# Results of Proficiency Test
# AZO dyes in textile
# March 2018


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

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# 1 INTRODUCTION

Since 1997, the Institute for Interlaboratory Studies (iis) organizes a proficiency test for banned AZO dyes in textile. During the annual proficiency testing program 2017/2018, it was decided to continue the proficiency test for the analysis of banned AZO dyes in textile. In this interlaboratory study, 173 laboratories in 34 different countries registered for participation. See appendix 4 for the number of participants per country. In this report, the results of the 2018 proficiency test 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 organizer 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 in this proficiency test two different textile samples. Sample #18520 a cotton sample was dyed with different AZO dyes. Sample #18521 a polyester sample was dyed with an AZO dye that may release 4-Aminoazobenzene, especially to be tested according ISO14362-3.
The participants were requested 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 proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organization, Statistics and Evaluation' of March 2017 (iis-protocol, version 3.4). This protocol can be downloaded from 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 textile samples were used in this proficiency test.

The first sample, a purple cotton was used in a previous proficiency test on AZO dyes (iis16A01, sample #16515). In iis16A01 the homogeneity of this batch was demonstrated sufficienctly. From this batch, 200 samples of approximately 3 grams with small pieces of cotton, were prepared and labelled #18520.

The second batch, a salmon polyester textile (sample #18521) was dyed with a AZO dye specially to detect 4-Aminoazobenzene. From the batch, 200 samples of approximately 3 grams with small pieces of polyester, were prepared and labelled #18521.
The homogeneity of the subsamples of #18521 was checked by determination of 4-Aminoazobenzene on eigth stratified randomly selected subsamples. See the following table for the test results.

| | *4-Aminoazobenzene in mg/kg* |
|---|---|
| sample #18521-1 | 146.5 |
| sample #18521-2 | 133.8 |
| sample #18521-3 | 149.6 |
| sample #18521-4 | 141.7 |
| sample #18521-5 | 139.2 |
| sample #18521-6 | 130.3 |
| sample #18521-7 | 147.4 |
| sample #18521-8 | 134.1 |

Table 1: homogeneity test results of subsamples #18521

From the above test results the repeatability was calculated and compared with 0.3 times the reproducibility of the reference test method in agreement with the procedure of ISO13528, Annex B2, in the next table:

| | *4-Aminoazobenzene in mg/kg* |
|---|---|
| r (observed) | 20.1 |
| reference test method | ISO14362-3:2012 |
| 0.3 * R (ref. test method) | 32.15 |

Table 2: evaluation of the repeatability of subsamples #18521

The calculated repeatability of samples #18521 is in agreement with 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples #18521 was assumed.

To each of the participating laboratories was sent 1 sample labelled #18520 and 1 sample labelled #18521 on March 7, 2018.

## 2.5 ANALYSES

The participants were requested to determine the concentrations of 23 forbidden aromatic amines and *o*-anisidine, applying the analysis procedure that is routinely used in the laboratory. Also, some analytical details were requested to be reported. Furthermore, the participants were instructed not to analyse for 4-Aminoazobenzene in sample #18520 as the sample amount was small (3.0 g) and the sample will not release 4-Aminoazobenzene.
On sample #18521 was requested to determine only 4-Aminoazobenzene.

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. On the report form the reporting units are given as well as the reference test methods that will be used during the evaluation. 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 visualize 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 general, when no literature reproducibility is available, another target may be used, like Horwitz or an estimated reproducibility based on former iis proficiency tests.

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:

| | | |
|---|---|---|
| | \|z\| < 1 | good |
| 1 < | \|z\| < 2 | satisfactory |
| 2 < | \|z\| < 3 | questionable |
| 3 < | \|z\| | unsatisfactory |

# 4 EVALUATION

During the execution of this proficiency test some reporting problems occurred with the delivery of the samples.
It was therefore decided to extend the closing date of the portal two weeks to provide these participants extra time to report the test results on the data entry portal. Finally, one participant reported the test results after the deadline and two participants did not report any test results. The 171 participants reported 496 numerical test results. Observed were 3 outlying test results, which is 0.6% of the numerical test results. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

For the determination of Aromatic Amines derived from AZO colorants the ISO14362 method is considered to be the official test method. Two versions of ISO14362 were published in 2017. Part 1 of ISO14362 describes a method to detect the use of certain azo colorants that are banned. Part 3 of ISO14362 describes a method to detect AZO colorants that are able to form 4-aminoazobenzene.
Regretfully, not for all listed Aromatic Amines precision data is available in ISO14362-1. Fortunately, for the components 3,3'-Dimethoxybenzidine and Benzidine, which are present in this PT a precision statement is mentioned.

In Part 3 of ISO14362 a precision statement for 4-Aminoazobenzene is mentioned.

Not all original data sets proved to have a normal Gaussian distribution. These are referred to as "not OK" or "suspect". The statistical evaluation of these data sets should be used with due care, see also paragraph 3.1.

## 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 are summarised in appendix 2.

**Textile sample #18520:**

Benzidine (CASno. 92-87-5): The determination of this aromatic amine at a concentration level of 97 mg/kg was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the reproducibility requirement estimated from the test method ISO14362-1:2017.

3,3'-Dimethoxybenzidine (CASno. 119-90-4): The determination of this aromatic amine at a concentration level of 101 mg/kg was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the reproducibility requirement estimated from the test method ISO14362-1:2017.

**Textile sample #18521:**

4-Aminoazobenzene (CASno. 60-09-3): The determination of this aromatic amine at a concentration level of 107 mg/kg was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the reproducibility requirement estimated from the test method ISO14362-3:2017. Three laboratories reported “not detected” or “<5”.

### 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 ISO14362-1 and ISO14362-3 are compared in the next two tables.

| *Component* | *unit* | *n* | *average* | *2.8 * sd* | R(lit) |
|---|---|---|---|---|---|
| Benzidine | mg/kg | 165 | 97.4 | 32.8 | 37.7 |
| 3,3’-Dimethoxybenzidine | mg/kg | 165 | 100.9 | 33.3 | 35.4 |

Table 3: reproducibilities of the aromatic amines in textile sample #18520

| *Component* | *unit* | *n* | *average* | *2.8 * sd* | R(lit) |
|---|---|---|---|---|---|
| 4-Aminoazobenzene | mg/kg | 163 | 106.6 | 90.9 | 81.4 |

Table 4: reproducibility of the aromatic amine in textile sample #18521

Without further statistical calculations, it can be concluded that the group of participating laboratories has no difficulties with the analyses at the investigated concentration levels, for the aromatic amines found. See also the discussion in paragraphs 4.1 and 5.

### 4.3 COMPARISON WITH PREVIOUS INTERLABORATORY STUDIES

The variations over the reported test results of Benzidine and 3,3’-Dimethoxybenzidine in this proficiency test are improved compared to the variations as observed in previous PTs and are in agreement with the target reproducibilities estimated from the reference test method ISO14362-1:2017, see Annex B.
The variation over the reported test results of 4-Aminoazobenzene in this proficiency test is almost in line with the variations as observed in previous PTs for other parameters and is almost in agreement with the target reproducibility estimated from the reference test method ISO14362-3:2017, see Annex C.

| *Parameter* | *March 2018* | *Feb. 2017* | *Feb. 2016* | *March 2015* | *April 2014* | *2004 - 2013 PTs* | *target* |
|---|---|---|---|---|---|---|---|
| 4-Aminodiphenyl | n.e. | n.e. | n.e. | n.e. | (21%)* | 18-36% | 28% |
| Benzidine | 12% | n.e. | 17-18% | 20% | 15% | 18-35% | 14% |
| 4-Chloro-o-toluidine | n.e. | n.e. | n.e. | n.e. | 24% | n.e. | 16% |
| 2-Naphtylamine | n.e. | n.e. | n.e. | n.e. | n.e. | 27-41% | 18% |
| *o*-Aminoazotoluene | n.e. | n.e. | n.e. | (48%)* | n.e. | n.e. | 28% |
| 4-Chloroaniline | n.e. | n.e. | n.e. | n.e. | n.e. | 27% | 16% |
| 2,4-Diaminoanisol | n.e. | n.e. | n.e. | n.e. | n.e. | 24-52% | 16% |
| 4,4'-Diaminodiphenylmethane | n.e. | n.e. | n.e. | n.e. | 21% | 21% | 15% |
| 3,3'-Dimethoxybenzidine | 12% | 17% | 16% | n.e. | 21% | 16-31% | 13% |
| 3,3'-Dimethylbenzidine | n.e. | 36% | n.e. | 15% | n.e. | 17-32% | 18% |
| 4,4'-Diamino-3,3'-dichlorodiphenylmethane | n.e. | n.e. | n.e. | n.e. | n.e. | 20-35% | 16% |
| 4,4'-Diaminodiphenylether | n.e. | n.e. | n.e. | n.e. | n.e. | 15% | 16% |
| 4,4'-Diaminodiphenylsulfide | n.e. | n.e. | n.e. | n.e. | n.e. | 18-26% | 16% |
| 4,4'-Methyl-bis(2-chloro-aniline) | n.e. | n.e. | n.e. | n.e. | n.e. | 43% | 22% |
| *o*-Toluidine | n.e. | n.e. | n.e. | (70%)* | 31% | 19-38% | 22% |
| Sum of *o*-aminoazotoluene and *o*-Toluidine | n.e. | n.e. | n.e. | 34% | n.e. | n.e. | 36% |
| 2,4-Xylidine | n.e. | 19% | n.e. | n.e. | n.e. | n.e. | 16% |
| 4-Aminoazobenzene | 30% | n.e. | n.e. | n.e. | n.e. | n.e. | 27% |

Table 5: long term development of uncertainties of aromatic amines in textile samples

*) Concentration of this component was near or below detection limit or otherwise arbitrary

Aromatic amines not mentioned in table 7 are not determined in a PT of iis yet.

