-09.3	0.276		0.45	
2246	EN14372	0.275		0.41	
2247	CPSC-CH-C1001-09.3	0.266		0.03	
2251	EN14372	0.078	G(0.05)	-7.84	
2253	CPSC-CH-C1001-09.3	0.280		0.62	
2256	CPSC-CH-C1001-09.3	0.265		-0.01	
2266	EN15777	0.259		-0.26	
2269	in house	0.4382	G(0.01)	7.24	
2272	ISO16181	0.1581	DG(0.05)	-4.49	
2277	in house	0.304		1.62	
2279	INH-22048	0.268		0.11	
2282	INH-22048	0.269		0.16	
2284	CPSC-CH-C1001-09.3	0.243		-0.93	
2288	CPSC-CH-C1001-09	0.27		0.20	
2290	CPSC-CH-C1001-09.3	0.296		1.29	
2293	CPSC-CH-C1001-09.3	0.274		0.37	
2295	in house	0.128	CG(0.05)	-5.75	First reported 0.093
2296	CPSC-CH-C1001-09.3	0.268		0.11	
2301	CPSC-CH-C1001-09.3	0.199		-2.78	
2307	CPSC-CH-C1001-09.3	0.271		0.24	
2311	in house	0.27		0.20	
2320	CPSC-CH-C1001-09.3	n.d.		-----	False negative?
2350	CPSC-CH-C1001-09	0.290		1.04	
2359	CPSC-CH-C1001-09.3	0.2717		0.27	
2380	D3421	0.287		0.91	
2390	EN14372	0.475	G(0.01)	8.79	
2406	CPSC-CH-C1001-09.3	0.289		0.99	
2410	CPSC-CH-C1001-09.3	0.2824		0.72	
2415	CPSC-CH-C1001-09.3	0.219		-1.94	
2425	D3421	0.249		-0.68	
2427	CPSC-CH-C1001-09	0.296		1.29	
2432	in house	0.22		-1.90	
2438	INH-16040	0.284		0.78	
2442	in house	0.272		0.28	
2450	in house	0.244		-0.89	

2460		-----		-----	
2463	CPSC-CH-C1001-09.3	0.281		0.66	
2465	in house	0.395	G(0.05)	5.43	
2473	CPSC-CH-C1001-09.3	0.358		3.88	
2475	in house	0.200		-2.73	
2479	CPSC-CH-C1001-09.3	0.25		-0.64	
2482	EN15777	0.257		-0.35	
3100	CPSC-CH-C1001-09.3	0.277		0.49	
3107	EN14372	0.244		-0.89	
3116	CPSC-CH-C1001	0.27		0.20	
3117	EN14372	0.279		0.58	
3118	CPSC-CH-C1001-09.3	0.29		1.04	
3122		0.20		-2.73	
3134	in house	0.279		0.58	
3153	CPSC-CH-C1001-09.3	0.284		0.78	
3154	in house	0.197		-2.86	
3163	in house	0.1750	DG(0.05)	-3.78	
3166	INH-5290	0.25		-0.64	
3167	EN14372	0.309		1.83	
3169	CPSC-CH-C1001-09.3	0.265		-0.01	
3172	in house	0.26		-0.22	
3182	CPSC-CH-C1001-09.3	0.301		1.50	
3185	CPSC-CH-C1001-09.3	0.274		0.37	
3191	INH-22048	0.248		-0.72	
3197	EN14372	0.2752		0.42	
3199	CPSD-AN-0095	0.267		0.07	
3200	CPSC-CH-C1001-09.3	0.279		0.58	
3205	in house	0.270		0.20	
3209	CPSC-CH-C1001-09.3	0.267		0.07	
3210	ISO16181	0.27		0.20	
3212		-----		-----	
3220	CPSC-CH-C1001-09.3	0.258		-0.30	
3225	in house	0.265		-0.01	
3233	in house	0.39	G(0.05)	5.22	
3237	in house	0.352		3.63	
3238	in house	0.22		-1.90	
3239	in house	0.258		-0.30	
3242	in house	0.239		-1.10	
8005	EN14372	0.26		-0.22	
8006	JTSS2002	0.27		0.20	
8007	ASTM F963	n.d.		-----	False negative?
8020	JTSS2002Mod.	0.265		-0.01	

normality	not OK
n	101
outliers	10
mean (n)	0.2653
st.dev. (n)	0.02919
R(calc.)	0.0817
R(EN14372:04)	0.0668



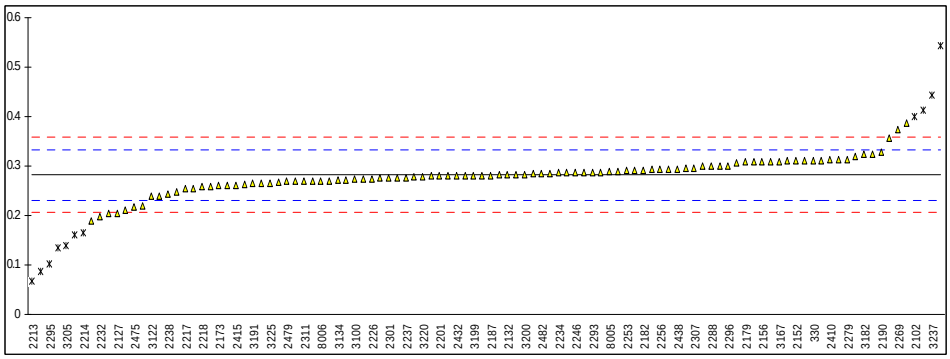


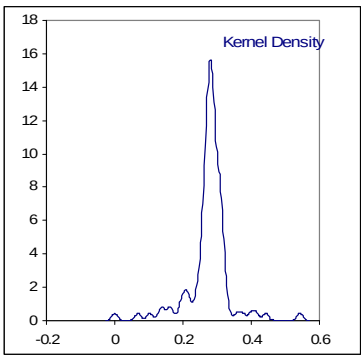
Determination of BBP on sample #12014 C; results in %M/M

lab	method	value	mark	z(targ)	remarks
330	ASTM derivated	0.31		1.12	
357	EN14372	0.414	DG(0.05)	5.22	
607	in house	0.324		1.67	
622	EN14372	n.d.		-----	False negative?
1213	CPSC-CH-C1001-09.3	0.27		-0.46	
2102	INH-487	0.399	DG(0.05)	4.63	
2104	in house	0.27		-0.46	
2115	CPSIA	0.309		1.08	
2127	in house	0.205		-3.02	
2129	in house	0.300		0.72	
2132	CPSC-CH-C1001-09.3	0.283		0.05	
2137	CPSC-CH-C1001-09.3	0.283		0.05	
2139	CPSC-CH-C1001-09.3	0.295		0.53	
2146		0.294		0.49	
2152	CPSC-CH-C1001-09.3	0.310		1.12	
2156	EPA3540C	0.309		1.08	
2165	CPSC-CH-C1001-09.3	0.278		-0.14	
2173	CPSC-CH-C1001-09.3	0.26		-0.86	
2175	EPA3550C/8270D	0.0879	G(0.01)	-7.64	
2179	EN14372	0.3078		1.03	
2182	CPSC-CH-C1001-09.3	0.292		0.41	
2184	CPSC-CH-C1001-09.3	0.268		-0.54	
2187	D3421	0.281		-0.03	
2190		0.329		1.87	
2196	CPSC-CH-C1001-09.3	0.272		-0.38	
2197	in house	0.357		2.97	
2201	CPSC-CH-C1001-09.3	0.28		-0.07	
2213	EN14372	0.068	G(0.01)	-8.43	
2214	in house	0.165	G(0.05)	-4.60	
2215	in house	0.310		1.12	
2217	EN15777	0.254		-1.09	
2218	CPSC-CH-C1001-09.3	0.258		-0.93	
2226	CPSC-CH-C1001-09.3	0.2749		-0.27	
2229	in house	0.262		-0.78	
2232	CPSC-CH-C1001-09.3	0.198		-3.30	
2234	INH-22048	0.286		0.17	
2237	in house	0.276		-0.22	
2238	CPSC-CH-C1001-09.3	0.244		-1.49	
2243	CPSC-CH-C1001-09.3	0.293		0.45	
2246	EN14372	0.287		0.21	
2247	CPSC-CH-C1001-09.3	0.281		-0.03	
2251	EN14372	n.d.		-----	False negative?
2253	CPSC-CH-C1001-09.3	0.291		0.37	
2256	CPSC-CH-C1001-09.3	0.293		0.45	
2266	EN15777	0.261		-0.82	
2269	in house	0.3741		3.65	
2272	ISO16181	0.1352	DG(0.01)	-5.78	
2277	in house	0.284		0.09	
2279	INH-22048	0.313		1.24	
2282	INH-22048	0.288		0.25	
2284	CPSC-CH-C1001-09.3	0.276		-0.22	
2288	CPSC-CH-C1001-09	0.30		0.72	
2290	CPSC-CH-C1001-09.3	0.320		1.51	
2293	CPSC-CH-C1001-09.3	0.288		0.25	
2295	in house	0.103	G(0.05)	-7.05	
2296	CPSC-CH-C1001-09.3	0.301		0.76	
2301	CPSC-CH-C1001-09.3	0.276		-0.22	
2307	CPSC-CH-C1001-09.3	0.295		0.53	
2311	in house	0.27		-0.46	
2320	CPSC-CH-C1001-09.3	n.d.		-----	False negative?
2350	CPSC-CH-C1001-09	0.290		0.33	
2359	CPSC-CH-C1001-09.3	0.2704		-0.44	
2380	D3421	0.291		0.37	
2390	EN14372	0.543	C,G(0.01)	10.31	First reported 0.488
2406	CPSC-CH-C1001-09.3	0.287		0.21	
2410	CPSC-CH-C1001-09.3	0.3127		1.22	
2415	CPSC-CH-C1001-09.3	0.261		-0.82	
2425	D3421	0.274		-0.30	
2427	CPSC-CH-C1001-09	0.275		-0.26	
2432	in house	0.28		-0.07	
2438	INH-16040	0.294		0.49	
2442	in house	0.247		-1.37	
2450	in house	0.301		0.76	

