Results of Proficiency Test
Colorants in textile
(Allergenic & Carcinogenic)
February 2017

Organised by: Institute for Interlaboratory Studies (iis)
Spijkenisse, the Netherlands

Author: ing. R.J. Starink
Correctors: dr. R.G. Visser & ing. A.S. Noordman-de Neef

Report: iis17A03

May 2017

- Empty page --

CONTENTS

Appendices:

1 INTRODUCTION

Coloured fabrics, when in contact with human skin, may cause Allergic Contact Dermatitis. Twenty dyestuffs are therefore classified as allergenic. Textiles are not allowed to contain more than 50 mg/kg of the 20 below listed dyes according to the latest Öko-tex Standard 100 edition 01/2017, of which 9 dyes are mentioned in DIN54231:

• C.I. Disperse Blue 1	CASno 2475-45-8	C.I.no 64 500	(in DIN54231)
• C.I. Disperse Blue 3	CASno 2475-46-9	C.I.no 61 505	(in DIN54231)
• C.I. Disperse Blue 7	CASno 3179-90-6	C.I.no 62 500	
• C.I. Disperse Blue 26	CASno 3860-63-7	C.I.no 63 305	
• C.I. Disperse Blue 35	CASno 12222-75-2 (*)		(in DIN54231)
• C.I. Disperse Blue 102	CASno 12222-97-8		
• C.I. Disperse Blue 106	CASno 12223-01-7		(in DIN54231)
• C.I. Disperse Blue 124	CASno 61951-51-7		(in DIN54231)
• C.I. Disperse Brown 1	CASno 23355-64-8		
• C.I. Disperse Orange 1	CASno 2581-69-3	C.I.no 11 080	
• C.I. Disperse Orange 3	CASno 730-40-5	C.I.no 11 005	(in DIN54231)
• C.I. Disperse Orange 37/76	CASno 13301-61-6	C.I.no 11 132	(in DIN54231)
• C.I. Disperse Red 1	CASno 2872-52-8	C.I.no 11 110	(in DIN54231)
• C.I. Disperse Red 11	CASno 2872-48-2	C.I.no 62 015	
• C.I. Disperse Red 17	CASno 3179-89-3	C.I.no 11 210	
• C.I. Disperse Yellow 1	CASno 119-15-3	C.I.no 10 345	
• C.I. Disperse Yellow 3	CASno 2832-40-8	C.I.no 11 855	(in DIN54231)
• C.I. Disperse Yellow 9	CASno 6373-73-5	C.I.no 10 375	
• C.I. Disperse Yellow 39	CASno 12236-29-2		
• C.I. Disperse Yellow 49	CASno 54824-37-2		

* Disperse Blue 35 consists of a mixture of components, of which the monomethylated 1,8-diamino-4,5-dihydroxyanthraquinone (CASno 56524-77-7) and the dimethylated 1,8-diamino-4,5-dihydroxy-anthraquinone (CASno 56524-76-6) are responsible for the sensitizing potency of Disperse Blue 35, see also report iis09A04X of May 2009.

The Öko-tex Standard 100 also lists a number of carcinogenic dyes, like for example:

• C.I. Acid Red 26	CASno 3761-53-3	C.I. 16 150
• C.I. Basic Blue 26	CASno 2580-56-5	
• C.I. Basic Green 4 (oxalate)	CASno 2437-29-8, 18015-76-4	
• C.I. Basic Green 4 (chloride)	CASno 569-64-2	
• C.I. Basic Green 4 (free)	CASno 10309-95-2	
• C.I. Basic Red 9	CASno 569-61-9	C.I. 42 500
• C.I. Basic Violet 3	CASno 548-62-9	
• C.I. Basic Violet 14	CASno 632-99-5	C.I. 42 510
• C.I. Direct Black 38	CASno 1937-37-7	C.I. 30 235
• C.I. Direct Blue 6	CASno 2602-46-2	C.I. 22 610
• C.I. Direct Red 28	CASno 573-58-0	C.I. 22 120

The ban on the above dyes has become a widely publicised issue in the textile industry. Dyestuff manufacturers, processors and exporters are careful in the selection of the dyes. However, several dyestuffs that are skin sensitizers may still be in use for dyeing polyester and nylon. In this context and in response to requests from several laboratories, the Institute for Interlaboratory Studies (iis) organises a proficiency test for allergenic dyes in textile in the annual proficiency test program since 2003. The scope was extended with carcinogenic dyes in 2016.
During the annual proficiency testing program 2016/2017, it was decided to continue the PT for the analyses of banned colorants in textile. In this interlaboratory study, 89 laboratories in 26 different countries registered for participation (see appendix 4). In this report, the results of the 2017 PT are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test (PT). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC 17025 accredited laboratory. It was decided to send 2 different textile samples; one treated with banned allergenic dye-stuffs (labelled #17525) and the other treated with banned carcinogenic dyestuffs (labelled #17526). Both samples were especially prepared by a third party. The participants were requested to report test results using the indicated units and to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC 17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PT falls under the accredited scope. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of this PT was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of March 2017 (iis-protocol, version 3.4). This protocol is electronically available through the iis website www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

All data presented 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 different bulk textile samples were used in this proficiency test. The first batch, a brown polyester (sample #17525) and the second batch, a blue cotton (sample #17526) were both prepared by a third party. From the first batch, 100 samples with small pieces of polyester, of approximately 3 gram each were prepared and labelled #17525. From the second batch, 100 samples with small pieces of cotton, of approximately 3 gram each were prepared and labelled #17526.

The homogeneity of the subsamples of #17525 was checked by determination of Disperse Blue 106 according to DIN54231 on seven stratified randomly selected samples, see table 1 for the test results.

	Disperse Blue 106 in mg/kg
sample #17525-1	142.6
sample #17525-2	138.8
sample #17525-3	153.7
sample #17525-4	152.4
sample #17525-5	168.9
sample #17525-6	148.6
sample #17525-7	172.3

Table 1: homogeneity test results of subsamples #17525

The homogeneity of the subsamples of #17526 was checked by determination of Direct Black 38 according to DIN 54231 on eight stratified randomly selected samples, see table 2 for the test results.

	Direct Black 38 in mg/kg
sample #17526-1	52.2
sample #17526-2	53.7
sample #17526-3	49.5
sample #17526-4	59.1
sample #17526-5	56.3
sample #17526-6	55.6
sample #17526-7	57.2
sample #17526-8	49.4

Table 2: homogeneity test results of subsamples #17526

From the above test results, the repeatabilities were calculated and compared with 0.3 times the corresponding reproducibilities of the reference test method in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Disperse Blue 106 in mg/kg	*Direct Black 38 in mg/kg*
r (observed)	35.2	10.0
reference test method	DIN54231:05	DIN54231:05
0.3 * R (ref. test method)	37.0	13.0

Table 3: repeatability of subsamples #17525 and #17526

The calculated repeatabilities of the homogeneity test results were in agreement with 0.3 times the reproducibilities mentioned in the reference test method. Therefore, homogeneity of the subsamples of #17525 and #17526 was assumed.
To the participating laboratories was sent 1 sample labelled #17525 and 1 sample labelled #17526 on February 8, 2017. A letter of instructions was added to the sample package.