From the above table, it is clear that the quality for the detected banned dyes is still improving of the last years.

### 4.4 EVALUATION ANALYTICAL DETAILS

For this PT, only two questions were requested: Is your laboratory accredited in accordance with ISO/IEC17025? One hundred and thirty-one of the registered participants mentioned that they are accredited for determination of banned AZO-dyes in textile. Twenty-one participants mentioned that the laboratory is not accredited for the determination of aromatic amines in textiles.

The second question: Did you use the diatomaceous earth column as prescribed in ISO14362-1. The majority of the participants (107) reported to have used this column. Thirty-two particiapnts did not use this column and fifteen participants reported to have used a different column. No effect was observed on the averages or variation between reported test results.

## 5 DISCUSSION

In the 2017 proficiency test it became clear that the group of participants was able to meet almost the precision criteria of the test method. Therefore, it was decided to request only one analytical detail in the 2018 PT. For sample #18520 the group of participants in the 2018 PT proved that is was justified as the reproducibilities of the group meet the precision data of the test method ISO14362-1.
Sample #18521 contained the Aromatic Amine: 4-Aminoazobenzene. The group of reporting participants almost met the precision data of ISO14362-3. This is remarkable as this component was requested for the first time.

Sample #18520 was used in a previous proficiency test (iis16A01, sample #16515). It is concluded that the samples textile containing AZO-dyes are stable for at least two years.

| | unit | #18520 | | | #16515 | | |
|---|---|---|---|---|---|---|---|
| | | n | mean | R(calc) | n | mean | R(calc) |
| Benzidine | mg/kg | 165 | 97.4 | 32.8 | 153 | 96.6 | 45.2 |
| 3,3'-Dimethoxybenzidine | mg/kg | 165 | 100.9 | 33.3 | 152 | 97.8 | 43.4 |

Table 6: comparison of sample #18520 with #16515

## 6 CONCLUSION

Although, it can be concluded that the majority of the participants has no problem with the determination of Benzidine and 3,3'-Dimethoxybenzidine in the sample of this PT, each participating laboratory will have to evaluate its performance in this study and decide about any corrective actions if necessary.
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

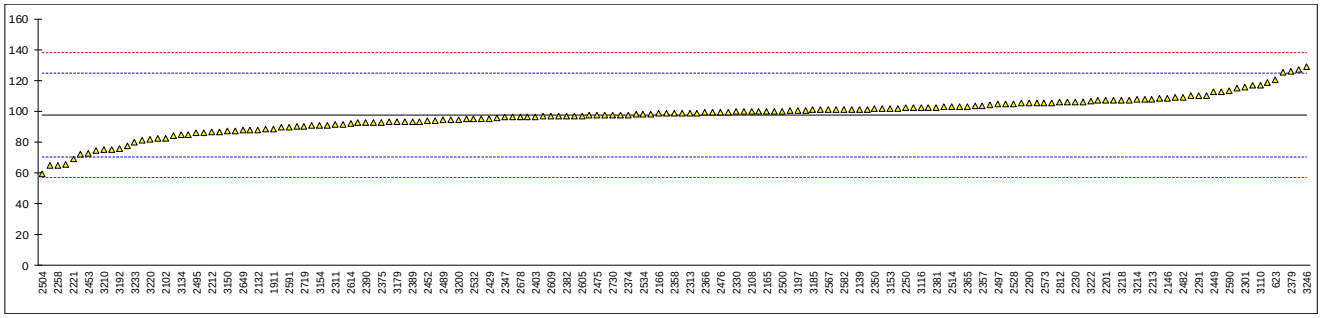
Determination of Benzidine (CASno. 92-87-5) in sample #18520; results in mg/kg