2460		-----		-----	
2463	CPSC-CH-C1001-09.3	0.307		1.00	
2465	in house	0.387		4.15	
2473	CPSC-CH-C1001-09.3	0.205		-3.02	
2475	in house	0.218		-2.51	
2479	CPSC-CH-C1001-09.3	0.27		-0.46	
2482	EN15777	0.285		0.13	
3100	CPSC-CH-C1001-09.3	0.273		-0.34	
3107	EN14372	0.254		-1.09	
3116	CPSC-CH-C1001	0.28		-0.07	
3117	EN14372	0.285		0.13	
3118	CPSC-CH-C1001-09.3	n.d.		-----	False negative?
3122		0.24		-1.64	
3134	in house	0.271		-0.42	
3153	CPSC-CH-C1001-09.3	0.266		-0.62	
3154	in house	0.211		-2.79	
3163	in house	0.1600	G(0.05)	-4.80	
3166	INH-5290	0.24		-1.64	
3167	EN14372	0.309		1.08	
3169	CPSC-CH-C1001-09.3	0.283		0.05	
3172	in house	0.31		1.12	
3182	CPSC-CH-C1001-09.3	0.324		1.67	
3185	CPSC-CH-C1001-09.3	0.280		-0.07	
3191	INH-22048	0.266		-0.62	
3197	EN14372	0.2866		0.19	
3199	CPSD-AN-0095	0.280		-0.07	
3200	CPSC-CH-C1001-09.3	0.283		0.05	
3205	in house	0.140	DG(0.01)	-5.59	
3209	CPSC-CH-C1001-09.3	0.308		1.04	
3210	ISO16181	0.22		-2.43	
3212		-----		-----	
3220	CPSC-CH-C1001-09.3	0.279		-0.11	
3225	in house	0.266		-0.62	
3233	in house	0.31		1.12	
3237	in house	0.443	G(0.05)	6.36	
3238	in house	0.19		-3.62	
3239	in house	0.259		-0.89	
3242	in house	0.280		-0.07	
8005	EN14372	0.29		0.33	
8006	JTSS2002	0.27		-0.46	
8007	ASTM F963	n.d.		-----	False negative?
8020	JTSS2002Mod.	0.313		1.24	

normality	not OK
n	97
outliers	11
mean (n)	0.2817
st.dev. (n)	0.03219
R(calc.)	0.0901
R(EN14372:04)	0.0710



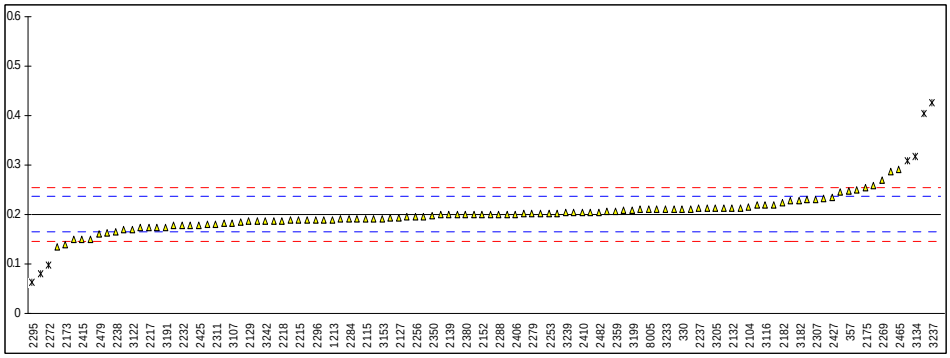


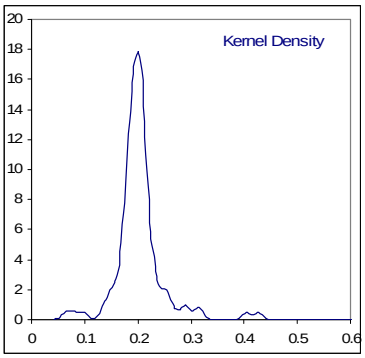
Determination of DEHP on sample #12014 C; results in %M/M

lab	method	value	mark	-----	remarks
330	ASTM derivated	0.21		0.52	
357	EN14372	0.248		2.63	
607	in house	0.287		4.79	
622	EN14372	<0.005		-----	False negative?
1213	CPSC-CH-C1001-09.3	0.19		-0.59	
2102	INH-487	0.258		3.18	
2104	in house	0.215		0.80	
2115	CPSIA	0.191		-0.53	
2127	in house	0.194		-0.37	
2129	in house	0.186		-0.81	
2132	CPSC-CH-C1001-09.3	0.214		0.74	
2137	CPSC-CH-C1001-09.3	0.204		0.19	
2139	CPSC-CH-C1001-09.3	0.199		-0.09	
2146		0.213		0.69	
2152	CPSC-CH-C1001-09.3	0.200		-0.03	
2156	EPA3540C	0.190		-0.59	
2165	CPSC-CH-C1001-09.3	0.206		0.30	
2173	CPSC-CH-C1001-09.3	0.14		-3.36	
2175	EPA3550C/8270D	0.2545		2.99	
2179	EN14372	0.1734		-1.51	
2182	CPSC-CH-C1001-09.3	0.223		1.24	
2184	CPSC-CH-C1001-09.3	0.210		0.52	
2187	D3421	0.195		-0.31	
2190		0.245		2.46	
2196	CPSC-CH-C1001-09.3	0.186		-0.81	
2197	in house	0.232		1.74	
2201	CPSC-CH-C1001-09.3	0.20		-0.03	
2213	EN14372	0.21		0.52	
2214	in house	0.134		-3.69	
2215	in house	0.189		-0.64	
2217	EN15777	0.174		-1.47	
2218	CPSC-CH-C1001-09.3	0.187		-0.75	
2226	CPSC-CH-C1001-09.3	0.1743		-1.46	
2229	in house	0.186		-0.81	
2232	CPSC-CH-C1001-09.3	0.178		-1.25	
2234	INH-22048	0.184		-0.92	
2237	in house	0.212		0.63	
2238	CPSC-CH-C1001-09.3	0.166		-1.92	
2243	CPSC-CH-C1001-09.3	0.203		0.13	
2246	EN14372	0.211		0.58	
2247	CPSC-CH-C1001-09.3	0.189		-0.64	
2251	EN14372	0.77	C,G(0.01)	31.54	First reported 7.69
2253	CPSC-CH-C1001-09.3	0.203		0.13	
2256	CPSC-CH-C1001-09.3	0.195		-0.31	
2266	EN15777	0.209		0.47	
2269	in house	0.2701		3.85	
2272	ISO16181	0.0983	G(0.05)	-5.67	
2277	in house	0.202		0.08	
2279	INH-22048	0.203		0.13	
2282	INH-22048	0.196		-0.25	
2284	CPSC-CH-C1001-09.3	0.191		-0.53	
2288	CPSC-CH-C1001-09	0.20		-0.03	
2290	CPSC-CH-C1001-09.3	0.214		0.74	
2293	CPSC-CH-C1001-09.3	0.191		-0.53	
2295	in house	0.064	G(0.05)	-7.57	
2296	CPSC-CH-C1001-09.3	0.190		-0.59	
2301	CPSC-CH-C1001-09.3	0.200		-0.03	
2307	CPSC-CH-C1001-09.3	0.230		1.63	
2311	in house	0.18		-1.14	
2320	CPSC-CH-C1001-09.3	0.15		-2.80	
2350	CPSC-CH-C1001-09	0.197		-0.20	
2359	CPSC-CH-C1001-09.3	0.2076		0.39	
2380	D3421	0.200		-0.03	
2390	EN14372	0.404	C,DG(0.05)	11.27	First reported 0.389
2406	CPSC-CH-C1001-09.3	0.201		0.02	
2410	CPSC-CH-C1001-09.3	0.2040		0.19	
2415	CPSC-CH-C1001-09.3	0.151		-2.75	
2425	D3421	0.179		-1.20	
2427	CPSC-CH-C1001-09	0.234		1.85	
2432	in house	0.25		2.74	
2438	INH-16040	0.199		-0.09	
2442	in house	0.163		-2.08	
2450	in house	0.179		-1.20	

2460		-----		-----
2463	CPSC-CH-C1001-09.3	0.214		0.74
2465	in house	0.291		5.01
2473	CPSC-CH-C1001-09.3	0.191		-0.53
2475	in house	0.182		-1.03
2479	CPSC-CH-C1001-09.3	0.16		-2.25
2482	EN15777	0.205		0.24
3100	CPSC-CH-C1001-09.3	0.203		0.13
3107	EN14372	0.183		-0.97
3116	CPSC-CH-C1001	0.22		1.07
3117	EN14372	0.189		-0.64
3118		-----		-----
3122		0.17		-1.69
3134	in house	0.318	G(0.05)	6.50
3153	CPSC-CH-C1001-09.3	0.192		-0.48
3154	in house	0.151		-2.75
3163	in house	0.1775		-1.28
3166	INH-5290	0.18		-1.14
3167	EN14372	0.309	G(0.05)	6.00
3169	CPSC-CH-C1001-09.3	0.220		1.07
3172	in house	0.21		0.52
3182	CPSC-CH-C1001-09.3	0.228		1.52
3185	CPSC-CH-C1001-09.3	0.200		-0.03
3191	INH-22048	0.175		-1.42
3197	EN14372	0.2041		0.19
3199	CPSD-AN-0095	0.209		0.47
3200	CPSC-CH-C1001-09.3	0.193		-0.42
3205	in house	0.214		0.74
3209	CPSC-CH-C1001-09.3	0.192		-0.48
3210	ISO16181	0.17		-1.69
3212		-----		-----
3220	CPSC-CH-C1001-09.3	0.230		1.63
3225		0.199		-0.09
3233	in house	0.21		0.52
3237	in house	0.427	DG(0.05)	12.54
3238	in house	0.08	G(0.05)	-6.68
3239	in house	0.204		0.19
3242	in house	0.186		-0.81
8005	EN14372	0.21		0.52
8006	JTSS2002	0.22		1.07
8007	ASTM F963	n.d.		-----
8020	JTSS2002Mod.	0.228		1.52

normality	not OK
n	102
outliers	8
mean (n)	0.2006
st.dev. (n)	0.02693
R(calc.)	0.0754
R(EN14372:04)	0.0506