2.5 ANALYSES

The participants were asked to determine the concentrations of 20 banned allergenic dyes on sample #17525 and of 14 banned carcinogenic dyes on sample #17526, applying the analysis procedure that is routinely used in the laboratory. Also some analytical details were requested to be reported.

It was explicitly requested to treat the samples as if they were routine samples. It was also requested to report the test results using the indicated units on the report form and not to round the test results, but to report as much significant figures as possible. It was also requested not to report “less than’ test results, which are above the detection limit, because such test results cannot be used for meaningful statistical evaluation.

To get comparable test results a detailed report form and a letter of instructions are prepared. The detailed report form and the letter of instructions are both made available on the data entry portal www.kpmd.co.uk/sgs-iis-cts/. The participating laboratories were also requested to confirm the sample receipt on this data entry portal. The letter of instructions can also be downloaded from the iis website www.iisn.com.

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis-cts/. The reported test results are tabulated per sample and per component in the appendix 1 of this report. The laboratories are represented by their code numbers.

Directly after the deadline, a reminder was sent to those laboratories that did not report test results at that moment.

Shortly after the deadline, the available test results were screened for suspect data. A test 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 reported test results (no reanalyses). Additional or corrected test results are used for the data analysis and the original test results are placed under 'Remarks' in the test result tables in appendix 1. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

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 March 2017 (iis-protocol, version 3.4).

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test 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, a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either ‘unknown’, ‘OK’, ‘suspect’ or ‘not OK’.
After removal of outliers, this check was repeated. If a data set does not have a normal distribution, the results of the statistical evaluation should be used with due care.

In accordance to ISO 5725 the original test results per determination were submitted subsequently to Dixon’s, Grubbs’ and or Rosner’s outlier tests. Outliers are marked by D(0.01) for the Dixon’s test, by G(0.01) or DG(0.01) for the Grubbs’ test and by R(0.01) for the Rosner’s test. Stragglers are marked by D(0.05) for the Dixon’s test, by G(0.05) or DG(0.05) for the Grubbs’ test and by R(0.05) for the Rosner’s test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

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 significant consequences for the evaluation of the test results.

Finally, the reproducibilities were calculated from the standard deviations by multiplying them with a factor of 2.8.

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 test results are plotted. The corresponding laboratory numbers are on 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 reference test method. 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. The Kernel Density Graph is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also a normal Gauss curve was projected over the Kernel Density Graph for reference.

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. ISO reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the variation in this interlaboratory study.

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used, like Horwitz. In some cases, a reproducibility based on former iis proficiency tests could be used.

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 should be done in order to evaluate whether the reported test results are fit-for-purpose.

The z-scores were calculated in accordance with:

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

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

Absolute values for z<2 are very common and absolute values for z>3 are very rare. Therefore 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

During the execution of this proficiency test some reporting problems occurred. Four participants reported the test results after the deadline and three participants did not report any test results. Finally, 86 participants did report 244 numerical test results. Observed were 8 outlying test results, which is 3.3% of the numerical test results. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

All original data sets proved to have a normal Gaussian distribution.

4.1 EVALUATION PER SAMPLE AND PER COMPONENT

In this section, the results are discussed per sample and per component. All statistical results reported on the textile samples are summarised in appendix 1 and all other reported test results of the most relevant colorants present are summarised in appendices 2 and 3.

As in previous PTs almost all participants reported to have used DIN54231 as test method, only a small number of test details were requested to be reported (see appendix 3).

In DIN54231 no reproducibility is mentioned. Only the standard deviation for the repeatability is mentioned. Therefore, the target reproducibility was estimated as follows: the repeatability standard deviation was multiplied with 2.8 to get the target repeatability. And this was multiplied with 3 to get an estimate of the target reproducibility.

Textile sample #17525:

Disperse Blue 106 (CASno. 12223-01-7): The determination of this colorant at a concentration level of 118 mg/kg was problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the reproducibility requirement estimated from the test method DIN54231:05.

Disperse Brown 1 (CASno. 23355-64-8): The determination of this colorant at a concentration level of 275 mg/kg was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the reproducibility requirement estimated from the test method DIN54231:05.

Textile sample #17526:

Direct Black 38 (CASno. 1937-37-7): The determination of this colorant at a concentration level of 138 mg/kg was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the reproducibility requirement estimated from the test method DIN54231:05.

General:

The large majority of participating laboratory did not detect any other colorants than the three discussed above. Four participants reported also the presence of another colorant at different concentration levels in sample #17525 and #17526 (see Appendix 2).

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibilities as declared by the relevant reference test methods and the reproducibilities as found for the group of participating laboratories. The number of test results, the average results, the calculated reproducibilities (standard deviation*2.8) and the target reproducibilities, derived (or estimated) from the official test method DIN54231:05 are compared in the next tables.

Component	*unit*	*n*	*average*	*2.8 * sd*	R(lit)
Disperse Blue 106	mg/kg	82	118	167	95
Disperse Brown 1	mg/kg	80	275	297	221

Table 4: reproducibilities of the colorants in textile sample #17525

Component	*unit*	*n*	*average*	*2.8 * sd*	R(lit)
Direct Black 38	mg/kg	70	138	125	111

Table 5: reproducibility of the colorant in textile sample #17526

Without further statistical calculations, it can be concluded that the group of participating laboratories has some difficulties with the analyses at the investigated concentration levels, for the colorants found. See also the discussion in paragraphs 4.1 and 5.

4.3 EVALUATION OF THE PROFICIENCY TEST OF FEBRUARY 2017 WITH PREVIOUS PTS

The uncertainties in the test results of the evaluated colorants in the iis17A03 PT are listed in below table and are compared with previous proficiency tests.

	Feb. 2017	Feb. 2016	March 2015	March 2014	March 2013	March 2012	2011 – 2006	target DIN54321
Direct Black 38	32%	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	27%
Disperse Blue 1	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	43%	27%
Disperse Blue 3	n.e.	n.e.	n.e.	n.e.	56%	42%	36 - 51%	27%
Disperse Blue 26	n.e.	n.e.	n.e.	n.e.	n.e.	68%	47 - 56%	27%
Disperse Blue 35	n.e.	n.e.	31%	n.e.	n.e.	n.e.	57 - 84%	27%
Disperse Blue 106	50%	n.e.	n.e.	28%	n.e.	n.e.	n.e.	27%
Disperse Brown 1	39%	n.e.	n.e.	33%	n.e.	n.e.	n.e.	27%
Disperse Orange 1	n.e.	n.e.	42%	n.e.	47%	n.e.	44%	27%
Disperse Orange 3	n.e.	n.e.	n.e	31%	n.e.	n.e.	24 – 54%	27%
Disperse Red 1	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	36 - 63%	27%
Disperse Red 11	n.e.	n.e.	41%	n.e.	n.e.	65%	45 - 56%	27%
Disperse Red 17	n.e.	28%	33%	n.e.	n.e.	n.e.	n.e.	27%
Disperse Yellow 1	n.e.	24%	n.e.	n.e.	n.e.	n.e.	n.e.	27%
Disperse Yellow 3	n.e.	30%	n.e.	n.e.	29%	n.e.	28%	27%
Disperse Yellow 9	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	31%	27%
Disperse Yellow 49	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	54%	27%

Table 6: development of uncertainties over the last years

From the above table it is clear that for Disperse Blue 106 and Disperse Brown 1 investigated in this PT, the group performed worse than in previous PTs. Direct Black 38 was investigated for the first time. Therefore no conclusions could be drawn about the performance of the group against previous findings.