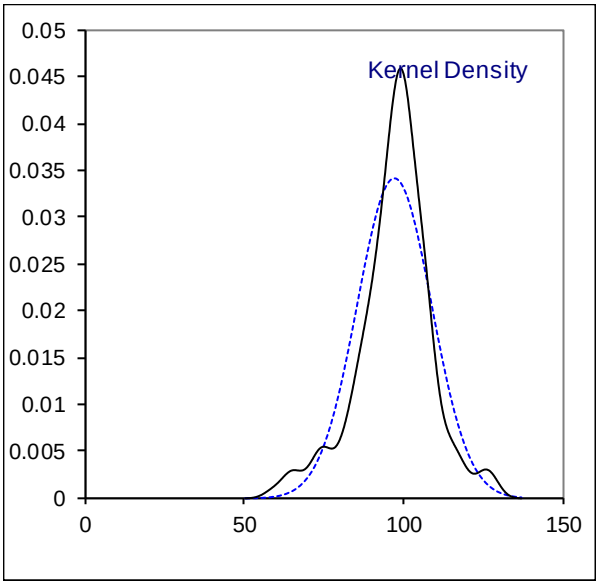
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 213 | ISO14362-1 | 87.67 | | -0.72 | 2382 | EN14362-1 | 97.0 | | -0.03 |
| 230 | EN14362-1 | 75.35 | C | -1.64 | 2386 | ISO14362-1 | 99.5 | | 0.15 |
| 348 | In house | 90.93 | | -0.48 | 2389 | ISO14362-1 | 93.20 | | -0.31 |
| 362 | | ----- | | ----- | 2390 | ISO14362-1 | 92.315 | | -0.38 |
| 551 | EN14362-1 | 127.30 | | 2.22 | 2403 | ISO14362-1 | 96.46 | | -0.07 |
| 623 | ISO14362-1 | 120.33 | | 1.70 | 2410 | ISO14362-1 | 105.27 | | 0.58 |
| 840 | ISO14362-1 | 110.0 | | 0.93 | 2426 | ISO14362-1 | 104.70 | | 0.54 |
| 841 | ISO14362-1 | 92.41 | | -0.37 | 2429 | EN14362-1 | 95.2 | | -0.17 |
| 1099 | | ----- | | ----- | 2432 | ISO14362-1 | 96.96 | | -0.03 |
| 1911 | EN14362-1 | 88.64 | | -0.65 | 2439 | ISO14362-1 | 77.3 | | -1.49 |
| 2102 | EN14362-1 | 82.57 | | -1.10 | 2442 | In house | 72.01 | | -1.89 |
| 2108 | EN14362-1 | 99.64 | | 0.16 | 2449 | EN14362-1 | 112.4 | | 1.11 |
| 2115 | ISO14362-1 | 95.81 | | -0.12 | 2452 | ISO14362-1 | 93.6875 | | -0.28 |
| 2117 | ISO14362-1 | 84.15 | | -0.99 | 2453 | ISO14362-1 | 72.89 | | -1.82 |
| 2121 | | ----- | | ----- | 2456 | ISO14362-1 | 98.8 | | 0.10 |
| 2129 | EN14362-1 | 106.0 | | 0.64 | 2459 | EN14362-1 | 101.355 | | 0.29 |
| 2132 | EN14362-1 | 87.8789 | | -0.71 | 2472 | EN14362-1 | 102.0 | | 0.34 |
| 2135 | | 87.13 | | -0.76 | 2475 | EN14362-1 | 97.35 | | -0.01 |
| 2139 | EN14362-1 | 101.22 | | 0.28 | 2476 | EN14362-1 | 99.24 | | 0.13 |
| 2146 | EN14362-1 | 108.42 | | 0.82 | 2482 | EN14362-1 | 108.9 | | 0.85 |
| 2165 | EN14362-1 | 100 | | 0.19 | 2485 | ISO14362-1 | 93.3 | | -0.31 |
| 2166 | EN14362-1 | 98.38 | | 0.07 | 2489 | EN14362-1 | 94.2 | | -0.24 |
| 2170 | EN14362-1 | 98.50 | | 0.08 | 2492 | EN14362-1 | 96.1 | | -0.10 |
| 2181 | ISO14362-1 | 81.30 | | -1.20 | 2495 | ISO14362-1 | 86.03 | | -0.85 |
| 2184 | EN14362-1 | 105 | | 0.56 | 2497 | | 104.46 | | 0.52 |
| 2201 | EN14362-1 | 107.08 | | 0.72 | 2500 | EN14362-1 | 100.11 | | 0.20 |
| 2212 | ISO14362-1 | 86.4 | | -0.82 | 2504 | ISO14362-1 | 59.37 | | -2.83 |
| 2213 | EN14362-1 | 108 | | 0.79 | 2511 | ISO14362-1 | 107.877 | | 0.78 |
| 2221 | | 69.0 | | -2.11 | 2514 | EN14362-1 | 102.80 | | 0.40 |
| 2228 | EN14362-1 | 98.20 | C | 0.06 | 2528 | EN14362-1 | 104.83 | | 0.55 |
| 2230 | EN14362-1 | 106 | | 0.64 | 2532 | EN14362-1 | 94.9 | | -0.19 |
| 2232 | EN14362-1 | 64.51 | | -2.44 | 2534 | EN14362-1 | 98 | | 0.04 |
| 2238 | ISO14362-1 | 98.86 | | 0.11 | 2538 | EN14362-1 | 97.43 | | 0.00 |
| 2247 | EN14362-1 | 101.81 | | 0.33 | 2549 | ISO14362-1 | 106.9 | | 0.70 |
| 2250 | ISO14362-1 | 102 | | 0.34 | 2565 | EN14362-1 | 106 | | 0.64 |
| 2255 | EN14362-1 | 101.7 | | 0.32 | 2566 | ISO14362-1 | 97.8 | | 0.03 |
| 2256 | ISO14362-1 | 108.3 | | 0.81 | 2567 | EN14362-1 | 101 | | 0.27 |
| 2258 | EN14362-1 | 64.5906 | | -2.44 | 2572 | ISO14362-1 | 101.1 | | 0.27 |
| 2265 | EN14362-1 | 89.4 | | -0.60 | 2573 | EN14362-1 | 105.32 | | 0.59 |
| 2266 | EN14362-1 | 85.0 | | -0.92 | 2582 | EN14362-1 | 101.15 | | 0.28 |
| 2271 | EN14362-1 | 101.2 | | 0.28 | 2590 | ISO14362-1 | 113.172 | | 1.17 |
| 2284 | ISO14362-1 | 101.0 | | 0.27 | 2591 | EN14362-1 | 89.84 | | -0.56 |
| 2286 | EN14362-1 | 90.73 | | -0.50 | 2602 | EN14362-1 | 94.78 | | -0.20 |
| 2287 | | 103.35 | | 0.44 | 2605 | ISO14362-1 | 97.01 | | -0.03 |
| 2289 | ISO14362-1 | 94.0 | | -0.25 | 2609 | EN14362-1 | 96.8 | | -0.05 |
| 2290 | ISO14362-1 | 105.2 | | 0.58 | 2614 | EN14362-1 | 91.8 | | -0.42 |
| 2291 | ISO14362-1 | 110 | | 0.93 | 2638 | EN14362-1 | 74.342 | C | -1.71 |
| 2293 | EN14362-1 | 125.24 | | 2.07 | 2643 | | 102.62 | | 0.39 |
| 2297 | EN14362-1 | 99.21 | | 0.13 | 2644 | ISO14362-1 | 94.41 | | -0.22 |
| 2300 | EN14362-1 | 91.39 | | -0.45 | 2649 | ISO14362-1 | 87.66 | | -0.73 |
| 2301 | ISO14362-1 | 115.30 | | 1.33 | 2668 | EN14362-1 | 114.74 | | 1.29 |
| 2310 | ISO14362-1 | 92.31 | | -0.38 | 2674 | ISO14362-1 | 104 | | 0.49 |
| 2311 | ISO14362-1 | 91.13 | | -0.47 | 2678 | ISO14362-1 | 96.15 | | -0.09 |
| 2313 | EN14362-1 | 98.82 | | 0.10 | 2706 | | ----- | | ----- |
| 2314 | EN14362-1 | 88.45 | | -0.67 | 2713 | ISO14362-1 | 65.7 | C | -2.36 |
| 2330 | EN14362-1 | 99.59 | | 0.16 | 2719 | EN14362-1 | 90.4 | | -0.52 |
| 2347 | ISO14362-1 | 96 | | -0.11 | 2730 | EN14362-1 | 97.58 | | 0.01 |
| 2350 | ISO14362-1 | 101.58 | | 0.31 | 2741 | EN14362-1 | 97.26 | | -0.01 |
| 2352 | ISO14362-1 | 100.2 | | 0.21 | 2773 | EN14362-1 | 86.1 | | -0.84 |
| 2357 | ISO14362-1 | 103.6 | | 0.46 | 2793 | ISO14362-1 | 118.570 | | 1.57 |
| 2358 | ISO14362-1 | 98.59049 | | 0.09 | 2804 | ISO14362-1 | 99.62 | | 0.16 |
| 2364 | ISO14362-1 | 99.94 | | 0.19 | 2805 | ISO14362-1 | 96.24 | | -0.09 |
| 2365 | ISO14362-1 | 103.16 | | 0.43 | 2809 | EN14362-1 | 93.08 | | -0.32 |
| 2366 | ISO14362-1 | 99.0 | | 0.12 | 2812 | ISO14362-1 | 105.83 | | 0.62 |
| 2367 | ISO14362-1 | 105.53 | | 0.60 | 2823 | | ----- | | ----- |
| 2369 | ISO14362-1 | 95 | | -0.18 | 2829 | | ----- | | ----- |
| 2370 | ISO14362-1 | 108.8 | | 0.84 | 3110 | EN14362-1 | 117 | | 1.45 |
| 2372 | EN14362-1 | 107.1 | | 0.72 | 3116 | EN14362-1 | 102 | | 0.34 |
| 2373 | | ----- | | ----- | 3118 | ISO14362-1 | 107.33 | | 0.74 |
| 2374 | ISO14362-1 | 97.7 | | 0.02 | 3122 | | 97 | C | -0.03 |
| 2375 | ISO14362-1 | 92.73 | | -0.35 | 3134 | EN14362-1 | 84.76 | C | -0.94 |
| 2378 | ISO14362-1 | 100.22 | | 0.21 | 3146 | ISO14362-1 | 90.0 | | -0.55 |
| 2379 | ISO14362-1 | 125.55 | | 2.09 | 3150 | | 87.0 | | -0.77 |
| 2380 | ISO14362-1 | 86.5 | | -0.81 | 3153 | EN14362-1 | 101.8 | | 0.32 |
| 2381 | ISO14362-1 | 102.08 | | 0.35 | 3154 | EN14362-1 | 90.899 | | -0.48 |

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 3172 | ISO14362-1 | 112.81 | | 1.14 | 3214 | EN14362-1 | 107.78 | | 0.77 |
| 3176 | ISO14362-1 | 102.86 | | 0.40 | 3216 | | ----- | | ----- |
| 3179 | ISO14362-1 | 93.00 | | -0.33 | 3218 | EN14362-1 | 107.23 | | 0.73 |
| 3182 | ISO14362-1 | 116.74 | | 1.43 | 3220 | EN14362-1 | 81.89 | | -1.15 |
| 3185 | EN14362-1 | 100.8 | | 0.25 | 3222 | EN14362-1 | 106.61 | | 0.68 |
| 3190 | EN14362-1 | 109.83 | | 0.92 | 3225 | EN14362-1 | 92.98 | | -0.33 |
| 3191 | EN14362-1 | 96.57 | | -0.06 | 3228 | EN14362-1 | 100 | | 0.19 |
| 3192 | EN14362-1 | 75.4 | | -1.64 | 3233 | EN14362-1 | 80.00 | | -1.29 |
| 3197 | EN14362-1 | 100.2 | | 0.21 | 3237 | EN14362-1 | 82.2 | | -1.13 |
| 3200 | ISO14362-1 | 94.7 | | -0.20 | 3246 | EN14362-1 | 128.61 | | 2.32 |
| 3209 | EN14362-1 | 97.62 | | 0.01 | 3248 | EN14362-1 | 102 | | 0.34 |
| 3210 | In house | 74.91 | | -1.67 | | | | | |

| | |
|---|---|
| normality | suspect |
| n | 165 |
| outliers | 0 |
| mean (n) | 97.425 |
| st.dev. (n) | 11.6980 |
| R(calc.) | 32.755 |
| st.dev.(ISO14362-1:17) | 13.4655 |
| R(ISO14362-1:17) | 37.703 |