Determination of DINP, DIDP, DNOP, DiBP and DHP on sample #12014 C; results in %M/M

lab	method	DINP	mark	DIDP	mark	DNOP	mark	DiBP	mark	DHP	mark
330	ASTM derivated	n.d.		n.d.		n.d.		<0.005		<0.005	
357	EN14372	0		0		0		0.011		0.011	
607	in house	n.d.		n.d.		n.d.		-----		-----	
622	EN14372	n.d.		n.d.		n.d.		n.d.		n.d.	
1213	CPSC-CH-C1001-09.3	-----		-----		<0.01		<0.01		<0.01	
2102	INH-487	-----		-----		-----		-----		-----	
2104	in house	-----		-----		-----		0.0015		0.0015	
2115	CPSIA	-----		-----		-----		-----		-----	
2127	in house	-----		-----		-----		0.001		0.001	
2129	in house	0.189	ex	<0.05		<0.05		<0.05		<0.05	
2132	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2137	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01		<0.01		<0.01	
2139	CPSC-CH-C1001-09.3	-----		-----		-----		-----		-----	
2146		-----		-----		-----		-----		-----	
2152	CPSC-CH-C1001-09.3	<0.015		<0.015		<0.015		<0.015		<0.015	
2156	EPA3540C	0.005		0.005		0.005		0.005		0.005	
2165	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005		<0.005		<0.005	
2173	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2175	EPA3550C/8270D	n.d.		<0.0025		<0.0025		<0.0025		<0.0025	
2179	EN14372	n.d.		n.d.		n.d.		-----		-----	
2182	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2184	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2187	D3421	n.d.		n.d.		n.d.		n.d.		n.d.	
2190		-----		-----		-----		-----		-----	
2196	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01		<0.01		<0.01	
2197	in house	-----		-----		6.070	ex	-----		-----	
2201	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01		<0.01		<0.01	
2213	EN14372	n.d.		0.0025	fr 1.65	0.0035	fr 2	n.d.		n.d.	
2214	in house	0.0001		0.017		0.000		-----		-----	
2215	in house	n.d.		n.d.		n.d.		n.d.		n.d.	
2217	EN15777	n.d.		n.d.		n.d.		n.d.		n.d.	
2218	CPSC-CH-C1001-09.3	-----		-----		-----		-----		-----	
2226	CPSC-CH-C1001-09.3	-----		-----		-----		-----		-----	
2229	in house	n.d.		n.d.		n.d.		n.d.		n.d.	
2232	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005		<0.005		<0.005	
2234	INH-22048	<0.015		<0.015		<0.006		<0.006		<0.006	
2237	in house	<0.01		<0.01		<0.01		<0.01		<0.01	
2238	CPSC-CH-C1001-09.3	<0.010		<0.010		<0.010		<0.010		<0.010	
2243	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2246	EN14372	<0.01		<0.01		<0.01		<0.01		<0.01	
2247	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2251	EN14372	n.d.		n.d.		0.13	ex	-----		-----	
2253	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2256	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2266	EN15777	1.694	ex	0.672	ex	0.000		0.000		0.000	
2269	in house	-----		-----		0.2195	ex	-----		-----	
2272	ISO16181	n.d.		n.d.		n.d.		n.d.		n.d.	
2277	in house	-----		-----		-----		-----		-----	
2279	INH-22048	n.d.		n.d.		n.d.		n.d.		n.d.	
2282	INH-22048	<0.010		<0.010		<0.005		<0.005		<0.005	
2284	CPSC-CH-C1001-09.3	<0.010		<0.010		<0.005		<0.005		<0.005	
2288	CPSC-CH-C1001-09	0.16	ex	<0.010		<0.010		<0.010		<0.010	
2290	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2293	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2295	in house	-----		-----		-----		-----		-----	
2296	CPSC-CH-C1001-09.3	0.169	ex	2.937	ex	0.001		-----		-----	
2301	CPSC-CH-C1001-09.3	0.196	ex	13.557	ex	n.d.		-----		-----	
2307	CPSC-CH-C1001-09.3	-----		-----		-----		-----		-----	
2311	in house	n.d.		n.d.		0.11	ex	n.d.		n.d.	
2320	CPSC-CH-C1001-09.3	0.54	ex	n.d.		n.d.		n.d.		n.d.	
2350	CPSC-CH-C1001-09	n.d.		n.d.		n.d.		n.d.		n.d.	
2359	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2380	D3421	n.d.		n.d.		n.d.		n.d.		n.d.	
2390	EN14372	n.d.		n.d.		n.d.		n.d.		n.d.	
2406	CPSC-CH-C1001-09.3	0.000		0.000		0.000		0.000		0.000	
2410	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01		<0.01		<0.01	
2415	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.		n.d.		n.d.	
2425	D3421	n.d.		n.d.		n.d.		n.d.		n.d.	
2427	CPSC-CH-C1001-09	<0.05		<0.05		<0.05		<0.05		<0.05	
2432	in house	-----		-----		-----		-----		-----	
2438	INH-16040	0.528	ex	0.277	ex	0.073		0.033		0.033	
2442	in house	-----		-----		-----		-----		-----	
2450	in house	n.d.		n.d.		n.d.		n.d.		n.d.	

2460		-----	-----	-----		-----	-----
2463	CPSC-CH-C1001-09.3	<0.010	<0.010	<0.003		<0.003	<0.003
2465	in house	0.000	0.000	0.0000		0.000	0.000
2473	CPSC-CH-C1001-09.3	-----	-----	0.477	ex	-----	-----
2475	in house	n.d.	n.d.	0.112	ex	n.d.	n.d.
2479	CPSC-CH-C1001-09.3	n.d.	n.d.	n.d.		n.d.	n.d.
2482	EN15777	<0.01	<0.01	<0.01		<0.01	<0.01
3100	CPSC-CH-C1001-09.3	n.d.	n.d.	n.d.		n.d.	n.d.
3107	EN14372	n.d.	n.d.	n.d.		0.001	0.001
3116	CPSC-CH-C1001	n.d.	n.d.	n.d.		n.d.	n.d.
3117	EN14372	-----	-----	-----		-----	-----
3118		-----	-----	-----		-----	-----
3122		<0.0025	-----	<0.025		<0.0025	<0.0025
3134	in house	n.d.	n.d.	n.d.		-----	-----
3153	CPSC-CH-C1001-09.3	<0.01	<0.01	<0.01		-----	-----
3154	in house	-----	-----	-----		-----	-----
3163	in house	-----	-----	-----		-----	-----
3166	INH-5290	<0.1	<0.1	<0.004		<0.004	<0.004
3167	EN14372	<0.01	<0.01	<0.01		-----	-----
3169	CPSC-CH-C1001-09.3	<0.01	<0.01	<0.005		<0.005	<0.005
3172	in house	<0.005	<0.005	<0.005		<0.005	<0.005
3182	CPSC-CH-C1001-09.3	<0.010	<0.010	<0.010		<0.010	<0.010
3185	CPSC-CH-C1001-09.3	<0.010	<0.010	<0.010		<0.010	<0.010
3191	INH-22048	<0.01	<0.01	<0.01		<0.01	<0.01
3197	EN14372	-----	-----	-----		-----	-----
3199	CPSD-AN-0095	0.017	<0.005	<0.005		<0.005	<0.005
3200	CPSC-CH-C1001-09.3	n.d.	n.d.	n.d.		n.d.	n.d.
3205	in house	<0.01	<0.01	<0.01		<0.01	<0.01
3209	CPSC-CH-C1001-09.3	n.d.	n.d.	n.d.		n.d.	n.d.
3210	ISO16181	-----	-----	-----		-----	-----
3212		-----	-----	-----		-----	-----
3220	CPSC-CH-C1001-09.3	n.d.	n.d.	n.d.		n.d.	n.d.
3225		-----	-----	-----		-----	-----
3233	in house	n.d.	n.d.	0.05		n.d.	n.d.
3237	in house	-----	n.d.	-----		-----	-----
3238	in house	-----	-----	-----		-----	-----
3239	in house	n.d.	n.d.	n.d.		0.002	0.002
3242	in house	n.d.	n.d.	n.d.		n.d.	n.d.
8005	EN14372	n.d.	n.d.	n.d.		n.d.	n.d.
8006	JTSS2002	n.d.	n.d.	n.d.		n.d.	n.d.
8007	ASTM F963	n.d.	n.d.	n.d.		n.d.	n.d.
8020	JTSS2002Mod.	<0.005	<0.005	<0.005		-----	-----
	normality	not OK	OK	not OK		not OK	not OK
	n	79	82	83		79	77
	outliers	0	0	0		0	0
	mean (n)	<0.02	<0.02	0.0787		<0.02	<0.02
	st.dev. (n)	n.a.	n.a.	n.a.		n.a.	n.a.
	R(calc.)	n.a.	n.a.	n.a.		n.a.	n.a.
	R(EN14372:04)	n.a.	n.a.	n.a.		n.a.	n.a.