5 DISCUSSION

In this PT also some analytical details were asked (see appendix 3) to use for further analyses. It appeared that 82% of the participants is accredited for the determination of aromatic amines. As this is the majority of the group no separate statistical analysis has been performed.
From the reported details, it is clear that the majority of the participants (85%) purchased the dyes for calibration as powder and dissolved the powder to prepare the stock solutions. Purities of the powder may be variable and therefore vary per laboratory (which may partly explain the large variation). About half of the laboratories (45-48%) will check the stock solutions by measurement and 31-39% of the laboratories checks visually whether all powder is dissolved. The stock solutions are kept cool (about 4-10°C) by 43-45% of the participants, while another 43-45% stores the stock solutions at very low temperatures (<4°C) and 8% of the laboratories keep the stock solutions at room temperature.
Regretfully, none of the analytical details explains the large variation found in the reported test results of the investigated colorants.

6 CONCLUSION

The variation in the test results observed may be caused by the preparation of the sample (reduction to release the aromatic amine and subsequent concentration) and/or by the analytical identification and quantification (incl. calibration). Consequently, the reproducibility may not be improved by only one change in the analysis. Each laboratory has to evaluate its performance in this study and make decisions about necessary corrective actions. Therefore, participation on a regular basis in this scheme could be helpful to improve the performance and thus increase of the quality of the analytical results.

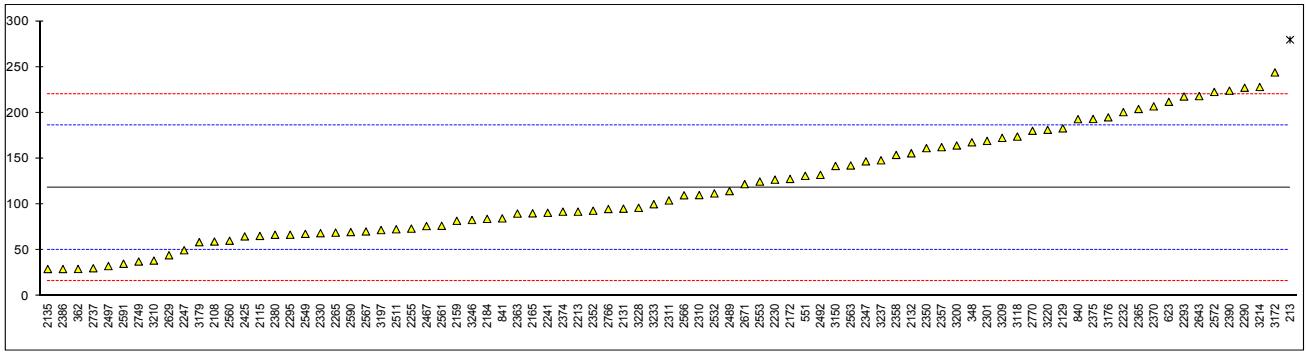
APPENDIX 1

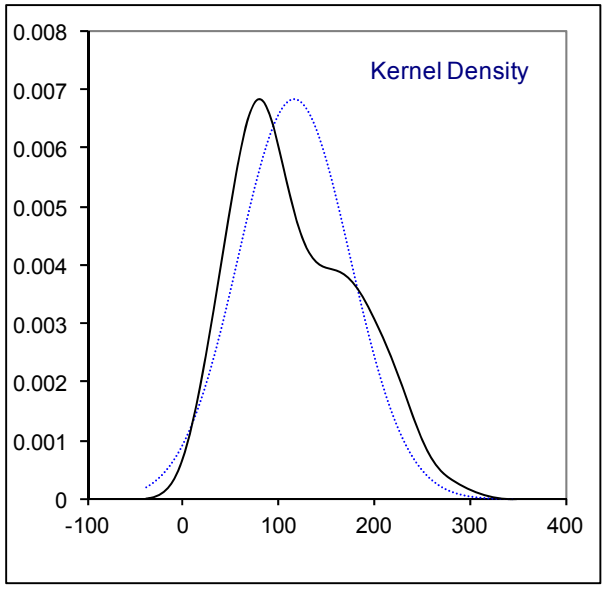
Determination of Disperse Blue 106 (CASno. 12223-01-7) in sample #17525; results in mg/kg

lab	method	value	mark	z(targ)	remarks
213	In house	279.64	R(0.05)	4.77	
348	DIN54231	167.77		1.46	
362	DIN54231	29.55		-2.62	
551	In house	131.2380		0.38	
623		211.97		2.77	
840	DIN54231	193		2.21	
841		84.80		-0.99	
2108	DIN54231	59.5		-1.74	
2115	DIN54231	65.64		-1.55	
2129	DIN54231	183		1.91	
2131	In house	95.3539	C	-0.68	First reported n.d.
2132	DIN54231	155.78		1.11	
2135	DIN54231	29.49		-2.62	
2159	In house	82.10		-1.07	
2165	DIN54231	90.3		-0.83	
2172		127.83		0.28	
2184	DIN54231	84.27		-1.00	
2213	DIN54231	92.1		-0.77	
2230	DIN54231	127		0.26	
2232	DIN54231	200.71		2.44	
2241	DIN54231	90.91		-0.81	
2247	DIN54231	49.98		-2.02	
2255	DIN54231	73.6		-1.32	
2265	DIN54231	69.2		-1.45	
2290	DIN54231	227.32		3.22	
2293		217.755		2.94	
2295	DIN54231	66.9		-1.52	
2301	In house	169.26		1.51	
2310	DIN54231	110.2		-0.24	
2311	DIN54231	104.3		-0.41	
2330	DIN54231	68.63		-1.47	
2347	DIN54231	147		0.85	
2350	DIN54231	161.41		1.27	
2352	DIN54231	93.1		-0.74	
2357	DIN54231	162.5		1.31	
2358	DIN54231	154		1.06	
2363	DIN54231	90		-0.84	
2365	DIN54231	204.1		2.54	
2369		-----		-----	
2370	DIN54231	207		2.62	
2374	DIN54231	92.1		-0.77	
2375	DIN54231	193.24		2.22	
2380	DIN54231	66.89		-1.52	
2386	DIN54231	29.5		-2.62	
2390	DIN54231	224.08		3.13	
2425	DIN54231	65.1		-1.57	
2467	DIN54231	76.38		-1.24	
2482		-----		-----	
2489	DIN54231	114.51		-0.11	
2492	In house	132.3	C	0.41	First reported 650.2
2497	DIN54231	32.72		-2.53	
2511	DIN54231	72.9		-1.34	
2520	DIN54231	-----		-----	
2532	DIN54231	112		-0.19	
2549	DIN54231	67.88	C	-1.49	First reported 402.15
2553	DIN54231	124.93		0.20	
2560	DIN54231	60.4		-1.71	
2561	DIN54231	76.665		-1.23	
2563	DIN54231	142.5	C	0.72	First reported 287.2
2566	In house	110		-0.24	
2567	DIN54231	70.5		-1.41	
2572	DIN54231	222.73		3.09	
2590	DIN54231	69.82		-1.43	
2591	DIN54231	35.29		-2.45	
2629	DIN54231	44.53694	C	-2.18	First reported 125.83
2643	DIN54231	218.19		2.95	
2644		-----		-----	
2671	DIN54231	122.12		0.11	
2737	DIN54231	30.33		-2.60	
2749	In house	37.7		-2.38	
2766	DIN54231	95		-0.69	
2770	DIN54231	180.35		1.83	
3118	DIN54231	174.02		1.65	
3146		-----		-----	