Lab 230: first reported 50.18
Lab 2228; first reported 53.6
Lab 2638: first reported 40.88
Lab 2713: first reported 57.07
Lab 3122: first reported 48
Lab 3134: first reported 42.38



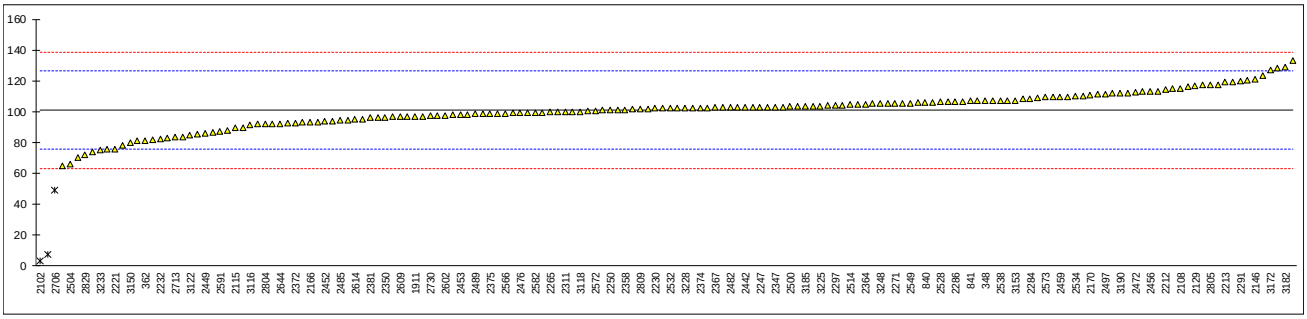
Determination of 3,3'-Dimethoxybenzidine (CASno.119-90-4) in sample #18520; results in mg/kg

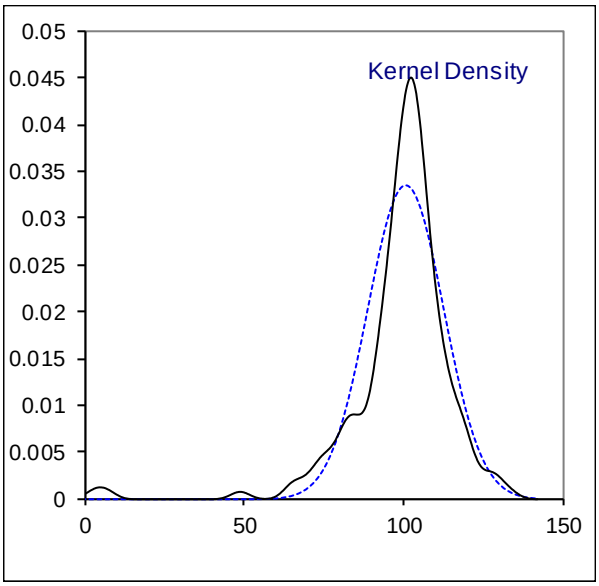
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 213 | ISO14362-1 | 128.02 | | 2.15 | 2382 | EN14362-1 | 93.0 | | -0.62 |
| 230 | EN14362-1 | 73.85 | C | -2.14 | 2386 | ISO14362-1 | 75.8 | | -1.98 |
| 348 | In house | 106.89 | | 0.48 | 2389 | ISO14362-1 | 92.31 | | -0.68 |
| 362 | EN14362-1 | 81.2 | | -1.56 | 2390 | ISO14362-1 | 94.975 | | -0.47 |
| 551 | EN14362-1 | 111.7718 | | 0.86 | 2403 | ISO14362-1 | 101.05 | | 0.01 |
| 623 | ISO14362-1 | 108.68 | | 0.62 | 2410 | ISO14362-1 | 101.37 | | 0.04 |
| 840 | ISO14362-1 | 106.0 | | 0.41 | 2426 | ISO14362-1 | 116.22 | | 1.21 |
| 841 | ISO14362-1 | 106.86 | | 0.47 | 2429 | EN14362-1 | 103.5 | | 0.21 |
| 1099 | | ----- | | ----- | 2432 | ISO14362-1 | 109.65 | | 0.69 |
| 1911 | EN14362-1 | 96.82 | | -0.32 | 2439 | ISO14362-1 | 96.1 | | -0.38 |
| 2102 | EN14362-1 | 3.21 | R(0.01) | -7.72 | 2442 | In house | 102.97 | | 0.17 |
| 2108 | EN14362-1 | 115.22 | | 1.14 | 2449 | EN14362-1 | 85.67 | | -1.20 |
| 2115 | ISO14362-1 | 89.44 | | -0.90 | 2452 | ISO14362-1 | 94.003 | | -0.54 |
| 2117 | ISO14362-1 | 85.35 | | -1.23 | 2453 | ISO14362-1 | 98.30 | | -0.20 |
| 2121 | | ----- | | ----- | 2456 | ISO14362-1 | 112.9 | | 0.95 |
| 2129 | EN14362-1 | 116.8 | | 1.26 | 2459 | EN14362-1 | 109.460 | | 0.68 |
| 2132 | EN14362-1 | 110.4049 | | 0.75 | 2472 | EN14362-1 | 112.7 | | 0.94 |
| 2135 | | 96.56 | | -0.34 | 2475 | EN14362-1 | 103.12 | | 0.18 |
| 2139 | EN14362-1 | 106.87 | | 0.47 | 2476 | EN14362-1 | 99.02 | | -0.15 |
| 2146 | EN14362-1 | 120.86 | | 1.58 | 2482 | EN14362-1 | 102.8 | | 0.15 |
| 2165 | EN14362-1 | 103 | | 0.17 | 2485 | ISO14362-1 | 94.2 | | -0.53 |
| 2166 | EN14362-1 | 93.03 | | -0.62 | 2489 | EN14362-1 | 98.5 | | -0.19 |
| 2170 | EN14362-1 | 110.48 | | 0.76 | 2492 | EN14362-1 | 89.5 | | -0.90 |
| 2181 | ISO14362-1 | 86.73 | | -1.12 | 2495 | ISO14362-1 | 97.13 | | -0.30 |
| 2184 | EN14362-1 | 99 | | -0.15 | 2497 | | 111.38 | | 0.83 |
| 2201 | EN14362-1 | 111.26 | | 0.82 | 2500 | EN14362-1 | 103.21 | | 0.19 |
| 2212 | ISO14362-1 | 114.2 | | 1.05 | 2504 | ISO14362-1 | 66.30 | | -2.73 |
| 2213 | EN14362-1 | 119 | | 1.43 | 2511 | ISO14362-1 | 111.822 | | 0.87 |
| 2221 | | 75.8 | | -1.98 | 2514 | EN14362-1 | 104.53 | | 0.29 |
| 2228 | EN14362-1 | 65.00 | C | -2.84 | 2528 | EN14362-1 | 106.66 | | 0.46 |
| 2230 | EN14362-1 | 102 | | 0.09 | 2532 | EN14362-1 | 102 | | 0.09 |
| 2232 | EN14362-1 | 82.18 | | -1.48 | 2534 | EN14362-1 | 110 | | 0.72 |
| 2238 | ISO14362-1 | 99.06 | | -0.14 | 2538 | EN14362-1 | 107.21 | | 0.50 |
| 2247 | EN14362-1 | 103.00 | | 0.17 | 2549 | ISO14362-1 | 105.4 | | 0.36 |
| 2250 | ISO14362-1 | 101 | | 0.01 | 2565 | EN14362-1 | 119.5 | | 1.47 |
| 2255 | EN14362-1 | 99.5 | | -0.11 | 2566 | ISO14362-1 | 98.9 | | -0.16 |
| 2256 | ISO14362-1 | 81.7 | | -1.52 | 2567 | EN14362-1 | 106.76 | | 0.47 |
| 2258 | EN14362-1 | 82.7778 | | -1.43 | 2572 | ISO14362-1 | 100.3 | | -0.04 |
| 2265 | EN14362-1 | 99.6 | | -0.10 | 2573 | EN14362-1 | 109.23 | | 0.66 |
| 2266 | EN14362-1 | 96.8 | | -0.32 | 2582 | EN14362-1 | 99.25 | | -0.13 |
| 2271 | EN14362-1 | 105.3 | | 0.35 | 2590 | ISO14362-1 | 93.384 | | -0.59 |
| 2284 | ISO14362-1 | 108.2 | | 0.58 | 2591 | EN14362-1 | 86.96 | | -1.10 |
| 2286 | EN14362-1 | 106.76 | | 0.47 | 2602 | EN14362-1 | 97.74 | | -0.25 |
| 2287 | | 107.28 | | 0.51 | 2605 | ISO14362-1 | 100.28 | | -0.05 |
| 2289 | ISO14362-1 | 100.8 | | -0.01 | 2609 | EN14362-1 | 96.7 | | -0.33 |
| 2290 | ISO14362-1 | 104.2 | | 0.26 | 2614 | EN14362-1 | 94.8 | | -0.48 |
| 2291 | ISO14362-1 | 120 | | 1.51 | 2638 | EN14362-1 | 92.076 | C | -0.70 |
| 2293 | EN14362-1 | 123.73 | | 1.81 | 2643 | | 106.08 | | 0.41 |
| 2297 | EN14362-1 | 104.3 | | 0.27 | 2644 | ISO14362-1 | 92.16 | | -0.69 |
| 2300 | EN14362-1 | 70.01 | | -2.44 | 2649 | ISO14362-1 | 102.72 | | 0.15 |
| 2301 | ISO14362-1 | 87.77 | | -1.04 | 2668 | EN14362-1 | 108.04 | | 0.57 |
| 2310 | ISO14362-1 | 102.26 | | 0.11 | 2674 | ISO14362-1 | 102 | | 0.09 |
| 2311 | ISO14362-1 | 99.68 | | -0.09 | 2678 | ISO14362-1 | 99.75 | | -0.09 |
| 2313 | EN14362-1 | 109.4 | | 0.67 | 2706 | In house | 49.0 | C,R(0.01) | -4.10 |
| 2314 | EN14362-1 | 98.76 | | -0.17 | 2713 | ISO14362-1 | 83.50 | | -1.37 |
| 2330 | EN14362-1 | 105.87 | | 0.40 | 2719 | EN14362-1 | 94.1 | | -0.54 |
| 2347 | ISO14362-1 | 103 | | 0.17 | 2730 | EN14362-1 | 97.14 | | -0.29 |
| 2350 | ISO14362-1 | 96.42 | | -0.35 | 2741 | EN14362-1 | 98.31 | | -0.20 |
| 2352 | ISO14362-1 | 107.1 | | 0.49 | 2773 | EN14362-1 | 97.4 | | -0.27 |
| 2357 | ISO14362-1 | 105.0 | | 0.33 | 2793 | ISO14362-1 | 104.59 | C | 0.29 |
| 2358 | ISO14362-1 | 101.33746 | | 0.04 | 2804 | ISO14362-1 | 92.04 | | -0.70 |
| 2364 | ISO14362-1 | 104.86 | | 0.32 | 2805 | ISO14362-1 | 117.42 | | 1.31 |
| 2365 | ISO14362-1 | 105.25 | | 0.35 | 2809 | EN14362-1 | 101.72 | | 0.07 |
| 2366 | ISO14362-1 | 102.0 | | 0.09 | 2812 | ISO14362-1 | 103.62 | | 0.22 |
| 2367 | ISO14362-1 | 102.66 | | 0.14 | 2823 | | ----- | | ----- |
| 2369 | ISO14362-1 | 103 | | 0.17 | 2829 | EN14362-1 | 72.04 | | -2.28 |
| 2370 | ISO14362-1 | 98.52 | | -0.19 | 3110 | EN14362-1 | 81 | | -1.57 |
| 2372 | EN14362-1 | 92.878 | | -0.63 | 3116 | EN14362-1 | 91.6 | | -0.73 |
| 2373 | | ----- | | ----- | 3118 | ISO14362-1 | 99.96 | | -0.07 |
| 2374 | ISO14362-1 | 102.4 | | 0.12 | 3122 | | 85 | C | -1.25 |
| 2375 | ISO14362-1 | 98.71 | | -0.17 | 3134 | EN14362-1 | 117.56 | C | 1.32 |
| 2378 | ISO14362-1 | 105.32 | | 0.35 | 3146 | ISO14362-1 | 78.1 | | -1.80 |
| 2379 | ISO14362-1 | 133.20 | | 2.56 | 3150 | | 80.0 | | -1.65 |
| 2380 | ISO14362-1 | 98.0 | | -0.23 | 3153 | EN14362-1 | 107.3 | | 0.51 |
| 2381 | ISO14362-1 | 96.02 | | -0.38 | 3154 | EN14362-1 | 120.696 | | 1.57 |