Ex= result excluded as false positive

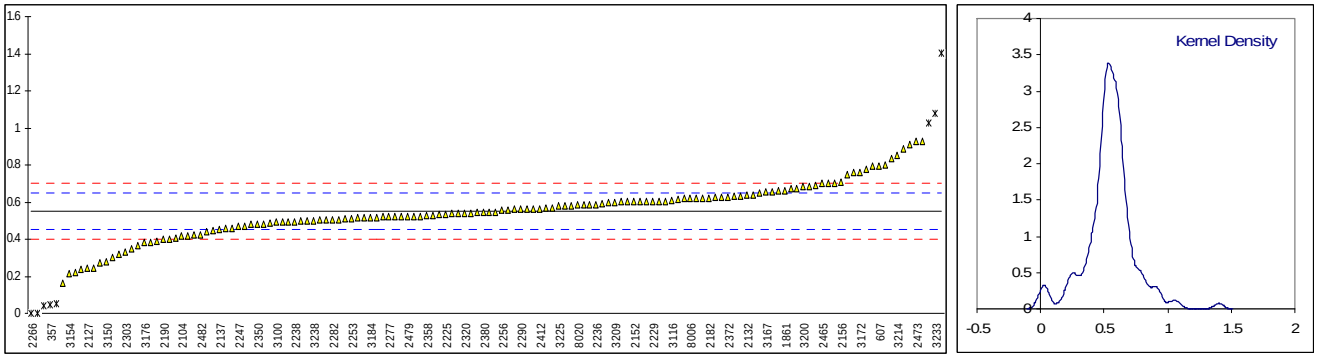
Determination of DINP-1 and/or DINP-2 on sample #12015; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
310	in house	0.500		-1.04	2296	CPSC-CH-C1001-09.3	0.601		0.99
330	ASTM derivated	0.58		0.57	2301	CPSC-CH-C1001-09.3	1.025	DG(0.05)	9.53
357	EN14372	0.044	G(0.05)	-10.22	2303	CPSC-CH-C1001-09	0.330	*)	-4.46
551	in house	0.302		-5.03	2307	CPSC-CH-C1001-09.3	0.491		-1.22
607	in house	0.795		4.90	2309	in house	0.703		3.05
622	EN14372	0.246		-6.16	2311	in house	0.53		-0.44
1213	CPSC-CH-C1001-09.3	0.39		-3.26	2320	CPSC-CH-C1001-09.3	0.54		-0.23
1861	CPSC-CH-C1001-09.3	0.6609		2.20	2350	CPSC-CH-C1001-09	0.482		-1.40
2102	INH-487	0.630		1.58	2358	D3421Mod.	0.53		-0.44
2104	in house	0.415		-2.75	2359	CPSC-CH-C1001-09.3	0.6233		1.44
2115	CPSIA	0.802		5.04	2372	CPSC-CH-C1001-09.3	0.628		1.54
2120	CPSC-CH-C1001-09.3	0.439		-2.27	2380	D3421	0.546		-0.11
2127	in house	0.243		-6.22	2390	EN14372	0.321		-4.65
2129	in house	0.613		1.24	2406	CPSC-CH-C1001-09.3	0.636		1.70
2131	in house	0.04	G(0.05)	-10.31	2408	CPSC-CH-C1001-09.3	0.365		-3.76
2132	CPSC-CH-C1001-09.3	0.636		1.70	2410	CPSC-CH-C1001-09.3	0.6731		2.45
2137	CPSC-CH-C1001-09.3	0.454		-1.97	2412	INH-24613	0.563		0.23
2139	CPSC-CH-C1001-09.3	0.792	*)	4.84	2413	CPSC-CH-C1001-09.3	0.9105		7.23
2146		0.537		-0.30	2415	CPSC-CH-C1001-09.3	0.485		-1.34
2152	CPSC-CH-C1001-09.3	0.600		0.97	2424	CPSC-CH-C1001-09.3	0.605		1.07
2156	EPA3540C	0.709		3.17	2425	D3421	0.567	*)	0.31
2165	CPSC-CH-C1001-09.3	0.585		0.67	2427	CPSC-CH-C1001-09	0.746		3.91
2172	in house	0.515		-0.74	2431	CPSC-CH-C1001-09.3	0.481		-1.42
2173	CPSC-CH-C1001-09.3	0.52		-0.64	2432	in house	0.7		2.99
2175	EPA3550C/8270D	0.275		-5.57	2433		-----		-----
2179	EN14372	0.7595		4.19	2438	INH-16040	0.837		5.75
2182	CPSC-CH-C1001-09.3	0.622		1.42	2442	in house	0.402		-3.01
2184	CPSC-CH-C1001-09.3	0.628		1.54	2448	CPSC-CH-C1001-09.3	0.382		-3.42
2187	D3421	0.418		-2.69	2450	in house	0.505		-0.94
2190		0.401		-3.03	2460		-----		-----
2196	CPSC-CH-C1001-09.3	0.457		-1.91	2463	CPSC-CH-C1001-09.3	0.586		0.69
2197	in house	0.600		0.97	2464	INH-34	0.660	*)	2.18
2201	CPSC-CH-C1001-09.3	0.58		0.57	2465	in house	0.700		2.99
2213	EN14372	0.6		0.97	2470	CPSC-CH-C1001-09.3	0.446		-2.13
2214	in house	0.001	G(0.01)	-11.09	2473	CPSC-CH-C1001-09.3	0.926		7.54
2215	in house	0.592		0.81	2475	in house	0.547		-0.09
2217	EN15777	n.d.	False - ?	-----	2479	CPSC-CH-C1001-09.3	0.52		-0.64
2218	CPSC-CH-C1001-09.3	0.541		-0.21	2482	EN15777	0.424		-2.57
2225	CPSC-CH-C1001-09.3	0.536		-0.32	3100	CPSC-CH-C1001-09.3	0.490		-1.24
2226	CPSC-CH-C1001-09.3	0.5137		-0.76	3107	EN14372	0.051	G(0.05)	-10.08
2229	in house	0.604		1.05	3116	CPSC-CH-C1001	0.61		1.18
2232	CPSC-CH-C1001-09.3	0.407		-2.91	3117	EN14372	0.523		-0.58
2234	INH-22048	0.561		0.19	3118	CPSC-CH-C1001-09.3	0.46		-1.85
2236	CPSC-CH-C1001-09.3	0.587		0.71	3122		0.22	*)	-6.68
2237	in house	0.423		-2.59	3134	in house	0.469		-1.66
2238	CPSC-CH-C1001-09.3	0.494		-1.16	3146	in house	0.888		6.77
2240	CPSC-CH-C1001-09.3	0.545		-0.13	3150	EN15777	0.279		-5.49
2242	CPSC-CH-C1001-09.3	0.519		-0.66	3153	CPSC-CH-C1001-09.3	0.484	*)	-1.36
2243	CPSC-CH-C1001-09.3	0.620		1.38	3154	in house	0.214		-6.80
2245	CPSC-CH-C1001-09.3	0.491		-1.22	3161	in house	1.402	G(0.01)	17.13
2246	EN14372	0.630		1.58	3163		-----		-----
2247	CPSC-CH-C1001-09.3	0.467		-1.71	3166	INH-5290	0.6		0.97
2251	EN14372	n.d.	False - ?	-----	3167	EN14372	0.654		2.06
2253	CPSC-CH-C1001-09.3	0.512		-0.80	3169	CPSC-CH-C1001-09.3	0.532		-0.40
2254	CPSC-CH-C1001-09.3	0.778		4.56	3172	in house	0.76		4.20
2255	CPSC-CH-C1001-09.3	0.52		-0.64	3176	EN15777	0.38		-3.46
2256	CPSC-CH-C1001-09.3	0.559		0.15	3180		-----		-----
2258	CPSC-CH-C1001-09.3	0.685		2.69	3182	CPSC-CH-C1001-09.3	0.690		2.79
2265		-----		-----	3185	CPSC-CH-C1001-09.3	0.515		-0.74
2266	EN15777	0.000	False - ?	-11.11	3190	CPSC-CH-C1001-09.3	0.503		-0.98
2267		-----		-----	3191	INH-22048	0.498		-1.08
2268	CPSC-CH-C1001-09.3	0.566		0.29	3192	in house	n.d.	False - ?	-----
2269	in house	0.6512		2.00	3197	EN14372	0.5213		-0.61
2272	ISO16181	0.2390		-6.30	3199	CPSD-AN-0095	0.563		0.23
2277	in house	0.519		-0.66	3200	CPSC-CH-C1001-09.3	0.683		2.65
2279	INH-22048	0.561		0.19	3205	in house	0.595		0.87
2282	INH-22048	0.505		-0.94	3209	CPSC-CH-C1001-09.3	0.599		0.95
2284	CPSC-CH-C1001-09.3	0.515		-0.74	3210	ISO16181	0.35		-4.06
2288	CPSC-CH-C1001-09	0.67		2.38	3212		-----		-----
2289	CPSC-CH-C1001-09.3	0.537		-0.30	3214	CPSC-CH-C1001-09.3	0.850		6.01
2290	CPSC-CH-C1001-09.3	0.561		0.19	3218	CPSC-CH-C1001-09.3	0.51		-0.84
2293	CPSC-CH-C1001-09.3	0.927		7.56	3220	CPSC-CH-C1001-09.3	0.506		-0.92
2295	in house	0.161		-7.87	3225	in house	0.579		0.55

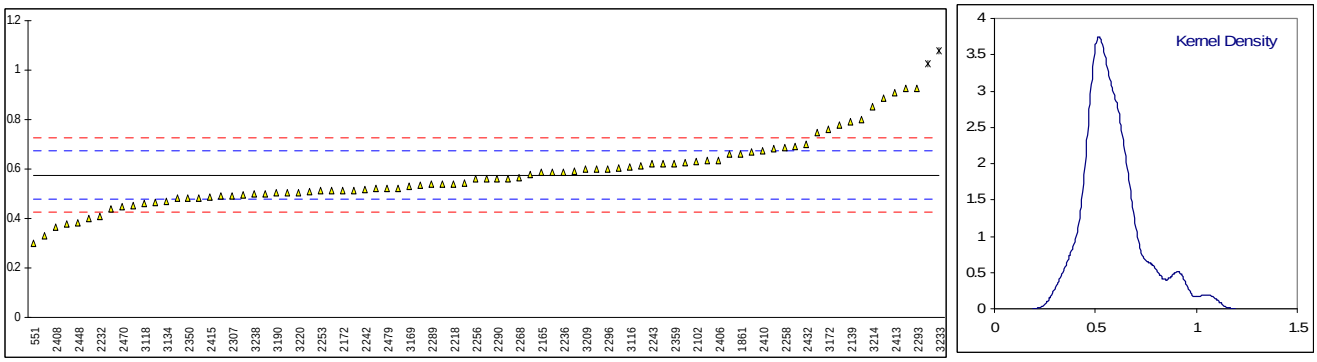
3228	CPSC-CH-C1001-09.3	0.620		1.38
3233	in house	1.08	DG(0.05)	10.64
3237	in house	0.559		0.15
3238	in house	0.50		-1.04
3239	in house	0.547		-0.09
3242	in house	0.656	*)	2.10
3248	in house	0.605		1.07
8005	EN14372	0.62		1.38
8006	JTSS2002	0.62		1.38
8007	ASTM F963	n.d.	False - ?	-----
8020	JTSS2002Mod.	0.583		0.63

		Only THF	Others
	normality	not OK	not OK
	n	81	59
	outliers	2	5
	mean (n)	0.5761	0.5213
	st.dev. (n)	0.13074	0.15206
	R(calc.)	0.3661	0.4258
	R(EN14372:04)	0.1452	0.1314