3150	DIN54231	141.98	0.70
3154	DIN54231	-----	-----
3172	DIN54231	244	3.71
3176	DIN54231	195.0	2.27
3179	DIN54231	58.8	-1.76
3197	DIN54231	72	-1.37
3200	DIN54231	164.3	1.36
3209	DIN54231	172.6	1.61
3210	DIN54231	38.7	-2.35
3214	DIN54231	228.13	3.25
3220	DIN54231	181.38	1.86
3228	DIN54231	96.3	-0.65
3233		100.25	-0.53
3237	In house	148.143	0.88
3246	DIN54231	83	-1.04

normality	OK
n	82
outliers	1
mean (n)	118.266
st.dev. (n)	59.6006
R(calc.)	166.882
R(DIN54231:05)	94.774



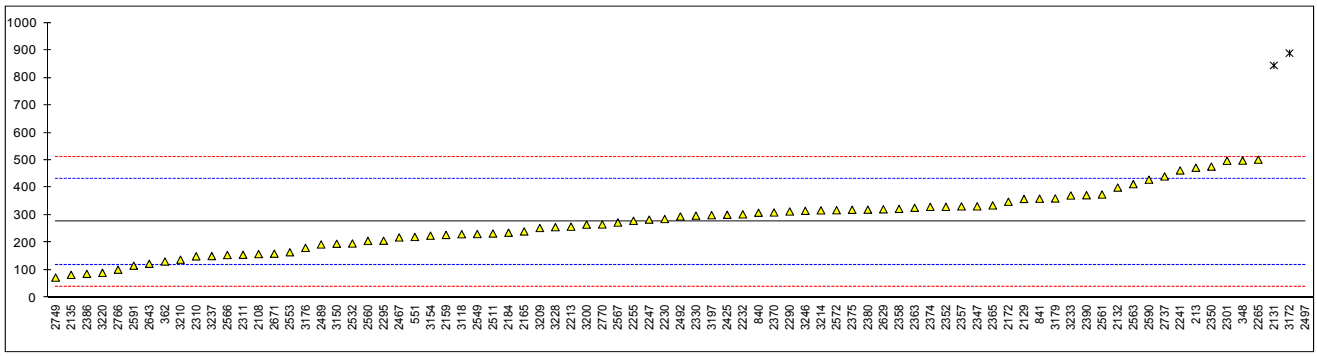


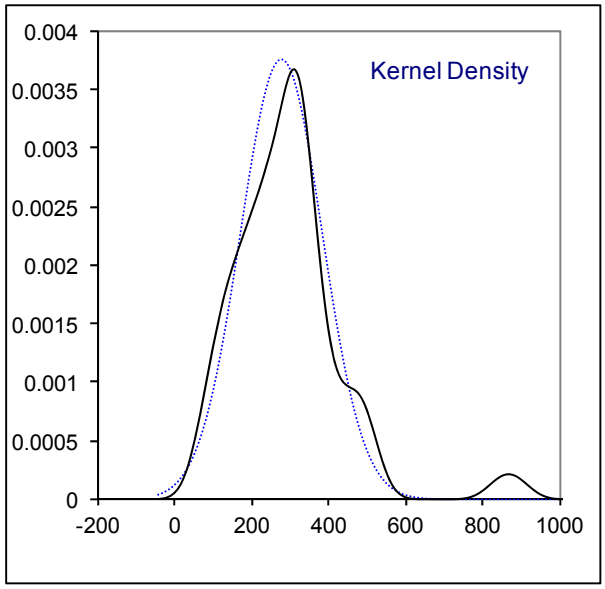
Determination of Disperse Brown 1 (CASno. 23355-64-8) in sample #17525; results in mg/kg

lab	method	value	mark	z(targ)	remarks
213	In house	472.6		2.50	
348	DIN54231	498.56		2.83	
362	DIN54231	131.55		-1.82	
551	In house	220.7203		-0.69	
623		354.73		1.01	
840	DIN54231	309		0.43	
841		359.90		1.07	
2108	DIN54231	158.4		-1.48	
2115	DIN54231	-----		-----	
2129	DIN54231	359		1.06	
2131	In house	844.5847	C,R(0.01)	7.23	First reported n.d.
2132	DIN54231	400.49		1.59	
2135	DIN54231	82.97		-2.44	
2159	In house	228.23		-0.60	
2165	DIN54231	240.9		-0.44	
2172		348.75		0.93	
2184	DIN54231	236.32		-0.49	
2213	DIN54231	258.2		-0.22	
2230	DIN54231	286		0.14	
2232	DIN54231	303	C	0.35	First reported 638.32
2241	DIN54231	462.74		2.38	
2247	DIN54231	283.845		0.11	
2255	DIN54231	279.7		0.06	
2265	DIN54231	501.9		2.88	
2290	DIN54231	313.43		0.48	
2293		164.18		-1.41	
2295	DIN54231	207		-0.87	
2301	In house	498		2.83	
2310	DIN54231	150.2		-1.59	
2311	DIN54231	155.8		-1.52	
2330	DIN54231	298.12		0.29	
2347	DIN54231	332		0.72	
2350	DIN54231	476.74		2.56	
2352	DIN54231	330.4		0.70	
2357	DIN54231	331.9		0.72	
2358	DIN54231	323		0.61	
2363	DIN54231	327		0.66	
2365	DIN54231	335.5		0.76	
2369		-----		-----	
2370	DIN54231	310		0.44	
2374	DIN54231	330.2		0.70	
2375	DIN54231	319.62		0.56	
2380	DIN54231	320.1		0.57	
2386	DIN54231	86.6		-2.39	
2390	DIN54231	372.60		1.24	
2425	DIN54231	301.3		0.33	
2467	DIN54231	218.98		-0.71	
2482		-----		-----	
2489	DIN54231	193.46		-1.04	
2492	In house	295.2		0.25	
2497	DIN54231	1534.21	R(0.01)	15.98	
2511	DIN54231	233.3		-0.53	
2520	DIN54231	-----		-----	
2532	DIN54231	196.9		-0.99	
2549	DIN54231	231.4		-0.56	
2553	DIN54231	165.17		-1.40	
2560	DIN54231	206.3		-0.88	
2561	DIN54231	375.056		1.27	
2563	DIN54231	413		1.75	
2566	In house	155		-1.53	
2567	DIN54231	273.3		-0.03	
2572	DIN54231	318.14		0.54	
2590	DIN54231	429.10		1.95	
2591	DIN54231	116.20		-2.02	
2629	DIN54231	321.3125	C	0.58	First reported 198.42
2643	DIN54231	123.31		-1.93	
2644		-----		-----	
2671	DIN54231	159.98		-1.46	
2737	DIN54231	440.91		2.10	
2749	In house	73.0		-2.57	
2766	DIN54231	101.8		-2.20	
2770	DIN54231	266.24		-0.11	
3118	DIN54231	230.63		-0.57	
3146		-----		-----	