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 3172 | ISO14362-1 | 127.25 | | 2.09 | 3214 | EN14362-1 | 101.91 | | 0.08 |
| 3176 | ISO14362-1 | 112.88 | | 0.95 | 3216 | EN14362-1 | 7.15 | R(0.01) | -7.41 |
| 3179 | ISO14362-1 | 92.00 | | -0.70 | 3218 | EN14362-1 | 102.86 | | 0.16 |
| 3182 | ISO14362-1 | 129.02 | | 2.23 | 3220 | EN14362-1 | 102.55 | | 0.13 |
| 3185 | EN14362-1 | 103.6 | | 0.22 | 3222 | EN14362-1 | 117.18 | | 1.29 |
| 3190 | EN14362-1 | 111.79 | | 0.86 | 3225 | EN14362-1 | 103.75 | | 0.23 |
| 3191 | EN14362-1 | 104.30 | | 0.27 | 3228 | EN14362-1 | 102 | | 0.09 |
| 3192 | EN14362-1 | 94.4 | | -0.51 | 3233 | EN14362-1 | 75.34 | | -2.02 |
| 3197 | EN14362-1 | 99.6 | | -0.10 | 3237 | EN14362-1 | 83.7 | | -1.36 |
| 3200 | ISO14362-1 | 106.7 | | 0.46 | 3246 | EN14362-1 | 114.68 | | 1.09 |
| 3209 | EN14362-1 | 113.14 | | 0.97 | 3248 | EN14362-1 | 105 | | 0.33 |
| 3210 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 165 |
| outliers | 3 |
| mean (n) | 100.866 |
| st.dev. (n) | 11.8955 |
| R(calc.) | 33.307 |
| st.dev.(ISO14362-1:17) | 12.6442 |
| R(ISO14362-1:17) | 35.404 |

Lab 230: first reported 49.3
Lab 2228; first reported 52.4
Lab 2638: first reported 43.28
Lab 2706: first reported 61.0
Lab 2793: first reported 146.265
Lab 3122: first reported 42
Lab 3134: first reported 58.78





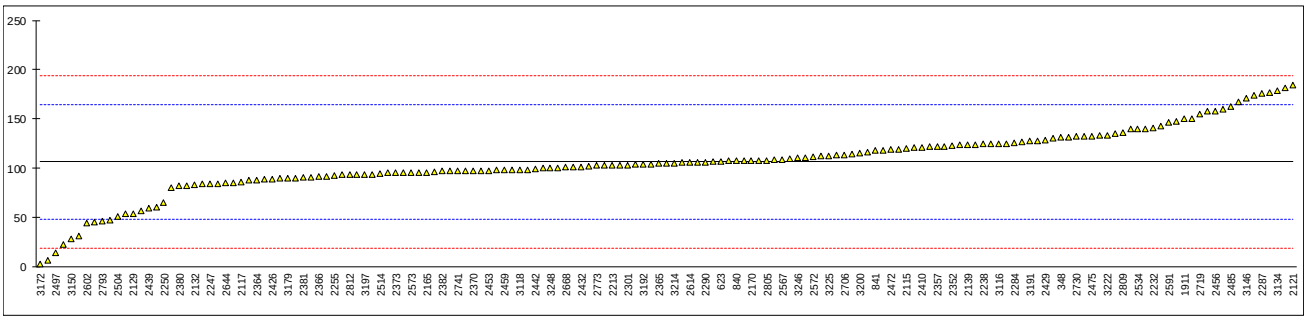
Determination of 4-Aminoazobenzene (CASno. 60-09-3) in sample #18521; results in mg/kg