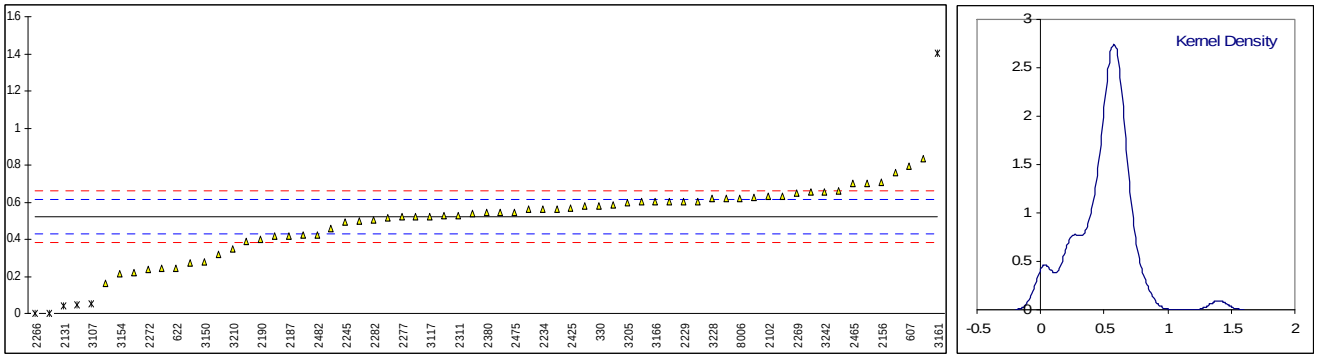
*) reported the result as DINP-2



all results



only THF dissolution



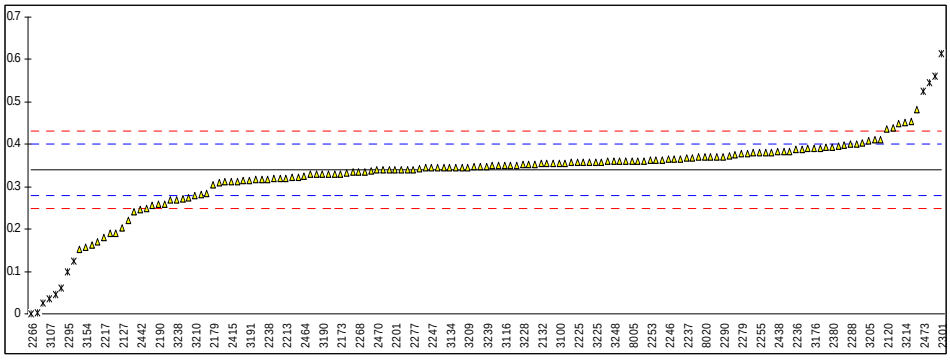
others

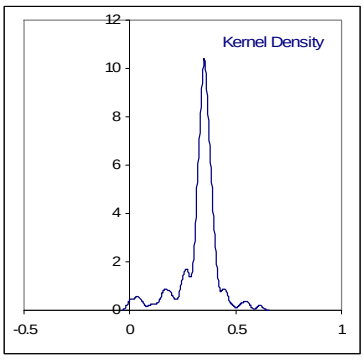
Determination of DEHP on sample #12015; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	Mark	z(targ)
310	in house	0.353		0.45	2296	CPSC-CH-C1001-09.3	0.384		1.46
330	ASTM derivated	0.37		1.01	2301	CPSC-CH-C1001-09.3	0.615	G(0.05)	9.03
357	EN14372	0.045	G(0.05)	-9.64	2303	CPSC-CH-C1001-09	0.455		3.79
551	in house	0.189		-4.92	2307	CPSC-CH-C1001-09.3	0.353		0.45
607	in house	0.355		0.51	2309	in house	0.329		-0.34
622	EN14372	0.152		-6.13	2311	in house	0.33		-0.30
1213	CPSC-CH-C1001-09.3	0.32		-0.63	2320	CPSC-CH-C1001-09.3	0.19		-4.89
1861	CPSC-CH-C1001-09.3	0.2818		-1.88	2350	CPSC-CH-C1001-09	0.376		1.20
2102	CHE01-WV487	0.411		2.35	2358	D3421Mod.	0.32		-0.63
2104	in house	0.36		0.68	2359	CPSC-CH-C1001-09.3	0.3507		0.37
2115	CPSIA	0.373		1.10	2372	CPSC-CH-C1001-09.3	0.357		0.58
2120	CPSC-CH-C1001-09.3	0.437		3.20	2380	D3421	0.393		1.76
2127	in house	0.203		-4.46	2390	EN14372	0.271		-2.24
2129	in house	0.313		-0.86	2406	CPSC-CH-C1001-09.3	0.395		1.82
2131	in house	0.06	G(0.05)	-9.15	2408	CPSC-CH-C1001-09.3	0.275		-2.11
2132	CPSC-CH-C1001-09.3	0.354		0.48	2410	CPSC-CH-C1001-09.3	0.3432		0.13
2137	CPSC-CH-C1001-09.3	0.362		0.74	2412	INH-24613	0.3898		1.65
2139	CPSC-CH-C1001-09.3	0.402		2.05	2413	CPSC-CH-C1001-09.3	0.3437		0.14
2146		0.389		1.63	2415	ISO16181	0.312		-0.89
2152	CPSC-CH-C1001-09.3	0.340		0.02	2424	CPSC-CH-C1001-09.3	0.345		0.19
2156	EPA3540C	0.482		4.67	2425	D3421	0.364		0.81
2165	CPSC-CH-C1001-09.3	0.359		0.65	2427	CPSC-CH-C1001-09	0.401		2.02
2172	in house	0.369		0.97	2431	CPSC-CH-C1001-09.3	0.316		-0.76
2173	CPSC-CH-C1001-09.3	0.33		-0.30	2432	in house	0.39		1.66
2175	EPA3550C/8270D	0.257	Fr 1.284	-2.70	2433		-----		-----
2179	EN14372	0.3049		-1.13	2438	INH-16040	0.382		1.40
2182	CPSC-CH-C1001-09.3	0.360		0.68	2442	in house	0.247		-3.02
2184	CPSC-CH-C1001-09.3	0.349		0.32	2448	CPSC-CH-C1001-09.3	0.162		-5.81
2187	D3421	0.334		-0.17	2450	in house	0.358		0.61
2190		0.258		-2.66	2460		-----		-----
2196	CPSC-CH-C1001-09.3	0.333		-0.21	2463	CPSC-CH-C1001-09.3	0.379		1.30
2197	in house	0.283		-1.84	2464	INH-34	0.325		-0.47
2201	CPSC-CH-C1001-09.3	0.34		0.02	2465	in house	0.381		1.37
2213	EN14372	0.32		-0.63	2470	CPSC-CH-C1001-09.3	0.339		-0.01
2214	in house	0.003	G(0.05)	-11.01	2473	CPSC-CH-C1001-09.3	0.526	G(0.05)	6.11
2215	in house	0.340		0.02	2475	in house	0.169		-5.58
2217	EN15777	0.180	Fr 0.025	-5.22	2479	CPSC-CH-C1001-09.3	0.33		-0.30
2218	CPSC-CH-C1001-09.3	0.340		0.02	2482	EN15777	0.350		0.35
2225	CPSC-CH-C1001-09.3	0.357		0.58	3100	CPSC-CH-C1001-09.3	0.356		0.55
2226	CPSC-CH-C1001-09.3	0.3473		0.26	3107	EN14372	0.035	DG(0.01)	-9.96
2229	in house	0.314		-0.83	3116	CPSC-CH-C1001	0.35		0.35
2232	CPSC-CH-C1001-09.3	0.259		-2.63	3117	EN14372	0.359		0.65
2234	INH-22048	0.338		-0.04	3118	CPSC-CH-C1001-09.3	0.38		1.33
2236	CPSC-CH-C1001-09.3	0.388		1.59	3122		0.22		-3.91
2237	in house	0.367		0.91	3134	in house	0.345		0.19
2238	CPSC-CH-C1001-09.3	0.317		-0.73	3146	in house	0.56	DG(0.05)	7.23
2240	CPSC-CH-C1001-09.3	0.366		0.87	3150	EN15777	0.248	Fr 0.077	-2.99
2242	CPSC-CH-C1001-09.3	0.312		-0.89	3153	CPSC-CH-C1001-09.3	0.358		0.61
2243	CPSC-CH-C1001-09.3	0.356		0.55	3154	in house	0.157		-5.97
2245	CPSC-CH-C1001-09.3	0.360		0.68	3161	in house	0.356		0.55
2246	EN14372	0.364		0.81	3163	in house	0.3350		-0.14
2247	CPSC-CH-C1001-09.3	0.344		0.15	3166	INH-5290	0.31		-0.96
2251	EN14372	n.d.		-----	3167	EN14372	0.392		1.73
2253	CPSC-CH-C1001-09.3	0.362		0.74	3169	CPSC-CH-C1001-09.3	0.346		0.22
2254	CPSC-CH-C1001-09.3	0.450		3.63	3172	in house	0.37		1.01
2255	CPSC-CH-C1001-09.3	0.38		1.33	3176	EN15777	0.39		1.66
2256	CPSC-CH-C1001-09.3	0.329		-0.34	3180		0.268		-2.33
2258	CPSC-CH-C1001-09.3	0.345		0.19	3182	CPSC-CH-C1001-09.3	0.411		2.35
2265	EN15777	0.2402		-3.25	3185	CPSC-CH-C1001-09.3	0.363		0.78
2266	EN15777	0.000	ex	-11.11	3190	CPSC-CH-C1001-09.3	0.330		-0.30
2267		-----		-----	3191	D3421	0.315	DG(0.01)	-0.80
2268	CPSC-CH-C1001-09.3	0.335		-0.14	3192	in house	0.026		-10.26
2269	in house	0.3993		1.96	3197	CPSC-CH-C1001-09.3	0.3490		0.32
2272	ISO16181	0.1250	DG(0.05)	-7.02	3199	CPSD-AN-0095	0.384		1.46
2277	in house	0.341		0.06	3200	CPSC-CH-C1001-09.3	0.380		1.33
2279	INH-22048	0.377		1.23	3205	in house	0.408		2.25
2282	INH-22048	0.344		0.15	3209	CPSC-CH-C1001-09.3	0.346		0.22
2284	CPSC-CH-C1001-09.3	0.358		0.61	3210	ISO16181	0.28		-1.94
2288	CPSC-CH-C1001-09	0.40		1.99	3212		-----		-----
2289	CPSC-CH-C1001-09.3	0.322		-0.57	3214	CPSC-CH-C1001-09.3	0.452		3.69
2290	CPSC-CH-C1001-09.3	0.371		1.04	3218	CPSC-CH-C1001-09.3	0.34		0.02
2293	CPSC-CH-C1001-09.3	0.323		-0.53	3220	CPSC-CH-C1001-09.3	0.316		-0.76
2295	in house	0.099	DG(0.05)	-7.87	3225	in house	0.358		0.61

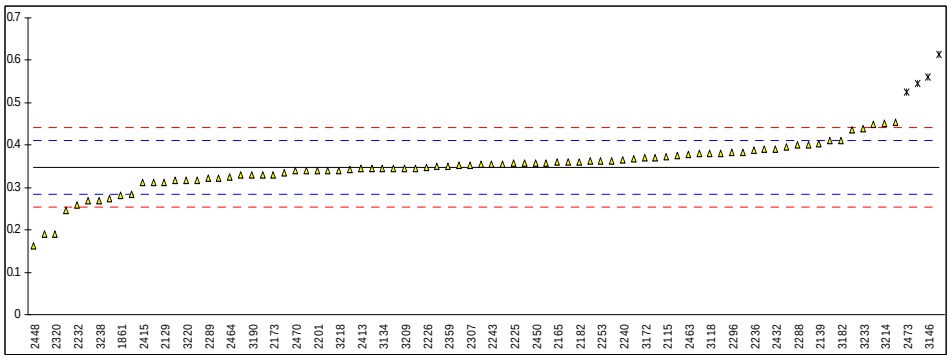
3228	CPSC-CH-C1001-09.3	0.352		0.42
3233	in house	0.44		3.30
3237	in house	0.546	DG(0.05)	6.77
3238	in house	0.27		-2.27
3239	in house	0.348		0.28
3242	in house	0.347		0.25
3248	in house	0.359		0.65
8005	EN14372	0.36		0.68
8006	JTSS2002	0.37		1.01
8007	ASTM F963	n.d.		-----
8020	JTSS2002Mod.	0.370		1.01