3150	DIN54231	195.95		-1.01
3154	DIN54231	225.39		-0.63
3172	DIN54231	889	R(0.01)	7.79
3176	DIN54231	181.20		-1.19
3179	DIN54231	360.9		1.09
3197	DIN54231	300		0.31
3200	DIN54231	265.6		-0.12
3209	DIN54231	253.3		-0.28
3210	DIN54231	138.01		-1.74
3214	DIN54231	317.58		0.54
3220	DIN54231	90.43		-2.35
3228	DIN54231	256.4		-0.24
3233		371.73		1.22
3237	In house	151.218		-1.57
3246	DIN54231	316		0.52

normality	OK
n	80
outliers	3
mean (n)	275.282
st.dev. (n)	105.9844
R(calc.)	296.756
R(DIN54231:05)	220.600



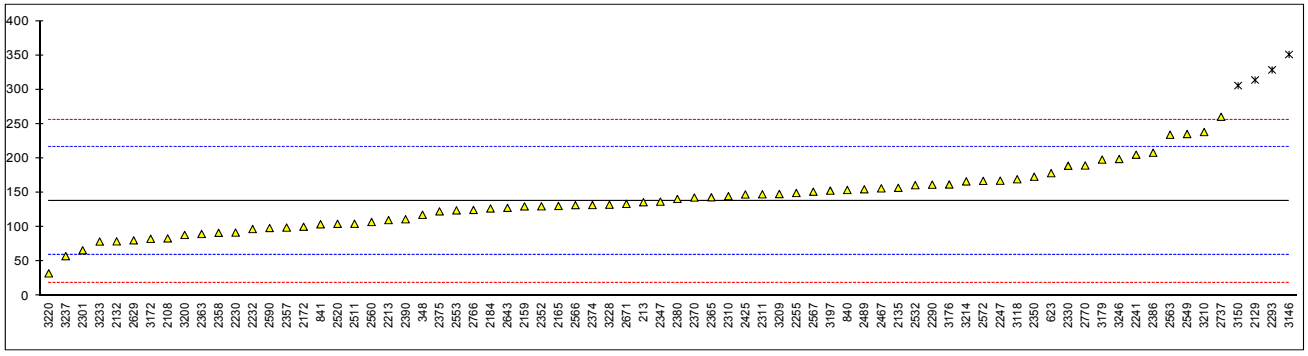


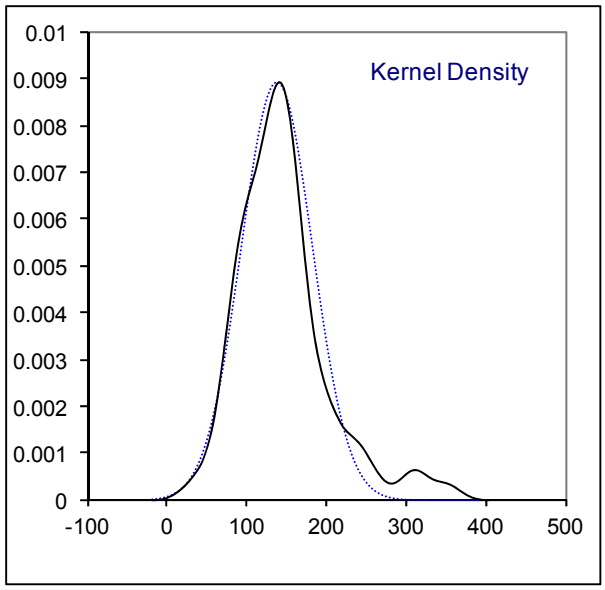
Determination of Direct Black 38 (CASno.1937-37-7) in sample #17526; results in mg/kg

lab	method	value	mark	z(targ)	remarks
213	In house	136.2		-0.05	
348	DIN54231	117.87		-0.51	
362		-----		-----	
551	In house	N.D.		-----	False negative test result?
623		178.445		1.02	
840	DIN54231	154.0		0.41	
841	-----	104.10		-0.86	
2108	DIN54231	83.5		-1.38	
2115		-----		-----	
2129	DIN54231	314	R(0.05)	4.46	
2131		-----		-----	
2132	DIN54231	79.25		-1.49	
2135	DIN54231	157.08		0.48	
2159	In house	130.07		-0.20	
2165	DIN54231	130.8		-0.18	
2172	DIN54231	100.52		-0.95	
2184	DIN54231	127.05		-0.28	
2213	DIN54231	110.2		-0.70	
2230	DIN54231	92		-1.16	
2232	DIN54231	97.15		-1.03	
2241	DIN54231	205.28		1.70	
2247	DIN54231	167.5		0.75	
2255	DIN54231	149.6		0.29	
2265		-----		-----	
2290	DIN54231	161.72		0.60	
2293		328.59	R(0.01)	4.83	
2295		-----		-----	
2301	In house	66.27		-1.82	
2310	DIN54231	145		0.18	
2311	DIN54231	147.7		0.25	
2330	DIN54231	189.24		1.30	
2347	DIN54231	137		-0.03	
2350	DIN54231	173.30		0.89	
2352	DIN54231	130.2		-0.20	
2357	DIN54231	99.3		-0.98	
2358	DIN54231	91.7		-1.17	
2363	DIN54231	90		-1.22	
2365	DIN54231	143.4		0.14	
2369		-----		-----	
2370	DIN54231	143		0.13	
2374	DIN54231	132.1		-0.15	
2375	DIN54231	122.87		-0.38	
2380	DIN54231	140.9		0.07	
2386	DIN54231	208.2		1.78	
2390	DIN54231	111.38		-0.67	
2425	DIN54231	147.5		0.24	
2467	DIN54231	156.32		0.46	
2482		-----		-----	
2489	DIN54231	155		0.43	
2492		-----		-----	
2497		-----		-----	
2511	DIN54231	104.9		-0.84	
2520	DIN54231	104.8		-0.84	
2532	DIN54231	161		0.58	
2549	DIN54231	235.4		2.47	
2553	DIN54231	124.32		-0.35	
2560	DIN54231	107.4		-0.77	
2561		-----		-----	
2563		234	C	2.44	First reported 494
2566	In house	132		-0.15	
2567	DIN54231	151.5		0.34	
2572	DIN54231	167.22		0.74	
2590	DIN54231	98.71		-0.99	
2591		-----		-----	
2629	In house	80.72		-1.45	
2643	DIN54231	128		-0.25	
2644		-----		-----	
2671	DIN54231	133.78		-0.11	
2737	DIN54231	260.48		3.10	
2749		-----		-----	
2766	In house	125.0		-0.33	
2770	DIN54231	189.63		1.31	
3118	DIN54231	169.54		0.80	
3146	DIN54231	351.1	R(0.05)	5.40	

3150	DIN54231	305.82	R(0.05)	4.25	
3154		-----		-----	
3172	DIN54231	83		-1.39	
3176	DIN54231	162		0.61	
3179	DIN54231	198.2		1.52	
3197	DIN54231	153		0.38	
3200		88.6		-1.25	
3209	DIN54231	148.1		0.26	
3210	DIN54231	238.33		2.54	
3214	DIN54231	166.50		0.72	
3220	DIN54231	32.69		-2.67	
3228	DIN54231	132.6		-0.14	
3233		78.96		-1.49	
3237	In house	57.753		-2.03	
3246	DIN54231	199	C	1.54	First reported 651

normality	OK
n	70
outliers	4
mean (n)	138.002
st.dev. (n)	44.6344
R(calc.)	124.976
R(DIN54231:05)	110.589