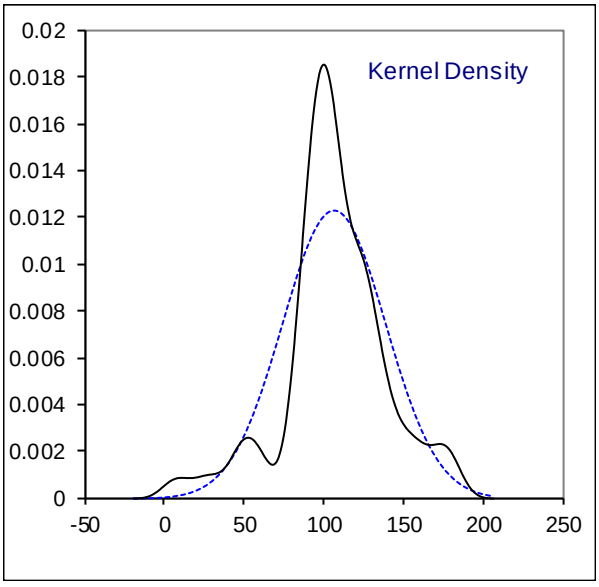
| lab | method | Value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 213 | ISO14362-3 | 167.81 | | 2.10 | 2382 | EN14362-3 | 97.0 | | -0.33 |
| 230 | EN14362-3 | 121.64 | | 0.52 | 2386 | ISO14362-3 | 107.9 | | 0.04 |
| 348 | In house | 131.28 | | 0.85 | 2389 | ISO14362-3 | 106.5 | | 0.00 |
| 362 | | ----- | | ----- | 2390 | ISO14362-3 | 112.776 | | 0.21 |
| 551 | EN14362-3 | 23.11 | C | -2.87 | 2403 | ISO14362-3 | 119.61 | | 0.45 |
| 623 | ISO14362-3 | 107.23 | | 0.02 | 2410 | ISO14362-3 | 121.42 | | 0.51 |
| 840 | ISO14362-3 | 107.8 | | 0.04 | 2426 | ISO14362-3 | 88.83 | | -0.61 |
| 841 | ISO14362-3 | 118.02 | | 0.39 | 2429 | EN14362-3 | 128.3 | | 0.75 |
| 1099 | | ----- | | ----- | 2432 | ISO14362-3 | 101.46 | | -0.18 |
| 1911 | ISO14362-3 | 150.22 | | 1.50 | 2439 | ISO14362-3 | 59.56 | | -1.62 |
| 2102 | EN14362-3 | 95.22 | | -0.39 | 2442 | In house | 99.62 | | -0.24 |
| 2108 | EN14362-3 | 54.35 | | -1.80 | 2449 | EN14362-3 | 101.14 | | -0.19 |
| 2115 | ISO14362-3 | 120 | C | 0.46 | 2452 | ISO14362-3 | 110.663 | | 0.14 |
| 2117 | ISO14362-3 | 85.7 | | -0.72 | 2453 | ISO14362-3 | 97.74 | | -0.30 |
| 2121 | ISO14362-3 | 184 | C | 2.66 | 2456 | ISO14362-3 | 158.2 | | 1.77 |
| 2129 | EN14362-3 | 54.4 | | -1.80 | 2459 | ISO14362-3 | 98.120 | | -0.29 |
| 2132 | ISO14362-3 | 83.0610 | | -0.81 | 2472 | EN14362-3 | 119.0 | | 0.43 |
| 2135 | EN14362-3 | 157.77 | | 1.76 | 2475 | EN14362-3 | 132.76 | | 0.90 |
| 2139 | EN14362-3 | 123.72 | | 0.59 | 2476 | EN14362-3 | 89.63 | | -0.58 |
| 2146 | | ----- | | ----- | 2482 | EN14362-3 | 82.5 | | -0.83 |
| 2165 | EN14362-3 | 96 | | -0.36 | 2485 | ISO14362-3 | 162.6 | | 1.93 |
| 2166 | EN14362-3 | n.d. | false neg? | ----- | 2489 | EN14362-3 | 94.04 | | -0.43 |
| 2170 | EN14362-3 | 108.13 | | 0.05 | 2492 | EN14362-3 | 80.0 | | -0.91 |
| 2181 | EN14362-3 | 174.32 | | 2.33 | 2495 | | ----- | | ----- |
| 2184 | EN14362-3 | 100 | | -0.23 | 2497 | ISO14362-3 | 14.11 | C | -3.18 |
| 2201 | EN14362-3 | 133.56 | | 0.93 | 2500 | EN14362-3 | 125.21 | | 0.64 |
| 2212 | ISO14362-3 | 88.6 | | -0.62 | 2504 | ISO14362-3 | 51.07 | | -1.91 |
| 2213 | EN14362-3 | 103 | | -0.12 | 2511 | ISO14362-3 | 97.533 | | -0.31 |
| 2221 | ISO14362-3 | 91.3 | | -0.53 | 2514 | EN14362-3 | 94.81 | | -0.41 |
| 2228 | EN14362-3 | 102.00 | | -0.16 | 2528 | EN14362-3 | 181.66 | | 2.58 |
| 2230 | EN14362-3 | 103 | | -0.12 | 2532 | EN14362-3 | 97.5 | | -0.31 |
| 2232 | EN14362-3 | 140.53 | | 1.17 | 2534 | EN14362-3 | 140 | | 1.15 |
| 2238 | ISO14362-3 | 124.91 | | 0.63 | 2538 | EN14362-3 | 31.72 | | -2.58 |
| 2247 | ISO14362-3 | 84.50 | | -0.76 | 2549 | ISO14362-3 | 92.11 | | -0.50 |
| 2250 | EN14362-3 | 65 | | -1.43 | 2565 | EN14362-3 | 139.9 | | 1.15 |
| 2255 | EN14362-3 | 92.8 | | -0.47 | 2566 | ISO14362-3 | 106 | | -0.02 |
| 2256 | EN14362-3 | 128 | | 0.74 | 2567 | EN14362-3 | 109 | | 0.08 |
| 2258 | EN14362-3 | 109.6614 | | 0.11 | 2572 | EN14362-3 | 111.4 | | 0.16 |
| 2265 | EN14362-3 | 143.0 | | 1.25 | 2573 | EN14362-3 | 95.32 | | -0.39 |
| 2266 | EN14362-3 | 95.6 | | -0.38 | 2582 | EN14362-3 | 87.85 | | -0.65 |
| 2271 | EN14362-3 | 121.1 | | 0.50 | 2590 | ISO14362-3 | 160.012 | | 1.84 |
| 2284 | ISO14362-3 | 125.4 | | 0.65 | 2591 | EN14362-3 | 146.89 | | 1.39 |
| 2286 | EN14362-3 | 176.39 | | 2.40 | 2602 | EN14362-3 | 44.66 | | -2.13 |
| 2287 | | 175.66 | | 2.37 | 2605 | ISO14362-3 | 113.14 | | 0.22 |
| 2289 | ISO14362-3 | 124 | | 0.60 | 2609 | EN14362-3 | 108.2 | | 0.05 |
| 2290 | ISO14362-3 | 106.4 | | -0.01 | 2614 | EN14362-3 | 105.8 | | -0.03 |
| 2291 | ISO14362-3 | 125 | | 0.63 | 2638 | EN14362-3 | 126.348 | | 0.68 |
| 2293 | EN14362-3 | 130.94 | | 0.84 | 2643 | EN14362-3 | 150.73 | | 1.52 |
| 2297 | EN14362-3 | 98.23 | | -0.29 | 2644 | ISO14362-3 | 84.9 | | -0.75 |
| 2300 | EN14362-3 | 45.66 | | -2.10 | 2649 | ISO14362-3 | 114.14 | | 0.26 |
| 2301 | ISO14362-3 | 103.39 | | -0.11 | 2668 | | 100.82 | | -0.20 |
| 2310 | ISO14362-3 | 105.68 | | -0.03 | 2674 | ISO14362-3 | 105 | | -0.06 |
| 2311 | ISO14362-3 | 103.02 | | -0.12 | 2678 | ISO14362-3 | 93.41 | | -0.45 |
| 2313 | EN14362-3 | 98.64 | | -0.27 | 2706 | ISO14362-3 | 113.4 | | 0.23 |
| 2314 | EN14362-3 | 93.87 | | -0.44 | 2713 | ISO14362-3 | 56.80 | | -1.71 |
| 2330 | EN14362-3 | 140.28 | | 1.16 | 2719 | EN14362-3 | 155.3 | | 1.67 |
| 2347 | | ----- | | ----- | 2730 | ISO14362-3 | 131.98 | | 0.87 |
| 2350 | ISO14362-3 | 121.89 | | 0.53 | 2741 | EN14362-3 | 97.28 | | -0.32 |
| 2352 | ISO14362-3 | 123.3 | | 0.57 | 2773 | EN14362-3 | 102.7 | | -0.13 |
| 2357 | ISO14362-3 | 121.7 | | 0.52 | 2793 | ISO14362-3 | 46.420 | | -2.07 |
| 2358 | ISO14362-3 | 97.2049 | | -0.32 | 2804 | ISO14362-3 | 108.7 | | 0.07 |
| 2364 | ISO14362-3 | 88.46 | | -0.62 | 2805 | ISO14362-3 | 108.23 | | 0.06 |
| 2365 | ISO14362-3 | 104.7 | | -0.07 | 2809 | EN14362-3 | 136.55 | | 1.03 |
| 2366 | ISO14362-3 | 92.0 | | -0.50 | 2812 | EN14362-3 | 93.52 | | -0.45 |
| 2367 | ISO14362-3 | 85.12 | | -0.74 | 2823 | | ----- | | ----- |
| 2369 | ISO14362-3 | 132 | | 0.87 | 2829 | EN14362-3 | 131.87 | C | 0.87 |
| 2370 | ISO14362-3 | 97.53 | | -0.31 | 3110 | EN14362-3 | 135 | | 0.98 |
| 2372 | EN14362-3 | n.d. | false neg? | ----- | 3116 | EN14362-3 | 125 | | 0.63 |
| 2373 | ISO14362-3 | 95.2 | | -0.39 | 3118 | EN14362-3 | 98.36 | | -0.28 |
| 2374 | ISO14362-3 | 95.2 | | -0.39 | 3122 | EN14362-3 | <5 | false neg? | <-3.49 |
| 2375 | ISO14362-3 | 90.04 | | -0.57 | 3134 | EN14362-3 | 178.30 | | 2.47 |
| 2378 | ISO14362-3 | 100.42 | | -0.21 | 3146 | ISO14362-3 | 171.14 | | 2.22 |
| 2379 | ISO14362-3 | 84.51 | | -0.76 | 3150 | EN14362-3 | 28.9 | | -2.67 |
| 2380 | EN14362-3 | 82.0 | | -0.85 | 3153 | EN14362-3 | 107.5 | | 0.03 |
| 2381 | ISO14362-3 | 91.01 | | -0.54 | 3154 | | ----- | | ----- |