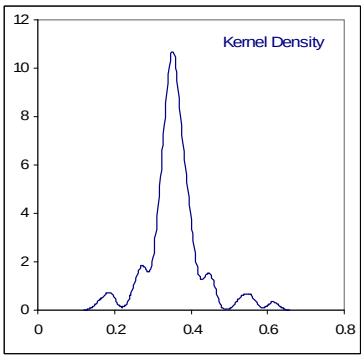
		Only THF	Others
	normality	not OK	not OK
	n	80	58
	outliers	4	7
	mean (n)	0.3474	0.3275
	st.dev. (n)	0.05326	0.06538
	R(calc.)	0.1491	0.1831
	R(EN14372:04)	0.0876	0.0825



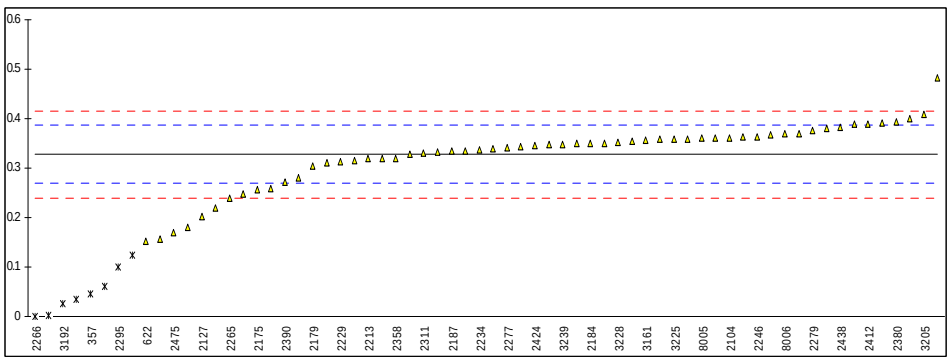


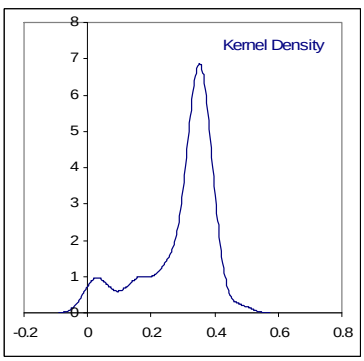
all results





only THF dissolution





others

Determination of DBP, BBP and DIDP on sample #12015; results in %M/M

lab	method	DBP	mark	BBP	mark	DIDP	mark
310	in house	0.000		0.000		0.000	
330	ASTM derivated	<0.005		n.d.		0.02	
357	EN14372	0.002		0.001		0.006	
551	in house	n.d.		-----		n.d.	
607	in house	n.d.		n.d.		n.d.	
622	EN14372	n.d.		n.d.		n.d.	
1213	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.05	
1861	CPSC-CH-C1001_90.3	n.d.		n.d.		n.d.	
2102		-----		-----		-----	
2104		0.0009		-----		0.021	
2115		-----		-----		-----	
2120	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2127		0.0005		0.0003		0.018	
2129	in house	<0.05		<0.05		0.040	
2131	in house	<0.01		<0.01		<0.01	
2132	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2137	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01	
2139		-----		-----		-----	
2146		-----		-----		-----	
2152	CPSC-CH-C1001-09.3	<0.015		<0.015		<0.015	
2156	EPA3540C	0.005		0.0005		0.005	
2165	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005	
2172	in house	n.d.		n.d.		n.d.	
2173	CPSC-CH-C1001-09.3	n.d.		n.d.		0.09	
2175	EP3550	0.2297	False +?	0.0879		12.624	False +?
2179	EN14372	0.0126		n.d.		n.d.	
2182	CPSC-CH-C1001-09.3	n.d.		n.d.		0.021	
2184	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2187	D3421	n.d.		n.d.		n.d.	
2190		-----		-----		-----	
2196	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01	
2197		-----		-----		-----	
2201	CPSC-CH-C1001-09.3	<0.01		<0.01		0.025	
2213	EN14372	n.d.		n.d.		n.d.	
2214	in house	0.0000		0.000		0.001	
2215	in house	n.d.		n.d.		n.d.	
2217	EN15777	n.d.		n.d.		n.d.	
2218		-----		-----		0.022	
2225	CPSC-CH-C1001-09.3	<0.005		<0.005		0.022	
2226		-----		-----		-----	
2229	2005/84/EC	n.d.		n.d.		0.043	
2232	CPSC-CH-C1001-09.1	<0.005		<0.005		<0.005	
2234	GB/T 22048	<0.006		<0.006		0.028	
2236	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005	
2237	in house	<0.01		<0.01		<0.01	
2238	CPSC-CH-C1001	<0.010		<0.010		0.018	
2240	CPSC-CH-C1001	0.000		0.000		0.022	
2242		-----		-----		-----	
2243	CPSC-CH-C1001.09	n.d.		n.d.		n.d.	
2245	CPSC-CH-C1001.09	n.d.		n.d.		n.d.	
2246	EN14372	<0.01		<0.01		<0.01	
2247		n.d.		n.d.		n.d.	
2251	EN14372	n.d.		n.d.		n.d.	
2253	CPSC CH C1001-09.3	n.d.		n.d.		0.021	
2254	CPSC-CH-C1001.09.2	<0.004		<0.004		<0.010	
2255		-----		-----		-----	
2256	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2258	CPSC-CH-C1001-09.2	0		0		0	
2265		-----		-----		-----	
2266	EN15777	0.000		0.000		0.000	
2267		-----		-----		-----	
2268	CPSC-CH-C1001-09.3	<0.01		<0.01		0.020	
2269		-----		-----		-----	
2272	ISO16181	n.d.		n.d.		n.d.	
2277		-----		-----		-----	
2279	GB/T 22048	n.d.		n.d.		0.023	
2282	GB/T 22048	<0.005		<0.005		<0.010	
2284	INH-22048	<0.005		<0.005		0.021	
2288	CPSC-CH-C1001.09.1	<0.010		<0.010		0.021	
2289		-----		-----		0.020	
2290	CPSC-CH-C1001.09.1	n.d.		n.d.		n.d.	
2293	CPSC-CH-1001-09.3	n.d.		n.d.		0.024	
2295		-----		-----		-----	

2296	CPCS-CH-C1001-09	0.009	0.002	0.050	
2301	CPCS-CH-C1001-09	n.d.	n.d.	0.046	
2303	CPSL-CH-C1001.09.3	<0.02	<0.02	<0.02	
2307		-----	-----	-----	
2311	in house	n.d.	n.d.	n.d.	
2309	in house	n.d.	n.d.	0.024	
2320	CPSC-CH-C1001-09.3	n.d.	n.d.	n.d.	
2350		n.d.	n.d.	n.d.	
2358	D3421	n.d.	n.d.	0.019	
2359	CPSC-CH-C1001-09.3	n.d.	n.d.	0.0205	
2372	CPSC-CH-C1001	n.d.	n.d.	n.d.	
2380	D3421	n.d.	n.d.	0.020	
2390	EN14372	n.d.	n.d.	n.d.	
2406	CPSC-CH-C1001	0.000	0.000	0.024	
2408	CPSC-CH-C1001	0.051	n.d.	0.015	
2410	CPSC-CH-C1001	<0.01	<0.01	<0.01	
2412	GB24613	n.d.	n.d.	0.021	
2413	CPSC-CH-C1001	n.d.	n.d.	n.d.	
2415	CPSC-CH-C1001	n.d.	n.d.	n.d.	
2424	CPSC-CH-C1001	<0.005	<0.005	0.029	
2425	D3421	n.d.	n.d.	n.d.	
2427	CPSC-CH-C1001	<0.05	<0.05	<0.05	
2431		-----	-----	0.034	
2432		-----	-----	-----	
2433		-----	-----	-----	
2438	ABNT NBR 16040	0.024	0.042	0.279	False +?
2442		-----	-----	-----	
2448		-----	-----	-----	
2450	in house	n.d.	n.d.	n.d.	
2460		-----	-----	-----	
2463	CPSC-CH-C1001-09.3	<0.003	<0.003	<0.010	
2464		-----	-----	-----	
2465	in house	0.000	0.000	0.000	
2470	CPSC-CH-C1001-09.3	<0.005	<0.005	<0.050	
2473	CPSC-CH-C1001-09.3	-----	-----	-----	
2475	in house	n.d.	n.d.	0.022	
2479	CPSC-CH-C1001-09.1	n.d.	n.d.	0.09	
2482	EN15777	<0.01	<0.01	0.046	
3100	CPSC CH C1001-09.3	n.d.	n.d.	0.023	
3107	EN14372	<0.001	n.d.	n.d.	
3116	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.	
3117		-----	-----	-----	
3118		-----	-----	-----	
3122		<0.0025	<0.0025	<0.0025	
3134	n.d.	0.0244	n.d.	n.d.	
3146	in house	<0.005	<0.005	<0.005	
3150		-----	-----	0.013	
3153	CPSC-CH-C1001-09.1	<0.01	<0.01	0.023	
3154		-----	-----	-----	
3161	in house	n.d.	n.d.	n.d.	
3163		-----	-----	-----	
3166	in house	<0.004	<0.004	<0.1	
3167	EN14372	<0.01	<0.01	0.0263	
3169	CPSC-CH-C1001-09.1	<0.005	<0.005	<0.01	
3172		<0.005	<0.005	<0.005	
3176		-----	-----	-----	
3180		-----	-----	-----	
3182	CPSC-CH-C1001-09.1	<0.010	<0.010	0.022	
3185	CPSC-CH-C1001-09.1	<0.010	<0.010	0.021	
3190	CPSC-CH-C1001-09.1	<0.010	<0.010	0.018	
3191	GB/T 22048	<0.01	<0.01	0.018	
3192	in house	n.d.	n.d.	n.d.	
3197		-----	-----	-----	
3199	CPSD-AN-0095	<0.005	<0.005	0.030	
3200	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.	
3205	in house	<0.01	<0.01	<0.01	
3209	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.	
3210		-----	-----	-----	
3212		-----	-----	-----	
3214	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.	
3218		-----	-----	0.020	
3220	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.	
3225		-----	-----	0.021	
3228	CPSC-CH-C1001-09.1	<0.005	<0.005	<0.005	
3233	in house	n.d.	n.d.	n.d.	
3237		-----	-----	-----	
3238		-----	-----	-----	

3239	in house	n.d.	n.d.	n.d.
3242	in house	n.d.	n.d.	n.d.
3248	in house	n.d.	n.d.	0.022
8005	EN14372	n.d.	n.d.	0.02
8006	in house	n.d.	n.d.	n.d.
8007	D7963	n.d.	n.d.	n.d.
8020	in house	<0.005	<0.005	<0.005
	normality	n.a.	not OK	not OK
	n	118	116	123
	outliers	0	0	0
	mean (n)	<0.02	<0.02	0.0239
	st.dev. (n)	n.a.	n.a.	n.a.
	R(calc.)	n.a.	n.a.	n.a.
	R(EN14372)	n.a.	n.a.	n.a.