APPENDIX 2

Summary of other reported allergenic colorants in sample#17525: results in mg/kg

Lab	colorant	Reported test result
2520	Disperse Yellow 3 :	59.7 mg/kg

Summary of other reported carcinogenic colorants in sample#17526: results in mg/kg

Lab	colorant	Reported test result
2770	Direct Blue 6	11.48 mg/kg
3237	Direct Blue 6	21.300 mg/kg
3246	Direct Blue 6	71 mg/kg

Abbreviations of allergenic colorant names as used in appendix 3:

DB1 : Disperse Blue 1
DB3 : Disperse Blue 3
DB7 : Disperse Blue 7
DB26 : Disperse Blue 26
DB35 : Disperse Blue 35
DB35a : Disperse Blue 35a
DB35b : Disperse Blue 35b
DB102 : Disperse Blue 102
DB124 : Disperse Blue 124
DO1 : Disperse Orange 1
DO3 : Disperse Orange 3
DO76 : Disperse Orange 76
DR1 : Disperse Red 1
DR11 : Disperse Red 11
DR17 : Disperse Red 17
DY1 : Disperse Yellow 1
DY3 : Disperse Yellow 3
DY9 : Disperse Yellow 9
DY39 : Disperse Yellow 39
DY49 : Disperse Yellow 49

Abbreviations of carcinogenic colorant names as used in appendix 3:

AR26 : Acid Red 26
BB26 : Basic Blue 26
BG4o : Basic Green 4 (oxalate)
BG4c : Basic Green 4 (chloride)
BG4f : Basic Green 4 (free)
BR9 : Basic Red 9
BV3 : Basic Violet 3
BV14 : Basic Violet 14
DB6 : Direct Blue 6
DR28 : Direct Red 28
DB1 : Disperse Blue 1
DO11 : Disperse Orange 11
DY3 : Disperse Yellow 3

APPENDIX 3

Other reported allergenic Colorants in sample #17525; results in mg/kg

lab	method	DB1	DB3	DB7	DB26	DB35	DB35a	DB35b	DB102	DB124	DO1
213		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
348	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
362		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
551	In house	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
623		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
840	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
841		n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
2108		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2115		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2129		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2131	In house	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2132	DIN54231	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2135		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2159	In house	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2165	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2172		<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2184	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2213	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2230	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2232		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2241		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2247	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2255		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2265		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2290	DIN54231	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
2293		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2295		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2301	In house	0	0	0	0	0	0	0	0	0	0
2310	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2311	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2330	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2347	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2350		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2352	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2357	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2358	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2363	DIN54231	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
2365	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2369		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2370	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2374		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2375		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2380		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2386	DIN54231	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
2390	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2425	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2467		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2482		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2489	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2492		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2497		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2511		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2520		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2532	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2549	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2553	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2560	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2561	DIN54231	ND	ND	ND	ND	ND	-----	-----	-----	ND	ND
2563	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2566	In house	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2567	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2572	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2590	DIN54231	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
2591	DIN54231	<1.0	<1.0	<1.0	<1.0	<1.0	-----	-----	<1.0	<1.0	<1.0
2629		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2643	DIN54231	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
2644		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2671		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2737		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2749	In house	<1.0	<1.0	<1.0	<1.0	<1.0	-----	-----	<1.0	<1.0	<1.0
2766		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

2770	DIN54231	N.D.	N.D.	N.D.	N.D.	N.D.	-----	-----	N.D.	-----	N.D.
3118	DIN54231	nd	nd	nd	nd	nd	-----	-----	nd	nd	nd
3146		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3150	DIN54231	<10	<10	<10	<10	<10	-----	-----	<10	<10	<10
3154		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3172	DIN54231	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
3176		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3179		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3197	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3200		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3209	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
3210	DIN54231	<50	<50	<50	<50	<50	<50	-----	<50	<50	<50
3214	DIN54231	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
3220	DIN54231	ND	ND	ND	ND	ND	-----	-----	ND	ND	ND
3228	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
3233		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3237		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3246	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	normality	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	n	19	19	19	19	19	15	15	18	18	18
	outliers	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	mean (n)	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	st.dev. (n)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	R(calc.)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	R(DIN54231:05)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Other reported allergenic Colorants in sample #17525; results in mg/kg -- continued --

lab	method	DO3	DO76	DR1	DR11	DR17	DY1	DY3	DY9	DY39	DY49
213		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
348	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
362		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
551	In house	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
623		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
840	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
841		n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
2108		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2115		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2129		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2131	In house	nd	1.1268	nd	nd	nd	nd	0.6668	nd	0.3626	nd
2132	DIN54231	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2135		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2159	In house	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2165	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2172		<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2184	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2213	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2230	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2232		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2241		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2247	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2255		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2265		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2290	DIN54231	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
2293		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2295		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2301	In house	0	0	0	0	0	0	0	0	0	0
2310	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2311	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2330	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2347	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2350		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2352	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2357	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2358	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2363	DIN54231	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
2365	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2369		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2370	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2374		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2375		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2380		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2386	DIN54231	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
2390	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2425	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2467		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2482		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2489	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2492		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2497		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2511		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2520	DIN54231	-----	-----	-----	-----	-----	-----	***59.7 f+?***	-----	-----	-----
2532	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2549	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2553	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2560	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2561	DIN54231	-----	ND	ND	ND	ND	-----	ND	ND	-----	ND
2563	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2566	In house	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2567	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2572	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2590	DIN54231	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
2591	DIN54231	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2629		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2643	DIN54231	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
2644		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2671		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2737		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2749	In house	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2766		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2770	DIN54231	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
3118	DIN54231	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
3146		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

3150	DIN54231	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
3154		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3172	DIN54231	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
3176		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3179		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3197	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3200		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3209	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
3210	DIN54231	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
3214	DIN54231	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
3220	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3228	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
3233		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3237		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3246	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	normality	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	n	18	19	18	18	18	18	19	18	19	18
	outliers	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	mean (n)	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	st.dev. (n)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	R(calc.)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	R(DIN54231:05)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Other reported carcinogenic Colorants in sample #17526; results in mg/kg