| lab | method | Value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 3172 | ISO14362-3 | 3.27 | | -3.55 | 3214 | EN14362-3 | 105.18 | | -0.05 |
| 3176 | ISO14362-3 | 96.44 | | -0.35 | 3216 | EN14362-3 | 7.19 | | -3.42 |
| 3179 | ISO14362-3 | 90.00 | | -0.57 | 3218 | EN14362-3 | 123.68 | | 0.59 |
| 3182 | ISO14362-3 | 147.91 | | 1.42 | 3220 | EN14362-3 | 104.08 | | -0.09 |
| 3185 | EN14362-3 | 116.4 | | 0.34 | 3222 | EN14362-3 | 133.82 | | 0.94 |
| 3190 | EN14362-3 | 118.56 | | 0.41 | 3225 | EN14362-3 | 113.0 | | 0.22 |
| 3191 | EN14362-3 | 127.54 | | 0.72 | 3228 | EN14362-3 | 98 | | -0.30 |
| 3192 | EN14362-3 | 104.1 | | -0.09 | 3233 | ISO14362-3 | 104.24 | | -0.08 |
| 3197 | EN14362-3 | 94.0 | | -0.43 | 3237 | EN14362-3 | 60.5 | | -1.59 |
| 3200 | ISO14362-3 | 115.2 | | 0.30 | 3246 | EN14362-3 | 110.60 | | 0.14 |
| 3209 | EN14362-3 | 84.45 | | -0.76 | 3248 | EN14362-3 | 100 | | -0.23 |
| 3210 | EN14362-3 | 47.79 | | -2.02 | | | | | |

| | | |
|---|---|---|
| normality | suspect | |
| n | 163 | |
| outliers | 0 | |
| mean (n) | 106.606 | |
| st.dev. (n) | 32.4579 | |
| R(calc.) | 90.882 | |
| st.dev.(ISO14362-3:17) | 29.0772 | |
| R(ISO14362-3:17) | 81.416 | Precision from table C1: Polyester by GC-MS |

Lab 551: first reported 17.8518
Lab 2115; first reported 195.90
Lab 2121: first reported 13.85
Lab 2497: first reported 4.11
Lab 2829: first reported 240.26



# APPENDIX 2

## Summary of other reported aromatic amines in sample #18520

## Abbreviations of amine names as used in appendix 2:

4AD = 4-Aminodiphenyl (CASNo. 92-67-1)
4CoT = 4-Chloro-o-toluidine (CASNo. 95-69-2)
2NA = 2-Naphtylamine (CASNo. 91-59-8)
oAAT = o-Aminoazotoluene (CASNo. 97-56-3)
ANT = 2-Amino-4-nitrotoluene (CASNo. 99-55-8)
4CA = 4-Chloraniline (CASNo. 106-47-8)
DAA = 2,4-Diaminoanisol (CASNo. 615-05-4)
DADM = 4,4'-Diaminodiphenyl methane (CASNo. 101-77-9)
DCB = 3,3'-Dichlorobenzidine (CASNo. 91-94-1)
DMB = 3,3'-Dimethylbenzidine (CASNo. 119-93-7)
DDDM = 3,3'-Dimethyl-4,4'-Diaminodiphenyl methane (CASNo. 838-88-0)
pC = p-Cresidine (CASno. 120-71-8)
DDM = 4,4'-Diamino-3,3'-dichlorodiphenyl methane (CASno. 101-14-4)
DDE = 4,4'-Diaminodiphenyl ether (CASno. 101-80-4)
DDS = 4,4'-Diaminodiphenyl sulphide (CASno. 139-65-1)
oT = o-Toluidine (CASno. 95-53-4)
24DAT = 2,4-Diaminotoluene (CASno. 95-80-7)
TMA = 2,4,5-Trimethylaniline (CASno. 137-17-7)
oA = o-Anisidine (CASno. 90-04-0)
24X = 2,4-Xylidine (CASno. 95-68-1)
25X = 2,5Xylidine (CASno. 95-78-3)
26X = 2,6-Xylidine (CASno. 87-62-7)
TX = Total of Xylidine

## Summary of other reported aromatic amines in sample #18520, see abbreviations on page 19

| Lab | 4AD | 4CoT | 2NA | oAAT | ANT | 4CA | DAA | DADM | DCB | DMB | DDDM | pC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 213 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 230 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 348 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 362 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 551 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 623 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 840 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 841 | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d |
| 1099 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1911 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2108 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2115 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2117 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2121 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | 1327 | ----- | ----- | ----- | ----- |
| 2129 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2132 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| 2135 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2139 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2146 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2165 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2166 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2170 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2181 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2184 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2201 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2212 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2213 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2221 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2228 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2230 | <10 | <10 | <10 | <10 | <10 | ----- | <10 | <10 | <10 | <10 | <10 | <10 |
| 2232 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2238 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2247 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2250 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2255 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2256 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2258 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2265 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 2266 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2271 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2284 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2286 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2287 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2289 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2290 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2291 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2293 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2297 | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd |
| 2300 | N.D | N.D | N.D | N.D | N.D | N.D | N.D | N.D | N.D | N.D | N.D | N.D |
| 2301 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2310 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2311 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2313 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2314 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2347 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2350 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2352 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2357 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2358 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2364 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2365 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2366 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2367 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2369 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2370 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2372 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2373 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2374 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2375 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2378 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2379 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2380 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2381 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

| Lab | 4AD | 4CoT | 2NA | oAAT | ANT | 4CA | DAA | DADM | DCB | DMB | DDDM | pC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2382 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2386 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2389 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2390 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2403 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| 2410 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2426 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2429 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2432 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2439 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2442 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2449 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2452 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2453 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2456 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2459 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| 2472 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2475 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2476 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2482 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 2485 | <LOD | <LOD | <LOD | <LOD | ----- | <LOD | <LOD | <LOD | <LOD | <LOD | <LOD | <LOD |
| 2489 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2492 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2495 | <5 | <5 | <5 | ----- | ----- | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2497 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2500 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| 2504 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2511 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2514 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2528 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2532 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2534 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2538 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 |
| 2549 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2565 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2566 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 |
| 2567 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2572 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2573 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2582 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2590 | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ |
| 2591 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| 2602 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2605 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2609 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2614 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2638 | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d |
| 2643 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2644 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2649 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2668 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2674 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2678 | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d |
| 2706 | 0.50 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2713 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2719 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2730 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2741 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 2773 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2793 | < 30 | N.D | N.D | N.D | N.D | N.D | N.D | N.D | N.D | N.D | N.D | N.D |
| 2804 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 |
| 2805 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2809 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2812 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2823 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2829 | 70.61 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3110 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3116 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3118 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3122 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3134 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3146 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 |
| 3150 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3153 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3154 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3172 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3176 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3179 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

| Lab | 4AD | 4CoT | 2NA | oAAT | ANT | 4CA | DAA | DADM | DCB | DMB | DDDM | pC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3182 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3185 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3190 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3191 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3192 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 |
| 3197 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3200 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3209 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3210 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3214 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3216 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3218 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3220 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3222 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3225 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3228 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 3233 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3237 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3246 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 3248 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