Ex= result excluded as false positive

Determination of DNOP, DiBP and DHP on sample #12015; results in %M/M

lab	method	DNOP	mark	DiBP	mark	DHP	mark
310	in house	0.000		0.000		0.000	
330	ASTM derivated	n.d.		n.d.		-----	
357	EN14372	0		0.009		0	
551	in house	n.d.		n.d.		-----	
607	in house	n.d.		-----		-----	
622	EN14372	n.d.		n.d.		n.d.	
1213	CPSC-CH-C1001-09.3	<0.01		<0.01		-----	
1861	CPSC-CH-C1001_90.3	n.d.		n.d.		n.d.	
2102		-----		-----		-----	
2104		-----		-----		-----	
2115		-----		-----		-----	
2120	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2127		-----		-----		-----	
2129	in house	<0.05		<0.05		<0.05	
2131	in house	<0.01		<0.01		<0.01	
2132	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2137	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01	
2139		-----		-----		-----	
2146		-----		-----		-----	
2152	CPSC-CH-C1001-09.3	<0.015		<0.015		<0.015	
2156	EPA3540C	0.005		0.005		0.005	
2165	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005	
2172	in house	n.d.		n.d.		n.d.	
2173	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2175	EP3550	<0.0025		0.016		<0.0025	
2179	EN14372	n.d.		-----		-----	
2182	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2184	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2187	D3421	n.d.		n.d.		n.d.	
2190		-----		-----		-----	
2196	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01	
2197		-----		-----		-----	
2201	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01	
2213	EN14372	0.048		n.d.		-----	
2214	in house	0.000		-----		-----	
2215	in house	n.d.		n.d.		n.d.	
2217	EN15777	n.d.		n.d.		n.d.	
2218		-----		-----		-----	
2225	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005	
2226		-----		-----		-----	
2229	2005/84/EC	n.d.		n.d.		n.d.	
2232	CPSC-CH-C1001-09.1	<0.005		<0.005		<0.005	
2234	GB/T 22048	<0.006		<0.006		<0.006	
2236	CPSC-CH-C1001-09.3	<0.005		<0.005		<0.005	
2237	in house	<0.01		<0.01		<0.01	
2238	CPSC-CH-C1001	<0.010		<0.010		<0.010	
2240	CPSC-CH-C1001	0.000		0.000		0.000	
2242		-----		-----		-----	
2243	CPSC-CH-C1001.09	n.d.		n.d.		n.d.	
2245	CPSC-CH-C1001.09	n.d.		n.d.		n.d.	
2246	EN14372	<0.01		<0.01		<0.01	
2247		n.d.		n.d.		n.d.	
2251	EN14372	n.d.		-----		-----	
2253	CPSC CH C1001-09.3	n.d.		n.d.		n.d.	
2254	CPSC-CH-C1001.09.2	<0.004		-----		-----	
2255		-----		-----		-----	
2256	CPSC-CH-C1001-09.3	n.d.		n.d.		n.d.	
2258	CPSC-CH-C1001-09.2	0		-----		0	
2265		-----		-----		-----	
2266	EN15777	0.000		0.000		-----	
2267		-----		-----		-----	
2268	CPSC-CH-C1001-09.3	<0.01		<0.01		<0.01	
2269		-----		-----		-----	
2272	ISO16181	n.d.		n.d.		n.d.	
2277		-----		-----		-----	
2279	GB/T 22048	n.d.		n.d.		n.d.	
2282	GB/T 22048	<0.005		<0.005		<0.005	
2284	INH-22048	<0.005		<0.005		<0.005	
2288	CPSC-CH-C1001.09.1	<0.010		<0.010		<0.010	
2289		-----		-----		-----	
2290	CPSC-CH-C1001.09.1	n.d.		n.d.		n.d.	
2293	CPSC-CH-1001-09.3	n.d.		n.d.		n.d.	
2295		-----		-----		-----	

2296	CPCS-CH-C1001-09	0.000	-----	-----
2301	CPCS-CH-C1001-09	0.012	-----	-----
2303	CPSL-CH-C1001.09.3	<0.02	<0.02	<0.02
2307		-----	-----	-----
2311	in house	n.d.	-----	-----
2309	in house	n.d.	n.d.	n.d.
2320	CPSC-CH-C1001-09.3	n.d.	n.d.	n.d.
2350		-----	n.d.	n.d.
2358	D3421	n.d.	n.d.	n.d.
2359	CPSC-CH-C1001-09.3	n.d.	n.d.	n.d.
2372	CPSC-CH-C1001	n.d.	n.d.	n.d.
2380	D3421	n.d.	n.d.	n.d.
2390	EN14372	n.d.	n.d.	n.d.
2406	CPSC-CH-C1001	0.000	0.000	0.000
2408	CPSC-CH-C1001	n.d.	0.039	n.d.
2410	CPSC-CH-C1001	<0.01	<0.01	<0.01
2412	GB24613	n.d.	n.d.	n.d.
2413	CPSC-CH-C1001	n.d.	n.d.	n.d.
2415	CPSC-CH-C1001	n.d.	n.d.	-----
2424	CPSC-CH-C1001	<0.005	<0.005	<0.005
2425	D3421	n.d.	n.d.	n.d.
2427	CPSC-CH-C1001	<0.05	<0.05	<0.05
2431		-----	-----	-----
2432		-----	-----	-----
2433		-----	-----	-----
2438	ABNT NBR 16040	0.050	0.029	n.d.
2442		-----	-----	-----
2448		-----	-----	-----
2450	in house	n.d.	n.d.	n.d.
2460		-----	-----	-----
2463	CPSC-CH-C1001-09.3	<0.003	<0.003	<0.003
2464		-----	-----	-----
2465	in house	0.000	0.000	0.000
2470	CPSC-CH-C1001-09.3	<0.005	<0.005	<0.005
2473	CPSC-CH-C1001-09.3	0.011	-----	-----
2475	in house	n.d.	n.d.	n.d.
2479	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.
2482	EN15777	<0.01	<0.01	-----
3100	CPSC CH C1001-09.3	n.d.	n.d.	n.d.
3107	EN14372	n.d.	<0.001	n.d.
3116	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.
3117		-----	-----	-----
3118		-----	-----	-----
3122		<0.0025	<0.0025	<0.0025
3134	n.d.	n.d.	-----	-----
3146	in house	<0.005	<0.005	<0.005
3150		-----	-----	-----
3153	CPSC-CH-C1001-09.1	<0.01	-----	-----
3154		-----	-----	-----
3161	in house	n.d.	n.d.	n.d.
3163		-----	-----	-----
3166	in house	<0.004	<0.004	<0.004
3167	EN14372	<0.01	-----	-----
3169	CPSC-CH-C1001-09.1	<0.005	<0.005	<0.005
3172		<0.005	<0.005	<0.005
3176		-----	-----	-----
3180		-----	-----	-----
3182	CPSC-CH-C1001-09.1	<0.010	<0.010	<0.010
3185	CPSC-CH-C1001-09.1	<0.010	<0.010	<0.010
3190	CPSC-CH-C1001-09.1	<0.010	<0.010	<0.010
3191	GB/T 22048	<0.01	<0.01	<0.01
3192	in house	n.d.	n.d.	n.d.
3197		-----	-----	-----
3199	CPSD-AN-0095	<0.005	<0.005	<0.005
3200	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.
3205	in house	<0.01	<0.01	<0.01
3209	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.
3210		-----	-----	-----
3212		-----	-----	-----
3214	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.
3218		-----	-----	-----
3220	CPSC-CH-C1001-09.1	n.d.	n.d.	n.d.
3225		-----	-----	-----
3228	CPSC-CH-C1001-09.1	<0.005	<0.005	<0.005
3233	in house	n.d.	n.d.	n.d.
3237		-----	-----	-----
3238		-----	-----	-----

3239	in house	n.d.	n.d.	n.d.
3242	in house	n.d.	n.d.	n.d.
3248	in house	n.d.	n.d.	n.d.
8005	EN14372	n.d.	n.d.	n.d.
8006	in house	n.d.	n.d.	n.d.
8007	D7963	n.d.	n.d.	n.d.
8020	in house	<0.005	-----	-----
	normality	n.a.	n.a.	n.a.
	n	116	103	97
	outliers	0	0	0
	mean (n)	<0.02	<0.02	<0.02
	st.dev. (n)	n.a.	n.a.	n.a.
	R(calc.)	n.a.	n.a.	n.a.
	R(EN14372)	n.a.	n.a.	n.a.