lab	method	AR26	BB26	BG4o	BG4c	BG4f	BR9	BV3	BV14	DB6	DR28
213		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
348	DIN54231	n.d.	-----	-----	-----	-----	n.d.	n.d.	n.d.	n.d.	n.d.
362		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
551	In house	N.D.	N.D.	-----	-----	-----	N.D.	N.D.	N.D.	N.D.	N.D.
623		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
840	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
841	-----	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
2108		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2115		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2129		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2131		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2132	DIN54231	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2135		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2159	In house	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2165	DIN54231	ND	ND	-----	-----	-----	ND	ND	ND	ND	ND
2172	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2184	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2213	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2230	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2232		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2241		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2247	DIN54231	nd	nd	-----	-----	nd	nd	nd	nd	nd	nd
2255		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2265		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2290	DIN54231	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
2293		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2295		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2301	In house	0	-----	-----	-----	-----	-----	0	0	0	0
2310	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2311	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2330	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2347	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2350		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2352	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2357	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2358	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2363	DIN54231	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
2365	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2369		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2370	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2374		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2375		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2380		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2386	DIN54231	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
2390	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2425	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2467		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2482		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2489	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2492		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2497		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2511		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2520		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2532	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2549	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2553	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2560	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
2561	DIN54231	ND	-----	-----	-----	-----	ND	-----	-----	-----	-----
2563		n.d.	-----	-----	-----	-----	n.d.	-----	n.d.	n.d.	n.d.
2566	In house	ND	ND	-----	-----	-----	ND	ND	ND	ND	ND
2567	DIN54231	<15	--	--	--	--	<15	<15	<15	<15	<15
2572	DIN54231	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
2590	DIN54231	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
2591		-----	-----	-----	-----	-----	<1.0	-----	<1.0	-----	-----
2629		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2643		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2644		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2671		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2737		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2749	In house	<1.0	<1.0	-----	-----	-----	<1.0	<1.0	<1.0	-----	-----
2766		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2770	DIN54231	N.D.	N.D.	-----	N.D.	-----	N.D.	-----	N.D.	***11.48***	N.D.
3118	DIN54231	nd	nd	-----	-----	-----	nd	-----	nd	nd	nd
3146		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

3150	DIN54231	<10	<10	<10	<10	-----	<10	-----	<10	<10	<10
3154		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3172	DIN54231	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
3176		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3179		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3197	DIN54231	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3200		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3209	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
3210	DIN54231	<50	-----	-----	-----	-----	<50	<50	-----	<50	<50
3214	DIN54231	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
3220	DIN54231	ND	-----	-----	-----	-----	ND	-----	ND	ND	ND
3228	DIN54231	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.
3233		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3237	In house	-----	-----	-----	-----	-----	-----	-----	-----	***21.300***	-----
3246	DIN54231	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	***71***	n.d.
	normality	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	n	16	14	13	13	12	16	15	17	16	14
	outliers	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	mean (n)	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15
	st.dev. (n)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	R(calc.)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	R(DIN54231:05)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Other reported carcinogenic Colorants in sample #17526; results in mg/kg -- continued --

lab	method	DB1	DO11	DY3
213		-----	-----	-----
348	DIN54231	n.d.	n.d.	n.d.
362		-----	-----	-----
551	In house	N.D.	N.D.	N.D.
623		-----	-----	-----
840	DIN54231	ND	ND	ND
841	-----	n.d	n.d	n.d
2108		-----	-----	-----
2115		-----	-----	-----
2129		-----	-----	-----
2131	In house	nd	nd	0.6668
2132	DIN54231	<5	<5	<5
2135		-----	-----	-----
2159	In house	<15	<15	<15
2165	DIN54231	ND	ND	ND
2172	DIN54231	<15	<15	<15
2184	DIN54231	Not det.	Not det.	Not det.
2213	DIN54231	<15	<15	<15
2230	DIN54231	<15	<15	<15
2232		-----	-----	-----
2241		-----	-----	-----
2247	DIN54231	nd	nd	nd
2255		-----	-----	-----
2265		-----	-----	-----
2290	DIN54231	< 15	< 15	< 15
2293		-----	-----	-----
2295		-----	-----	-----
2301	In house	0	0	0
2310	DIN54231	Not det.	Not det.	Not det.
2311	DIN54231	Not det.	Not det.	Not det.
2330	DIN54231	ND	ND	ND
2347	DIN54231	<15	<15	<15
2350		-----	-----	-----
2352	DIN54231	ND	ND	ND
2357	DIN54231	n.d.	n.d.	n.d.
2358	DIN54231	<15	<15	<15
2363	DIN54231	N.D.	N.D.	N.D.
2365	DIN54231	<15	<15	<15
2369		-----	-----	-----
2370	DIN54231	n.d.	n.d.	n.d.
2374		-----	-----	-----
2375		-----	-----	-----
2380		-----	-----	-----
2386	DIN54231	< 15	< 15	< 15
2390	DIN54231	ND	ND	ND
2425	DIN54231	ND	ND	ND
2467		-----	-----	-----
2482		-----	-----	-----
2489	DIN54231	ND	ND	ND
2492		-----	-----	-----
2497		-----	-----	-----
2511		-----	-----	-----
2520		-----	-----	-----
2532	DIN54231	Not det.	Not det.	Not det.
2549	DIN54231	ND	ND	ND
2553	DIN54231	ND	ND	ND
2560	DIN54231	Not det.	Not det.	Not det.
2561	DIN54231	ND	ND	ND
2563		-----	-----	-----
2566	In house	ND	ND	ND
2567	DIN54231	<15	<15	<15
2572	DIN54231	<15	<15	<15
2590	DIN54231	<LOQ	<LOQ	<LOQ
2591	DIN54231	<1.0	<1.0	<1.0
2629		-----	-----	-----
2643		-----	-----	-----
2644		-----	-----	-----
2671		-----	-----	-----
2737		-----	-----	-----
2749	In house	<1.0	<1.0	<1.0
2766		-----	-----	-----
2770	DIN54231	N.D.	N.D.	N.D.
3118	DIN54231	nd	nd	nd
3146		-----	-----	-----

3150	DIN54231	<10	<10	<10
3154		-----	-----	-----
3172	DIN54231	< 5	< 5	< 5
3176		-----	-----	-----
3179		-----	-----	-----
3197	DIN54231	ND	ND	ND
3200		-----	-----	-----
3209	DIN54231	Not det.	Not det.	Not det.
3210	DIN54231	<50	<50	<50
3214	DIN54231	N.D	N.D	N.D
3220	DIN54231	ND	ND	ND
3228	DIN54231	Not det.	Not det.	Not det.
3233		-----	-----	-----
3237		-----	-----	-----
3246	DIN54231	n.d.	n.d.	n.d.
	normality	n.a.	n.a.	n.a.
	n	17	17	18
	outliers	n.a.	n.a.	n.a.
	mean (n)	<15	<15	<15
	st.dev. (n)	n.a.	n.a.	n.a.
	R(calc.)	n.a.	n.a.	n.a.
	R(DIN54231:05)	n.a.	n.a.	n.a.

APPENDIX 4

Summary of reported analytical details, Allergenic dyes

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
213	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
348	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
362	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	a. The stock calibration solutions were not checked
551	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
623	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	a. The stock calibration solutions were not checked	c. Stored at cool temperatures (about 4-10°C)	a. The stock calibration solutions were not checked
840	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	---	c. Stored at cool temperatures (about 4-10°C)	---
841	---	---	---	---	---
2108	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	b. Stored at room temperature	c. By measuring the stock solutions
2115	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2129	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	b. Stored at room temperature	c. By measuring the stock solutions
2131	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2132	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2135	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	b. Stored at room temperature	a. The stock calibration solutions were not checked
2159	Yes	a. Powders and the needed stock	c. By measuring the stock calibration	e. Other (Please, mention below)	c. By measuring the stock solutions