## Summary of aromatic amines in sample #18520 continued

| Lab | DDM | DDE | DDS | oT | 24DAT | TMA | oA | 24X | 25X | 26X | TX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 213 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 230 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 348 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 362 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 551 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 623 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 840 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 841 | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | ----- | n.d | ----- |
| 1099 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1911 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2108 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2115 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2117 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2121 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2129 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2132 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| 2135 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2139 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2146 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2165 | ND | ND | ND | ND | ND | ND | ND | ----- | ----- | ----- | ----- |
| 2166 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2170 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2181 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2184 | ND | ND | ND | ND | ND | ND | ND | ----- | ----- | ----- | ----- |
| 2201 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2212 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | N/A | <5 | <5 |
| 2213 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2221 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2228 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2230 | ----- | ----- | ----- | <10 | ----- | <10 | ----- | <10 | ----- | <10 | ----- |
| 2232 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2238 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2247 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2250 | <5 | ----- | ----- | <5 | <5 | <5 | <5 | <5 | ----- | <5 | ----- |
| 2255 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2256 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2258 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2265 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | ----- | < 5 | < 5 |
| 2266 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ----- | 0 | ----- |
| 2271 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2284 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2286 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | ----- | <5 | ----- |
| 2287 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2289 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2290 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2291 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2293 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2297 | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd |
| 2300 | N.D | N.D | N.D | N.D | N.D | N.D | .N.D | N.D | N.D | N.D | N.D |
| 2301 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2310 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | ----- | n.d. | ----- |
| 2311 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2313 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2314 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2347 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2350 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2352 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2357 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2358 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | N/A | n.d. | N/A |
| 2364 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2365 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2366 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2367 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2369 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2370 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2372 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2373 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2374 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2375 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2378 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2379 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2380 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2381 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

| Lab | DDM | DDE | DDS | oT | 24DAT | TMA | oA | 24X | 25X | 26X | TX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2382 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2386 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2389 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2390 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2403 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| 2410 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2426 | ND | ND | ND | ND | ND | ND | ND | ND | ----- | ND | ----- |
| 2429 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2432 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2439 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2442 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2449 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2452 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2453 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2456 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2459 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| 2472 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2475 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2476 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2482 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | ----- | < 5 | < 5 |
| 2485 | <LOD | <LOD | <LOD | <LOD | <LOD | <LOD | <LOD | ----- | ----- | ----- | ----- |
| 2489 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2492 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2495 | <5q | <5 | <5 | <5 | <5 | <5 | <5 | <5 | ----- | <5 | ----- |
| 2497 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2500 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| 2504 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2511 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2514 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2528 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2532 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2534 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2538 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | <15 | ----- |
| 2549 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2565 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2566 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | ----- | <10 | ----- |
| 2567 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | ----- | <5 | ----- |
| 2572 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2573 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2582 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2590 | < LOQ | ----- | ----- | < LOQ | < LOQ | < LOQ | < LOQ | < LOQ | ----- | < LOQ | ----- |
| 2591 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | ----- | <5.0 | ----- |
| 2602 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2605 | ND | ND | ND | ND | ND | ND | ND | ND | -- | ND | -- |
| 2609 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2614 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2638 | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | ----- | n.d | ----- |
| 2643 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2644 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2649 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2668 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2674 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2678 | n.d | n.d | n.d | n.d | n.d | n.d | n.d | n.d | ----- | n.d | ----- |
| 2706 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2713 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 2719 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2730 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 2741 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| 2773 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2793 | N.D | N.D | N.D | N.D | N.D | N.D | N.D | ----- | ----- | ----- | ----- |
| 2804 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 |
| 2805 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | ----- | <5 | <5 |
| 2809 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2812 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2823 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 2829 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3110 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3116 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3118 | ND | ND | ND | ND | ND | ND | ND | ND | ----- | ND | ND |
| 3122 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3134 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3146 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | ----- | <10 | <10 |
| 3150 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3153 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3154 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3172 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3176 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3179 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

| Lab | DDM | DDE | DDS | oT | 24DAT | TMA | oA | 24X | 25X | 26X | TX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3182 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3185 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3190 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3191 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | 0 |
| 3192 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | ----- | <30 | ----- |
| 3197 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3200 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3209 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3210 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3214 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3216 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3218 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| 3220 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3222 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3225 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 3228 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | ----- |
| 3233 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3237 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 3246 | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. | n.d. |
| 3248 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

## APPENDIX 3

## Analytical details of sample #18520

| lab | 1. Is your laboratory accredited in accordance with ISO/IEC17025 for this test? | 2. Did you use the diatomaceous earth column as prescribed in ISO14362-1 chapter 10.4 |
|---|---|---|
| 213 | --- | --- |
| 230 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 348 | Yes | I followed a differtent test method |
| 362 | --- | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 551 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 623 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 840 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 841 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 1099 | --- | --- |
| 1911 | --- | --- |
| 2102 | Yes | I followed a differtent test method |
| 2108 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2115 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2117 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2121 | --- | --- |
| 2129 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2132 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2135 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2139 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2146 | No | I followed a differtent test method |
| 2165 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2166 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2170 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2181 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2184 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2201 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2212 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2213 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2221 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2228 | Yes | I followed a differtent test method |
| 2230 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2232 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2238 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2247 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2250 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2255 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2256 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2258 | No | I followed a differtent test method |
| 2265 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2266 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2271 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2284 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2286 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2287 | --- | --- |
| 2289 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2290 | --- | --- |
| 2291 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2293 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2297 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2300 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2301 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2310 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2311 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2313 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2314 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2330 | No | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2347 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2350 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2352 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2357 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2358 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2364 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2365 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2366 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2367 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2369 | --- | --- |
| 2370 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2372 | Yes | I followed a differtent test method |
| 2373 | --- | --- |

| lab | 1. Is your laboratory accredited in accordance with ISO/IEC17025 for this test? | 2. Did you use the diatomaceous earth column as prescribed in ISO14362-1 chapter 10.4 |
|---|---|---|
| 2374 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2375 | No | I followed a differtent test method |
| 2378 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2379 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2380 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2381 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2382 | --- | --- |
| 2386 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2389 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2390 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2403 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2410 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2426 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2429 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2432 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2439 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2442 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2449 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2452 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2453 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2456 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2459 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2472 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2475 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2476 | Yes | I followed a differtent test method |
| 2482 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2485 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2489 | --- | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2492 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2495 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2497 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2500 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2504 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2511 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2514 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2528 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2532 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2534 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2538 | Yes | I followed a differtent test method |
| 2549 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2565 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2566 | --- | --- |
| 2567 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2572 | --- | --- |
| 2573 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2582 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2590 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2591 | No | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2602 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2605 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2609 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2614 | --- | --- |
| 2638 | --- | --- |
| 2643 | --- | --- |
| 2644 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2649 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2668 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2674 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2678 | --- | --- |
| 2706 | No | I followed a differtent test method |
| 2713 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2719 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2730 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2741 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2773 | Yes | I followed a differtent test method |
| 2793 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2804 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2805 | No | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 2809 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2812 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 2823 | --- | --- |
| 2829 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3110 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 3116 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3118 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |

| lab | 1. Is your laboratory accredited in accordance with ISO/IEC17025 for this test? | 2. Did you use the diatomaceous earth column as prescribed in ISO14362-1 chapter 10.4 |
|---|---|---|
| 3122 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3134 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3146 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3150 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3153 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3154 | Yes | --- |
| 3172 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3176 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 3179 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3182 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3185 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3190 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3191 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3192 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3197 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3200 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3209 | --- | --- |
| 3210 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3214 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 3216 | --- | --- |
| 3218 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3220 | Yes | I followed a differtent test method |
| 3222 | Yes | I followed a differtent test method |
| 3225 | Yes | I followed ISO14362-1 Annex E and did NOT use the diatomaceous earth column |
| 3228 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3233 | No | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |
| 3237 | Yes | I followed a differtent test method |
| 3246 | Yes | --- |
| 3248 | Yes | I followed ISO14362-1 chapter 10.4 and used the diatomaceous earth column |

## APPENDIX 4

### Number of participants per country

6 labs in BANGLADESH
1 lab in BRAZIL
1 lab in BULGARIA
2 labs in CAMBODIA
1 lab in EGYPT
1 lab in FINLAND
6 labs in FRANCE
16 labs in GERMANY
1 lab in GREECE
2 labs in GUATEMALA
12 labs in HONG KONG
15 labs in INDIA
3 labs in INDONESIA
10 labs in ITALY
4 labs in JAPAN
4 labs in KOREA
1 lab in MAURITIUS
1 lab in MEXICO
1 lab in MOROCCO
37 labs in P.R. of CHINA
6 labs in PAKISTAN
3 labs in POLAND
1 lab in PORTUGAL
2 labs in SINGAPORE
4 labs in SPAIN
1 lab in SRI LANKA
2 labs in SWITZERLAND
4 labs in TAIWAN R.O.C.
3 labs in THAILAND
1 lab in THE NETHERLANDS
4 labs in TUNISIA
6 labs in TURKEY
1 lab in UNITED KINGDOM
10 labs in VIETNAM

## APPENDIX 5

**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**: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