Ex= result excluded as false positive

APPENDIX 2
Method information

lab	Type(s) of plastic identified	Identification Technique	Extraction Technique	Solvent used
310	Other / PVC	FTIR	dissolve overnight	THF
330	--	--	--	--
357	None	--	Soxhlet	Diethylether
551	--	--	Ultrasonic	THF
607	--	--	Soxhlet	Dichloromethane:Methanol
622	--	--	Soxhlet	Dichloromethane
1213	--		Soxhlet, Ultrasonic	Acetone, n-hexane
1861	PVC	FTIR	Ultrasonic	THF
2102	PVC	FTIR	Ultrasonic	THF
2104	--	--	extraction	Dichloromethane
2115	Other / PVC	FTIR	Mechanical Shaker	THF
2120	PVC	FTIR	Ultrasonic	THF
2127				
2129	soft PVC / hard	FTIR	Ultrasonic	THF
2131	--	--	ASE	n-Hexane
2132	PVC	FTIR	shaking	THF
2137	PVC	FTIR	Ultrasonic, Shaking	THF, n-hexane
2139	PVC	FTIR	Ultrasonic	THF, MeOH
2146	Other / PVC	FTIR	Soxhlet / Untrasonic	Diethylether / THF
2152	--	--	--	--
2156	--	--	Soxhlet	Dichloromethane
2165	--	--	Heating block	THF, n-Hexane
2172	PVC	FTIR	Ultrasonic	THF
2173	PVC	FTIR	Ultrasonic	THF
2175			Ultrasonic	1+1 Acetone:Hexane
2179	PVC / PE	FTIR	Soxhlet	Toluene
2182	--	--	Ultrasonic	THF
2184	--	--	Ultrasonic	MTBE, Acetone, n-Hexane
2187	PVC	FTIR	Soxhlet	Chloroform, Methanol (=2:1)
2190	PVC	FTIR	ASE	Hexane, Ethylacetate
2196	PP / PVC	--	Soxhlet	Methanol, Chloroform
2197	--	--	--	THF
2201	--	--	ultrasonic	THF, n-Hexane
2213	PVC	Only Beilstein test	Soxhlet	Dichloromethane
2214	PVC	XRF	Soxhlet	Diethylether
2215	PVC	FTIR	Ultrasonic	THF
2217	--	--	Soxhlet	Diethyl Ether
2218	--	--	Ultrasonic	THF
2225	--	--	Ultrasonic	THF
2226	--	--	Ultrasonic	THF
2229	--	--	Ultrasonic	Chloroform
2232	PVC	FTIR	Ultrasonic	THF
2234	--	--	Soxhlet	Dichloromethane
2236	--	--	Ultrasonic	THF
2237	--	--	Ultrasonic	DMF,Toluene
2238	Unknown / PVC	FTIR	Shaking	THF, Hexane
2240	--	--	Ultrasonic	THF
2242	--	--	--	THF, Hexane
2243	PVC	FTIR	ultrasonic	THF
2245	--	--	Ultrasonic	Dichloormethane
2246	--	--	Soxhlet	Diethylether
2247	PVC	FTIR	Ultrasonic	THF
2251	-- / PVC	-- / FTIR	Soxhlet	Diethylether
2253	PVC	FTIR	Ultrasonic	THF
2254	Other / PVC	FTIR	Ultrasonic	THF
2255	--	--	Ultrasonic	THF, n-Hexane
2256	PVC	FTIR	Ultrasonic	THF
2258	--	--	Ultrasonic	THF
2265	--	--	Soxhlet	n-Hexane
2266	PVC	XRF+beilstein test	Extractor Randall	Hexane
2267	PVF / PVC	FTIR	Ultrasonic	Hexane
2268	--	--	Ultrasonic	THF
2269	--	--	Ultrasonic	Dichloromethane
2272	PVC	Beilstein	Ultrasonic	Hexane, Acetone
2277	PVC	in house method	Ultrasonic	Dichloromethane
2279	--	--	Soxhlet	Dichloromethane
2282	PVC	Burning method	Ultrasonic	Dichloromethane

2284	--	--	Ultrasonic	Chloroform
2288	PVC	FTIR	Ultrasonic	THF, Hexane
2289	--	--	--	THF
2290	--	--	Ultrasonic	THF
2293	PBMA / PVC	FTIR	Ultrasonic	THF, Hexane
2295	--	--	Ultrasonic	Chloroform
2296	PVC	Beilstein test	Ultrasonic	THF
2301	--	--	Ultrasonic	THF
2303	--	--	Ultrasonic	THF, Hexane
2307	--	--	Ultrasonic	THF, Hexane
2309	--	--	Soxhlet	Dichloromethane
2311	--	--	Soxhlet	Methanol, Dichloromethane
2320	PVC	GCMS	Other	THF, n-Hexane
2350	PVC	FTIR	Ultrasonic	THF
2358	PVC	FTIR	Manuel Extraction Unit (FOSS)	Dichloromethane, Methanol
2359	PVC	FTIR	Shaking	THF, Hexane, Cyclohexane
2372	PVC	FTIR	Ultrasonic	THF
2380	PP	FTIR	Soxhlet	Dichloromethane, Methanol
2390	PVC / Polyester	FTIR / Burning	Soxhlet	Diethylether
2406	--	--	Ultrasonic	THF
2408	--	--	Shake, Ultrasonic	THF
2410	--	--	Shaking for 2 hours	THF, n-Hexane
2412	PVC	--	Soxhlet	Dichloromethane
2413	--	--	Ultrasonic	THF
2415	--	--	Ultrasonic / Soxhlet	THF / Chloroform
2424	--	--	Ultrasonic	1:1:1 Hexane: MTBE: Acetone
2425	PVC	FTIR	Soxhlet	Dichloromethane
2427	--	--	--	THF, n-Hexane
2431	--	--	Ultrasonic	THF, n-Hexane
2432	--	--	Ultrasonic	THF
2433	--	--	Ultrasonic	THF
2438	PVC	FTIR	Soxhlet	Chloroform, Methanol
2442	--	--	Ultrasonic	THF, ACN
2448	--		Solvent extraction	THF
2450	PVC	FTIR	Ultrasonic	THF
2460				
2463	--	--	Ultrasonic	THF
2464	PVC	FTIR	Solvent dissolution	THF, Methanol
2465	--	GC-MS	Soxhlet	Dichloromethane
2470	--	--	Shaking	THF
2473	PVC	FTIR	Ultrasonic	THF
2475	--	--	Ultrasonic	Toluene
2479	PVC	FTIR	Ultrasonic	THF
2482	--	--	Ultrasonic	Toluene
3100	--	--	Shaking	THF
3107	--	--	Soxhlet	Diethylether
3116	PVC	FTIR	Ultrasonic	THF
3117	--	--	Soxhlet	Diethylether
3118	PVC	FTIR	Ultrasonic	THF
3122	--	--	--	--
3134	PVC	FTIR	--	THF, Methanol
3146	PVC + $CaCO_3$	FTIR-ATR	Ultrasonic	THF / ACN, THF
3150	--	--	Ultrasonic	Toluene
3153	--	--	--	THF
3154	PVC	FTIR	ultrasonic	Hexane, Acetone
3161	PVC	FTIR	Soxhlet	Hexane, Acetone
3163	--	--	--	--
3166	--	--	Ultrasonic	Dichloromethane
3167	--	--	--	--
3169	--	--	--	THF
3172	--	--	Ultrasonic	THF, CAN
3176	PVC	FTIR	Ultrasonic	THF
3180	--	--	Ultrasonic	THF
3182	--	--	Ultrasonic	THF, n-Hexane
3184	--	--	Shaker	THF, n-Hexane
3190	-- / PVC	-- / FTIR	Shaking	THF, n-Hexane
3191	--	--	Soxhlet / Ultrasonic	DCM / Chloroform, THF
3192	PVC	FTIR	ultrasonic	Diethylether
3197	--	--	Soxhlet / Ultrasonic	Diethylether / THF, Hexane
3199	--	--	Ultrasonic	THF, ACN
3200	PVC	FTIR	Shake	THF, Hexane
3205			Ultrasonic	Acetone
	--	--		

3209	--	--	Ultrasonic	THF
3210	--	--	Ultrasonic	Hexane, Acetone
3212				
3214	PVC	FTIR	Ultrasonic	THF
3218	PVC	FTIR	Ultrasonic	THF
3220	--	--	Ultrasonic	THF
3225	--	--	Ultrasonic	Chloroform
3228	--	--	Ultrasonic	Hexane, Acetone, MTBE
3233	--	--	Ultrasonic	THF, ACN
3237	--	--	Ultrasonic	THF, ACN
3238	PVC	Laine de Cuvre	Liquid Boin - Naie	MeOH, THF
3239	PVC	FTIR	Soxhlet	Dichloromethane
3242	PVC	FTIR	Soxhlet	Dichloromethane
3248	PVC	FTIR	Ultrasonic	THF, ACN
8005	PVC	FTIR	Ultrasonic	Diethylether
8006	PVC	FTIR	Shaking	Acetone, n-Hexane
8007	PVC	FTIR	Soxhlet	Dichloromethane, Methanol
8020	PVC	FTIR	Ultrasonic	Hexane, Acetone

APPENDIX 3

Number of participating laboratories per country

1 lab in	AUSTRIA
4 labs in	BANGLADESH
1 lab in	BELGIUM
4 labs in	BRAZIL
2 labs in	CANADA
1 lab in	DENMARK
2 labs in	FINLAND
7 labs in	FRANCE
12 labs in	GERMANY
1 lab in	GREECE
2 labs in	GUATEMALA
20 labs in	HONG KONG
1 lab in	HUNGARY
6 labs in	INDIA
3 labs in	INDONESIA
1 lab in	ISRAEL
2 labs in	ITALY
1 lab in	JAPAN
5 labs in	KOREA
3 labs in	MALAYSIA
3 labs in	MEXICO
38 labs in	P.R. of CHINA
1 lab in	PAKISTAN
1 lab in	PHILIPPINES
1 lab in	PORTUGAL
3 labs in	SINGAPORE
1 lab in	SPAIN
1 lab in	SRI LANKA
2 labs in	SWITZERLAND
2 labs in	TAIWAN R.O.C.
3 labs in	THAILAND
4 labs in	THE NETHERLANDS
4 labs in	TURKEY
9 labs in	U.S.A.
3 labs in	UNITED KINGDOM
3 labs in	VIETNAM

APPENDIX 4

Abbreviations:

C = final result after checking of first reported suspect result
D(0.01) = outlier in Dixon's outlier test
D(0.05) = straggler in Dixon's outlier test
G(0.01) = outlier in Grubbs' outlier test
G(0.05) = straggler in Grubbs' outlier test
DG(0.01) = outlier in Double Grubbs' outlier test
DG(0.05) = straggler in Double Grubbs' outlier test
n.a. = not applicable
n.d. = not detected
fr = first reported result

Literature:

1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, January 2010
2 ASTM D3421:75: "extraction and analysis of plasticizer mixtures from vinyl chloride plastics".
3 Chromatographia, Vol.47, "Gas Chromatographic Analysis of Phthalate Esters in Plastic Toys" S.C. Rastogi (1998).
4 ASTM E178-02
5 ASTM E1301-03
6 ISO 5725: 1986
7 ISO 5725, parts 1-6, 1994
8 2001/804/EC, Official Journal of the European Communities, L304/26, (2001)
9 98/485/EC, Official Journal of the European Comminities, L217/35, (1998)
10 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
11 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
12 IP 367/84
13 DIN 38402 T41/42
14 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
15 J.N. Miller, Analyst, 118, 455, (1993)
16 ASTM F963:"standard consumer safety specification on toy safety"
17 Analytical Methods Committee Technical brief, No4 January 2001.
18 The Royal Society of Chemistry 2002, Analyst 2002, 127 pages 1359-1364, P.J. Lowthian and M. Thompson (see http://www.rsc.org/suppdata/an/b2/b205600n/)
19 ISO/FDIS 13528, 2005e, Statistical methods for use in proficiency testing by interlaboratory comparisons
20 R.G. Visser, Reliability of proficiency test results for metals and phthalates in plastics, Accred Qual Assur, 14:29-34 (2009)
21 EC I.03.101, JRS Ispra, Summary Risk Assessment Report DINP (2003)
22 EC I.03.103, JRS Ispra, Summary Risk Assessment Report DIDP (2003)