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
		calibration solutions were prepared by the lab	solutions		
2165	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2172	---	---	---	---	---
2184	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2213	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2230	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2232	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2241	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2247	Yes	Powders and the needed stock calibration solutions were prepared by the lab	Visually, whether all particles were dissolved	Stock calibration samples were not stored but further diluted to appropriate concentrations and directly used for analysis	Visually, whether all particles were dissolved
2255	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2265	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2290	Yes	---	---	---	---
2293	---	---	---	---	---
2295	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2301	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2310	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2311	Yes	a. Powders and the needed stock	b. Visually, whether all particles were	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
		calibration solutions were prepared by the lab	dissolved		dissolved
2330	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2347	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2350	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2352	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2357	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2358	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2363	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2365	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2369	---	---	---	---	---
2370	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2374	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	d. Other (Please, mention below)	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2375	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2380	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	e. Other (Please, mention below)	c. By measuring the stock solutions
2386	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
2390	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2425	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2467	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2482	---	---	---	---	---
2489	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2492	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	a. The stock calibration solutions were not checked	b. Stored at room temperature	a. The stock calibration solutions were not checked
2497	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2511	No	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	---	d. Stored at very low temperatures (<4°C)	---
2520	---	---	---	---	---
2532	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2549	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2553	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2560	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	d. Other (Please, mention below)
2561	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2563	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	b. Stored at room temperature	c. By measuring the stock solutions

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
2566	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2567	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2572	Yes	---	---	---	---
2590	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2591	No	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2629	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2643	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2644	---	---	---	---	---
2671	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2737	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	Visually check then ultrasonic 1 hour at room temp
2749	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2766	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	b. Stored at room temperature	c. By measuring the stock solutions
2770	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
3118	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3146	Yes	---	---	---	---
3150	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	---	---	---

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
3154	Yes	---	---	---	---
3172	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3176	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3179	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3197	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3200	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3209	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3210	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3214	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
3220	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3228	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3233	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3237	No	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	d. Other (Please, mention below)	c. Stored at cool temperatures (about 4-10°C)	d. Other (Please, mention below)
3246	Yes	---	---	---	---

Summary of reported analytical details, Carcinogenic dyes

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
213	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
348	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
362	---	---	---	---	---
551	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
623	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	a. The stock calibration solutions were not checked	c. Stored at cool temperatures (about 4-10°C)	a. The stock calibration solutions were not checked
840	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	---	c. Stored at cool temperatures (about 4-10°C)	---
841	---	---	---	---	---
2108	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	b. Stored at room temperature	c. By measuring the stock solutions
2115	---	---	---	---	---
2129	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	b. Stored at room temperature	c. By measuring the stock solutions
2131	---	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2132	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2135	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	b. Stored at room temperature	a. The stock calibration solutions were not checked
2159	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	e. Other (Please, mention below)	c. By measuring the stock solutions
2165	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2172	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2184	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2213	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2230	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2232	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2241	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2247	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	Visually, whether all particles were dissolved	Stored at cool temperatures (about 4-10°C)	Visually, whether all particles were dissolved

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
2255	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2265	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2290	Yes	---	---	---	---
2293	---	---	---	---	---
2295	---	---	---	---	---
2301	---	---	---	---	---
2310	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2311	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2330	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2347	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2350	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2352	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2357	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2358	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2363	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2365	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2369	---	---	---	---	---
2370	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2374	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	d. Other (Please, mention below)	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2375	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2380	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	e. Other (Please, mention below)	c. By measuring the stock solutions
2386	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2390	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2425	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
2467	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2482	---	---	---	---	---
2489	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2492	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	a. The stock calibration solutions were not checked	b. Stored at room temperature	a. The stock calibration solutions were not checked
2497	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2511	No	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	---	d. Stored at very low temperatures (<4°C)	---
2520	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2532	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2549	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2553	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2560	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	d. Other (Please, mention below)
2561	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2563	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	b. Stored at room temperature	c. By measuring the stock solutions
2566	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	b. Visually, whether all particles were dissolved
2567	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2572	Yes	---	---	---	---
2590	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
2591	No	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2629	Yes	---	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2643	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
2644	---	---	---	---	---
2671	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
2737	---	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	Visualy check then ultrasonic 1 hour at room temp
2749	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved

lab	1. Is your laboratory accredited?	2. What kind of material was purchased as source for the colorants stock calibration solutions?	3. How were the freshly prepared stock calibration solutions of the colorants checked?	4. How were the stock calibration solutions of the colorants stored?	5. How were the stored stock calibration solutions of the colorants checked before use?
2766	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	b. Stored at room temperature	c. By measuring the stock solutions
2770	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
3118	No	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3146	Yes	---	---	---	---
3150	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	---	---	---
3154	---	---	---	---	---
3172	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3176	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3179	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3197	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3200	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3209	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	d. Stored at very low temperatures (<4°C)	c. By measuring the stock solutions
3210	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3214	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	c. By measuring the stock solutions
3220	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3228	Yes	a. Powders and the needed stock calibration solutions were prepared by the lab	b. Visually, whether all particles were dissolved	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3233	No	a. Powders and the needed stock calibration solutions were prepared by the lab	c. By measuring the stock calibration solutions	c. Stored at cool temperatures (about 4-10°C)	b. Visually, whether all particles were dissolved
3237	Yes	b. Stock calibration solutions which needed to be diluted to the appropriate concentrations	d. Other (Please, mention below)	c. Stored at cool temperatures (about 4-10°C)	d. Other (Please, mention below)
3246	Yes	---	---	---	---

APPENDIX 5

Number of participants per country

4 labs in	BANGLADESH
1 lab in	BRAZIL
1 lab in	BULGARIA
2 labs in	CAMBODIA, Kingdom of
1 lab in	EGYPT
2 labs in	FRANCE
11 labs in	GERMANY
1 lab in	GUATEMALA
4 labs in	HONG KONG
11 labs in	INDIA
3 labs in	INDONESIA
5 labs in	ITALY
2 labs in	KOREA
1 lab in	MOROCCO
15 labs in	P.R. of CHINA
1 lab in	PAKISTAN
1 lab in	ROMANIA
1 lab in	SINGAPORE
2 labs in	SPAIN
1 labs in	SRI LANKA
2 labs in	SWITZERLAND
3 labs in	TAIWAN R.O.C.
1 lab in	TUNESIA
6 labs in	TURKEY
1 lab in	UNITED KINGDOM
6 labs in	VIETNAM

APPENDIX 6

Abbreviations:

C	= final test result after checking of first reported suspect test 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
R(0.01)	= outlier in Rosner's outlier test
R(0.05)	= straggler in Rosner's outlier test
ex	= test result excluded from statistical evaluation
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected

Literature:

1 iis-Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation, March 2017
2 DIN54231:2004
3 DIN54234:2005
4 XP G 08-014:97
5 P.L. Davies, Fr Z. Anal. Chem, 351, 513, (1988)
6 W.J. Conover, Practical; Nonparametric Statistics, J. Wiley&Sons, NY, p.302, (1971)
7 ISO 5725, (1986)
8 ISO 5725, parts 1-6, (1994)
9 ISO 13528:05
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 G. Rohm, J. Bohnen & H. Kruessmann, GIT Labor-Fachzeitschrift, p 1080, 11, (1997)
13 Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, T*echnometrics*, 25(2), 165-172, (1983)
14 Analytical Methods Committee Technical brief, No 4.January 2001
15 P.J. Lowthian and M. Thompson, The Royal Society of Chemistry, Analyst, 127, 1359-1364, (2002)
16 Horwitz, W and Albert, R, J. AOAC Int, 79, 3, 589, (1996)